„ŞTEFAN CEL MARE" UNIVERSITY FROM
SUCEAVA
FACULTY OF ECONOMICS
AND PUBLIC ADMINISTRATION
DOCTORAL SCHOOL
ACCOUNTING

DEPARTAMENT DE COMPTABILITAT
PROGRAMA DE DOCTORADO EN
CONTABILIDAD

DOCTORAL THESIS

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Theoretical and Empirical Research regarding the Performance of Financial Investment Companies based on Accounting Information

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Good science is done by being curious in general, by asking questions all around, by acknowledging the likelihood of being wrong and taking this in good humor for granted, by having a deep fondness for nature, and by being made jumpy and nervous by ignorance

Lewis Thomas

Dedication

I dedicate the entire paper to my mother and father who supported me through these years,
For Gabriela and Sorin, thanking them that they taught me to smile.
Moreover, to all my friend who believed in me, even when I did not (Laurenția, Raluca, Corina, Luis, Ruben, Amine, etc.).

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Abbreviation

APM	Asset Pricing Model
ASBE	Accounting Standards for Business Enterprises
ASBJ	Accounting Standards Board of Japan
ASC	Accounting Standards Codification
CAS	China Accounting Standards
CASC	China Accounting Standards Committee
CAPM	Capital Asset Pricing Model
CF	Cash Flow
EIR	Effective Interest Rate
EU	European Union
EY	Ernst & Young
FAL	Financial asset and liability
FAS	Financial Accounting Standard
FASB	Financial Accounting Standard Board
FE	Fixed-effects model
FI	Financial instrument
FIC	Financial investment company
FVTOCI	Fair Value through Other Comprehensive Income
FVTPL	Fair Value through Profit or Loss
GAAP	Generally Accepted Accounting Principles
IAS	International Accounting Standard
IASB	International Accounting Standard Board
IASC	International Accounting Standard Committee
ICAI	Institute of Chartered Accountants of India
IFRS	International Financial Reporting Standards
Ind AS	Indian Accounting Standards
IRM	Institute of Risk Management
ISI	Information Sciences Institute
JWG	Joint Working Group of Standard Setters
OCI	Other Comprehensive Income
OLS	Ordinary Least Squares

PwC	PricewaterhouseCoopers
P&L	Profit and loss
RD	Risk Disclosure
RE	Random-effects model
RMS	Risk Management Standard
SEC	Securities Exchange Commission
SFAS	Statements of Financial Accounting Standards
VaR	Value-at-Risk
VIF	Variance Inflation Factor

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ABSTRACT

This thesis examines the performance of financial investment companies. The purpose and contribution of this thesis to the academic research is to provide a more comprehensive and coherent view of risks valuation. Specifically, we explore the impact that risks arising from financial instruments has on financial investment companies' performance using three specific models. We undertake this research through both theoretical exploration and empirical analysis.

On the theoretical part, we display the concerning matters of the international framework regarding financial instruments and the changed in the last thirty years. We present in the theoretical front the concepts regarding financial instruments, risks arising from them and performance of financial investment companies. We show the evolution of the standard international framework, how much it changed and which were the most important questions regarding recognition and evaluation of financial instruments.

On the empirical research, we present three models that have a dependable variable the Tobin's Q ratio. The sample of our study includes 162 financial investment companies from Europe. We measure each risk arising from financial instruments considers both macroeconomic conditions and firms fundamentals. Using this measure, we analyse the impact that risks arising from financial instruments can have on an investment company. We test the hypotheses by using the fixed effects regression. The most notable finding is that the more the performance increase, the investment risk decrease and a financial investment company is not so exposed to this type of risk. On the other hand, we find that the performance of a financial investment company is directly proportional to the liquidity risk and market risk.

In the second part of our empirical investigation, we present additional evidence to give more robustness to the results obtained from the implementation of the theory that the risks arising from financial instruments have an impact on financial investment companies' performance. To corroborate that our findings obtained are robust, we have produced two specifications of our baseline model. First of all, because our models can have problems with the estimations carried out, it is possible to see the presence of heteroskedasticity in our explanatory variables. In the second part of the chapter, we are changing the definition of our depended variable to see if the independent variables are acting as we are expecting. We find that even when we change the specification of the models, the variables are moving as we were expecting and we can confirm our hypotheses.

ABSTRACT

Această teză examinează performanța societăților de investiții financiare. Scopul și contribuția acestei teze în domeniul contabilității este de a furniza o imagine exhaustivă și coerentă a evaluării riscurilor specifice acestora. Mai exact, explorăm care este impactul riscurilor asociate operațiunilor cu instrumente financiare asupra performanței societăților de investiții financiare folosind trei modele specifice. Ne angajăm în această cercetare atât prin explorarea teoretică, cât și prin analiza empirică.

În prima parte a tezei, prezentăm aspectele teoretice privind definirea, clasificarea și tratamentul contabil al instrumentelor financiare și evoluția acestuia în ultimii treizeci de ani. Prin analiza teoretică prezentăm conceptul de instrumentele financiare, aspecte introductive privind riscurile asociate acestora cât și modalități de estimare a performanței societăților de investiții financiare. Identificăm principalele modificări asupra politicilor contabile ale instrumentelor financiare determinate de evoluția cadrului contabil normativ și care au fost cele mai importante întrebări cu privire la recunoașterea și evaluarea instrumentelor financiare.

În cercetarea empirică, prezentăm trei modele care au ca variabilă dependentă indicatorul lui Tobin Q. Eșantionul studiului nostru include 162 de SIF-uri de pe piața europeană reglementată. Măsurăm și evaluăm fiecare risc specific luând în considerare atât factorii macroeconomice cât și microeconomici. Astfel, determinăm care este impactul riscurilor asociate operațiunilor cu instrumentele financiare asupra societăților de investiții. Testarea ipotezelor se realizează folosind regresia efectelor fixe. Cea mai notabilă constatare este că cu cât performanță creștere, cu atât riscul de investiții scade iar societățile de investiții financiare nu sunt expuse acestui risc specific. Pe de altă parte, observăm că performanța SIF-urilor este direct proporțională cu creșterea sau scăderea riscul de lichiditate și de piață.

În partea a doua a cercetării empirice, prezentăm probe adiționale pentru a acorda mai multă robustețe rezultatelor studiului obținute din implementarea teoriei conform căreia riscurile asociate operațiunilor cu instrumentele financiare au un impact semnificativ asupra performanței societăților de investiții financiare. Pentru a confirma robustețea rezultatelor empirice, am recurs schimbarea a două specificații la modelul de bază. În primul rând, luând în considerare că modelele pot avea probleme cu estimările efectuate, fiind posibil să observăm prezența heteroscedasticității în variabilele explicative. Apoi, schimbăm definiția variabilei dependente pentru a observa dacă variabilele explicative acționează conform așteptărilor. Noile estimări obținute prin rezultatele noastre confirmă aceste specificații.

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Ana-Maria ZAICEANU

ABSTRACTO

Esta tesis examina el rendimiento de las empresas de inversión financiera y su condicionamiento al riesgo de los instrumentos financieros. La intención y contribución de esta tesis es ofrecer una visión más amplia y coherente de la evaluación del riesgo. En concreto, exploramos el impacto que tiene el riesgo derivado de los instrumentos financieros sobre las empresas de inversión financiera a través de tres modelos específicos. Abordamos esta investigación mediante un análisis de carácter teórico y empírico.

En relación al enfoque teórico, mostramos las cuestiones relativas a los instrumentos financieros en el marco internacional en los últimos 30 años. En particular, los conceptos fundamentales asociados a los instrumentos financieros, el riesgo que surge de los mismos y el rendimiento de las empresas de inversión financiera. Así mismo, la evolución de la normativa del marco internacional, en qué medida ha evolucionado y cuáles fueron las cuestiones sustanciales respecto al reconocimiento y evaluación de los instrumentos financieros.

Respecto al enfoque empírico, presentamos tres modelos cuya variable dependiente es el ratio de la Q de Tobin. La muestra de nuestro estudio comprende 162 empresas europeas de inversión financiera. Medimos los diferentes tipos de riesgo asociados a los instrumentos financieros considerando tanto las condiciones macroeconómicas como las características particulares de las empresas, ambas como medidas de control. A partir de estas proxies del riesgo, contrastamos las hipótesis formuladas a través de estimaciones con modelos de panel de efectos fijos. El resultado más relevante es que un mayor riesgo de crédito conduce a un menor rendimiento y que, además, las empresas de inversión financiera no están especialmente expuestas a este tipo de riesgo. Por otro lado, encontramos que el rendimiento de las empresas de inversión financiera es directamente proporcional al riesgo de liquidación y al riesgo de mercado

En la segunda parte de la investigación empírica realizada, presentamos evidencia adicional con el fin de garantizar la robustez de nuestros resultados. A tal fin, hemos realizado dos especificaciones adicionales de nuestro modelo básico de análisis con el fin de controlar posibles problemas de heterocedasticidad y de dependencia de los resultados a la definición de la variable dependiente. Las nuevas estimaciones obtenidas a través de estas especificaciones corroboran nuestros resultados.

INTRODUCTION

The thesis *Theoretical and Empirical Research regarding the Performance of Financial Investment Companies based on Accounting Information* will deal with the topic of financial instrument operations and associated risks from an accounting point of view, as well as from the perspective of the effects generated by the quotation of entities which operate with such instruments in the European regulated markets. The topic of our research is complex and actual, being debated upon in the literature. However, few published works so far have strictly dealt with the impact of the risks generated by the financial instrument operations on the performance of the financial investment companies.

The present thesis is within the field of accounting presenting a series of theoretical aspects with practical applications and problems related to the recognition and evaluation of the financial instruments. There are specified the main requirements regarding the accounting policies and options of the accountancy of the financial instruments, the main norms and rules of the registration operations of their funds, and also the way in which the international framework has developed in the last three decades, having a direct influence on them.

The strong *interdisciplinary* character, present in the doctoral thesis, is manifesting by interconnecting the methods, the techniques and the knowledge from finance and statistics field in the accounting field. Presents the aspects related to the evaluation of the financial instruments, especially those that belong to the evaluation of the risks that result from the operations with assets and financial debts and their active interconnection with the economic and financial life is another argument brought to this multidisciplinary character. The information that the accounting provides us is eventually correlated with financial and economic data and analyses in order to determinate, through the statistical analysis, the impact of risks arising from financial instruments on the entity's performance which operates with them. The specific *area of interest* in which our topic is positioned at the intersection of three research domains: international financial accounting, financial analysis and finance.

The changes, evolutions and significant consolidations of the information that must be presented regarding risk, especially the one arising from financial instruments, were amplified in the last three decades. The technology progress facilitated the appearance of new ways of identification and determination of risk in the synthesis accounting documents. The development of software and the efficient use of them, allow today the companies to use more appropriate methods of risk measurement and at the same time the possibility to evaluate, with the financial indicators, the impact that it may determine the value of the company. Thus,

in order to determine the impact that certain risk factors have on an entity, in particular on the performance, it becomes fundamental to analyse the interconnections between accounting and these risk factors. The applicability and branching of the accounting practice in various fields, induce, however, several dimensions of the concept of accounting.

Basics of a regulatory framework containing provisions regarding the significance that the risk has within an entity, in particular, norms regarding the risk arising from financial instruments, were established by the standard-settlers in the 70s' (more precise in 1973 when SEC and the United States Congress constitute FASB). Through the continuing development of the accounting profession, the experts understood that it took more than the abilities and the elementary professional knowledge to understand the entities and the way in which they should evaluate the financial instruments from the financial reports. Beginning with the process of convergence and harmonization of accounting, the professionals had to adapt themselves and to know the national (and international) legislations, in order to present the accurate, precise and whole image of an entity and according to the international conceptual framework.

Accounting does not only mean figures written on paper, but it also represents the art and the science of business management. With the financial indicators, which are calculated based on the information from the financial reports, the entities measure their performance. Taking into account that the business environment is continuously changing, and the professionals find new ways of measuring the performance, the accountants must find, in their turn, new methods to meet these market requirements.

From the foregoing, in the context of rapid changes and the century of speed, we cannot speak about accounting without taking into account its implications in other fields, like finance or statistics. Thus, our research activity focused on this direction, bringing novelty elements and an added value to the accounting field, offering new knowledge and information contributions to those already existing in the specialized literature and researchers in the field.

MOTIVATION AND THE IMPORTANCE OF THE SCIENTIFIC RESEARCH [1]

The significant changes in the accounting treatment of financial instruments that has suffered, that influenced the records in the financial statements and the increasing proportions that the risks arising from financial instruments have noted, have given this subject a safe place in academic publications. The changes to the conceptual framework regarding the disclosure of the risks arising from financial instruments had an impact on the way that the information is presented in the financial reports, it is a heavily debated theme in the specialist publications.

The research was undertaken in the field and the changes in accounting practices that took place worldwide in the last three decades made us address implicit the question: what are the implications of these changes on an entity from the point of view of the performance and the risks arising from financial instruments? (underlining that the risk doesn't always have a negative impact and it should not be treated like „something" that may jeopardize a business cycle). Due to the monetary fluctuations in the economic environment, underlining the news within the international conceptual framework, this thesis presents the necessity of understanding the phenomena, the events, the transactions and processes specific to the financial instruments.

This paper examines the link between the disclosures of risk associated with the financial instruments operations as an additional mechanism for controlling the entity's performance with the aim to achieve the planned financial objectives. According to authors Fatemi & Fooladi (2006), an efficient risk management may lead to a more efficient equilibrium between this one and profitability (understood as performance) in the case of financial institutions. The synergy relationship between risk and performance may generate a better position on the market in the future, and the correlation of concepts is even more powerful in the case of entities which have as main object of activity the possession of financial instruments of other companies, exclusively for the purpose of investments, because they are more exposed to risks associated with the operations with them. In the case of these companies, the effects and the impact of risks on the financial performance can be seen more easily in the cash flow.

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[1] I want to thank to the public presented to the 26th Conference IBIMA,, from the Section Finance, Banking and Accounting, that took place in Madrid (Spain) for all their feedback regarding this matter.

The starting point of our research was the adaptation of IFRS 7 *Financial Instruments: Disclosures*, which contributed to the improvement of the financial results of the entities. In the literature from the accounting field, we can find papers and research which analyse the impact of adopting the standard on the quality and quantity of information provided by entities (Abraham & Shrives, 2014; Armstrong, Barth, Jagolinzer, & Riedl, 2010; Atanasovski, Serafimoska, Jovanovski, & Jovevski, 2015; Moumrn, Othman, & Hussainey, 2015; Zaiceanu & Hlaciuc, 2015a). In this context, we wonder: what are the real effects of the risk associated with the financial instruments operations on the financial investment companies' performances?

Adopting on a large scale the International Financial Reporting Standards (IFRS) represents one of the most important moments in the evolution of accounting leading to the increase in the number of researchers that investigate the determining factors and the consequences of adopting the standards on different normative frameworks. The results of the previous researchers make available „balances" regarding the benefits and the effects of implementing the IFRSs, the focus being on the external environment of the entity. Thus, there are few proofs regarding the modifications occurred in the internal environment of the entities, especially in matters of disclosure of risks arising from financial instruments. Among the effects of adopting the international standards, those about the performances of the entities are by far the most debated upon the problem.

After an extended period of observations, individual study and empirical investigation, we found that the problem of the impact of risks arising from financial instrument operations on the financial investment companies' performance was not enough debated upon in the academic literature. The results of the doctoral research can represent, we think, a benchmark for other studies, analyses, and works that will have as spectre the investigation of the implementation of the IFRSs.

Regarding the contributions to the research topic, and thus to the accounting field, they will be highlighted through the theoretical and empirical research that is covering the area of risks associated with financial instruments operation and the impact they have on the financial investment companies' performance that is regulated on the European market.

It is well known, among the professionals in the financial –accounting field, that the financial instrument operations become more and more complex. The check procedures must be properly adopted in order to cover the involved risks and, therefore, to assure their credible character regarding the evaluation, the presentation and the relevance in the financial ratios of the entities. The idea of the study of the impact of risk occurred in the financial investment

companies' performance results from the modifications of accounting policies of the conceptual framework (Zaiceanu & Apetri, 2015).

In light of the above-mentioned and from the desire of discovering the answers to the questions and issues raised, through the scientific demarche we are proposing to *elaborate a model of estimation of the risks associated with financial instruments operations for the evaluation of their impact on the financial investment companies' performance*, this being the *general objective* of our research.

In order to achieve the general objective, we established since the beginning more secondary objectives which we are trying to fulfil them, and think that we succeeded this thing, along this theoretical and empirical research. They are:

Secondary objective 1: Presentation of the requirements regarding the disclosure of information regarding the financial instruments and associated risks through the various scientific, theoretical and normative foundations.

Secondary objective 2: Identification of the main modifications regarding the accounting policies of the financial instruments and which were the main effects on the financial investment companies' performance.

Secondary objective 3: Defining and identifying of different methods of evaluation of risks arising from financial instruments by analysing the financial publication in the field.

Secondary objective 4: Analysis of the financial investment companies' performance from the point of view of the risks associated with financial instrument operations for the definition of methods for determining it.

Secondary objective 5: Determination, identification, and analysis of the impact of risks associated with financial instrument operations on the financial investment companies' performance.

In accomplishing the proposed objectives, we planned our scientific approach in several stages that are reflected in the five chapters of this doctoral thesis. During our research we combined the theoretical and practical aspects of the empirical studies, in order to form a clear picture, a logical structure and an aspect of continuity, starting from clarifying the concepts of financial instruments, risks and performance and ending with the last step: achieving an empirical research to prove the impact of risks associated with financial instruments on the entities' performance. An analysis of the research structure is exposed in the section on synthesis of the main parts of the doctoral thesis.

RESEARCH METHODOLOGY

Scientific studies in the accounting field implies resolving a problem occurred due to the economic context evolution, reconsideration of relations between accounting phenomena and procedures, and continuously renew the existing set of knowledge. The doctoral thesis is structured to go through the entire scientific demarche. Through the fundamental scientific research method, we review the representative literature at the international level in order to investigate the theoretical and practical aspects of accounting of financial instruments. This subject considers the relationship between three elements that represents accounting themes debated through the literature: risk arising from financial instruments, the information presented in the financial statements and entity's performance. Thus, this thesis contributes to the existing body of accounting knowledge by development a new empirical research regarding *risk arising from financial instruments by determining the impact that they have on the financial investment companies' performance*. Our research thus falls into a descriptive, explanatory and comprehensive logic.

The overall analysis is the most common method of research that is carried out primarily by consulting the literature. Knowledge of the field of the research is to be made a fundamental part of any doctoral thesis. By completing the work *Theoretical and Empirical Research regarding the Performance of Financial Investment Companies based on Accounting Information,* the following typologies of sources of information were used:

- printed sources of information including monographs, relevant articles from specialised magazines, doctoral theses which approach the same topic, specialty books, the international accountancy standards, the international standards of financial reference and other relevant standards for this research, as well as reference works which approach the topic of risks, financial instruments, and performance. Using these important sources of information, the knowledge of what has been written in the field of accounting, so far, on the topic of risks associated with financial instrument operations and their impact on the performance of entities, is fundamental.

- electronic sources of information which include: specialty databases, journals, magazines and other electronic documents. Taking into account the speed with which the information circulate by means of the internet networks, this source of information becomes essential, and the information through these means is important to know the present stage of development of the research field or the tendencies of this area. Another equally important reason, in order to justify the use of these resources, is consolidating and testing the ability to choose between

the representative materials in the field and materials that present overlaps of concepts in the field.

The complexity and the global economic progress had led to increasing the uncertainty regarding the information around. These elements generate the necessity of investigating the specific phenomena and processes in a constructivist approach, which combines the deductive logic (which implies starting from theory to reach a remark) with inductive logic (which implies starting from a remark to reach the theory). In our theoretical and empirical research, we use the deductive approach starting from the changes in the international conceptual framework to develop various assumptions (hypotheses), which it shows how a specific risk of financial instruments can influence the performance of a company's operating with them.

By definition, the human being is creative, and the doctoral research represents a real opportunity for creativity and originality especially by means of scientific community, of projects of national and international research (Moraru, Bostan, Hlaciuc, & Grosu, 2013, p.420). This doctoral thesis has the purpose of bringing original scientific knowledge, relevant internationally falling within the scientific research.

In order to achieve the objectives regarding the approached topic, we used the methodology of scientific research which harmoniously combines the qualitative and quantitative research, so that their mixture induces a bigger efficiency and quality of the results obtained. The role of qualitative research it is to generate consistent information needed to understand the overall context and deepening of the general context (Chelcea, 2007) of financial instruments allowing outlining key aspects of the researched topic, diagnose the problems and identify the hypotheses for future descriptive research (Lefter, 2004) of the effects of the risks arising from financial instruments on the financial investment companies' performance. Instead, the role of quantitative research is the characterization and quantification of the relevant issues, identified by qualitative methods, being analysed using statistical data, for examination and testing of existing theories or developed using specific methods.

Taking into account the objectives proposed in order to test the hypotheses put forward, we resorted to the analysis of financial indicators by means of an econometric model because we wanted *to introduce the practical substance in the theoretical structures* (Anghelache, Mitruț, Bugudui, Deatcu, & Dumbravă, 2009). The model was created by using the instruments offered by econometrics and it involved three steps, as follows:

- Step 1. Developing the hypotheses

The hypotheses that base the approach of our theoretical-empirical research were proposed following a detailed analysis of the actual stage of knowledge in the accounting field. Thus, developing the hypotheses is dependable on empirical scientific observation of the phenomenon being formulated the following hypotheses:

Hypothesis 1: The investment risk that results from the financial instruments operations will generate a negative, significant impact on the performance of the financial investment companies.

Hypothesis 2: The performance of the financial investment companies may be positively affected by the liquidity risk that results from the financial instruments operations.

Hypothesis 3: The market risk arising from financial instruments will generate a significant, positive impact on the financial investment companies' performance.

- Step 2. Creating the econometric model

The sample selected for testing hypotheses was based on the criterion of representativeness. As the world's total market capitalization represented 55% of European markets, we decided to focus on this area. Thus, there were selected the financial investment companies which operate on a regulated European market. The financial data that we selected for this sample are quantitative and have been extracted from the financial statements of the entities, which have been prepared in accordance with IAS / IFRS.

In order to avoid the problem of multicollinearity and autocorrelation in the empirical research, the variables of risks were not evaluated in one model but were analysed by developing three econometric models. We decided to approach it because we want to observe and investigate the impact of every type of risk associated with financial instrument operations on the performance of the financial investment companies, separately.

Following data collection, we select the variables, and we design the empirical model for each type of specific risk. The model takes the structure and types of variables chosen by the authors of similar studies. First, we define all the variables included in the empirical models. We will continue with the presentation of the specific model for each type of risk arising from financial instruments in order to be tested to verify the hypotheses. Each model includes a dependent variable (Performance - P_{it}), an explicative variable (Investment risk - $InvestmentRisk_{it}$, Liquidity risk - $LiquidityRisk_{it}$ and Market risk - $MarketRisk_{it}$), as well some control variables (Size of the company – $Size_{it}$, Leverage – $Leverage_{it}$, Auditor opinion – $AuditorOpinion_{it}$ and Audit network - $AuditNetwork_{it}$). We include control variables in our

models in order to get a more precise answer to the assumptions made and we aim to get more accurate and safer parameter estimation. Even if the control variables are not directly explanatory to the tested hypotheses, their use improves the econometric models. Empirical models are designed after similar models in the literature, and we have adapted and customized them according to our research purposes.

- Step 3. Checking the econometric model

Even if all the results confirm the hypotheses made initial, the results will be tested to verify their robustness and explain the theory from which we started. We validate the models to determine their capacity to remain unaffected to the small and deliberate modifications and to observe if they fit into the same testing parameters. In order to confirm if our results are robust, we modified two specifications of the basic model. The first modification is made with the robust estimator of the standard deviation and the second modification is achieved by redefining the dependent variable (performance). The empirical results and conclusions of the study will be expressed at the end of chapters devoted to empirical research.

Any data analysis is done in two stages. In the first stage will be performing a descriptive analysis and the second stage will be represented by empirical analysis. It is important to use the descriptive analysis because represents the first step to provide an overview of the variables used in the doctoral thesis and it represents the basis for the empirical analysis. The data used in our research will be collected through the international databases. The financial and accounting information will be collected using Thomson One database, and the period under study is eight years. Primary analyses were used such as average value parameter, mean, median and standard deviation of the variables. For the descriptive analysis of the data, we will be using the software STATA 13.0 and Microsoft Excel 2010. Please note that the license of the statistical analysis program STATA 13.0 was provided by the University of Valencia.

CHAPTER 1. THEORETICAL ASPECTS REGARDING THE DEFINITION, THE CLASSIFICATION AND THE ACCOUNTING TREATMENT OF FINANCIAL INSTRUMENTS

This section is focused on addressing the issues associated with financial instruments. First, we chose to approach the specific conceptual boundaries, focusing on the problem of delimiting the classification of financial instruments in the three categories. Considering that in the last two decades accounting for financial instruments has become more and more of a controversial subject, after defining financial instruments, we decided to study this issue. In the last part of the chapter, we analysed the requests implied by the international framework in the matter of disclosure of information regarding the use of financial instruments.

The objective of this chapter is focused on exposing theoretical aspects regarding the financial instruments. The secondary objectives of the first chapter are represented by the description of financial instruments from the accounting point of view, as a significant part of the entity; identification of the modalities of recognition and evaluation of financial instruments, and the information that an entity must disclose regarding them. We also studied and presented the way in which different standards of accountancy throughout the world approached the problems of financial instruments. Thus, we chose to approach the specific conceptual limits, focusing on the problems of delimitation and classification of financial instruments in the three categories: financial assets, financial debts and capital instruments.

1.1. Characteristics and Typology of Financial Instruments in the Light of the Main Accounting Referential

In the dynamic nature of international financial markets, accounting standards and reporting rules of financial instruments are continuously evolving. The accounting of financial instruments is an essential part of the life cycle of any business because their operations create financial assets and liabilities[2]. The International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) are constantly revising the accounting requirements, especially as a reaction to the common, extensive, off-balance-sheet use of financial derivatives by businesses to hedge[3] their financial risks (Burton & Jermakowicz,

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[2] The most noticeable advantage of using financial instruments by an entity is in the financial area, helping the business to stabilize the costs and maximizing the sales profits.

[3] The idea of hedge accounting is to reduce this mismatch by changing either the measurement or (in the case of certain firm commitments) recognition of the hedged exposure, or the accounting for the hedging instrument. IFRS 9 specifies that are three types of hedging relationships:
- fair value hedges;
- cash flow hedges;

2015, p. 248). As well, many industries understood quickly how to use these new financial instruments to their advantage (Csiszar, 2007, p.319). For many entities (especially banks and other financial institutions), most items in financial position statements are financial instruments, determining the standards created to align the framework with the economic environment.

Due to the fact that 55% of the world market capitalization is placed in Europe, we decided to focus our attention to the international regulation framework implemented by the European Union in and after 2005 and our empirical research has as main objective the analysis of the financial instruments market from the European regulated market. However, we thought it was necessary to also refer to the other significant financial markets and international regulation for a better representation and understanding of the main differences between markets. Another reason we decided to look at the regulations of other standards setters was to see why financial instruments used different bookkeeping methods in various countries and if these had different impacts on financial reports.

Convergence in several important areas (revenue, leasing or financial instruments) continues to be a high priority for important standard setters. Transition to IFRS represents a complex technical construction (Neag, 2014, p.1787). Even if the IFRS is continuously growing, the capital markets of the following countries do not have an IFRS mandate (for more details about IFRS adaptation see PwC, 2014a, 2014b):

- America – there are no plans to change its general standards and to implement IFRS/IAS;
- Japan – a voluntary adaptation of IFRS/IAS exists, but there are no plans for mandatory transactions in the future;
- India – voluntary adaptation of IFRS/IAS was permitted starting in 2015, and they have a road map plan for mandatory adaptation in 2016-2017 (depends on a company's size);
- China – has national standards, substantially converges with IFRS and has stated an intention to adopt them at an undefined future date.

Even if accounting does not converge around the globe, that will not prevent investors from investing in different markets, making it mandatory to understand how accounting for

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- hedges of net investments in foreign operations.

Hedge accounting remains optional and can only be applied to hedging relationships that meet the qualifying criteria.

financial instruments function in the international framework. Opening the IFRS book framework for financial instruments[4], to the section devoted to international accounting standard no. 32 *Financial Instruments: Presentation* (IASB, 2013, pt. 11, p. 925), we find the definition of a financial instrument. The standard specifies that "any contract that gives rise to a financial asset of one party and a financial liability or equity instrument of another party can be called a financial instrument".

A graphic representation of the IASB vision of what a financial instrument represents is shown in Figure 1.1.
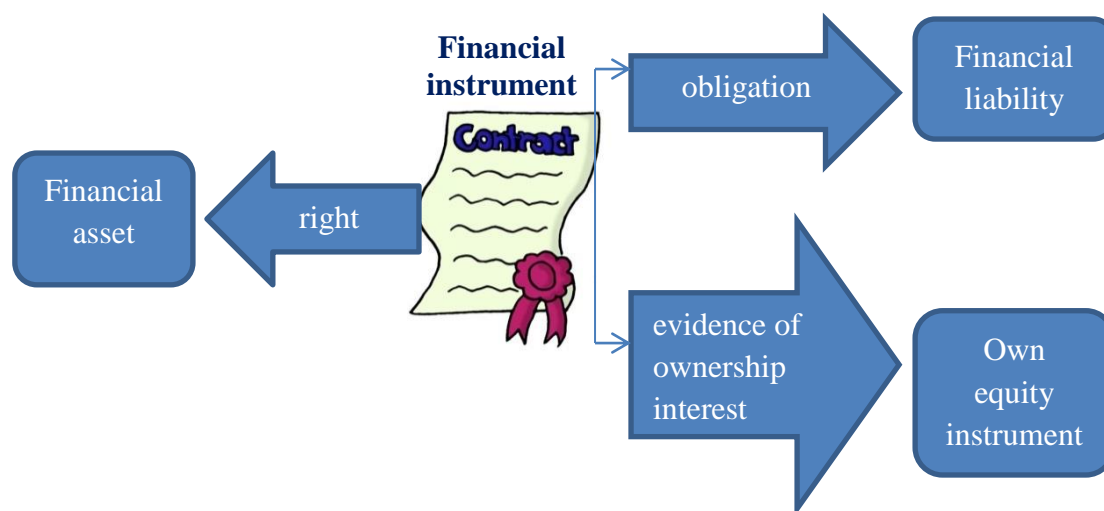
Figure 1.1. Conceptual approach to a financial instrument in the vision of IASB

Looking at the definition, we can find two aspects: on one hand, we understand that any financial assets or liabilities that are not a result of a contract cannot be considered a financial instrument (for example, income tax).

On the another hand, we noticed that these financial instruments can be classified from the accounting point of view into three types:

- financial assets,
- financial liabilities, and
- own equity instrument.

A 'financial instrument' can be represented by an arrow with two ends. One end of the arrow is a financial asset, and the other a financial liability or an equity instrument. For an

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[4] International Financial Reporting Standards offers guidance for financial instruments in IAS 32, *Financial Instruments: Presentation*; IAS 39, *Financial Instruments: Recognition and Measurement;* IFRS 7, *Financial Instruments: Disclosures*; IFRS 9, *Financial Instruments*, and IFRS 13, *Fair Value Measurement.*

element to be deemed a financial instrument there has to be a contractual right or obligation. If there is no contractual right or obligation, then we can declare that there is no financial instrument (Samkin & Deegan, 2013, p.507); one party of the contract has in his patrimony a financial asset, whereas the other party of the contract has in his patrimony a financial liability or an equity instrument.

If we look at the definition given by the FASB, we notice similarities in defining a financial instrument between the IFRS/IAS and American generally accepted accounting principles (US-GAAP). The guidance for financial instruments offered by American GAAP is located in different Accounting Standards Codification (ASC) Topics[5] and defines a financial instrument as (Flood, 2014, pp. 985-988):

- cash,
- evidence of ownership interest in a company or other entity, or
- a contract that has to fulfil both of the following conditions:
  i) impose on one party a contract obligation to deliver cash or another financial instrument to a second party, or to exchange another financial instrument on potentially unfavourable terms with the second party;
  ii) conveys to the second party a contractual right to receive cash or financial instrument from the first party, or to exchange another financial instrument on potentially favourable terms with the first party.

Comparing the general financial instrument standards of the IFRS/IAS and the American GAAP, we notice similarities in the following requirements and allowances:

- financial instruments must be stated and classified in a specific category to measure them,
- specific conditions exist whereby financial instruments should be recognised or derecognised in financial reports,
- derivatives must be recognised on a balance sheet,
- detailed disclosure information in the notes to financial statements,
- allow the use of hedge accounting, and
- allow the use of the fair value option.

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[5] For an elaborate detail about financial instruments offered by US GAAP, look in ASC 310 *Receivables*; ASC 320 *Investments - Debt and Equity Securities*; ASC 470 *Debt*; ASC 480 *Distinguishing Liabilities from Equity*; ASC 815 *Derivatives and Hedging*; ASC 820 *Fair Value Measurement*; ASC 825 *Financial Instruments*; ASC 860 *Transfers and Servicing*; and ASC 948 *Financial Services - Mortgage Banking*.

Even if we find differences between the two sets of standards, the general principles and conceptual framework are same and lead to similar accounting results (EY, 2013, has a study about the differences and similarities between the two sets of standards). We cannot pronounce that one is better than the other; the difference appears from various specific factors[6], and when elaborating on the financial statements, the entities should respect the national norms. In our research, we focused on the rules laid out by the IASB.

No matter if we are following the IFRS or American GAAP financial instrument definition we notice that one concept constantly appears: *contract*[7]. Despite the fact that we may be tempted to accede to the juridical nature of it, it should be analysed in the substance/nature issue to settle if a contractual right or obligation exists.

The first classification that can be observed in the IAS/IFRS framework of financial instruments is the separation of financial instruments into primary and derivatives. Primary financial instruments (usually called simple financial instruments) include receivables, debts and equity instruments. Derivative financial instruments (usually called financial derivatives or just derivatives) include futures contracts, forward contracts and financial options. For a financial instrument to be recorded in the derivative category, it has to simultaneously meet the following three characteristics (IASB, 2013, p.A329):

i)   its value changes in response to the change in an underlying variable such as an interest rate, commodity or security price, or index,

ii) requires no initial investment or one that is smaller than would be needed for a contract with a similar response to changes in market factors, and

iii) is settled at a future date.

The classification of primary and derivative financial instruments makes for a better understanding of how they function in the financial market, so investors (and other players in the capital market) have a better understanding the implication of these transactions. These distinctions between primary and derivative instruments are accepted by all standards and to our best knowledge and research we found no significant differences between the concepts that can affect a financial statement of an entity or to misinform a financial user.

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[6] The IASB and the US Financial Accounting Standards Board have been working together since 2002 to achieve convergence of IFRSs and US GAAP. General factors like economic, politic, cultural or social nature, has prevented the two set of standards to adopt the same international accepted framework. The most important variety of specific factors includes the nature of the business environment, industry practice, and the national doctrine and dogma.

[7] The concept of contract should be understood as an agreement between two or more parties, which entail certain rights and obligations.

Defining the financial instrument generates the need for explaining unknown concepts. So, in the following part, we will discuss more in detail about the three parts of a financial instrument: the financial asset, the financial liability and the equity instrument.

1.1.1. Financial Assets

Among the most important economic risks confronting households is the uncertain nature of labour income. New financial assets create new opportunities to share this risk, and so do financial innovations that facilitate better use of existing assets (Davis & Willen, 2000). Specification and identification of dependencies between financial assets is a key ingredient in almost all financial applications: portfolio management, risk assessment, pricing and hedging, to name but a few (Mashal & Zeevi, 2002), observing their important character.

The most basic form of a financial instrument is cash. Its accounting is straightforward, and the entities report the cash flow in the statement of cash flow. There are numerous ways for an entity to generate cash flow, but to have it the entity must seal a contract[8]. Considering the definition of a financial instrument, we can include cash in this category. IAS 32 *Financial Instruments: Presentation* (Grosu, Hlaciuc, & Socoliuc, 2013, p.9) includes in the category of financial assets the following:

(1) any cash.

(2) an equity instrument from another entity, and

(3) a contractual right where a party can receive cash or another financial asset from a secondary party, or exchange financial assets or financial liabilities with the secondary party under conditions that are potentially favourable to the primary party, and

(4) a contract that will or may be settled in the entity's own equity instruments. This contract can be seen as a non-derivative contract if the entity is or may be obliged to receive a variable number of the entity's own equity instruments. Will be considered a derivative if will or may be settled other than by the exchange of a fixed amount of cash or another financial asset for a fixed number of the entity's equity instruments. So it is claimed that entity's own equity instruments do not include instruments that are themselves contracts for the receipt or delivery of own equity instruments of the entity (Bonaci, 2009(a), p.66).

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[8] When we are referring to a contract, we are referring to a piece of paper that can have the form of an invoice, receipt, etc.

A graphic representation of the IASB vision of what a financial asset represents is shown in Figure 1.2.
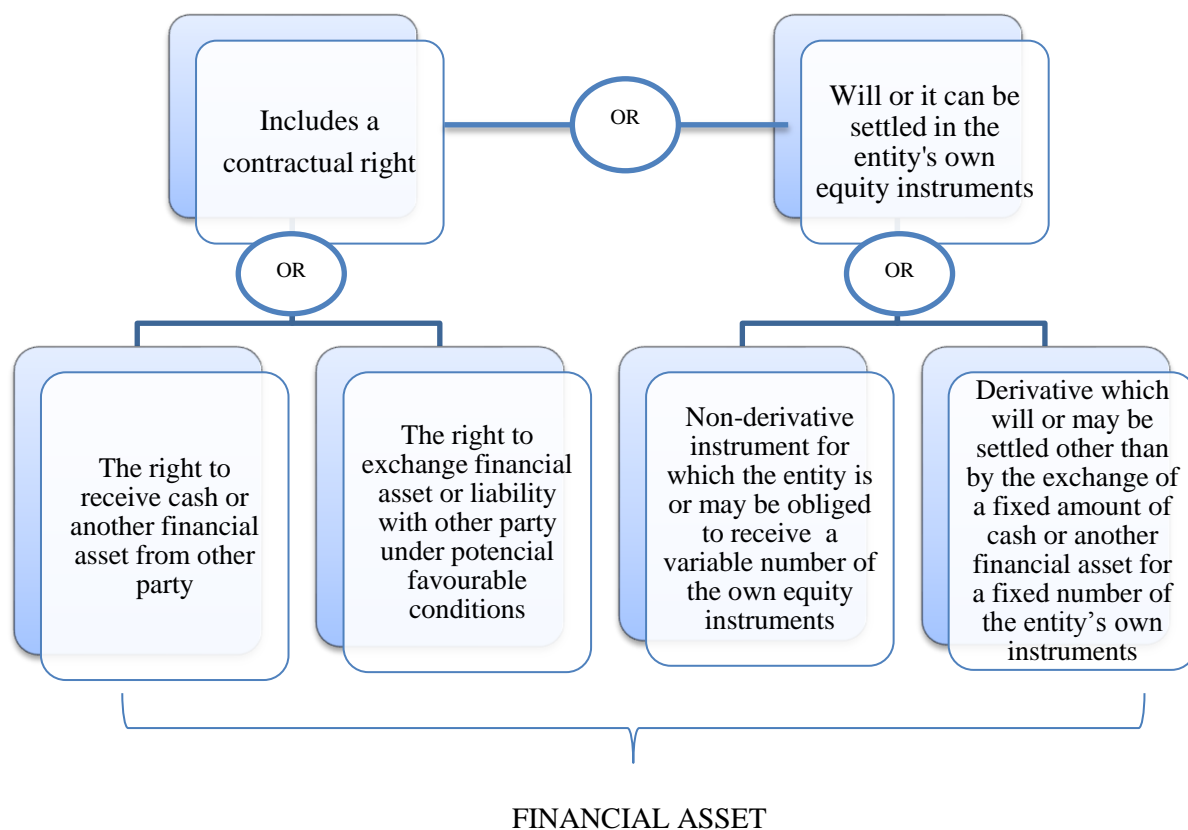
FINANCIAL ASSET

Figure 1.2. Conceptual approach to financial asset

Parameswaran (2011, p.10) mentions that an entity should have in its patrimony financial assets[9] for the purchasing power; to serve as a store of value, to offer future returns to their owners, or the fact that they are fungible. When an entity has highly liquid assets, it gives it the power to develop, to invest, to conquer the market and eliminate the competition. However, highly liquid assets also imply risks, so the entities have to have a good risk management plan.

Earlier we mentioned that investors could invest in different markets and to do that they had to understand the basics of the bookkeeping of financial instruments. To do that, they had to have knowledge about the similarities and differences between different accounting approaches. In the following we will present these aspects.

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[9] Here we are referring to financial assets in the form of receivables accounts, notes receivable, bounds receivables, loans receivable, etc.

Looking at the U.S. GAAP conceptual framework, we see that the legal form of the financial asset drives classification. For example, debt instruments that are securities in legal form are typically carried at fair value under the available-for-sale category (unless they are held to maturity) even if there is no active market to trade the securities. At the same time, a debt instrument that is not in the form of a security (i.e., a corporate loan) is accounted for at amortised cost even though both instruments (i.e., the security and the loan) have similar economic characteristics. Other differences between IFRS and U.S. GAAP include the calculation of amortised cost of financial assets that are carried at amortised cost, impairment models for available-for-sale debt securities and equities, the reversals of impairment losses, and some embedded derivatives that are not bifurcated (PwC, 2014b, 2015b).

Although existing IFRS and Japanese (JP) GAAP are similar, key differences in classification, measurement and derecognition exits. Under JP GAAP, in principal, financial assets are classified based on their legal form, such as securities (securities held for trading, bonds held to maturity, investments in subsidiary and affiliates and other securities), bonds, money trust, derivatives, etc. The classification could result in different accounting because classification can drive differences in measurement subsequent to initial recognition. As to the measurement of financial assets, with regards to equity investments, fair value is the general rule under IFRS and cost is an exception.

While, under JP GAAP, unlisted financial instruments are measured at cost, there are more cases under JP GAAP where financial instruments are measured at cost. Under IFRS and JP GAAP, fundamental differences exist in how to assess the derecognition of financial assets. These differences may have an impact on many transactions, including securitisations. IFRS requires the assessment to be based on whether or not the risks and rewards are transferred. Also, when it is unclear whether all the substantial risks and rewards have been transferred or retained, assessment is made on whether control over the asset is retained. JP GAAP focuses on whether control (including legal and substantial control) is relinquished over the asset (PwC, 2015a).

In conclusion, we notice that entity's financial assets serve two main economic functions. The first is to transfer funds from the parties who have surplus funds to invest in the parties who need a source of financing tangible assets. The second function that a financial asset has is to redistribute the risk associated with the investment in tangible assets between different counterparties according to their preferences and risk aversion (Fabozzi, Modigliani, & Jones, 2010).

1.1.2. Financial Liabilities

There has been a significant reduction in transaction costs and asymmetric information in recent decades. Over this same period, the importance of traditional banks that take deposits and make loans has, by some measures, been reduced. However, other forms of intermediaries such as pension funds, mutual funds and financial investments have grown significantly. In addition, new financial markets such as financial futures and options have developed as markets for intermediaries rather than for individuals (Allen & Santomero, 2001, p.272).

In any entity where they are raising finances in the form of capital, it is important that the classification of the financial instrument in financial liability or equity instrument to be made correctly[10]. Financial liabilities include the liabilities (obligations) that arise in connection with procurement of capital raised. Capital raised is the means received in national and foreign currency received by the company from individuals and/or legal entities for a period established for a certain payment. The understanding and having a clear distinction between the concepts is necessary because it can directly affect the calculation of the gearing ratio[11].

In accordance with the international framework, financial liability refers to:

(1) a contractual obligation to deliver cash or other financial asset to another entity or to exchange a financial asset or liability with another entity under conditions that are potentially unfavourable to the entity, or

(2) a contract that will or may be settled in the entity's equity instrument. This contract can be seen as a non-derivative contract if the entity is or may be obliged to deliver a variable number of the entity's own equity instruments. If the contract is a derivative instrument, it will or may be settled other than by the exchange for a fixed amount of cash or another financial asset for a fixed number of the entity's equity instruments.

Once again, it is emphasised that the entity's own equity instruments exclude instruments that are themselves contracts for the receipt or delivery of own equity instruments of the entity.

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[10] In the practitioners' environment, for these confusions between concepts not to be made, they are referring to the financial liability as a debt and to the equity instrument as a share.

[11] Gearing ratio is a key measurement that users take into consideration when they are assessing the financial risk of an entity. Gearing is a measure of financial leverage, demonstrating the degree to which a firm's activities are funded by owner's funds versus creditor's funds.

We have to underline the fact that the book value means the value reported in the corresponding section of balance sheet debt. The book value of a financial liability includes the accrued interest (ASFRomânia, 2013).

For a better understanding of financial liability, refer to Figure 1.3.
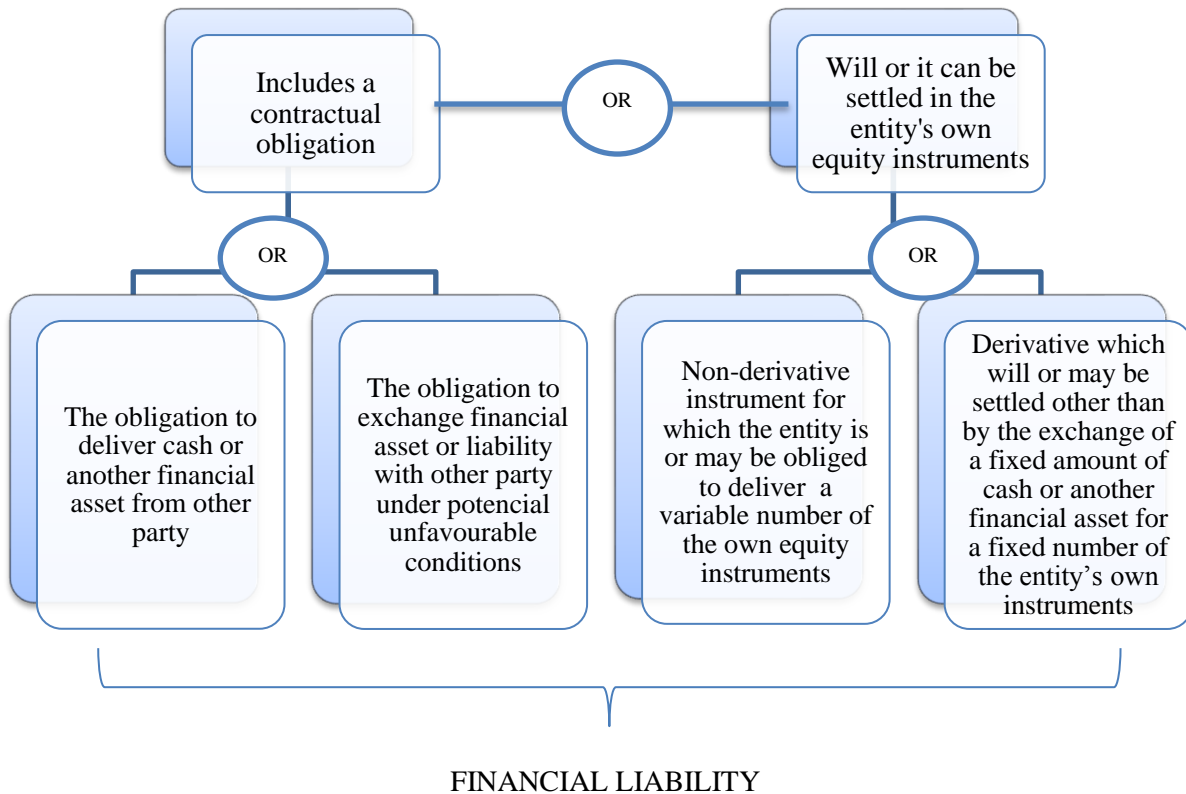
Figure 1.3. Conceptual approach to financial liability

Analysing the definitions of 'financial asset' and 'financial liability', we notice they are tied to a determination of whether one party of the contract will be required to exchange financial assets or financial liabilities with a secondary party under conditions that are potentially favourable to the business (a financial asset), or whether the party will be required to exchange financial assets or financial liabilities with a secondary party under conditions that are potentially unfavourable to the business (a financial liability). The conditions are an element that can only be influenced by the market, and the parties do not have any control over them.

Looking at other international regulations, we find some differences. Although the IFRS and U.S. GAAP definitions of a financial liability bear some similarities, differences exist that could result in varying classification of identical instruments. U.S. GAAP defines a financial

liability in a more specific manner. Under U.S. GAAP, the issuer's obligation to deliver cash or other financial asset at settlement is conditional. As such, U.S. GAAP will permit more financial instruments to be equity-classified as compared to the IFRS (PwC, 2014b, 2015b).

JP GAAP does not have specific requirements which provide clear differences between equity and financial liabilities but classifies them based on their legal form. Also, financial liabilities are measured at the amount borrowed or at amortised cost. Therefore, differences exist not only in their classification but also in measurement after initial recognition. There are also differences between IFRS and JP GAAP in the derecognition of financial liabilities for debt assumptions, thereby accounting for transactions exchanging financial liabilities with substantially different terms, substantial modifications of financial liabilities and the presentation of offsetting financial instruments (PwC, 2015a).

1.1.3. Own Equity Instruments

A contract that shows evidence of a residual interest in the assets of an entity after deducting all of its liabilities called an equity instrument (IASB, 2013, pt.11, p.A926). Not to be confused with financial liability, we are reminding that a financial instrument is an equity instrument if it fulfils two conditions simultaneously. It should not include any contractual obligation to deliver cash or other financial assets to a second party or to exchange financial asset or liability with another party under conditions that are potentially unfavourable to the issuer. The second condition that has to be considered is the situation when the instrument will or may be settled in an entity's equity instrument. The non-derivative financial instrument should not include the contractual obligation for an issuer to deliver a fixed number from his equity instruments; however, in the case of a derivative instrument that will be settled by the issuer, the issuer will or may exchange a specific amount of money or other financial asset for a fixed number of its own equity instruments.

Distinguishing liabilities from equity is an on-going problem among financial analysts, who claim that equity instruments are, essentially, to a relatively small extent different from liabilities (Bonaci, 2009(a), p. 70). It sometimes happens that financial instruments of a given issuer may have attributes of both liabilities and equity, and IAS 32 *Financial Instruments: Presentation* offers guidance on this matter. The standard requires that entity's own equity instruments do not include the instruments that are themselves contracts for receiving or delivering the entity's own equity instruments. In this case, they will be incorporated into the category of a financial asset or financial liability.

Figure 1.4 provides guidance on how to classify a financial instrument as a liability or an equity instrument.
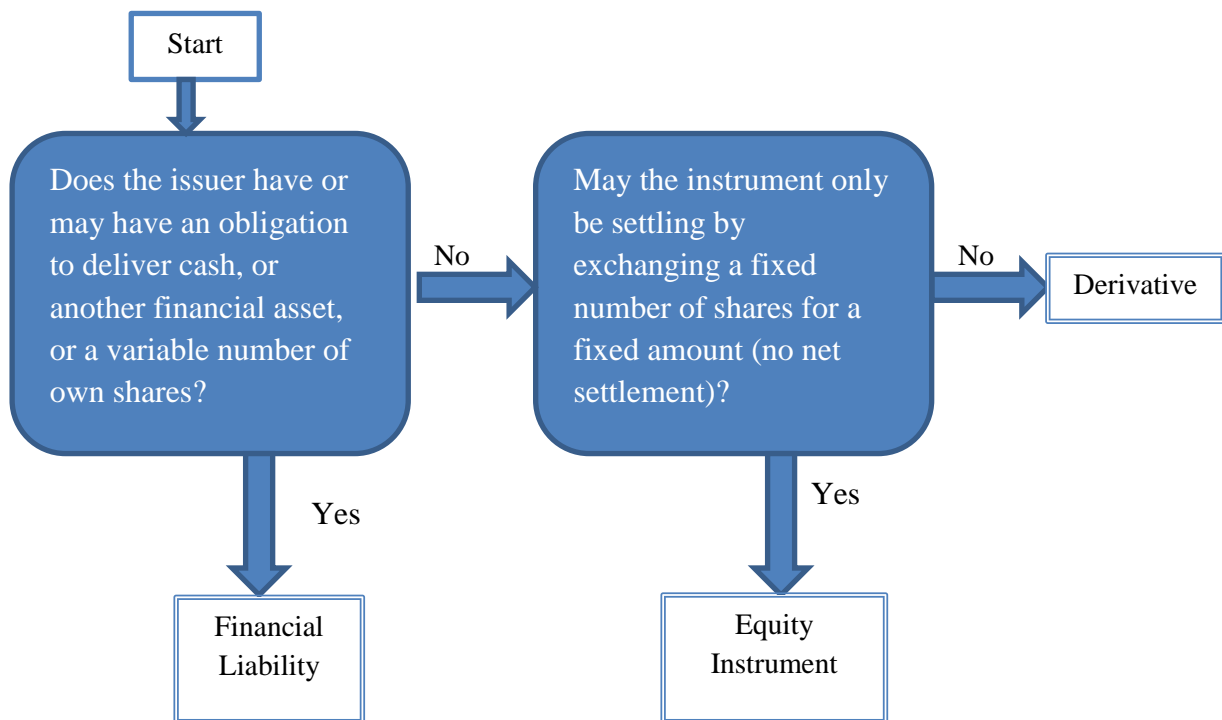
Figure 1.4. Guidance on classification of a financial instrument as liability or equity instrument

Determining whether a financial instrument classifies as an equity instrument depends on whether it meets the requirement of a financial liability. Only instruments that do not fulfil this definition are classified as equity. For example, ordinary shares are in the equity instruments category.

1.2. Accounting Politics and Options Applicable to Financial Instruments

In the free market economy, the impact of the financial information on the behaviour of investors is one determinant in the decision to place equity in an entity. Thus, the influence that the financial instruments which expert on the entity's financial position and performance are an important element for both the issuer and for the investor, causing the increasingly of the changing and updating the accounting information in order to keep pace with the constant changes taking place in the regulated market.

In accordance with IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*, accounting policies are defined as the specific principles, bases, conventions, rules and practices applied by an entity in preparing and presenting financial statements (BDO,

2015). In 1999, Christopher Nobes defined accounting policies as the detailed methods of assessment, measurement and recognition which a company chooses from the general accepted national norms, from the accounting standards or from the commercial practices. IFRS 9 specifies that all actives and liabilities has to be registered in the financial statement of the company.

The aim to control increasingly sophisticated risks present in the capital markets has generated a series of accounting standards that are used to the current day in all industries. When the European Union announced in 2002 (European Commission, 2006) the adaptation of the international accounting standards regulation, the entire regulated market had to grant special attention to financial reporting, taking into consideration that its entire referential accounting had to be changed.

Financial instruments, especially financial derivatives, led to the current international financial crisis leading to huge corporate losses and even the collapse of large companies and credit institutions. The magnitude of transactions recorded in recent years due to investment, risk-covering and speculation demonstrates the seriousness of the crisis which has spread rapidly from west to east. A solution to prevent these events from reoccurring in the future is to converge and harmonise the accounting for financial instruments.

Bear in mind that every accounting referential has its own rules regarding how to conduct the regulatory process, it will be difficult to roadblock in a unitary (and similar) matter all the elements of financial instruments from different standards. We chose the accounting referential regulated through IASB and made different specifications when necessary regarding the other standards.

Accounting practices regarding financial instruments, especially derivatives, created a series of debates and arguments among practitioners concerned with the measurement bases used, especially in hedging operations.

Accounting research related to financial instruments and the discussions required by the IASB created the necessity for the FIs to be anchored in the environmental business. To establish an accounting treatment for financial instruments, we have to consider three important issues: recognition, measurement and presentation (Blanchette, 1997, pp.10-14). Starting with these three basics, we have to ask ourselves five questions on how to proceed with the accounting treatment:

- *Question 1*: when must we include a financial instrument in a balance sheet?
- *Question 2*: which elements from a balance sheet will change and what amount will be charged at the inception of a contract?

- *Question 3*: which elements in the profit and loss statement will be modified subsequent to initial recognition?
- *Question 4*: how do we measure the financial assets and liabilities and how will we recognise gains or losses from variation in value?
- *Question 5*: what are the requirements regarding the presentation of financial instruments?

Keeping these five questions in mind when analysing the literature (Blanchette, 1997; Bradbury, 2003; Landsman, 2006; Ryan, 2007; Gebhardt, 2012; Gonzalo-Angulo, 2014) and examining the international regulation framework, we have divided the accounting treatment for financial instruments into four phases: identification, recognition, measurement and presentation and disclosure.
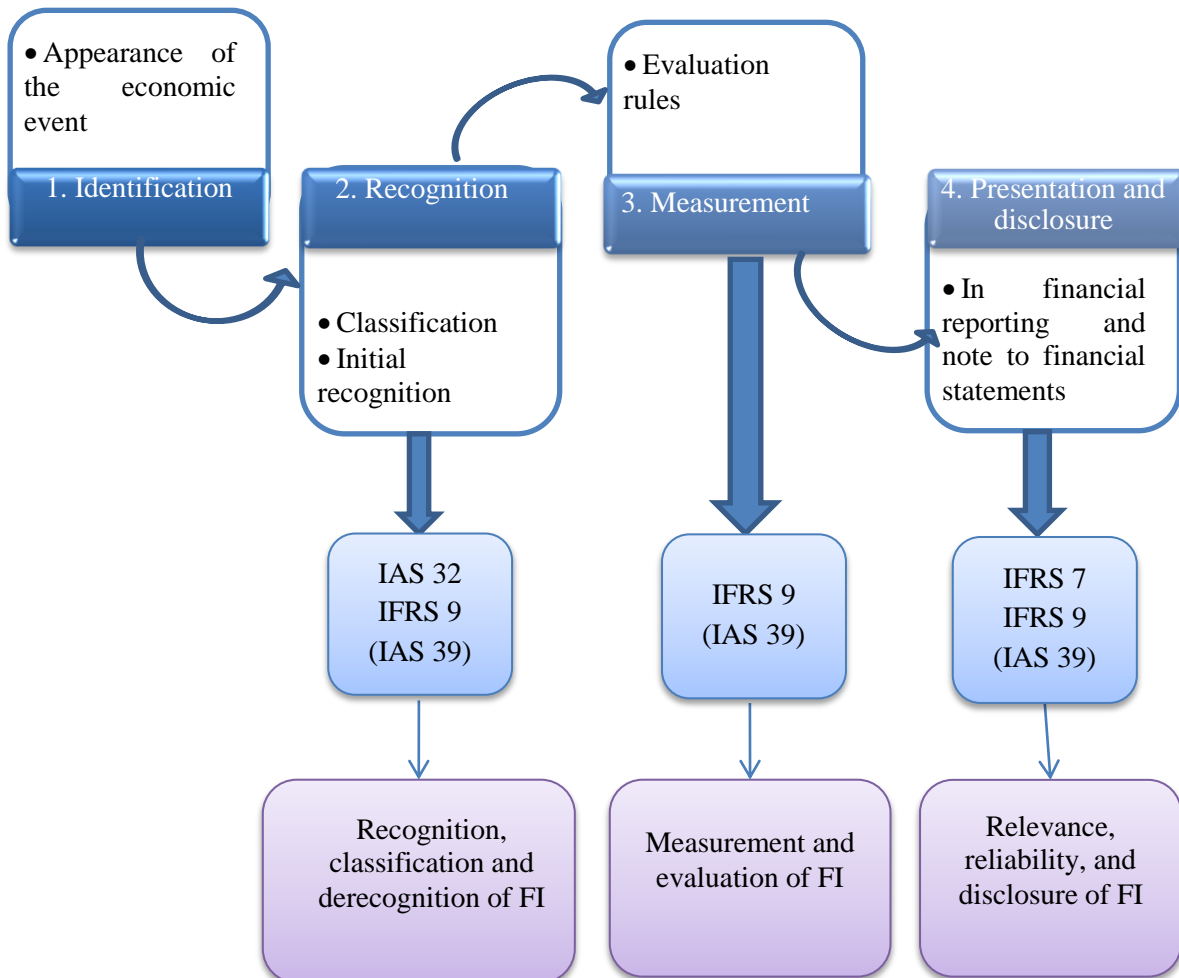
Figure 1.5. Accounting regulation for financial instruments

Financial instruments cover a broad range of financial assets and liabilities, from everyday monetary items (receivables, payables, and debt) to complex financial derivatives. Therefore, financial instruments represent a wide-ranging test case for the application of the conceptual framework for accounting issues and the challenges that need to be analysed (Bradbury, 2003, p.395).

Keeping in mind the plain implication of financial instruments in business, the impact of its economic events and the fact that the compound IAS/IFRS standards can be challenged even for seemingly straightforward arrangements (Grant Thornton, 2009), in the following section, we intend to analyse in detail the accounting regulation process for financial instruments.

1.2.1. Identification of Financial Instruments

Since the development of financial statements in the form of balance in the nineteenth century and the profit-and-loss account in the twentieth century, issues related to the identification of the most suitable method for recording assets, liabilities and capital represented the main concern in the area of financial reporting (Gwilliam & Jackson, 2008, pp.240-241).

Accounting research related to assessing financial instruments anchored the fundamental economic reality with economic literature and initiated a change in the paradigm of the accounting process of financial instruments (Bonaci, 2009(a), p.317).

Identification of the financial instruments of an entity depends on the effects it will produce. The economic effect will depend on the right (obligation) of the issuer entity and by the legal obligation (right) in implicit or explicit terms of the exercise of a binding contract. The definition provided by IAS 32 underlines the bilateral relation that a financial instrument implies: there is an agreement between two parties acknowledging the economic event that is rising from this agreement having accounting implications for both sides to assure maximum coherence. A representation of this agreement it shown in Figure 1.6.
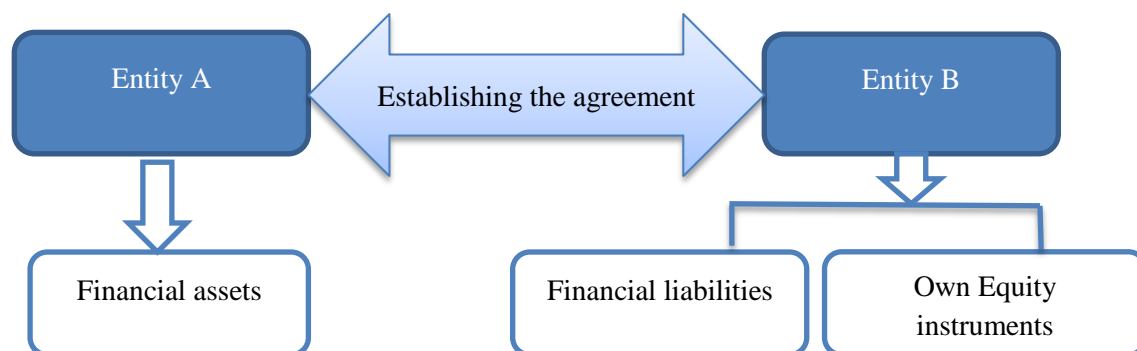
Figure 1.6. The rise of a financial instrument agreement

Normally, after a financial event occurs, the FIs are financial assets for the entity that buys them and for the entity that issued them the FIs are financial liabilities (if they are payment obligations) or equity instruments. Even if financial instruments are not traded in a regulated market can have a significant impact on business. Fernandes Costa, et. al. (2014, p.28) declared that financial assets 'contribute indirectly to the productive capacity of the economy' and it should not be ignored in business.

Testing the effectiveness of hedging operations at an institution with regards to the accounting transaction is another issue of how a financial instrument can be used as a financial coverage. It is linked to the accumulation or aggregation of exposures, and the question is whether or not a company can combine existing exposure at lower levels (branches or offices).

Some companies who cover risk on a decentralised basis claim they are unable to assess the risks of a transaction even at a company level. So it would be impractical or unreasonable to estimate the risks and subsidiaries. The counter-argument is that if a company is unable to identify information about a transaction's risk positions, then it will not be able to determine whether its actions truly reduced exposure to the whole company. This is one reason why the relation between entity A and entity B should be well established and should have a well-defined accounting treatment of how they will record the transactions in the bookkeeping of financial instruments.

Thus, financial assets are any agreement that implies a contractual right or an equity instrument that will or can be settled in the entity's own patrimony. Financial instruments issued, incurred or assumed are classified as financial liabilities in whole or in part in accordance with their economic reality if it implies for a party a contractual obligation; it can as well be settled as an equity instrument in its own patrimony if it will implicate a delivery obligation (Sebastián Castro & Romano Aparicio, 2008, pp.24-27).

To determine if a financial operation generates its own patrimony, first, we have to determine if it will generate an asset or liability. All modifications that appear following this transaction that does not generate an asset or liability will affect the entity's own equity. IAS 32 (paragraph AG4) shown in Figure 1.7 provides a list of the most common financial assets and financial liabilities that represent rights or contractual obligations to receive or pay cash in the future.

Examples of contractual rights and obligations as financial instruments

accounts of receivable and payable

notes receivable and payable

loans receivable and payable

bonds receivable and payable
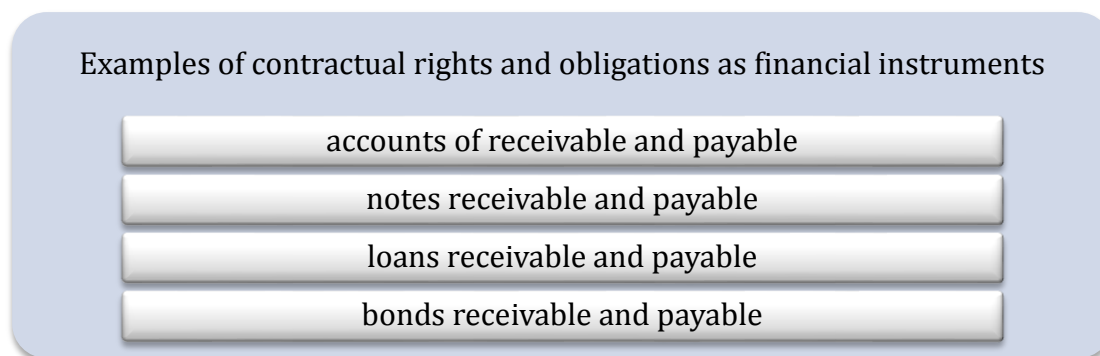
Figure 1.7. Contractual rights and obligations under IAS 32

For a better visualisation and understanding of financial instruments and other patrimony elements that cannot be included in this category, refer to Table 1.1.

Table 1.1. Representation of what is or is not a financial instrument

Financial instrument	Are included in the FI category	Are not listed in the FI category
Financial assets	• listed shares • assets available for sale • cash and banks deposits • a contractual right to receive cash or to exchange financial assets	• set-up costs • development costs • shares of a company disbanded
Financial liabilities	• debts to suppliers • loans and interest earned on loans • liabilities arising from guarantees given for products sold • a contractual obligation to receive cash or to exchange financial assets	• debts that depend on the existence and amount of the earnings period • provisions for extraordinary repairs • debts cancelled entities shares
Own Equity instruments	• share premium • the amount received from the sale of their stock options entity if the contract is performed in liquidation actions • preference shares without voting rights • contracts settled own equity instruments • right and obligation to issue shares	• shares redeemable by the holder • • the amount received from the sale of their stock options entity if the contract is achieved by winding delivering cash • subscribed and not paid in share capital

Source: Adaptation after Gonzolo-Angulo (2003, pp.248, 251, 256)

After establishing the implication of a financial instrument, we can illustrate the 'T' accounts where a debit is recorded in the bookkeeping of one entity and credit is recorded in the bookkeeping of another.

One entity		Second entity		
Financial asset		Financial liability	or	Equity item
XX			XX	XX

Figure 1.8. Financial instruments 'T' accounts

In accounting, a financial instrument implies three possible elements that can either be credit or debit. If we make an exception of an equity item, we notice that a financial instrument is relatively straightforward (with few modifications) since it represents cash, commitment or exchange cash or the contractual right to exchange FI. An equity instrument is a residual right to the net assets; i.e., the capital stock or equivalent.

We need to understand the notion of financial instruments and its definitions because in these elements we can find the specification of how the entity intends to use them, from the accounting point or view. After we identify them, the entity has to pave the way to the fundamental accounting principles of recognition, measurement and presentation (Blanchette, 1997):

- recognition is including an element on a balance sheet. This step is important in accounting, and we can see through the evolution of standards that it had changed from the times when many financial instruments were considered off-balance sheet, to present time when all financial instruments have to be recognised in the balance sheet.

- accounting measurement is at fair value or amortised cost, depending on if we are discussing the initial recognition or the subsequent recognition.

- presentation involves an understanding of the types of elements to include in the financial statements (assets, liabilities or equity in the balance sheet, revenues or expenses in the profit and loss statement, equity operations such as dividends in the statement of retained earnings and the issuance of shares) and deciding whether to compensate or aggregate certain elements (e.g., a forward contract and an underlying asset, a swap and an underlying debt, or a fund designated to the reimbursement of a debt and the debt in question).

One of the goals in the business cycle of an entity is to manage the informational system (Hlaciuc & Mihalciuc, 2008, p.18). The guideline and the base of the financial accounting are the conceptual framework. It offers information and presents the accounting policies that entity, in our case the financial investment companies, needs to apply them in order to have the faithful representation of the financial statements.

Contrary to the perfect markets hypothesis, in practice, financial information is either perfect not symmetrical (Feleagă & Feleagă, 2005a, p.13). Especially, because of this reason, it is necessary that the entities not to misrepresent the financial reports. The objective of the financial information related to financial instruments is to provide a representative and correct information in order to understand their representation in the balance sheet and in profit and loss statement (Feleagă & Feleagă, 2005b, pp.274-275). At the beginning of the 90s', the vagueness the legal framework for financial instruments it led to the emergence of new methods of manipulation of information in the financial statements by failing to present of all significant information thereon. The identification of the effects produced by a financial instrument depends on the rights or the obligations of the issuing entity and the legal obligation in implicit or explicit terms to exercise the contract.

In the following sections, we detail these elements for a better understanding of how a financial instrument works in accounting.

1.2.2. *Recognition of Financial Instruments*

In paragraph 14.69, the Monograph mentions the existence of the Financial Instruments Joint Working Group of Standard Setters (JWG). This group was established in late 1997 with the objective of developing an internationally acceptable standard of the recognition and measurement of financial assets and liabilities. It comprises members from Australia, Canada, France, Germany, the International Accounting Standards Committee, Japan, New Zealand, the Nordic Federation, the United Kingdom and the United States (Bradbury, 2000, p.20).

Entities have to recognise into the bookkeeping a financial asset, liability or equity instrument only when an entity is part of a contractual agreement[12].

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[12] Feleaga & Malciu (2002, p.179) specified that when financial instruments are assesst, they can be classified into two categories:
- financial instruments that have as main aim making profit; and
- financial instruments which targets hedge accounting.

Every company is exposed to risks in its daily operations. The majority of this business risks have an impact on the firm cash flows or on the value of its assets and liabilities, and therefore it affects its profit and loss. In order to manage these types of risks and the level of exposure, companies enter into derivative contracts in order to hedge them. Therefore, hedging can be seen as a risk management strategy in order to control a company risk profile.

In the financial reporting framework, we notice similarities and differences between the two standards dedicated to financial instruments: IAS 39 and IFRS 9. The situations that impose the initial recognition of financial instruments, provided by IAS 39 (paragraph AG35), are:

- unconditional receivables and payables,
- assets to be acquired and liabilities to be incurred as a result of a strong commitment to buying or selling are recognised when either party exercises its right,
- forward contracts that are recognised on the commitment date, and
- options contracts that are recognised when one of the parties is contractual.

Initial classification provided by IAS 39 of the financial assets into Held-to-Maturity, Available-for-Sale and Loans and Receivables are no longer present in IFRS 9. Regarding the matter of initial recognition of financial assets, IFRS 9 (paragraph 4.1 and 4.2) states that it can be classified into one of the two measurement categories: amortised cost or fair value. A better visualisation is provided in Figure 1.9.

Recognition of financial assets and financial liabilities

Classification of financial assets is realized as a whole and on the following two basic parameters:

- The entity's business model for managing the financial assets;
- The contractual cash flow characteristics of the financial asset.

Assessment to fair value

Assessment to amortized cost

The option to appoint a financial asset or liability to fair value through profit or loss for the purpose of eliminating accounting mismatches

Figure 1.9. Classification and assessment of financial assets and liabilities by IFRS 9

In the case of our thesis we are having a look at the financial instruments which goal is to provide performance to a company and making it more profitable, in order to raise its image into the market.

IAS 32 offers supplementary guidance regarding the evaluation of financial liabilities components and compound financial instruments to the initial recognition, as well as to the classification of the financial derivatives based on an entity's shares.
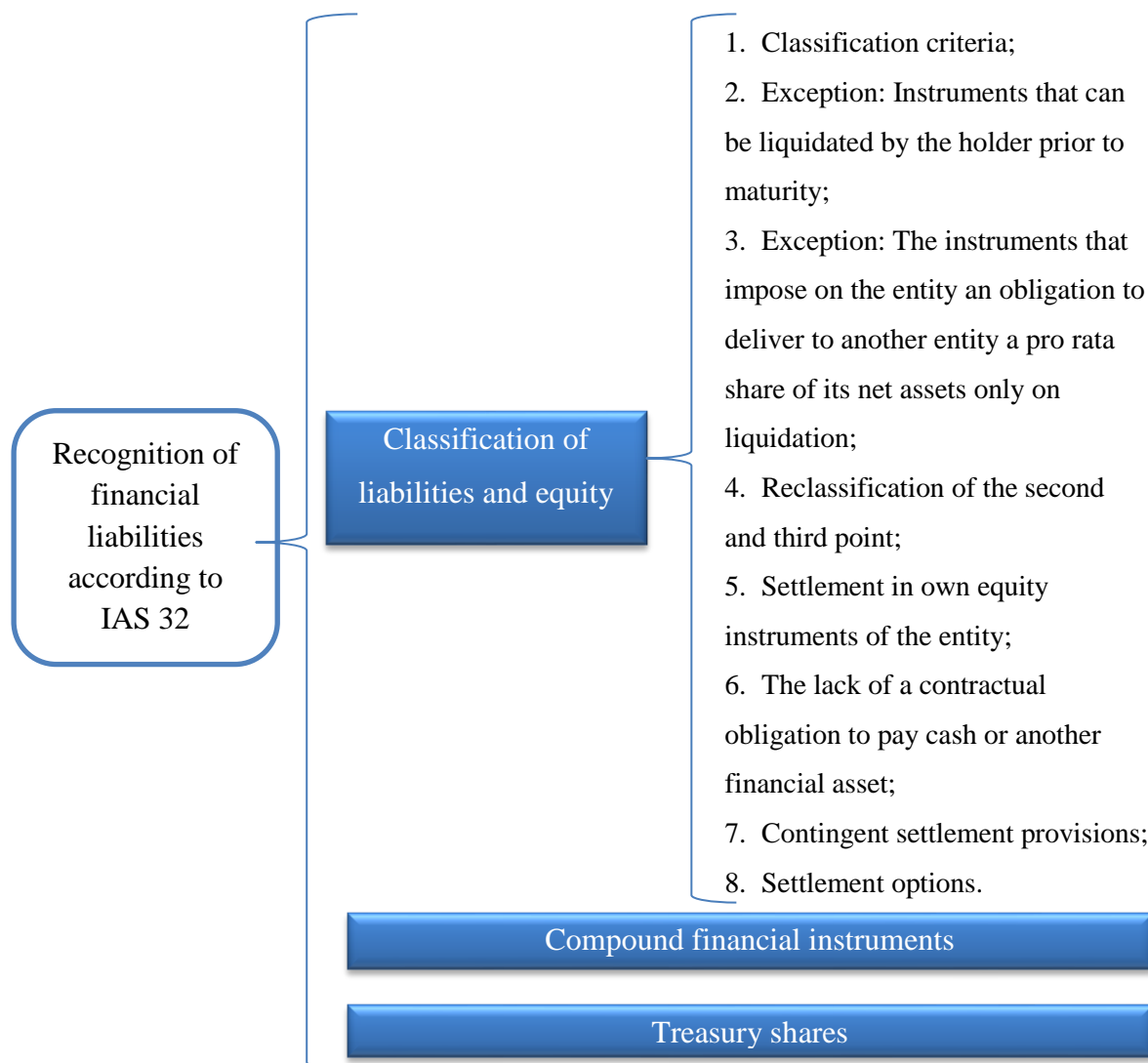
Figure 1.10. Recognition of financial assets and liabilities under IAS 32

By IFRS 9, at initial recognition of financial assets or financial liabilities, the assessment will be made at their fair value positive or negative. If they are not an asset of the fair value through profit or loss, the acquisition costs are directly attributed to the acquisition or the issue of the financial instrument. In this situation, the fair value will be the transaction price (the fair value of the equivalent value given or received). If an entity is the source of a loan that has an interest rate corresponding to the outside market, then the financial instrument will be recognised to the net commissions that the entity receives (also known as fair value), as it can be seen in Figure 1.10.

We can notice that are not many differences between the two standards, in the matter of recognition of the financial instruments.

1.2.3. Measurement of Financial Instruments

Taking into account that in the last two decades the accounting of financial instruments has become a more controversial subject we decided to approach and debate upon this subject which in certain contexts becomes problematic, as the measurement requirements. Financial accounting and the production of financial reports are claimed to provide a window into the operations and financial condition of various companies for market participants and others. Financial accounting is asserted to make a company "visible" by representing faithfully the organisation through various financial reports. To maintain this "visibility", various standard-setting processes are continually at work, altering the specific financial accounting practices used in the preparation of financial statements and requiring specific types of accounting disclosures (Young, 1996).

Bonaci (2009(b), p.210) argues that the capacity to realise a fair measurement is a key to success in the area of financial services because to buy or to sell a financial instrument, it is imperative to know its value.

Under old IAS, all financial assets were initially recognised at historical cost. For subsequent measurement of current investments, IAS 25 offered a choice between lower of cost or market, mark to market and portfolio accounting. Standard-setters faced strong opposition, especially from the banking industry, when they proposed new standards that changed the preferred 'mixed model' by introducing fair-value measurements for all derivative instruments (SFAS 133, IAS 39) or extending fair value accounting to all financial instruments as recommended by the Financial Investments Joint Working Group of Standard Setters (Gebhardt, Reichardt, & Wittenbrink, 2004).

When we discuss the measurement of financial instruments, we have to distinguish between the initial measurement (the initial recognition/assessment) and the subsequent measurement.

Financial assets are classified after the initial recognition of fair value or amortised cost by two fundamental parameters:

- the entity's business model for managing the financial assets[13] and

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[13] Under the business model test, an entity is required to assess whether its business objectives for a debt instrument is to collect contractual cash flows of the instrument rather than realising its fair value change from the sale of the instrument prior to its contractual maturity. It should be noted that although the objective of an entity's business model may be to hold financial assets in order to collect contractual cash flows, the entity need

- the contractual cash flows characteristics of the financial asset[14].
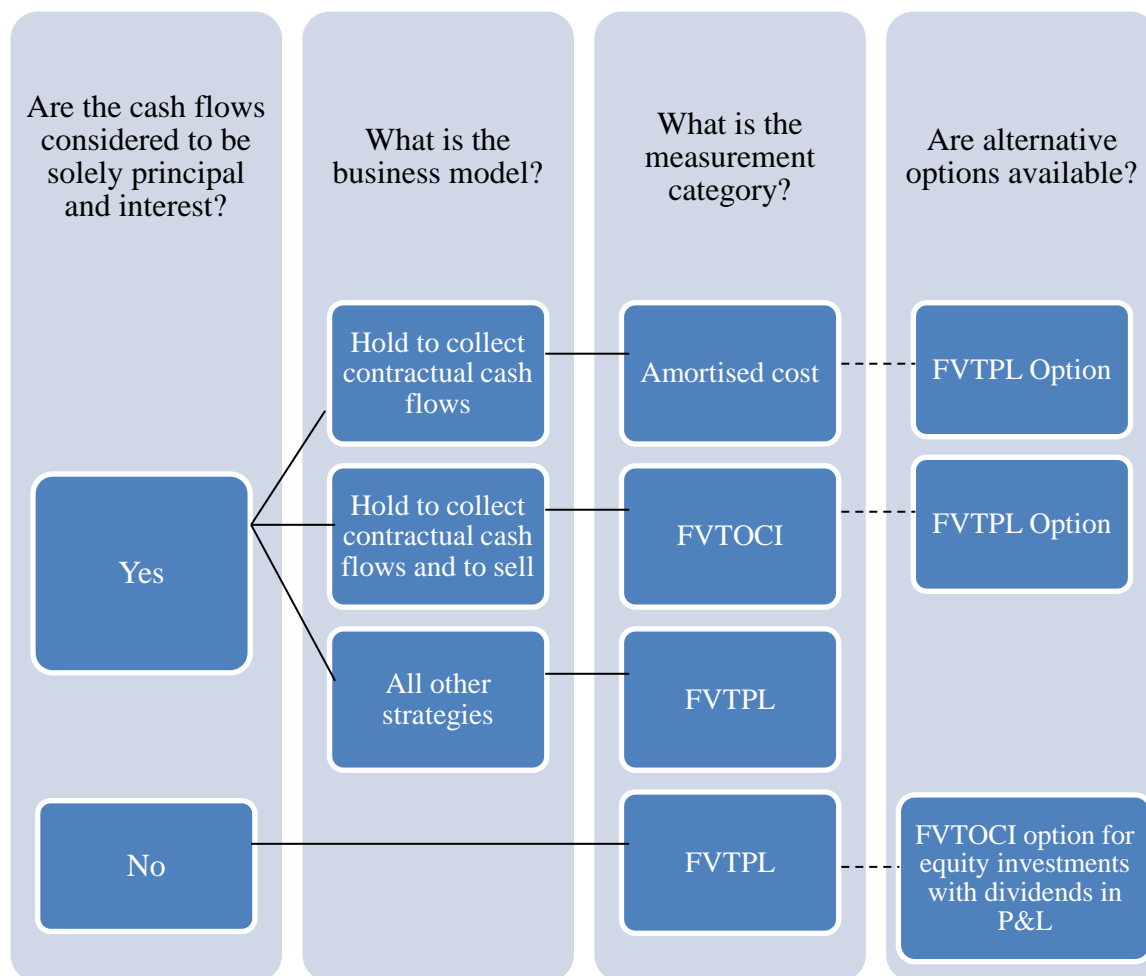
Figure 1.11. Classification and measurement model for financial assets under IFRS 9[15]

General measurement principles state that the initial measurement of financial assets has to be at fair value if it does not meet the conditions stated below. If assets meet both

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not hold all of those assets until maturity. This means that if an entity's business model is to hold financial assets to collect contractual cash flows, this does not preclude the sales of financial assets. As an example, an entity's assessment that it holds investments to collect their contractual cash flows remains valid even if the entity disposes of the investments to fund capital expenditure. However, if more than an infrequent number of sales are made out of a portfolio, the entity would need to assess whether and how such sales are consistent with an objective of collecting contractual cash flows.

[14] Having established which financial assets are held for the collection of contractual cash flows, IFRS 9 paragraph B4.8 requires an entity to 'assess whether contractual cash flows are solely payments of principal and interest on the principal amount outstanding for the currency in which the financial asset is denominated'. Should the contractual terms of the financial asset include leverage (for example a stand-alone option or a forward or swap contract), this will result in economic characteristics that are not interest. The reason for this is that leverage increases the variability of cash flows (for example one which changes an interest by a multiplier of a benchmark rate). Contracts that include leverage fail to meet the condition of being solely payments of principal and interest on the principal amount outstanding. Contracts containing leverage cannot be measured at amortised cost and should be measured at fair value through profit or loss.

[15] Another interesting approach and graphic visualization of classification of the financial instruments it can be found in the paper elaborated by PwC (2014, p.3) and EY (2015, p.4).

conditions simultaneously, then it has to be measured at amortised cost (IFRS 9, paragraph 4.2):

- the asset is held within a business model whose objective is to hold assets to collect contractual cash flows, and
- the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

If debt instruments do not meet both conditions, then assets have to be measured at fair value through profit or loss. When the financial liability is initially recognised, it has to be measured at its fair value.

Subsequent measurements of the financial instruments are made after the initial recognition and will consider the classification criteria of the financial assets and financial liabilities, measuring them at the fair value or to the amortised cost. The general measurement principle for financial instruments can be found in IFRS 9. Figure 1.12 provides the rules for subsequent measurement.
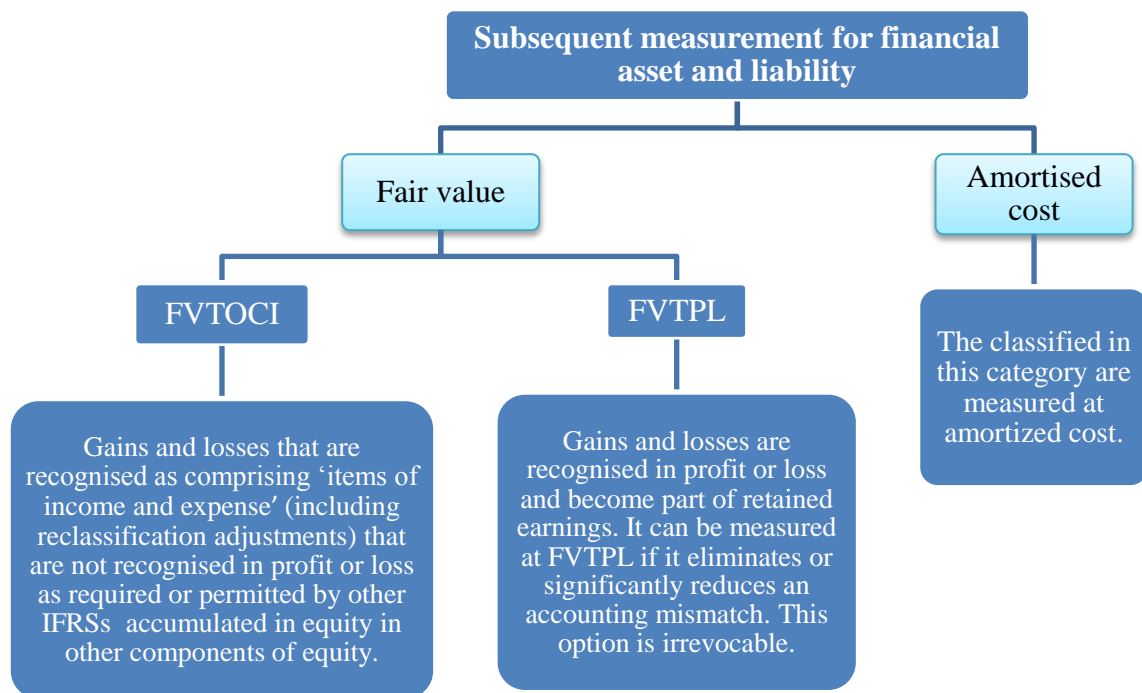
Figure 1.12. Subsequent measurement of financial asset and liability according to IFRS 9

If a financial asset was first recognised as being evaluated to a fair value and this value drops under zero, taking negative values, then the instrument will become a financial liability that will be assessed by the classification criteria of financial liabilities.

1.2.3.1.   Fair Value Measurement

A speech given by Hans-Hoogervorst (2015), IASB Chairman, at the IFRS Foundation Conference in Paris (France), notes that the measurement question is one of the most sensitive and controversial issues in accounting, especially the issue of fair value. The debate between which measurement is most suitable arises from the way how the measures receive updates about the variables from the market. Fair value demands a full updating of all variables, making it more volatile to changes in market price. One of the biggest disadvantages of using fair value is the high degree of subjectivity involved when there is no active market, and then the entity has to use the mark-to-model evaluation. Despite this, we can say that fair value can provide a faithful representation of financial instruments.

To have a precise measurement of financial instruments to fair value, attention to the requirements of IFRS 13 *Fair Value Measurement,* is recommended. The standard requires entities to have a clear disclosure where they make use of mark-to-model accounting and also to elaborate a sensitivity analysis to determine the level of market risk arising from financial instruments.

The definition of *fair value* is widely accepted by all international accounting standards, without noticing any differences in them, as being the price that would be received to sell an asset or to paid to transfer a liability in an orderly transaction between market participants at the measurement date, being an exit price (IFRS 13, ASC 820, Ind AS 109, JP GAAP for FI, and ASBE 39).

The elements included in fair value measurement of financial instruments are (IFRS 13, paragraph 11-90):

- *Asset or liability* – are the subjects of measurement at fair value. In the case of fair value evaluation, the entity has to consider the characteristics of the assets/liabilities to determinate the price on the measurement date. The following features have to be taken into consideration:
    - condition and location of the asset, and
    - the restriction regarding the utility or sale of the asset.
- *Transaction* – the financial instrument must be traded in a regulated transfer or sale transaction between market participants. The transaction has to take place on a principal market of the financial instrument, and when this is not possible, the trade will be held at the most advantageous market for the implied financial instrument.

- *Market participants* – fair value measurement will be made on the hypothesis that the market actors will use and take into consideration that they will react to obtain the maximum economic benefit.

- *Price* – fair value represents the received price from the sale of an asset or the paid price for transferring a liability in the current condition of the market. The price used in fair value measurement of the financial instrument should not be adjusted for the transaction costs (because this does not represent a characteristic of the financial instrument, it is specific only to the transaction).

- *Highest and the best use* – fair value measurement of used non-financial assets consider all the maximum economic benefits within which the asset would be used.

The evaluation techniques corresponding to fair value must be chosen such that the entity is able to maximise the use of relevant observable inputs for financial users and to minimise the use of unobservable inputs. The subject of the evaluation techniques consists of estimating the price at which a transaction will take place between market participants in the current conditions of the market and at the evaluation moment. The international framework allows three evaluation approaches:

- *Market approach* – use prices and other relevant inputs generated by market transactions with the financial instruments,

- *Cost approach* – represents the necessary value in a specific time to replace the service capacity of the asset, also known as current replacement cost, and

- *Income approach* – converts future amounts into a single current amount.

When we analyse the evaluation techniques, we notice that the key concept is *relevant observable inputs*. For an analyst to determine if the inputs are relevant and observable, one has to analyse the capital market, the broker market, and the dealer market. Then one has to determine the consistency and the compatibility of the fair value measurement to establish a hierarchy. The evaluation rank starts from the priority level that represents the quoted and unadjusted prices, and the lowest level is dedicated to the unobservable inputs.

Figure 1.13 provides a clear visualisation of the fair value hierarchy.
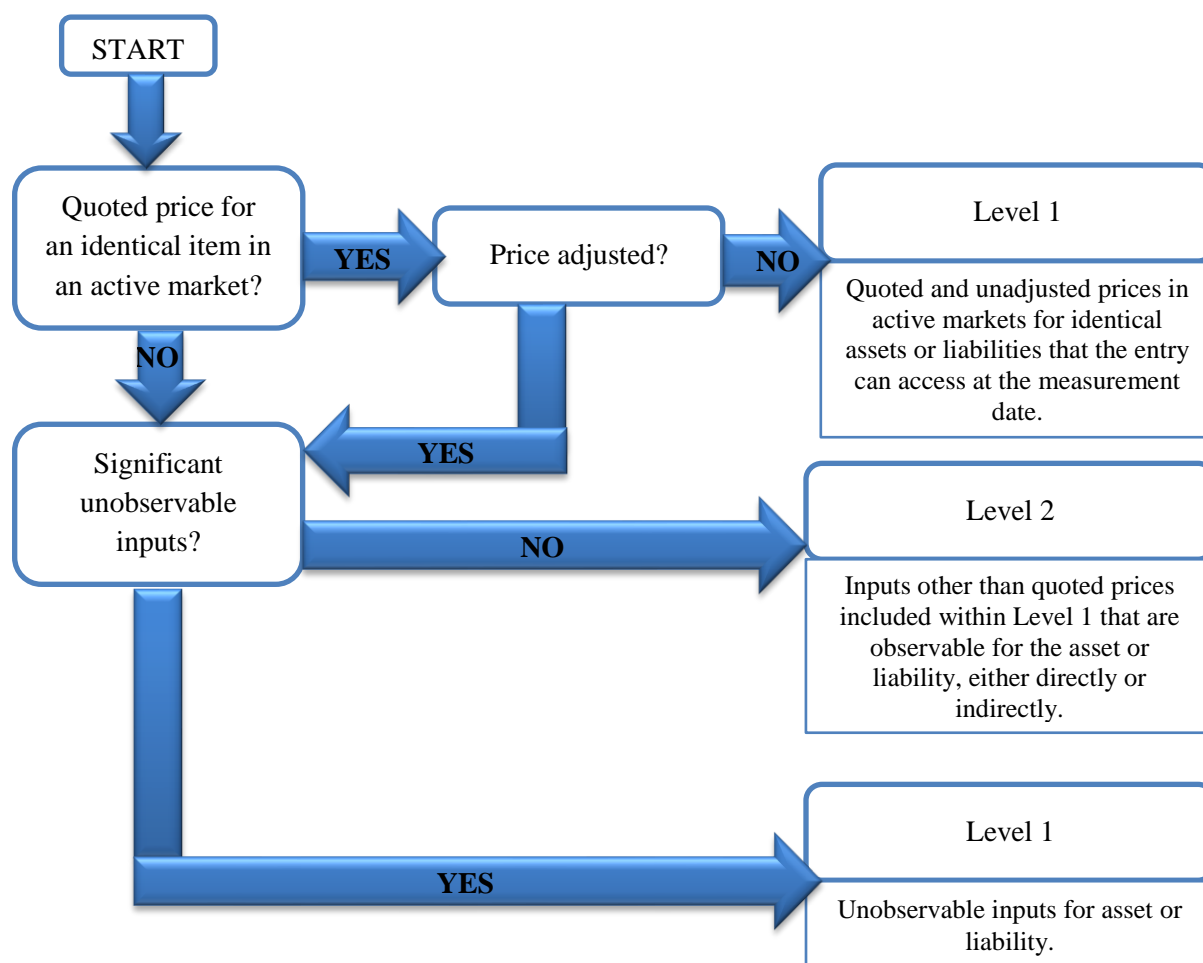
Figure 1.13. Establishing the fair value hierarchy

Source: Adaptation after KPMG, 2009, p.8

If we are visualising the fair value hierarchy as a pyramid, we have to imagine that level 1 is the base and the entity has to maximise the use of the Level 1 inputs; in the peak, we find Level 3 where an entity has to minimise the utilisation of these inputs.

The importance of ranking the financial instrument information is a consequence of IFRS 7 that requires fair value disclosure for each financial instrument.

1.2.3.2. *Amortised Cost Measurement*

To establish if a financial asset or liability will be evaluated to amortised cost[16], we have to look at the classification of the instruments. A financial asset can be measured at

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[16] Note that FASB (2012) uses the term 'net amortized cost' to refer to the The amount at which the financial asset or financial liability is measured at initial recognition minus the principal repayments, plus or minus the cumulative amortisation using the effective interest method of any difference between that initial amount and the maturity amount and, for financial assets, adjusted for any loss allowance. With the term 'amortized cost' denoting the carrying amount before deducting the loss allowance.

amortisation cost[17] if it is classified as a debt instrument and is designated in the initial recognition (ACCA, 2011, p.3). To establish if a financial asset is a debt instrument, we have to follow the business model test and the cash flow characteristics test. In the case of financial liabilities, they will be measured at amortised cost, the instruments that are not included in the category of trading purposes are derivatives that are a part of a hedging arrangement.

Amortised cost of a financial instrument is calculated using the *effective interest method*. The method is essentially a spreading mechanism allocating the interest revenue or interest expense over a relevant period. Though this method, it amortises or accretes the carrying amount recorded on initial recognition. The results are recognised in profit or loss over time as the *effective return* on a financial instrument and are calculated as the difference between the amounts recorded at initial recognition and its net accounting value (IASB, 2013b).

If fair value is a market-based measurement, amortised cost is a cost-based measurement.

1.2.3.3. *Reclassification of Financial Assets and Liabilities*

From the moment when a financial asset and liability are classified into a category, IFRS 9 limits the conditions that allow being reclassified because it expected changes in the business model to be very infrequent. Still, when an entity changes its business model to manage its financial assets, it can reclassify all the affected financial assets.

In these rare circumstances, we found entities that reclassify their non-derivative assets between fair value through profit and loss, fair value through other comprehensive income and amortised cost categories (EY, 2015, pp.22-25). The reclassification is applied prospectively from the 'reclassification date' that is defined as the 'first day of the first reporting period following the change in business model that results in an entity reclassifying financial assets' (IFRS 9, Appendix A); i.e., any changes in the previous period are not permitted, and the gains and losses cannot be restated. Reclassification will be permitted only for financial assets, in the case of financial liabilities the reclassification should never occur.

Likewise, the reclassification of investments in equity instruments is not possible as the choice to designate an equity investment at fair value through other comprehensive income

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[17] To be noted that the FASB approach measured the financial assets at amortised cost, including the loans, the debt instruments, the trade receivables, the reinsurance receivables, the net investment in leases, he loan commitments, the financial guarantees and any other receivables that represent the contractual right to receive cash. And in the IASB approach the financial assets are measured at amortised cost are the financial assets measured at fair value through other comprehensive income, the lease receivables, the contract assets, the loan commitments and the financial guarantee contracts that are not measured at fair value through profit or loss.

arises from an irrevocable election on initial recognition (BDO, 2014, p.25). The reclassification mechanism can be seen in Table 1.2.

Table 1.2. Reclassification of financial instruments

| | | Measurement category after reclassification | | |
		Amortised cost	FVOCI	FVTPL
Initial measurement	Amortised cost		**Measurement** Fair value on date of reclassification.	**Measurement** Fair value on date of reclassification.
			Differences Between the previous carrying amount and fair value are recognised in OCI.	**Differences** Between carrying amount and fair value are recognised in profit or loss
			EIR No adjustments to EIR and credit loss allowance account.	
	FVOCI	**Accumulated OCI** Removed and adjusted the fair value of the financial asset		**Measurement** Continues to be measured at fair value
		EIR No adjustments to EIR and credit loss allowance account.		**Accumulated OCI** Reclassified from OCI to profit or loss
	FVTPL	**Measurement** Fair value on the date of reclassification becomes the new gross carrying amount.	**Measurement** Continues to be measured at fair value.	
		EIR Calculated based on fair value at the reclassification date.	**EIR** Calculated based on fair value at the reclassification date.	
			Impairment Impairment requirements apply from reclassification date	

Source: Adaptation after BDO (2014, p.26), KPMG (2014b, p.41) and EY (2015, p.24)

When the entity is considering changing its business model, it has to consider that the following are not recognised as explicative factors for this decision:

- a change in the market condition, as a temporary disappearance of a particular market for specific financial assets,

- changes in the intentions related to a specific financial asset(s), and

- the transfer of financial assets between different parts of an entity that have different business models.

The IASB and FASB agreed to require prospective reclassifications when, and only when, a company changed its business model for managing financial assets. The reclassification of a business model is expected to be very infrequent and must be:

- determined by the entity's senior management as a result of external or internal changes,

- significant to the entity's operations, and

- demonstrable to external parties.

1.2.3.4.   Derecognition

We are convinced that the first step in using these requirements is to understand them fully, which is why we appreciate the need for developing more material containing explanations and examples of appropriate enforcement.

Derecognition[18] refers to the removal of an asset or liability (or a portion thereof) from an entity's balance sheet (IASB, 2014; ASFRomânia, 2013, pp.22-24). Derecognition is not an exclusive concept only for financial instruments, it applies to all assets and liabilities on a balance sheet.

The issue of derecognition of financial instruments is a new one. A discussion paper on derecognition research was published in December 2007 after the academic and business

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[18] In March 2009, IASB added the project of derecognition to its agenda for the following reasons:

- to improve the derecognition requirements for financial assets in IAS 39, which have been perceived to be complex to understand and apply in practice
- to provide users with more information about an entity's exposure to the risks of transferred financial assets
- to facilitate convergence between the derecognition requirements in IAS 39 and those in US GAAP

In March 2009, the Board published an exposure draft (ED) Derecognition - Proposed amendments to IAS 39 and IFRS 7. The boards agreed that their near-term priority should be on increasing the transparency and comparability of their standards by improving and converging US GAAP and IFRS disclosure requirements for financial assets transferred to another entity. The boards also decided to conduct additional research and analysis, including a post-implementation review of the FASB's recently amended requirements, as a basis for assessing the nature and direction of any further efforts to improve or converge IFRSs and US GAAP. In 2012, the FASB will also conclude its post-implementation review of the application of its amended derecognition requirements. The boards will make a decision about the nature and scope of any further improvement and convergence efforts at that point.

environment disapproved. Even if in the derecognition matter in IFRS 9 do not have significant improvements in comparison with IAS 39, we wish to refer and discuss the last issued standard, i.e. IFRS 9. According to IFRS 9 paragraph 3.2.3, an entity is allowed to *derecognise a financial asset* in only two situations:

i)   the contractual right to the cash flow from the financial asset expires, or

ii)   the entity transfers the financial asset, and the transfer fulfils the requirement of derecognition.

The transfer of a financial asset is possible only if:

i.   the entity transfers its contractual rights to receive the cash flow of the financial asset, or

ii.   the entity retains the contractual rights to receive cash flow from the financial asset but assumes a contractual obligation to pay the cash flow to one or more recipients in an arrangement that meets specific requirements.

A concept that needs clarification is the term of 'transfer', which is defined broadly and includes all forms of sale, assignment, provision of collateral, sacrifice of benefits, distribution, and other exchange:

- if a financial asset is derecognised after a subsequent measurement, and it was measured at the amortised cost, then any gains and losses are recognised in the profit and loss statement,

- if the financial assets were measured at fair value through other comprehensive income, then the cumulative gain and loss that was recognised in other comprehensive income will be reclassified from equity to profit and loss,

- in the case of financial liabilities, if they were recognised at amortised cost, then the gain or loss will be recognised in profit and loss, and

- when the financial liability was recognised to fair value through other comprehensive income, then the cumulative gain or loss that was previously recognised in other comprehensive income is reclassified from equity to profit and loss.

Derecognition of financial assets can be summarised in five key steps as shown in Table 1.3.

Table 1.3. Derecognition of financial assets

Step 1	The entity has to consolidate all its subsidiaries in accordance with IFRS 10 *Consolidated Financial Statements*[19]. After that, the entity needs to determine whether to apply derecognition criteria to specific assets or a group of the asset.
Step 2	Next step is to derecognise when contractual rights to asset expire or an asset have been 'transferred' (continuing to Step 3), and transfer qualifies for derecognition (continuing to Steps 4 and 5).
Step 3	If the entity is considering whether a 'transfer' has occurred then is analysing the case where either the rights to cash flows have been transferred or the case where the entity retains the contractual rights but assumes obligations to pay the proceeds to a third party without delay once received.
Step 4	In this step, the entity considers that the transfer has taken place, and regards the extent to which risk and rewards have been retained or transferred. If substantially all risks and rewards have been transferred, then the asset should be derecognized. If substantially all risks and rewards have been retained, then the asset should continue to be recognised. Risks and rewards are reviewed in the context of exposure to cash flows pre and post the deal, e.g. if an asset is sold with the option to buy back at fair value at the time of purchase, the asset is derecognised as substantially all risks and rewards will have been transferred.
Step 5	In the case when the entity has neither transferred nor retained substantially all risks and rewards (i.e. some significant risks and rewards transferred but others retained) the entity needs to assess whether it retains 'control' over the asset (referring to the practical ability of the transferee to sell the asset). If control is not retained, then the asset is derecognised and the assets or liabilities retained are separately recognised. If control is retained, the asset continues to be recognised to the extent of the entity's continued involvement.

IFRS 9, in Annex B (paragraph B3.2.1), offers a diagram in Figure 1.14 for a better understanding of derecognition of financial assets (Attention: the figure should not be read and analysed without reading the table above).

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[19] It had an effective date after 1 January 2013. The objective of this IFRS is to establish principles for the presentation and preparation of consolidated financial statements when an entity controls one or more other entities. To meet the objective, this IFRS: (a) requires an entity (the parent) that controls one or more other entities (subsidiaries) to present consolidated financial statements; (b) defines the principle of control, and establishes control as the basis for consolidation; (c) sets out how to apply the principle of control to identify whether an investor controls an investee and therefore must consolidate the investee; and (d) sets out the accounting requirements for the preparation of consolidated financial statements. Consolidated financial statements are the financial statements of a group in which the assets, liabilities, equity, income, expenses and cash flows of the parent and its subsidiaries are presented as those of a single economic entity.
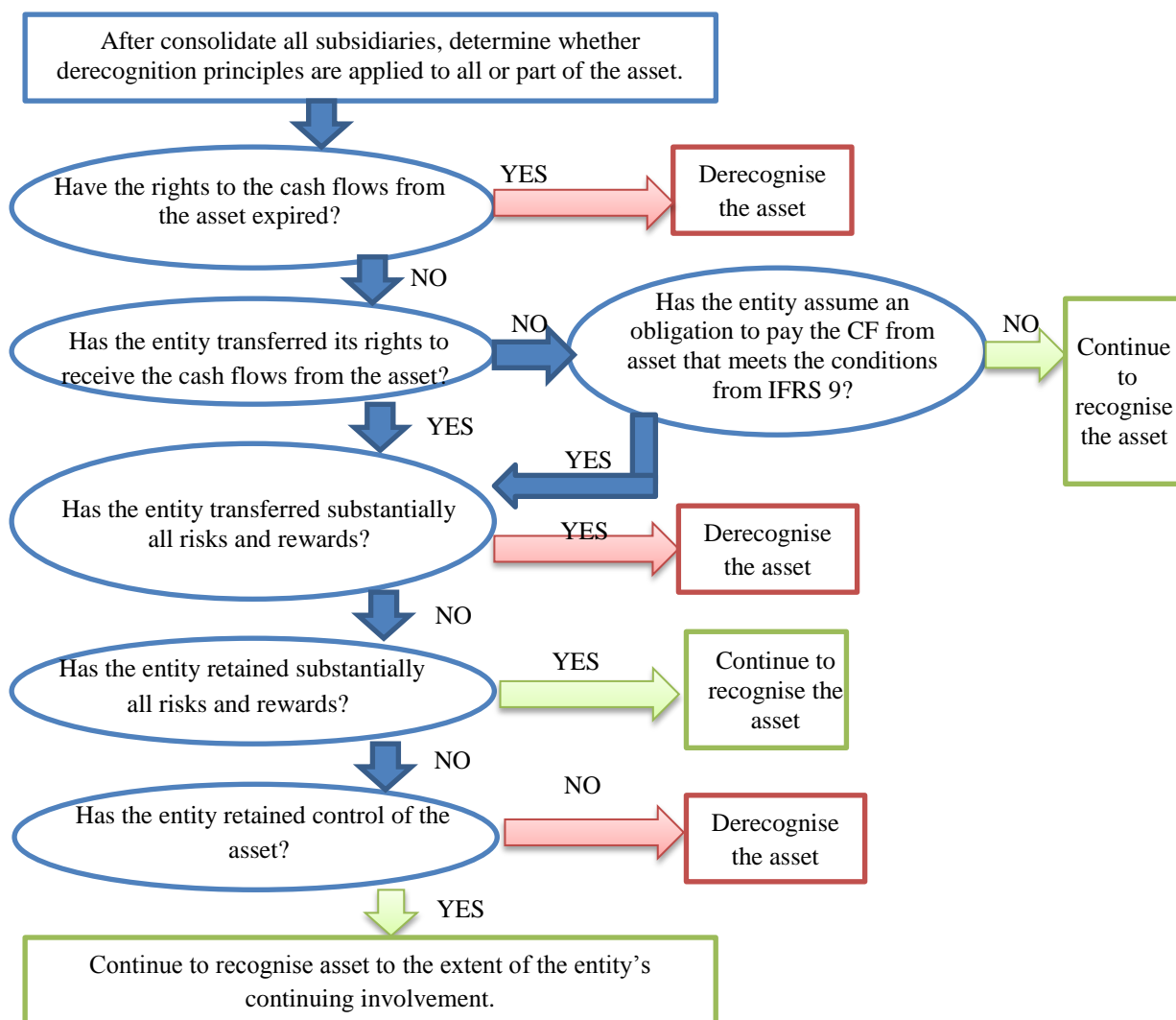
Figure 1.14. Diagram of derecognition of financial assets.

Source: Adaptation after IFRS 9 (Annex B, paragraph B3.2.1)

The matter of derecognition and financial liabilities is clearer in comparison with financial assets. According to IFRS 9, Section 3.3, an entity is allowed to *derecognise a financial liability* (or a part of a financial liability) from its statement of financial position when, and only when, it is extinguished (meaning when the obligation specified in the contract is discharged, cancelled or expires).

'After the derecognition, the difference between the carrying amount of a financial asset or liability (or part of a financial asset or liability) expired/extinguished or transferred to another party and the consideration paid, including any non-cash assets transferred or liabilities assumed, shall be recognised in profit or loss.'

1.2.4. Disclosure of Financial Instruments in Mandatory Reporting

Setting targets for financial statements depends on many factors, and there is no universal set of objectives that applies to all businesses, no matter what accounting system is adopted. The objectives of financial statements are influenced by conflicts of interest that arise on the accounting information market, the financial statements being the result of the interaction of three groups: companies, users, and the accountancy profession.

In recent years, standard setters were interested in understanding whether individual investors benefit from clearer and more concise financial disclosures in the matter of financial instruments. While early calls for clearer and more concise financial disclosures extend back to the 1960s (Briloff, 1967), there is limited evidence concerning the benefit of such disclosures to individual investors (Lawrence, 2013).

Users of financial reporting need information about the risk exposure of entities in the matter of financial instruments and entity's risk management procedures. IFRS 7 (paragraph 1) requires entities to disclose information about two broad categories:

- information about the significance of financial instruments for the financial position and financial performance of the entity, and

- information about the nature and extent of risks arising from financial instruments to which the entity is exposed, during and at the end of, the reporting period and how management is managing it.

In 2010, PricewaterhouseCoopers conducted a candid interview of investors in Europe, America, and Asia Pacific to discover which factors were the main determinants affecting how financial instruments are reported in financial reports. According to the 'investment community,' four factors should determine how financial instruments needed to be reported, as shown in Table 1.4.

Table 1.4. Factors that should determine how financial instruments are reported according to the 'investment community'

Factors that should determine how financial instruments are reported	Percentage
Entity's business intent or business model (for example to hold long-term CF, trading, etc.)	72%
The instrument type (for example all debt should get the same accounting treatment for all entities)	47%
The instrument's characteristics (instruments that have an extremely variable return vs. those with a fixed maturity)	68%
Reporting rationale is not important as long as the information is reported consistently and comparably across companies	40%

Source: Data retrieved from PwC 2010 interview-survey

The survey sample was relatively small (only 62 investment professionals were interviewed), but the organisation mentioned that the interviews were qualitative. We notice that responders had a preference for the business entity model (72%) and instrument characteristics (68%) when determining balance sheet classification and measurement of a financial instrument. The survey reported the views of a significant and diverse sample of investment professionals on some of the key questions involving the measurement and reporting of financial instruments, making it interesting to see the perspective of the professionals.

Whereas financial instruments are relevant to understanding financial statements and have an impact on the result of entities, they should disclose information about (Sa Silva, 2014, pp.181-182) the measurement bases and other accounting policies used for the financial instrument accounting.

For the entities, in the following aspects, it is required to disclose (Deloitte, 2014, pp.12-13):

- information regarding the fair value hierarchy and to specify into which fair value measurements are categorised;

- when there are significant transfers between Level 1 and Level 2 and the reasons why these transfers occurred, and

- in the case of Level 3, information should be offered about reconciliation from the opening to closing balances, about the gains and losses recognised in profit and loss, and providing a sensitivity analysis to changes in inputs.

When analysing the financial users' environment, we noticed that the users did not always agree with the regulations proposed by the IASB or FASB.

1.3. Accounting Information Relevance generated by Risks Arising from Operation with Financial Instruments

This part of the thesis is dedicated to the analysis of the requirements imposed by the international conceptual framework in matters of presentation of information and disclosure regarding the use of financial instruments. The users of financial statements need information relating to the exposure of the entities to the risks arising from financial instruments and the way in which they are managed by the entities. The objective of the standard IFRS 7 is to impose the entities to present in their financial statements, information that allows the users to appreciate the importance of financial instruments for the financial position and performance.

Adoption of IFRS was a result of the need for a common language between international companies and international investors. Regarding that *accounting is the business language, and the businesses around the world do not afford to speak different languages while sharing and exchanging financial results* (Mirza & Hold, 2011), companies listed on the same stock market with international investors have to have a *universally applicable accounting language* (Dănescu & Spătăcean, 2011, p.44). The language must allow companies not to limit themselves to the national level in their search for investors. In this matter, international investors have the opportunity to invest in any company, regardless of its location, to gain the maximum profit by reading its financial statements (Zaiceanu & Hlaciuc, 2015a, p.81).

Users are interested in operations for which the amounts of profit are significant, and they want to know the impact of the risks arising from financial instruments on the financial situation and the profitability, present, and future, of the entity. For the accounting information to be useful, it must be reliable, relevant, and understandable and presented on a timely basis. To fulfil the information needs of users, it has to have the following characteristics:

- to determine if the amounts of information what is necessary, one can compare the market value or the fair value of the total assets of the entity; or compare the predicted or possible annual cash flows of income, etc. Moreover, we must not forget that the notion of materiality relies on the possibility that the information can influence the decisions of users. For example, if a loan contract with an entity contains a restrictive clause calculated from the debt/equity ratio, then the recognition of a financial instrument in the balance sheet is imperative. Especially in a case where the entity has trouble abiding by this clause.

- for the information provided in financial statements to be useful, it must be capable of being understood by users.

- for information to be useful for decision-making, it must be received by the decision maker before it loses its capacity to influence decisions. The usefulness of information for decision-making declines as time passes.

- information is reliable when it agrees with the actual underlying transactions and events, the agreement is capable of independent verification, and the information is reasonably free from error and bias. It is relevant when it helps users make decisions.

About financial instruments, users need to know the contractual details that assign value the amount and volatility of cash flows. In that respect, information should reflect substance

as well as reveal the elements needed to value risk. This is even more important for off-balance sheet items for which the present value is low, but future cash flows are prone to be important. This is the case for swaps and endorsements that include non-monetary exchanges (excluding transaction costs) at the signing of the contract, but can hold a high level of investment risk.

In the standard international framework, we see that great importance is granted to the part about disclosure information about financial instruments. IAS 32 was the first standard that established an extensive set of disclosure requirements for financial instruments. Afterwards, IAS 39 carried forward these demands with only minor changes adding further information disclosure requirements. Both standards were revised in 2003, as part of the IASB *Improvement Project*, and at that time, all disclosure requirements could be found only in IAS 32. In August 2005, IFRS 7 was promulgated, and the new standard replaced all disclosure provisions from IAS 32. The new standard took effect on January 1, 2007.
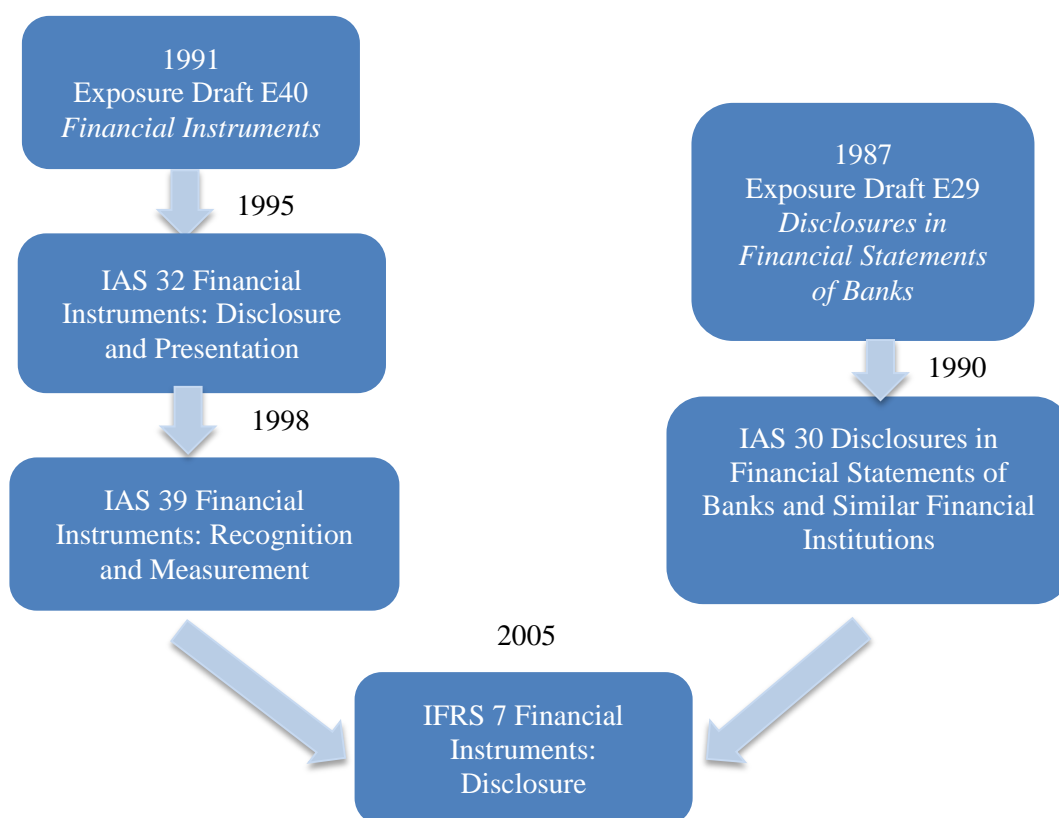
Figure 1.15. Evolution of the international framework in the matter of disclosure requirements for financial instruments

IFRS 7 has superseded (but not changed) the disclosure requirements previously found in IAS 32 *Financial Instruments: Disclosure and Presentation*, as well as the financial institution-specific disclosure requirements of IAS 30, which were accordingly withdrawn.

The disclosure requirements of IFRS 7 are extensive. In part, the relatively large number of disclosure requirements are a direct consequence of significant losses that many organisations incurred recently with respect to financial instruments, or in particular, derivative financial instruments. The international reporting standard specifies several disclosures that an entity must make regarding financial instruments (Samkin & Deegan, 2013, p.558).

The need for new standards rose from the increasingly sophisticated methods that reporting entities used to measure and manage their exposure to risks arising from financial instruments (Mackenzie et al., 2014, p.697). In the new world where everything is changing, the IASB saw that the internal and external users of financial reports demanded more information about the reporting entities' exposures to risk and about how those risks were managed. This information can influence a user's assessment of the financial position and financial performance of an entity. Greater transparency regarding the risks arising from financial instruments allows users of financial statements to make more informed judgements about risk and return (van Greuning, Scott, & Terblanche, 2011, pp.367-368). IFRS 7 is applied to all entities, no matter the number of financial instruments they have in their patrimony.

An in-depth interview survey of 62 investment professionals conducted by PricewaterhouseCoopers (2010) had as its main goal the determination of the key disclosure information concerning financial instruments. In the analytical process, they discovered insights of using financial instruments information. When asked what type of measurement of corporate performance was the most useful in assessing an entity's investment suitability, the investors responded net interest spread/profit margin, future ability to generate positive cash flow, future earnings growth rate, expense to revenue efficiency, return on equity (or return on assets), fair value of financial instruments, credit experience and qualitative disclosure. We can observe the interest of the investment professionals in measuring the performance of the entities and finding quantitative information about the entities. These results are summarised in the Figure 1.16.
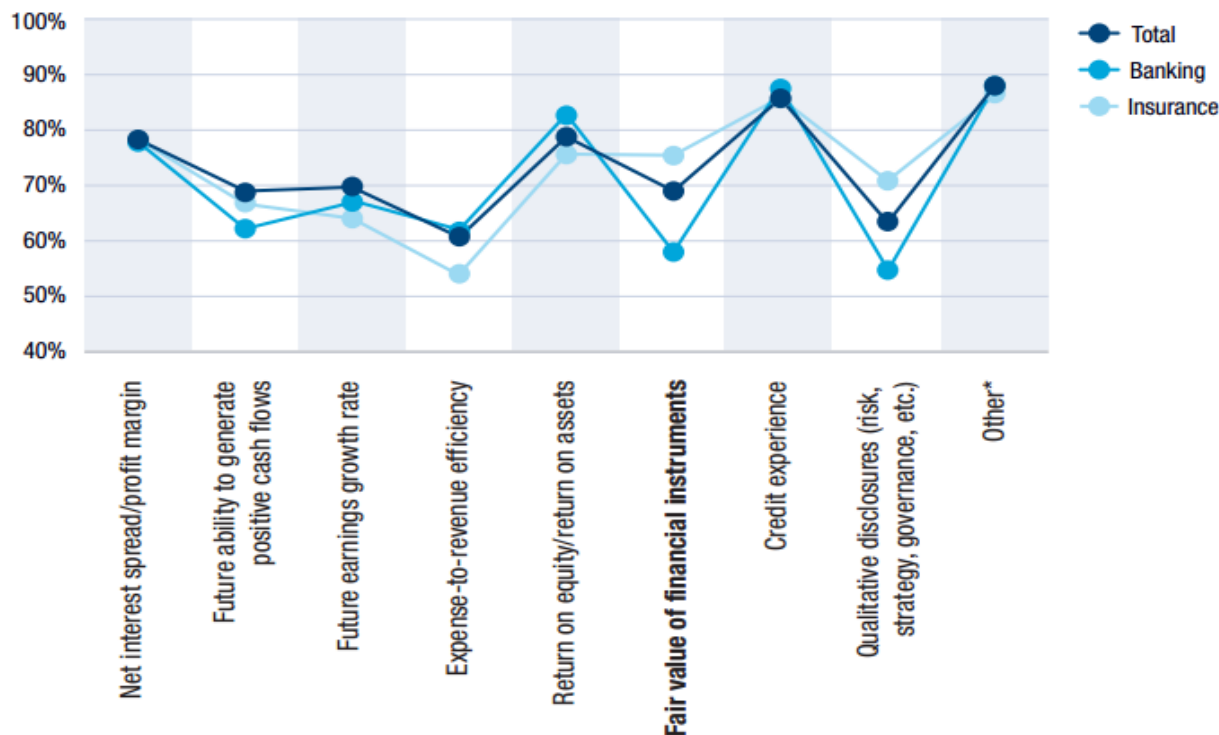
*Other measures cited include quality of management, regulatory capital measures, other solvency measures, claims history, etc.

Figure 1.16. Most useful types of measures used by investments professionals

Source: Adapted after PwC (2010)

The International Banking Federation states that the aim of performance reporting should be to provide useful information to users about the past, present and future situation of an entity. Management is responsible for the daily performance of an entity, and the measurement of financial assets and liabilities is an important component in evaluating an entity's performance–as is the method of displaying changes in value (Cerrato, 2008, pp.4-5).

The standard framework states two main categories of financial instruments information disclosure that have to be provided to the users to fulfil their needs. The first refers to the information about the significance of a financial instrument on the financial position and financial performance, and the second refers to the nature and extent of risks arising from the use of financial instruments and how the risks are managed.

There are several disclosure requirements in IFRS 7, and the best way to appreciate the extent is to review the standard. Figure 1.17 offers a perspective of the outline of IFRS 7 (IASB, 2013, pt.6-42H, pp.A248-A262).
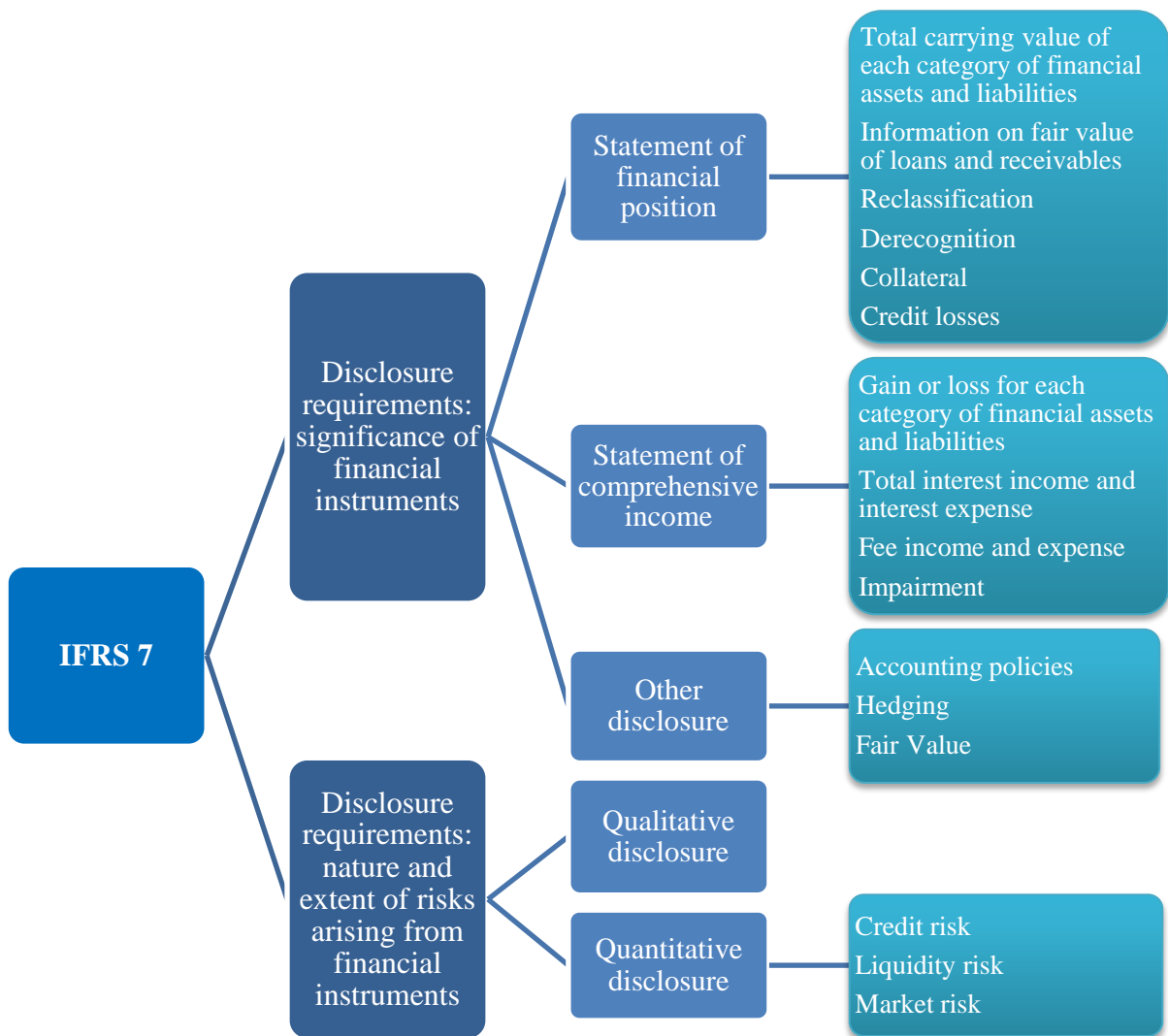
Figure 1.17. Overview of IFRS 7 reporting requirements

When an entity discloses information about its financial position, it should include information about the total carrying value of financial assets and financial liabilities on the face of the statement of financial position or in the notes; should offer information on fair value of loans and receivables; describe how the financial liabilities are designated at the fair value through profit and loss; identify how financial assets are reclassified; identify which financial assets do not qualify for derecognition; detail the financial assets pledged as collateral and collateral held; inform about the reconciliation of the allowance account for credit losses; describe compound financial instruments with embedded derivatives; and detail the defaults and breaches of loans payable. The information regarding financial performance should include: the gain or loss on financial assets and financial liabilities in the statement of

comprehensive income or notes; information about the effective interest method; fee revenue and expense; interest on impaired financial assets; and the amount of impairment loss for each financial asset (BDO, 2015, p.12).

Other disclosures that can be included in the category of significance are related to the accounting policies (here the entity should specify the measurement basis); hedge accounting (i.e., description of hedge, fair value of the hedge, type of risk hedges, details of cash flow hedges, and hedge of net investment in foreign operation); and information about how the fair value of each class of financial asset and liability is calculated (which is the disclosure method, and disclosure in case the fair value cannot be determined).

When the entity discloses information about the nature and extent of risks arising from financial instruments and how the risks are managed, IFRS 7 splits the information into two broad categories: qualitative and quantitative. Qualitative disclosure offers information about the exposure to risk, how it arises, and information about the objectives, policies, and processes for measuring and managing risks. In the case of quantitative disclosure, for each type of risk that arises from financial instruments, the entity discloses a summary of its quantitative data about the exposure to a specific risk at the end of the fiscal period and a concentration of risks.

Financial reports are the basis for a wide range of business analysis. In general, managers use them to monitor and judge their companies' performance in relation to competitors, to communicate with external investors, to help judge which are the most appropriate financial policies and to evaluate potential new businesses. Securities analysts use financial statements to rate and value the firms they recommend to clients (Healy & Palepu, 2013). Investment companies use them to evaluate and analyse prospective buyouts, mergers or acquisitions. Banks use them in deciding if they should grant a loan to a potential client. It is not surprising, therefore, that there is a continuous demand for disclosing significant information, especially in the matter of risks.

Financial instruments and especially financial derivatives have been used in the last several decades to manage and hedge (Chance & Brook, 2015, pp.1-2) against risks, but they involve their own peril that has to be controlled. This is the main reason why an entity, before using derivatives, should implement its own efficient procedure for controlling risks. Clearly, the disclosure requirements relating to 'risks' associated with financial instruments are quite extensive. IFRS 7 imposes on entities further detailed disclosure requirements about credit risk, liquidity risk, and market risk.

The financial crisis that started in 2007 is an example of a major miscalculation of the probability of default in the case of asset-backed securities, due to the complex and not well understood nature of financial instruments (Healy & Palepu, 2013, p.10-19).

Even if risk disclosure describes an entity's significant risks and explains its expected economic impact on their current and future performance (Miihkinen, 2010, p.437), the main aim of risk disclosure is to identify, manage, analyse and assess various risks that have an impact on the entity (Collier, 2009). Studies discovered that corporations with a high level of risk will regularly disclose a greater amount of risk-related information because the managers are willing to explain the causes of the high risk (Linsley & Shrives, 2006, p.391). Managers do not want to alarm investors, and through financial reporting, they are transferring and communicating to the outside world the entities' performance and governance (Armstrong, Guay, & Weber, 2010, pp.182-184).

Before the publishing of IFRS 7, Cabedo and Tirado (2004) acknowledged the absence of regulation regarding risk reporting about financial instruments and indicated that the information was not adequate for decision-making purposes. The authors defined risk as *the possible loss of company wealth arising from the interaction of [both internal and external] factors*. Different risks were identified: financial and non-financial. In the category of non-financial risk, they included business risk and strategic risk; and in the category of financial risks they included market risk, credit risk, operational risk, and liquidity risk. The research developed a quantification model to define and measure the risks, proving in the end, the importance of risk disclosure.

After the IASB had published IFRS7, we noticed an explosion of research in the field of risk disclosure regarding financial instruments, as depicted in the graphic below. We chose 1995 as the reference year for the evolution because that was the year that IAS 32 *Financial Instruments: Presentation and Disclosure* were issued. Firstly, we chose Google Scholar as a database because we were interested in all published research, regardless of whether was published or not in the Information Sciences Institute. Secondly, we chose to analyse the evolution of the articles in the Thomson Reuters Database, though the ISI Web of Science.
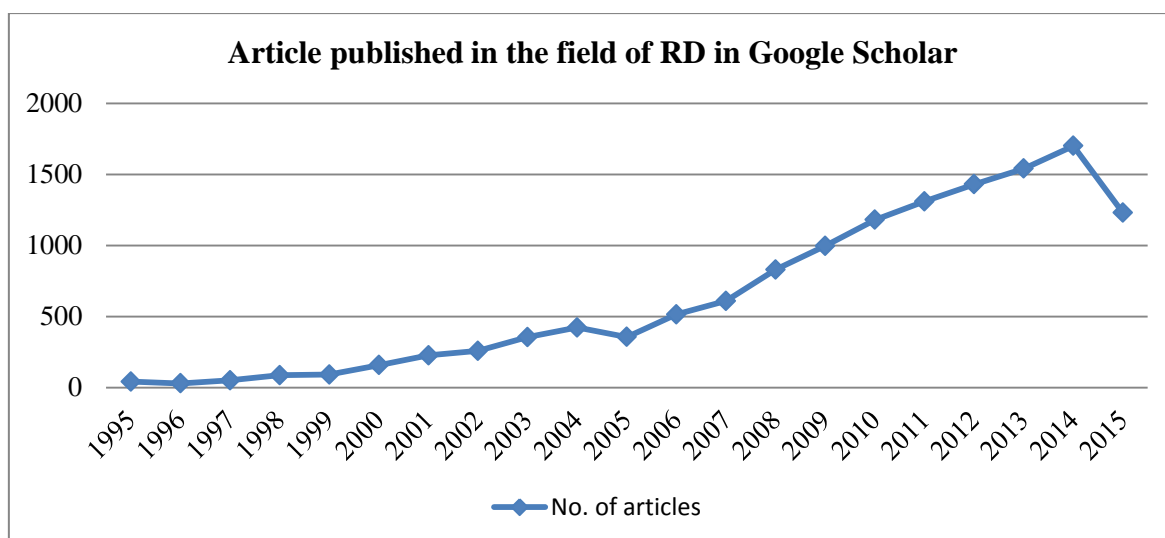
Figure 1.18. Evolution of articles regarding the topic of risk disclosure in Google Scholar

Source: Author's elaboration with data from Google Scholar

We observed the interest that the literature has granted to this issue, and it remains to be quite an important research question. The graphic shows us that there are still a lot of questions and answers that need to be offered in the matter of risks, and the problem should be explored in order to find the right solutions.

After analysing the Google Scholar database, we analysed the Thomson Reuters Database and discovered there were 70 articles published in the period 1995-2015 concerning the subject of risk disclosure in the matter of financial instruments.

Even if the tendency is fluctuating, we can notice that, as in the case of Google Scholar, the number of articles is growing, and the matter is a concerning one.
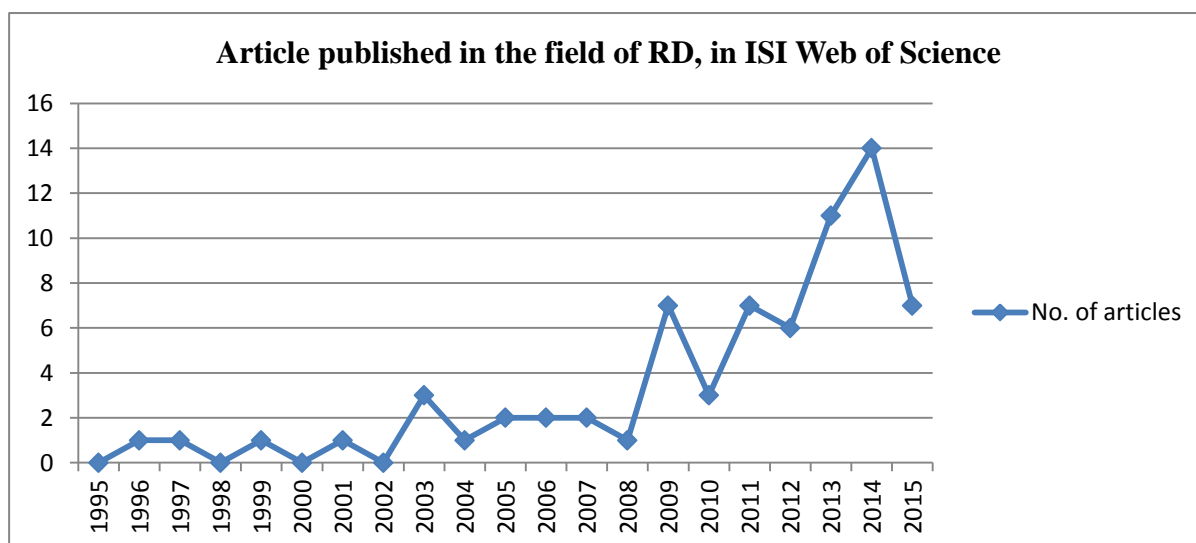
Figure 1.19. Evolution of article regarding the subject of risk disclosure in ISI Web of Science

In conclusion, we can say that recent trends in studying risk disclosure are present in empirical studies, and as businesses are changing, the standards continue to evaluate and develop and researchers continue to expand their study regarding this matter.

Wrapping up, in this chapter, we presented the main theoretical aspect related to financial assets and financial liabilities. After the definition of financial instruments, we continued by exhibiting the accounting process for them. We presented the main requirements that have to be taken into consideration when we manage the financial instruments in a company. We concluded the first chapter by bringing forward and underlining the key disclosure information regarding financial instruments. We believe that we successfully presented the requirements relating to the disclosure of information about financial instruments and thereby fulfilled the first objective of our thesis.

CHAPTER 2. ACCOUNTING PARTICULARITIES REGARDING THE OPERATIONS WITH FINANCIAL INSTRUMENTS. THE EFFECTS INCURRED ON AN ENTITY'S PERFORMANCE

Perhaps one of the most developed issues of the conceptual framework in the last ten to fifteen years is related to the risk and disclosure information. Even if the conceptual framework was preoccupied with the measurement and evaluation of financial assets and liabilities, after the big financial scandals, the standard setters understood the importance of one of the main attributes of financial instruments–risk.

The chapter begins with chronological analyses of the conceptual framework and of the main changes in accounting policies of financial instruments caused by the evolution of the accounting regulatory framework. Having the whole picture of the characteristics and typologies of financial instruments, we determine which the particularities are regarding the operations with them, and how they were influenced by the accounting regulatory framework in the main accounting systems from America (US-GAAP), China (CAS), Europe (IAS/IFRS), India (Ind AS) and Japan (ASBJ). The analysis highlights the importance of identifying, assessing and managing the risks associated with financial instruments operation, from an accounting approach.

The secondary objective that results from the structure of this chapter is to observe the interaction between the requirements of the accountancy of financial instruments and the international conceptual framework. Given that the financial instruments cover a large range of financial assets and financial liabilities, the problems of the effects on the performance of the financial investment companies in matters of specific risks is analysed and presented. In this chapter, in order to observe the effects of risks and to determine their impact on the performance of the researched entities, they were identified, defined and evaluated.

2.1. The Main Changes in Accounting Policies of Financial Instruments Caused by the Evolution of the Accounting Regulatory Framework

The difference in national accounting systems was identified as the main reason for spending additional costs in companies that prepare financial statements based on national generally accepted accounting principles in order to raise capital from different countries. Financial reporting as a result of the application of accounting treatments should become a comprehensible source of information for users from different countries. The way out of this situation is a global harmonization of financial reporting. Looking at the worldwide accounting history, we notice that every country has its national accounting standards and

rules of how accountants should deal intelligently with the economic events and through which methods they should record the events[20]. With the continued globalisation of corporations, businesses have exceeded national borders, and the professional community feels the need for a common language. In this circumstance, an adaptation of high-quality standards was welcomed by both the business community and financial users' community. The 'world is getting smaller' through the adoption of a global standard that will reduce costs and increase efficiency[21].

In a world where the technology advanced in a fast forward time and it manages to change our life in an alert rhythm, where the future computers are managed by thoughts, where accounting is accomplished at the level of techniques and policies from innovation area, we are asking ourselves what can offer us insurance in the financial information and how sure can we be about the information provided by the entities (Zaiceanu, Hlaciuc, & Cioban, 2015b, p.596). The aim in this part of the thesis is to present the main requirement regarding the accounting policies in the matter of financial instruments.

With the increasing complexity of business, it was discovered the necessity of developing accounting practices by introducing certain sets of standards and norms (Grosu, et al., 2013). The most controversial standard-setting issue in the last two decades was accounting for financial instruments (Gebhardt, 2012, pp.267-268). Financial reporting for financial instruments is undergoing a period of unprecedented change and salience for financial analysis. The international standards are in a constant process of development, coming more complex and prescriptive (Mihalciuc, Grosu, Zaiceanu, & Scurtu, 2013, p.395).

Through the evolution of accounting for financial instruments, we notice that at the beginning their measurement was dependent on whether the instrument was of the short or long term (Basu & Saha, 2011, pp.62-63). History shows us that the value of short-term instruments was reported at the lower of cost or market price while the long-term instruments were valued at cost only. Influenced by the business environment, this simple accounting rule failed to keep pace with the complexity and multiplicity of the financial instruments and, most

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[20] An interesting book about history of the accounting was written by Michael Chatfield and Richard Vangermeersch and was entitle *The History of Accounting (RLE Accounting): An International Encylopedia* in 1996. The authors present all the important elements from the accounting field and after they define the concepts, they offer an historical explanation of the terms.

[21] The phrase is a personal interpretation and correlation of the IFRS presentation from 2012 made by Guillermo Braunbeck, project manager and education initiative at IASB at that time. Through the expression 'the world is getting smaller' the presenter refers to the fact that in over 120 counties (in present profiles are completed for 140 jurisdictions) IFRS/IAS was presented and it continue to grow more and more by every year.

important, with structural financial transactions. Moreover, previously, derivatives were not recognised on a balance sheet because of the zero costs that implied the entrance into a derivative contract. As a consequence, some accounting scandals (see Annex 1) led to the excessive speculative trading of securities, unexpected losses on derivatives, and off-balance sheet financing and sparked an impulse among regulators to establish well-defined principles to promulgate appropriate accounting norms and principles for financial instruments.

In the international framework, since the mid-1980s the pioneer in establishing principles related to the accounting for financial instruments was the FASB of the U.S. when it proposed a project on financial instruments accounting. In the early 1990s, the FASB created a comprehensive accounting principle for financial instruments when some Statements of Financial Accounting Standards were issued for mandating recognition and disclosure of various kinds of financial instruments in financial statements. Two important standards issued in 1991 and 1994, *SFAS107 Disclosure about fair value of financial instruments* and *SFAS119 Disclosure about Derivative financial instruments and fair value of financial instruments* founded the accounting treatment for financial instruments.

The standards provided a definition of fair value and required the disclosure of all recognised financial assets and liabilities at fair value also the disclosure of fair value estimates of derivative instruments. The rules of measurement for financial instruments can be found in *SFAS115 Accounting for certain investments in debt and equity securities* (1993) and *SFAS133 Accounting for derivative instruments and hedging activities* (1998). The first standard provided information about measurement allowing certain classes of financial assets to be evaluated at fair value and particular categories to amortised cost. The second standard required an entity to recognise a financial derivative as an asset or liability and to evaluate it at fair value in the financial statement (Basu & Saha, 2011, pp.62-64).

We found eight standards in the American accounting standards guidance for financial instruments: ASC 310 *Receivables* (formerly FAS 114), ASC 320 *Investments - Debt and Equity Securities* (formerly FAS 115), ASC 470 *Debt* (formerly a variety of authority guidance), ASC 480 *Distinguishing Liabilities from Equity* (formerly FAS 150), ASC 815 *Derivatives and Hedging* (formerly FAS 133 and FAS 161), ASC 820 *Fair Value Measurement* (formerly FAS 157), ASC 825 *Financial Instruments* (formerly FAS 107 and FAS 159), ASC 860 *Transfers and Servicing* (formerly FAS 166), and ASC 948 *Financial Services - Mortgage Banking* (formerly FAS 65) (Cozma Ighian, 2012, p.71).

The IASC played a pivotal role in the formulation and dissemination of accounting principles for financial instruments. The two relevant standards were founded the following

principles and rules for financial instruments were IAS 32 *Financial Instruments: Disclosure and Presentation* (1995) and IAS 39 *Financial Instruments: Recognition and Measurement* (1999). IAS 32 defines the key financial instruments terms and provided requirements for basic financial reporting disclosure and presentation. IAS 39[22] focuses on principles related to accounting for financial instruments including derivatives, in the case that was not designed for hedging, recognition and derecognition of financial instruments, their classification and measurement and accounting for gain and losses from changes in value, in the case of hedge accounting.

In the conceptual framework from 1999 to present day, we notice (especially in terminology) the evolution of the recognition and measurement of financial assets and liabilities. In the initial IAS 39 standard, recognition of a financial asset or liability required *probable* receipt of a future benefit, and at the initial recognition the FALs was measured at historical cost (which was the fair value of the consideration given). When the financial asset was evaluated under subsequent measurement, it was recognised at fair value; it should not be confused between initial recognition at fair value and sequent measurement at fair value. The first measurement is concerned with the fair value of the *consideration given* and the second is based on the fair value of the *financial instrument*.

In 2001, the IASC was replaced by the IASB, and in the last decade, the IASB has become the most important standards-setter in the world[23], has issued and developed major standards for primary and derivatives instruments, transfers of financial instruments, hybrid financial instruments, and fair value measurements. The standards reflect the IASB's attempt to improve the transparency of financial reporting for financial instruments by addressing the limitations of prior accounting and disclosure rules. The subject of accounting for financial instruments received a great deal of attention from the IASB in the form of two voluminous and controversial standards; continued attention is a certainty (Mackenzie et al., 2014, p.610).

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[22] In July 2014, the project for replacing IAS 39 with IFRS 9 *Financial Instruments* finished. This standards has as effective date 1 January 2018, but early adaptation it is permitted. Even if it is not referring exclusively to the financial instruments, we should mention that the entities must considering the regulation from IFRS 13 *Fair Value Measurement* when is assessing the FI.

[23] The International Accounting Standards Board is committed to developing, in the public interest, a single set of high quality global accounting standards that provide high quality transparent and comparable information in general purpose financial statements. In pursuit of this objective the IASB conducts extensive public consultations and seeks the cooperation of international and national bodies around the world. The IASB is an independent group of 14 experts with an appropriate mix of recent practical experience in setting accounting standards, in preparing, auditing, or using financial reports, and in accounting education. Broad geographical diversity is also required. The IASB is responsible for the development and promulgation of International Financial Reporting Standards, required or permitted for use by companies in more than 100 countries.

The objective of IFRS is to develop a single set of high-quality, understandable, enforceable and globally accepted financial reporting standards based upon clearly articulated principles (IASB, 2015b). In August 2005, IASB issued IFRS 7 *Financial Instruments: Disclosure* having as the main purpose to provide the disclosure requirements. Because the new standard has taken paragraphs from IAS 32, this one changed its name in IAS 32 *Financial Instruments: Presentation.*

Besides *AS11 Changes in Foreign Exchange Rates* (1995) and *AS13 Accounting for investments* (1995) in India, we could not found any accounting principles laid down for financial instruments. This shortcoming had impeded the compatibility of financial statements of Indian business enterprises and financial institutions with their foreign counterparts, so Indian authorities decided to take action. Inspired by the IFRS standards, the Council of the Institute of Chartered Accountants of India (ICAI) issued AS30 *Financial Instruments: Recognition and Measurement*, AS31 *Financial Instruments: Presentation*, and AS 32 *Financial Instruments: Disclosure* (2007).

The first phase of converting the Indian accounting standards to IFRS began on April 1, 2015. Until then, there was no mandatory guidance on accounting for financial instruments. Under the new Indian Accounting Standards (Ind AS), there are three standards that deal with financial instruments: Ind AS 32 *Financial Instruments: Presentation* (equivalent of IAS 32), Ind AS 107 *Financial Instruments: Disclosure* (equivalent of IFRS 7), and Ind AS 109 *Financial Instruments* (equivalent of IFRS 9)[24] (Deloitte, 2015(a), p. 5; Deloitte, 2015(b)).

The trend of elaborating on accounting treatments and the laying down of foundational principles in the matter of financial instruments occurred later in the People's Republic of China. Here, in 2006, the Ministry of Finance issued a set of Accounting Standard for Business Enterprises (ASBEs) which are converged with IFRSs; in this matter there are a set of five standards for financial instruments: CAS 37 *Financial Instruments: Presentations and Disclosure* (which contains paragraphs from IFRS 7 and IAS 32), CAS 12 *Debt Restructurings*, CAS 22 *Financial Instruments: Recognition and Measurements*, CAS 23 *Transfer of Financial Assets*, and CAS 24 *Hedging* (all from IAS 39)[25] (Deloitte, 2015(c); EY, 2014, p.3; KPMG, 2014, pp.34-35).

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[24] Same like IFRS, Indian accounting referential has a standard that provides principles-based guidance on how to measure fair value and requires information about those fair value measurements to be disclosed, Ind AS 113 *Fair Value Measurement.* This standard consolidates fair value measurement guidance from across various Ind AS's into a single standard. It does not change when fair value can or should be used.

[25] Ministry of Finance of the People's Republic of China issues, as well, a standard for fair value: CAS 39 *Fair Value Measurement*. The standard is an equivalent of IFRS 13.

The first Japanese accounting standards in the matter of financial instruments were issued in 1999. Since then, Japan has pursued a continuing process of globalisation and harmonisation of accounting standards until the on-going adaptation of IFRSs. Presently, when an entity elaborates its financial statements in accordance with the Japanese accounting referential, it should take into consideration the standards issued by the Accounting Standards Board of Japan: *Accounting Standards for Financial Instruments* with the *Practical Guidelines on Accounting Standards for Financial Instruments*, *Accounting Standards for Foreign Currency Transactions* with the *Practical Guidelines on Accounting Standards for Foreign Currency Transactions*, and *Audit Treatment for Accounting and Presentation of Debt Guarantee and Similar Guarantee Obligations*, *Guidance on Accounting for other Compound Financial Instruments (Compound Financial Instruments Other than Those with an Option to increase Paid-in Capital)* (PwC, 2015, pp. 73-116, 131-140; Urasaki, 2014, pp.56-57).

The global financial crisis of 2008-2009 underscored how closely the financial markets and the wider economy are interconnected and highlighted the need for a commonly accepted high-quality set of accounting standards, particularly standards relating to financial instruments (Mackenzie et al., 2014, p.611). Paradoxically, the crisis occurred in a sector, unlike that of other industries, that had been utilising human capital with strong scientific and mathematical skills (Caccioli, Marsili, & Vivio, 2009, p.467). All the recent environmental changes underlined the need for a common language in the matter of financial instruments, and through the process of globalisation, we can get there.

2.2. Identification and assessment of Risks Arising from the Operations with Financial Instruments

Looking at the business world, we notice that the majority of decisions are made in risky and uncertain conditions. From the decision to invest in a listed company, to the decision to launch a new product or to construct an extensive project, we need to be able to identify the risks.

Contemporary society is constantly confronted with an extraordinary variety of risks: natural hazards, occupational hazards, health hazards, risks that damage the environment and adversely affect future generations, etc., whose occurrence may lead to permanent damage.

One of the many definitions of risk describes it as a threat, an opportunity to produce an event causing damage, characterised on the one hand as having serious consequences, and on the other hand as a mere probability of occurrence.

The extent of risk is difficult to comprehend; the same risk could produce significantly different effects depending on where it occurs. The effects of an auto accident vary depending on the vehicles involved, the season and location, the speed involved, the state of the seatbelts if coupled or not, etc. Risk characterisation methods exist, but their results suffer from the presence of strong elements of subjectivity. The same risk can be described, analysed, and measured in perspective for different purposes by different observers.

The study of risk has been an interesting subject for academics and investors for hundreds of years (Bernstein, 1996, pp.1-5). However, the understanding and managing of the risks associated with the use of financial instruments are relatively new.

Looking at the etymology of the word 'risk' we notice its 1680's derivation from the Italian 'risicare' translating into 'to dare'. This suggests that risk is more a choice than a matter of fate. So when we say that an entity has risks arising from financial instruments, we can say that the entity dares to use the financial instruments, and this choice has challenges and consequences attached to it.

Other concepts entail different forms or perspectives to the term of risk; such as uncertainty, indetermination, or ambiguity (Zamfir, 1990). Risk can be considered as the more- or less-aware assumptions of the results of elections made (Lupu, 2008, p.15). It refers to the probability of success or failure of an action as the consequence of a certain decision. Risk can arise from the result of an indetermination (non-existent information) or from the ambiguous nature of information.

Uncertainty is a complex concept, and risk must be included in the framework. Without uncertainty, risk cannot exist, but without risk, uncertainty can exist, meaning that uncertainty will become a risk when you can fix the subjective possibilities. Figure 2.1 depicts the connection between these two concepts.
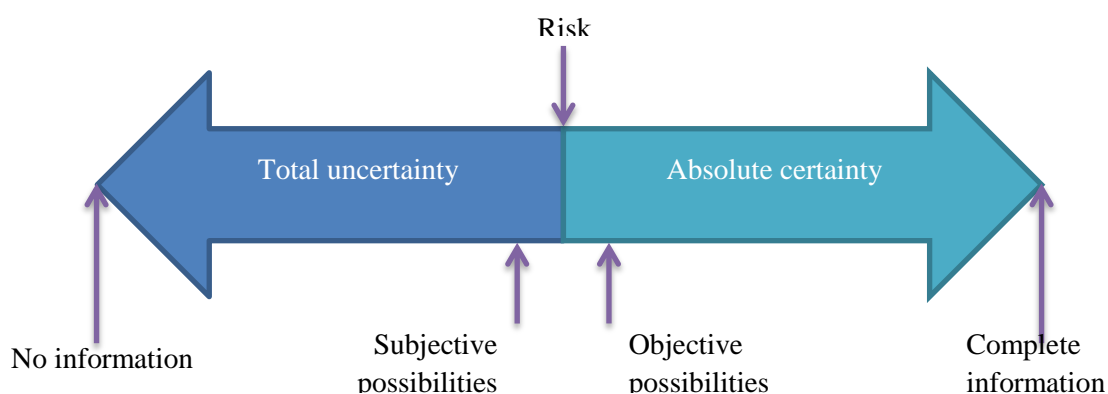
Figure 2.1. Relation between risk and uncertainty

Risk does not imply uncertainty automatically, but the capacity to enunciate objective or subjective possibilities of an event can occur (Barna, 2008, p.74). Risk should be seen as a probability because the doubt in an economic action provides the possibility to obtain more results.

This notion of risk makes reference to the uncertainty inherent in future cash flows, which translates into a distribution of probabilities of certain events occurring. IFRS 7 presents three types of risk:

- *Credit risk* − the risk that one party to a financial instrument will cause a financial loss to the other party by failing to discharge an obligation.
- *Liquidity risk* − the risk that an entity will encounter difficulties in meeting its obligations associated with financial liabilities which are settled by delivering cash or other financial assets.
- *Market risk* − the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Moreover, is consists of:
  - o currency risk − the risk that the value of an instrument will vary due to changes in currency exchange rates.
  - o interest rate risk − the risk that the value of the instrument will fluctuate due to changes in market interest rates.
  - o other price risk − a broader concept that subsumes interest rate risk; that is, the risk that the fair value or future cash flows of a financial instrument will fluctuate due to specific factors of the financial instrument or due to factors that are affecting all similar instruments traded in the same market.

Market risks are the specific risks that result from changes in the economic environment in which the entity operates. The risks are significant because they can directly influence the cash flow (in and out) and as well the net profit of the entity (Cabedo & Tirado, 2004). These two elements are the main reasons why it is necessary to 'capture' and report the risks to financial users.

Figure 2.2 shows the main categories of risk arising from financial instruments in a manner conforming with IFRS 7 *Financial instruments: Disclosure*.
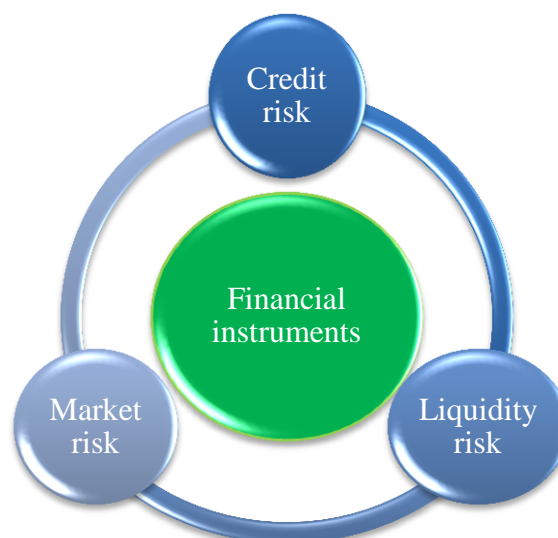
Figure 2.2. Types of risks arising from financial instruments according to IFRS 7

Mishkin (1992, p.115) defined a financial crisis as a financial market disruption because of asymmetrical information. Even if financial crises are extremely rare, they still lead to a financial market breakdown. Negrea (2014) compared a financial crisis to an earthquake due to elude to the extreme and rare events that may happen. The denominator in both cases is the probability of risk, and even if the possibility of the event is rare, when it strikes, the consequences can be devastating. The main element that triggered the financial crisis of 2007 was the default probability of the financial institutions. This default event is a risk for a company, and if it was measured, evaluated, and estimated properly, maybe the crisis could have been postponed (because we do not believe that the crisis could have been completely avoided).

In general, financial risk-management practices consist of activities designed to increase a company's value by reducing the impact or likelihood of financial disruption (e.g., bankruptcy, tax costs, market risk, and credit risk) resulting from large intermittent fluctuations in either operational costs or revenues (Foster & Kern, 2015).

When we are analysing and taking into consideration the measurement of risk from two angles: an individual view and a global view (Blanchette, 1997, p.11). The individual analysis consists of considering the business cycle of the entity and analysing the risks from the perspective of owning them in the patrimony. The individual approach measures the risks through the internal ratios, taking into consideration the internal factors and tries not to be influenced by macroeconomic factors. This approach is used to provide a better understanding of the management of the internal entity and to determine which risks that can be internally exposed. The global approach measures risk by considering the macroeconomic factors to

which the entity is exposed. This approach focuses on the external factors that can influence the business and the risks that may arise from them.

We understand that the entity cannot be isolated from external factors, and it would be the wrong approach to state that an entity has only internal risks. The main idea is to aggregate all the risk factors to obtain the net exposure of the entity to incur losses following future events. Combining the internal and external elements, we take an individual approach in our study without disregarding the important external factors that may affect an entity's performance.

2.3. The Importance of Managing the Risks Arising from Operations with Financial Instruments. An Accounting Approach

The imperative to improve financial instruments risk disclosures became apparent during both the ongoing sovereign debt crisis and the 2007-09 market crisis (CFA, 2011). Studies in the field of accounting show that risk disclosures are both widely used and regarded as important by users because it identifies the key information that is used to make a decision. In this matter, the financial information that entities provide financial instruments should help investors to judge the risk (Koonce, Gascho Lipe, & McAnally, 2005, p.871) considering that investors evaluate potential investment regarding risk and rentability, efficiency, and performance (Rego, Billett, & Morgan, 2009, p.47).

Considering the dynamic of the financial instruments market and the possible traps, it is essential for an entity's management to have a system of rules and procedures for monitoring, assessing, and controlling risks. This system of standards and procedures has to be well known and understood by the entire structure of an entity. In this sense, an entity's administration committee has the essential role of having the obligation to ensure that adequate procedures exist.

The risk is a central feature of alternatives whose outcome is uncertain. It is one of the most important characteristics considered by people when evaluating alternative courses of action such as adopting new technologies, choosing a career, or making financial decisions (Ganzach, 2000, p.353). The risk assessment is based on two-dimensional components: the probability of occurrence and the risk impact (Cioban, Hlaciuc, & Zaiceanu, 2015, p.397).

The risk in financial theory does not have an entirely negative connotation. Risk can be associated with the uncertainty of achieving the desired performance, so it can take either the form of loss or an unexpected win (Barna, 2008, p.72).

The risk for an entity is the probability or threat of any adverse occurrence that can prevent the fulfilment of the achievement of certain objectives, and is caused by external or internal factors (vulnerabilities) that may be avoided through pre-emptive action. An effective risk- management procedure allows a company to identify and assess a risk in order to avoid it. The link between risk and return is strong, and they are inseparable in the process of managing a portfolio (Barna, 2008, p.67). Fatemi & Fooladi (2006) showed that effective risk-management procedures can lead to a more balanced trade-off between risk and reward of a financial institution.

Throughout the history of risk management, we noticed that the subject was not so old. Standards Australia[26] was the first standards organisation to publish a risk-management standard (AS/NZS 4360). After that, when the business environment noticed the benefits of this standard, Japan (2001 thought RMS) and the U.K. (2002 through IRM) followed the example of Australia (Sadgrove, 2015, pp.2-3).

When we talk about the risks arising from financial instruments, risk management refers to the controlling and limiting risks faced by an organisation as a result of exposure to changes in market variables. For example, the liquidity of an entity may be influenced by the evolution of demand and supply, by the type of securities, or by the market usage (Boscoianu & Lupan, 2007, p.221) and it may also be called financing risk (Grosu, Hlaciuc, & Socoliuc, 2013, p.153).

Standards organisations need a system for managing the connection that exists between risk and financial statements. Therefore, there is only one inherent link between financial reporting and risk management (Deloitte, 2014). The relationship is assured through an inherent link between financial instruments' assessment in financial statements and the risk-management function. The guidance that exists in the international framework assists the accounting expert to meet the objectives and requirements of financial reporting. As can be seen in Figure 2.3, professionals are able to manage the risks associated with the use of financial instruments in financial statements by adhering to the rules and procedures prescribed by the international regulatory framework.

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[26] Standards Australia is the nation's peak non-government Standards organisation. It is charged by the Commonwealth Government to meet Australia's need for contemporary, internationally aligned Standards and related services. The work of Standards Australia enhances the nation's economic efficiency, international competitiveness and contributes to community demand for a safe and sustainable environment. It leads and promotes a respected and unbiased Standards development process ensuring all competing interests are heard, their points of view considered and consensus reached.
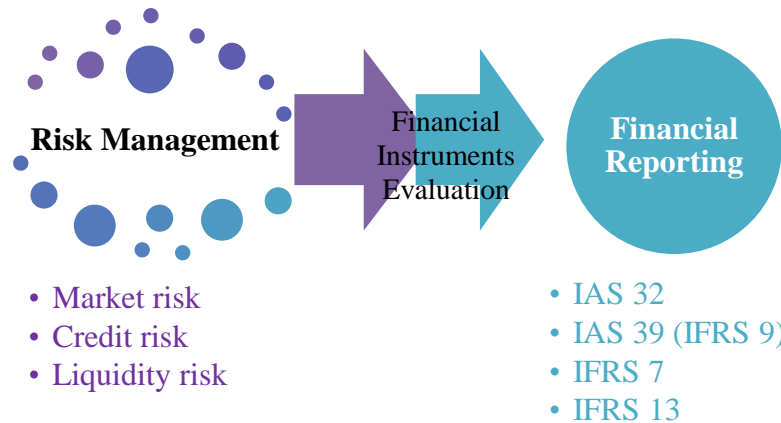
Figure 2.3. Financial instruments evaluation - Guidelines provided by IASB

Taking into consideration that professional accounts have the duty to report the risk profile of an entity, they need a detailed knowledge of risk-management procedures (Butler, 2009, pp.56-57). The same is valid in the case of auditors who need to identify the 'engineering accounting' cases; they must have the capacity to understand and evaluate the risks. The IASB, through IFRS 7, marks off two fundamental objectives:

- underlining the significance of financial instruments for the financial position and performance of an entity, and

- the importance of revealing the nature and extent of risks arising from financial instruments to which the entity is exposed during and at the end of the reporting period and how management is managing them.

We notice that the solicitations of IFRS 7 are divided into the necessity to disclose qualitative and quantitative information. Qualitative information refers to the presentation of details regarding the risk exposure of an entity and identification of how this exposure occurs, which are the policies of managing risk and the significant changes in these policies. This disclosure is necessary for financial users to provide awareness of the impact of these policies on accounting results. Quantitative information requires the presentation of quantitative data of risk exposure as presented in internal reports to the entity's management team. The standard specifies that if a manager deems the data are unrepresentative, then the entity has to offer additional information that is representative of the users. These 'requirements' are vague, and a leading institution cannot prove that an accountant or an auditor did not respect the articles of IFRS7, even if real risks are not sufficiently presented (Bonaci, 2009(a), p.134).

2.4. The performance of the Entities which Operates with Financial Instruments. An Interdisciplinary Approach

The aim of this section is focalized on the analysis of the performance registered by an entity which operates with financial instruments, from the accounting perspective, but also from an interdisciplinary approach, taking into consideration the effect the operation with these accounting items can generate. Throughout the theoretical research, we are insisting on the current difference between different ways of defining and determining the performance; aspect justified through the developing the empirical research. Taking into consideration the operational activity, specify to the financial investment companies, an approach of the performance strictly speaking from an accounting point of view it would have led to an alteration/distortion of the research results. This is caused because the method of determining it does not fully justify the performance in general terms, considering that the risks arising from financial instruments do not interfere directly with the performance, as an accounting indicator.

2.4.1. Accounting Approach of an Entity's Performance

In accordance with the international accounting referential, financial statements allow appreciating the financial position and performance of an entity, as well allows seeing the evolution of the indicators for a determinate period. Thus, the investiture can take an investment or a disinvestment decision on them.

The primary financial statement that is used for interpreting an entity's performance is the profit and loss statement. The report shows the elements that compose the indicators for calculating the profitability starting from the fundamental relation (Feleagă & Feleagă, 2005b, p.22):

Income – Expenditures = Results

The profit and loss statement provides to the investiture and creditors the necessary information regarding the forecasting of the values and entity's capacity to generate cash flow. The statement is also named the financial declaration of an entity which measures the success of the entity's activity performance, related to a due date (Feleagă & Feleagă, 2005a, p.103). In this way, the investors can evaluate more precisely the economic value of the entity, and the creditors can determine if the entity is capable of refunding the financial obligation or not.

In the last twenty years, the analysis of the financial performance it is made by assessing the gains and losses, with a broader analysis named the analysis of the economic or global performance.

International Financial Reporting Standards states that the financial statements have to provide a fair view of the financial performance, by highlighting all items of income and expense recognized in a period so (Mates & Bunget, 2013, p.67):

- in one comprehensive statement, or
- in two statements. In one to presents the components of the profit and loss (names and individual statement of income and expenses) and in another report which is starting with the profit or the loss of the period and presents other comprehensive elements (names as well the situation of the other comprehensive income).

Analyses of the financial statements are the art of analysis and interpret the information presented in various reports prepared by the entity. No matter if the financial statements are analysed by the professional persons (like financial analysis), or the entity's management (that represents the internal users) or other parties (that are represented by the external users), the main goal of it is the same one: to provide a base in order to make a rational decision. We can observe that each category of accounting information users will focus the different structures of the financial statements, depending on the intended purpose.

2.4.2. *Other Types of Performance Specific for an Entity*
Regardless the type of entity, we realize that performance is what the entity it has proposed to meet, to make progress every day in order to reach the fulfillment of the vision , having a financial success and finds itself in an activity that represents aspirations "schedule" according to the course and evolution of the economic environment. In this matter, we can conclude that performance means different things, depending on the activity that the entity is performing. Performance regardless of the field in which we measure it, it means the highest results on long-term. In another approach, the performance represents the achieving organizational objectives regardless of their nature and variety.

For example, organizational performance shows the individual's ability to progress thanks to the efforts. The performance is an intangible element, and it is always the product of the entity. The managerial performance is obtained, in this case, the point of intersection between the quality of managerial decisions and actions results and quality management system goals.

When defining the performance, we have to take into consideration prior studies. In their research, Lebas and Euske (2007) asked themselves the question of *what performance is*

and how to create it. The authors' answer is shaped in the form of nine propositions. We are aligning our vision with that of the authors, and we can state:

Proposition 1: Performance can be expressed only as a set of parameters or indicators that are complementary, and sometimes contradictory, and that describe the process through which the various types of outcome and results are achieved.

Proposition 2: Understanding performance relies on the identification of a causal model that describes how actions today can influence outcomes in the future. Performance is not a one-time event. Performance is dynamic. A performance measure is an instance in the continuous performance creation process. A performance measure is a leading indicator of performance only if the organisation has acquired the knowledge and the mastery of its causal relationships and can reproduce this outcome or result in the future. We suggest that the concept "performance" be reserved for the sum of all processes that lead to a likely sequence of outcomes and results.

Proposition 3: Performance is defined by the user of the descriptive signals of performance. Performance, because it is a social construct, is a concept with no objective description. Each person defines it one's own way.

Proposition 4: Performance does not have the same meaning if the evaluator is inside or outside the organisation. The operations of the organisation remain a black box for the outsider, while the insider operationalises performance in cooperation with other internal actors.

Proposition 5: Performance is always connected or attached to a domain of responsibility. The different views of performance associated with the domains provide the basis for an understanding of the complexity and management of performance in the organisation.

Proposition 6: Performance exists only if the outcome and results can be described or measured so that they can be communicated to someone to decide to do something within the shared model of causal relationships.

Proposition 7: The relevance of the causal model needs to be validated continuously, both within and outside the organisation.

Proposition 8: Performance indicators or measures should not be confused with what they only partially describe.

Proposition 9: Performance is a relative concept, requiring judgement and interpretation. Performance affects the process or result about the referent. Choice of the referent is a significant decision with long-term consequences. The relatively superior

position could be short- or long-term and over few or many indicators. Contradictions among the temporary measures and the other indicators are inevitable. The performance will again be in an interpretative context, in which managers or users of information will decide on the key parameters of performance.

Thus, we consider to be a challenge in offering a universal accepted definition of performance, and when a researcher decides to make an empirical study, it should take into account its general objectives in order to find the best suitable indicator with a view to measure it.

2.4.3. *Performance versus Efficiency*

In the economic field, the concept of performance covers different meanings, such as growth, profitability, productivity or efficiency (Colasse, 1999, p.23). In the context of the analysis conducted in our empirical research, we treat performance through the interests of users of accounting information on the stock market. It is sure that for one entity that in the impossibility to fulfil its financial obligation, the performance has one meaning than the meaning provided by another entity that functions in normal parameters. For the entity that operates in normal conditions, the performance refers to the competitiveness, which is efficiency. In this case, the performance represents an entity's state of competitiveness reached a level of effectiveness and efficiency that ensures a sustainable market presence (Niculescu, 2003, p.43). Efficiency, in this case, is measured by the degree of meeting the expectations of the entity's internal environment. At the macroeconomic level, efficiency influences the overall economic efficiency, which is based on sustainable development, namely economic development in harmony with the environment (Berheci, 2010, pp.375-376).

The notion of performance is quite complex and has many facets. If for an accountant the performance concept refers to profit, as the difference between revenues and expenses, to an investor the notion of performance refers to an efficiency, as the ratio between effort and effect. First, property accounting methods aimed at assessing entities in a static manner, and is considering only the achievements of the past results. In the second, in evaluating the asset in the entity approach does not take into account the intangible elements that add value to the company and which do not appear explicitly recorded in accounting. In this way, to tackle the financial performance of the stock perspective, we must have a present or future outlook.

Considering that the entity is not only a sum of goods, assets and liabilities (Toma, 2005, p.102) but is a living organism (Berheci, 2010, p.416) which has intangible elements

that form this performance, that brings the added value to the entity, we have to look at it in the future and not in the past.

Given the specific operational activity of the financial investment companies, a strict approach to performance from an accounting perspective it would have led to a distortion of empirical research results, because the way is to determine it fails to justify entirely performance in a general sense, regarding that the risks arising from the operation with financial instruments do not interfere directly with performance, viewed from the accounting perspective. In this regard, we note that the performance interconnects with the effectiveness of the financial investment companies.

2.4.4. *Rethinking How to Estimate the Performance of an Entity That Operates With Financial Instruments from the Associated Risks Perspective*

We rethink to predict the performance of an entity that works with financial instruments from the associated risks perspective with the help of Tobin's Q ratio that defines performance as the combined market value of the company on the stock market that should be about equal to the replacement costs of it. The Q ratio is calculated as the market capitalization of a financial investment company divided by the total assets of the enterprise.

In this context, the performance is the result obtained in the course of a processor an activity on the stock market. I decided to tackle this global perspective (macroeconomic) because in this context effective with performance interconnects. In the strict sense, performance is an effect, a result of the action, in the broad sense, can be considered as a consequence that does not represent something by itself, but it is dependent on its resources (Jianu, 2007, p.15). Considering that the specific operational activity of the financial investment companies is investing financial instruments of other entities, it is necessary to approach this macroeconomic perspective of the performance computing.

James Tobin came up with a ratio that is proposing to explain what general equilibrium is (Tobin, 1969) and how the company can grow its money-capital economy if it understands its real value. The main contribution of Tobin to the capital market analysis was, and it will be the Q factor and its associated concept, though which Tobin contributes to the economic analysis. Q factor is a ratio between two values of the same asset. The counter is the market value or market price of the existing asset. The denominator is the cost of replacing or reproducing, the market price for assets equivalent physical products recently.

This report may explain the otherwise simple relationship between financial markets and market goods and services, so is the essential link between the real economy and the financial (Tobin, 1969).

We use this ratio, which is a proxy for firm value and measuring its performance. The rate is well known in the academic literature, and a series of authors used it (Wernerfelt & Montgomery, 1988; Chung & Pruitt, 1994; Capozza & Seguin, 2003; Villalonga, 2004; Gijsbertsen, 2013).

2.4.5. *The Performance of Entities which Operates with Financial Instruments*

As long as all standards-setters (FASB, IASB, ASBJ, ICAI, and CASC) through their conceptual framework identify the need in predicting the performance of an entity and in estimating the value of the entity, we have to take into consideration the impact that risk will have on financial statements. Using the decisions as the fundamental objective of the financial statements, we have to consider every element that may disrupt this process.

Brim, Glass, & Lavin (1962) identified six steps in the decision process:

1. Identification of the problem;
2. Obtaining the necessary information;
3. Production of possible solutions;
4. Evaluation of such solutions;
5. Selection of a strategy for performance, and
6. Implementation of decision.

When analysing the steps proposed by Brim et al. (1962), we deduct that there are essentially two elements that compose the decision process: the problem, which is an uncertainty that may or may not occur, and the solution, which implies the application of a strategy in order to perform and obtain the maximum profit (performance).

To get the performance of an entity, we have to analyse and measure the risks that may disrupt the business environment. It is important to be able to recognise which risks may occur and to be able to apply some means of measurement. Thus, we have to combine the internal and external factors of an entity to see how they will affect the performance.

To define performance is a complex matter. Briefly, it could be defined as the outstanding results we obtain in a particular area or a particular activity. Through "good results" we understand ancestry, landing on certain social developments. Performance management is the sum of strategic interventions that influence the long-term work of an organisation, leading to improved economic performance; or a series of actions designed specifically to improve the results of employees, departments, and entire companies.

As part of this management system, performance evaluation is a periodic retrospective analysis of the results obtained following the performance of the proposed strategies.

Risk knowledge is helping the entity to raise its performance, this being the heart of the investment process and of basically every financial service business. The reason performance is so important is because it is the starting point in every investment decision and the only result that matters, in the end, is profit (Schwerdt & von Wendland, 2010, p.191).

2.5. The Relation between Risks Associated with Financial Instruments and Entity's Performance

From the decision to invest in a listed company to the decision to launch a new product or to build an extensive project, we need to identify the risks involved. Looking at the business world in the last decades, we notice that it has launched and developed an analytical system designed to help managers in the decision-making process. If we need to make a reference to an academic concept, we point to the evolution of the interdisciplinary branch: risk management. In an entity that has as its main activity administration and management of financial instruments (but not only in this type of entity), to find a complete equilibrium between the two sides of the economy is a necessity. A control procedure of risk arising from using financial instruments has to take into account numerous types of risks, but the most important are a market risk, liquidity risk, and credit risk (as stated by the standard international framework).
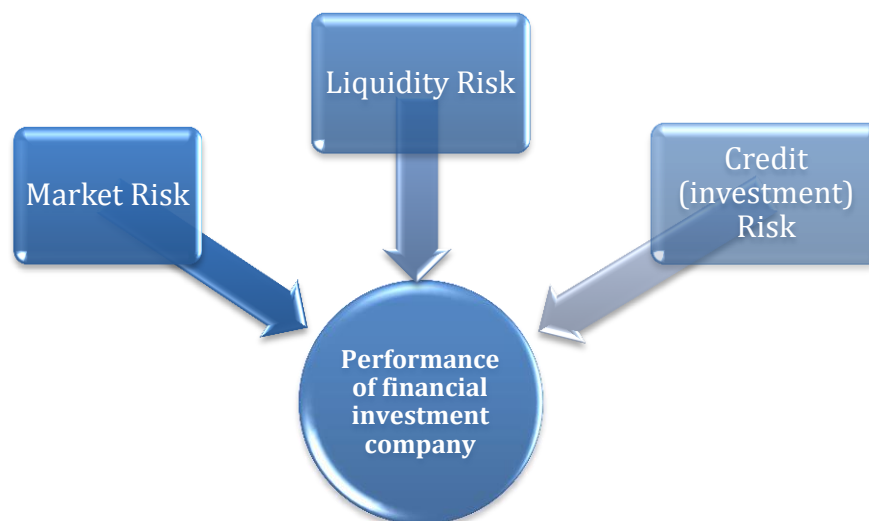
Figure 2.4. Impact of risk on companies' performance

The necessity of finding equilibrium between the effects of risk arising from financial instruments and the performance of a financial investment entity is crucial for the need of juggling the risky operation with the need to gain profit and achieve the desired performance.

When making risky financial choices, an entity should take into account four distinct elements (MacCrimmon & Wehrung, 1986):

1) the probability of gains;

2) the likelihood of loss;

3) the money unit amount of potential earnings, and

4) the money unit amount of possible loss.

Some entities are riskier than others, and management may be willing to risk a large loss with a large amount of money than to accept a small, but certain (Roszkowski & Davey, 2010), lose of the hope that if they are riskier (and invest more cash), they will gain more.

Combining the vision of the two papers (MacCrimmon & Wehrung, 1986 and Roszkowski & Davey, 2010), we notice that the main idea was to attain equilibrium between the financial economy side and the real side. This idea came to light by Tobin (1969) who stated that *in a complete equilibrium the two sides of economy – one is tempted to call "financial" and "real" – must be mutually consistent.*

We have to make the following statement: readers do not have to be confused that we are presenting a new way of describing the risks arising from financial instruments or a new way of measuring an entity's performance, but rather we introduce the idea and the correlation of the risks resulting from financial instruments to the extent of performance. We propose to study the extent to which uncertainty, explained by the risks resulting from financial instruments, affect financial performance.

We consider this approach to be a challenge because the literature is silent in the matter of offering information about the risks arising from having in the entity patrimony financial instruments and financial performance. As we notice in the following chapter, the majority of literature discusses the risks associated with the transaction of financial instruments and its impact on an entity.

We are of the opinion that the risk for an entity represents any probability or threat of any negative occurrence that can prevent the fulfilment or achievement of certain objectives, which may be caused by external or internal factors (vulnerabilities), and that may be avoided through pre-emptive action. Effective risk-management procedures allow a company to identify and assess the risk to avoid it. The link between risk and return is strong, and the two are inseparable by the link connected to them in the process of managing a portfolio (Barna, 2008, p.67). Fatemi & Fooladi (2006) showed that an effective risk-management procedure can lead to a more balanced trade-off between the risk and reward of a financial investment company.

CHAPTER 3. EMPIRICAL RESEARCH REGARDING THE EVALUATION OF THE FINANCIAL INVESTMENT COMPANIES' PERFORMANCE THAT OPERATES ON A REGULATED EUROPEAN MARKET

Financial markets from around the world are experiencing an explosion of innovation (and creativity in transactions) that started in the early 1980s and continues today (Csiszar, 2007, p.319). Through risk management, the aim is to first construct an analytical system that enables the identification and quantification of risks and then to make an informed decision as to whether to ignore, assume, or avoid risk. (Lupu, 2008, p.16).

In this chapter, we develop our empirical study regarding how risks arising from financial instruments affect the performance of a financial investment company. To fulfil our objectives, we will state the goal of the empirical research, explain the sampling and collection of data, define the variables (dependent and independent), and describe our methodology.

3.1. Related Literature, Objective of the Empirical Study and Hypothesis Development

As mentioned in the first part of this paper, the main aim of the empirical research is to analyse the impact that the risks arising from financial instruments have on financial investment companies' performance. To fulfil this aim, we first have to survey the research in the academic literature to determine the perspective of other researchers.

Noticing the importance of risk knowledge in academic research and considering our interest in the impact that the risks arising from financial instruments can have on an entity's financial report, we researched the literature to determine the common elements being discussed. We observed a tendency to study the risks arising from financial instruments in financial institutions and banks because they are more exposed to risks than non-financial firms.

We noticed that the majority of the existing researches studying financial instruments were focused on the impact on commercial banks in the U.S. market. The articles quoted most often in the literature are shown in the table below. The articles were gathered from the two most relevant research databases, Thomson Reuters ISI Web of Science and Google Scholar. We used both databases: Thomson Reuters was the most versatile and comprehensive research platform, but it is not accessible to the broad public; Google Scholar was also used because its database is freely available and it permits users to access both digital and physical copies of articles.

Table 3.1. Literature review of articles with 'financial instruments' as main subject

Authors	Article	Research aim	Sample	Year	Citation	Publisher
Ahmed, Kilic, & Lobo	Does Recognition versus Disclosure Matter? Evidence from Value-Relevance of Banks' Recognized and Disclosed Derivative Financial Instruments	To provide evidence on how investor valuation of derivative financial instruments differs depending upon whether the fair value of these instruments is recognized or disclosed	146 banks holding companies	2006	329	The Accounting Review
Koonce, Gascho Lipe, & McAnally	Judging the Risk of Financial Instruments: Problems and Potential Remedies	Investigating if the information provided to the investor is helping them to judge the risk of financial instruments.	Ninety MBA Students	2005	72	The Accounting Review
Blankespoor, Linsmeier, Petroni, & Shakespeare	Fair value accounting for financial instruments: Does it improve the association between bank leverage and credit risk?	The study we examine whether financial statements using fair values for financial instruments better describe banks' credit risk than less fair-value-based financial statements.	1067 bank holding companies	2013	55	The Accounting Review
Linsmeier	Financial Reporting and Financial Crises: The Case for Measuring Financial Instruments at Fair Value in the Financial Statements	A commentary on the FASB proposal that all financial instruments be measured at fair value in the financial statements.	A commentary letter	2011	51	Accounting Horizons
Laux	Financial instruments, financial reporting, and financial stability	The aim is to review the relation that exists between financial reporting and financial stability based on the evidence from the financial crisis	Provides a short overview of the general rules applied to financial instruments of US and European bank holding companies	2012	38	Accounting and Business Research

			and commercial banks			
Hamalainen, Pop, Hall, & Howcroft	Did the Market Signal Impending Problems at Northern Rock? An Analysis of Four Financial Instruments	The aim of the paper is to examine the signalling qualities of four financial market instruments (credit default swap spreads, subordinated debt spreads, implied volatility from options prices and equity measures of bank risk) so as to explore both the relative and individual qualities of each.	9 largest banks from the UK	2012	21	European Financial Management Vol. 18, Issue: 1
Hoops	A Cheap Lunch for Emerging Markets: Removing International Financial Market Imperfections with Modern Financial Instruments	The paper develops a market-based procedure to reduce the indebtedness of emerging markets significantly by applying an asset-backed security approach to a pool of emerging market bonds.	20 model sovereign debtors	2008	10	World Development
Mendoza	A Review of Financial Stability Instruments for Emerging Market Economies	The article maps out some of the key factors that contribute to debt-related problems. Moreover, then uses that map to develop a possible taxonomy for the array of proposed (and some already existing) policy instruments designed to respond to them.	96 crisis episodes from 25 countries	2009	10	CESifo Economics Studies

We think that one of the explanations for the popularity and researchers' interest in researching banks and financial institutions is the accessibility of data and the fact that financial instruments are a primary threat to these institutions. Another reason researchers pay special attention to these institutions is because rarely can we find distinctions in the research between the risks arising from financial instruments and the risks associated with the transactions of financial instruments. Our research is dedicated to the first type of risk: those that can/will exist in an entity based on the fact that the company has in its patrimony financial assets and liabilities. There is no general rule that those financial instruments have to be traded in order to have risks attached to them.

The evolution of corporate risk management from the last three decades had a significant impact on the way how risks are measured, evaluated and after that "eliminated" (Zaiceanu & Hlaciuc, 2013). Risk management is a critical business function, and by learning to manage it, companies can maximise their value (Leautier, 2007, p.2). All sources of risk have one thing in common: they have an impact on a company's cash flow, which implicitly affects the performance of an entity. Prior research analysed the relation between risks and a firm's value, arguing that smoothing the cash flow can add value to a company, for example: Myers (1977, 1984), Froot, Scharfstein, & Stein (1993), Graham & Rogers (2002), Allayannis, Rountree, & Weston (2006), Jayaraman (2008), Mulier, Schoors, & Merlevede (2014) The studies show that firms with high cash flow volatility suffer from under-investment problems and cannot perform in normal conditions.

Prior theoretical research indicated that optimal policy for risk managing is one of the main concerns of an investment company. We have divided the risks arising from financial instruments that affect a company's performance into three categories.

Managing the problems arising from investment risk

Investigating the matter of credit risk management, we noticed that it has become an area of rapid growth and innovation in the last decade. This subject is of increased importance after the increase in bankruptcies of big empires and the decline and volatile value of the collateral (Qu, 2006, p.4).

The risk of loss that results from failure of borrowers to meet their payment obligations is a constant fear and a dominant source of risk for both financial and non-financial companies. In our research of the literature we found names of this type of risk concept, like: Default Probability, Migration Risk, and Loss Given Default (Jonsson, Fridson, & Zhong,

1996; Friedson, Garman, & Wu, 1997; Wilson, 1997(a, b), 1998; Hakim & Neami, 2001; Varotto, 2011).

Butler (2009) declared that IFRS 7 had brought a significant amount of additional useful information compared to earlier financial statement disclosures. Papa and Peters (2011, 2013) analysed the framework under the IFRS regarding financial instruments and highlighted the importance of risk disclosure from a user's perspective. However, both researchers were worried about the discrepancy between what is required and what is reported. In a survey of the Chartered Financial Analyst (CFA) Institute (Papa & Peters, 2011, pp.11-15), they detected that 89.7% of the respondents declared that they use risk disclosure during a company evaluation.

Extent of IFRS 7 Application

■ Do not use financial risk management disclosures during company evaluation

■ Use financial risk management disclosures during company evaluation
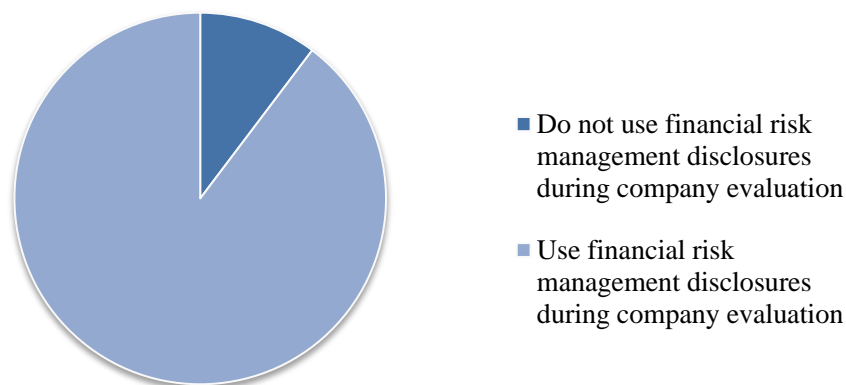
Figure 3.1. Users' perspectives on financial instruments risk disclosure under IFRS 7

Source: Adapted after Papa & Peters, 2011

Credit risk is important for all categories of users: banks, investors, investment companies, and non-financial companies. If a company defaults, neither of the users will receive their promised payments (Neal, 1996). We know that the concept of credit risk used by the banking sector refers to the risk that the bank is exposed to when it grants a credit (loan) to another party. In order not to confuse the concept used by the banking sector, we will refer to our concept of credit risk as default risk or ***investment risk***. We propose this concept because the main activity of our financial investment companies is to hold securities of other company for the purpose of reinvesting them. This means that our concept of investment risk, defined according to the IAS/IFRS as the risk of registering a lost because another party could not fulfil its financial obligations, actually represents an investment risk in the case of our

companies. The aim of investment risk management is to maximise a firm's risk-adjusted rate of return by maintaining default risk exposure within acceptable parameters (Luqman, 2014, pp.2-5). Bearing these arguments in mind, we can formulate our first hypothesis as follows:

H1: Investment risk arising from financial instruments can generate a significant negative impact on a financial investment company's performance.

Managing the problems arising from liquidity risk

The period starting with 2008 can be named the risk-management era in the financial investment and banking sector. But managing risk is a complex and difficult task, and there is proof that a lot of companies failed to do so. Liquidity risk is a financial risk considered to be a sensitive risk, especially to the market, and it can occur in a company's cash flow.

According to Berríos (2013, p.106), the provision of financial services across borders helps to transfer liquidity to those locations where it is scarce, but probably at the cost of inefficient fund allocation. This problem creates a series of challenges for financial investment companies, especially when a company encounters difficulties in meeting its obligations associated with financial liabilities that are settled by delivering cash or another financial asset. The inefficiencies that may arise from not having enough cash to finance the maximum possible number of positive net present value will result in fewer opportunities for shareholder value creation (Dietrich & Vollmer, 2010). Having cash flow in the patrimony is an important element for financial investment companies because their main activity is to buy and sell securities in the capital market.

Lou & Sadka (2011) documented that liquidity risk served as a better predictor of performance during the global financial crisis. Jenkinson (2008) argued that liquidity risk affects not only the performance of a company but its reputation as well.

Sadka (2013, p.8) proved that liquidity risk exhibits a significant time variation, and it requires the review of risk exposure over time and a resultant dynamic risk management strategy.

Managing liquidity risk will improve a firm's performance because less volatile cash flow will result in lower cost of capital and more investments (Cristoffersen, 2012, pp.5-6). Castagna and Fede (2013) argued that the best way of measuring and managing liquidity risk was through the company cash flow and future cash flow. Moreover, Foran and O'Sullivan (2014) argued that liquidity risk exposure showed valuable information about the future performance of companies.

According to this rationale, we formulated our second hypothesis:

H2: A financial investment company's performance can be affected positively by the liquidity risk arising from financial instruments.

Managing the problems arising from market risk

Corporations, investment funds, banks, and generally any economic profit-seeking organisation are complex systems acting in an external environment marked by uncertainty. This uncertainty can be transferred to the organisation and can affect its objectives and performance.

This is why risk management should identify and adopt the most appropriate measures to stabilise the effects of risk events within limits acceptable in terms of consequences and cost avoidance/transfer or insurance.

Hence, an organisation's periodic, systematic analysis of risks associated with the activities it performs in its operations to the current market, in relationships with its specific environment, with the government, investors, or its audience is essential (Cuzman, Manațe, & Fărcaş, 2006).

Financial investment companies are in the business of earning money for their clients as a result of taking risks. In this way, risk assessment and managing plays a significant role. To do this, companies have to analyse the market, perceive changes, and quickly determine how these changes will affect the future cash flow and performance of the firm. The best way of managing market risk is to develop appropriate policies, processes, and strategies (PwC, 2016). The efficient market hypothesis states that all available information is already incorporated into the price of a financial asset. From here we cannot use this information to predict future returns (Bang, 2012, p.12). In literature, we can find a number of studies that show the impact of market risk on a company's performance. These studies usually consider the expected return of an asset or a portfolio by calculating its beta and its future return and by analysing daily, monthly, or quarterly transactions.

The risk is reflected in the risk premium, which is determined by the repayment capability of the borrower. Each borrower has to pay the "risk premium" based on its perceived risk. Köksal and Orhan (2013) determined that the performance in developed countries, measured with Value-at-Risk, was worse in comparison with emerging markets, especially because this measurement was not affected by the global crisis as much as other measurement tools.

It is an important element that a financial investment company should analyse, but our primary question remains, how do markets affect the performance of a company if it is looking at its financial reporting and not at the traded securities? For example, non-financial firms have responded to this challenge by improving their risk assessment and management systems and by using more advanced risk management instruments (Gebhardt, 2012, p.279).

Considering these arguments, we formulated our third hypothesis:

H3: *Market risk arising from financial instruments is expected to be positively related to a financial investment company's performance.*

3.2. Sample

Whenever a researcher wishes to observe or investigate a phenomenon or a variable, two types of fundamental resources that have to be taken into account. First, we should try to collect data from the entire population by accessing all the possible observations−past, present or future. The second resource that should be taken into account is the sample. Based on a sample, we have to deduct the facts about the population from which it was collected.

Since we are researching the risks associated with financial instruments (and not the risks arising from a transaction with a financial instrument), we decided to take a closer look at companies that had these as main elements in their patrimony. We, therefore, chose to research financial investment firms. An investment firm is a company whose primary business is holding securities of other companies purely for investment purposes. Financial investment companies specialise in mediating the transactions in the capital markets, consisting of buying and selling financial instruments like stocks, bonds, futures, options, etc. The main purpose of these participants in the capital markets is to provide financial intermediation by linking buyers with sellers to facilitate transactions.

For our empirical research, we selected as our sample all the financial investment companies of Europe. The research carried out was based on a primary collection of data. The data were collected from the Thomson One Database (Annex 2). As they declare on their website, Thomson Reuters is the world's leading source of intelligent information, connecting and empowering global markets for businesses and professionals. The database offers a broad and profound range of financial content (http://thomsonreuters.com/en.html).

The Thomson One Database offered information about the following countries included in our study: Austria, Belgium, Bulgaria, Denmark, Cyprus, Estonia, France, Germany, Greece, Ireland, Italy, Luxembourg, Monaco, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey (only companies

registered to the European continent), United Kingdom (half of the countries on the European continent). All companies are listed on a stock exchange (Annex 3).

Figure 3.2 contains the quantity of businesses by a country that constituted our sample.
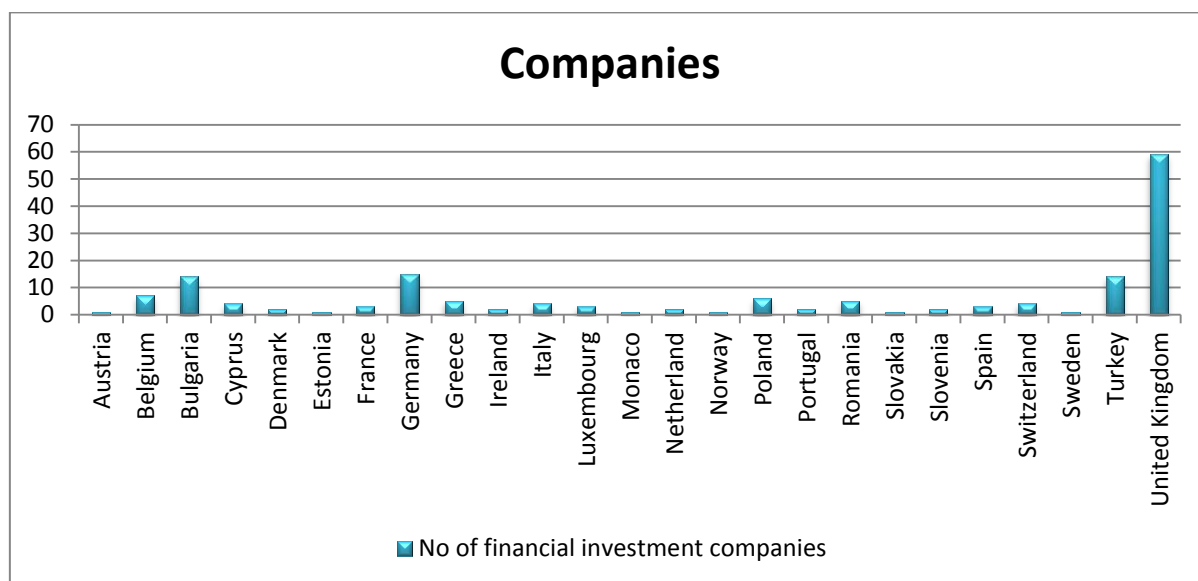
Figure 3.2. Countries and the number of financial investment companies constituting our sample

We did not want to limit our sample to only European Union (EU) countries because there are countries outside of the EU that produce financial statements by IASB standard rules; with almost more than half of the European countries taken into consideration, we consider our research to be highly representative.

Table 3.2. Sample size

Total companies returned by Thomson One	279
Companies outside of Europe	- 70
Companies with missing symbol	- 5
No data of interest	- 42
TOTAL sample	**162**

Our sample included all the companies with non-missing observations for market capitalisation and assets for which we found matching data on the Thomson One Database between 2007 and 2014. The year 2007 was our reference year because the IFRS 7 *Financial Instruments: Disclosure* took effect on January 1, 2007. Starting in 2007, companies were required to disclose additional information about the risk related to financial instruments. We could not consider data for 2015 because not all businesses had published their financial statements. In our empirical research, there are 1,181 individual-year-pair observations. While

our sample selection may appear restrictive, our sample is generally representative of the Thomson One Database population. In Table 3.3 we summarised our distribution of observations by year.

Table 3.3. A distribution of observation by years

Year	Frequency of observation
2007	134
2008	140
2009	140
2010	146
2011	152
2012	153
2013	156
2014	160
Total	**1,181**

Table 3.4 reports summary statistics of important variables. Our sample firms had a mean value of assets of €4.84 billion (median of €3.77 million) and a mean market capitalisation of €3.48 billion (median of €1.54 million euros). On average our sample market capitalisation-to-total-assets ratio was 3.72 (median of 0.59) (a complete descriptive statistics of the sample can be seen in Annex 4).

Table 3.4. Descriptive statistics of the sample

Variables	Obs.	Mean -billion-	Std. Dev.	Median – million-
Total assets	1177	4.84	4.20	3.77
Total liabilities	1173	4.53	4.10	0.686
Market Capitalization	1177	3.48	1.67	1.54

With panel data, we can analyse the variables to different levels being recommended to multilevel observations for a hierarchic modelling. Table 3.5 provides our panel data.

Table 3.5. Set panel data

panel variable:	ID (unbalanced)	
	ID: 1, 2, …,162	N=162
time variable:	Year, 2007 to 2014	T=8
delta:	1 unit	
Span(Year)	8 periods	

Note: ID represents the companies analysed, and the Year represents the measurement of time.

Our panel data is unbalanced, meaning that we do not have data for the entire period from 2007 to 2014 for all the 162 companies involved. We believed this did not affect our analysis, and we continued our research.

It is well known that unbalanced data panels help to avoid the risk of survival. That is, the more demanding we are in selecting a sample (for instance, by requiring all companies to provide data in all years), the greater the risk of survival because many firms that did not survive for a number of years did not qualify to be included in the sample. In conclusion, unbalanced panels are usually more difficult to be managed, but they are essentially better because they help to avoid the risk of survival.

3.3.   Variables

In the first part of our thesis, we focused on the theoretical aspects of our issues, aiming at validation and argumentation of the empirical study. This focus helped us to understand and identify the main aspects that can contribute to a financial investment company's performance. We understood the main causes and issues that can led to a decrease in performance because of the risks arising from financial instruments.

Theoretical and empirical research in the matter of risks arising from financial instruments permitted us to identify the main variables that can influence a financial investment company's performance. Our aim was to highlight the impact that the risks can have on an entity's performance. In this part of the paper, we identify the variables used in our study. The variables were defined and calculated in accordance with the IAS/IFRS, and the financial informational were collected from the financial statements and profit and loss statements. Each model includes a dependent variable (Performance - P_{it}), an explicative variable (Investment risk - $InvestmentRisk_{it}$, Liquidity risk - $LiquidityRisk_{it}$ and Market risk - $MarketRisk_{it}$), as well some control variables (Size of the company – $Size_{it}$, Leverage – $Leverage_{it}$, Auditor opinion – $AuditorOpinion_{it}$ and Audit network - $AuditNetwork_{it}$). We include control variables in our models in order to get a more precise answer to the assumptions made, and we aim to get more accurate and safer parameter estimation. Even if the control variables are not directly explanatory to the tested hypotheses, their use improves the econometric models. Empirical models are designed after similar models in the literature, and we have adapted and customized them according to our research purposes.

Table 3.6 defines all variables and presents the way of how the calculations in our empirical research were made.

Table 3.6. Definition of variables

Variables	Definition
Performance (P_{it})	$\dfrac{Market\ capitalization}{Book\ value\ of\ assets}$
Investment risk ($InvestmentRisk_{it}$)	$\dfrac{Market\ value\ of\ Assets - Book\ value\ of\ Assets}{Market\ value\ of\ Assets\ x\ Assets\ volatility}$
Liquidity risk ($LiquidityRisk_{it}$)	$\dfrac{Std.\ Dev.(\widehat{NetCF}) - Mean(\overline{NetCF})}{Total\ Assets}$
Market risk ($MarketRisk_{it}$)	$CF - CF\left(\dfrac{1+R_f}{1+D}\right)^P$
Size ($Size_{it}$,)	Ln(total assets)
Leverage ($Leverage_{it}$)	$\dfrac{Total\ debt}{Total\ assets}$
Audit opinion report – dummy ($AuditorOpinion_{it}$)	Where: 1 - unqualified opinion 0 - otherwise
Audit international network – dummy ($AuditNetwork_{it}$)	Where: 1 – Big 4 audit firm 0 – Non Big 4 audit firm

In this section, we offer explanations of our choice of specific variables and an explanation of how they were measured.

3.3.1. Dependable Variable

In this empirical research, the sample companies are financial investment firms listed on capital markets. Therefore, all financial information about them can be found in International Thomson One. From the database, we collected our financial items to define performance calculated as a Tobin's Q ratio (denoted *Perform*).

Managers and investors have the tendency to evaluate potential investments regarding risk and cash return. If a manager wants to increase the value of an investor's holding in an entity, he can choose any of the following methods (Rego, Billett, & Morgan, 2009, p.47):

(1) increasing the level of cash flow in the entity;

(2) realizing cash flow earlier for the entity;

(3) extending the duration of cash flow in the entity;

(4) reducing the risks to the entity's cash flow.

Since the writing of Rappaport's (1986) book, the idea that primary management responsibility had to increase value has gained more acceptance. During this time, the thought was that the value of a company was the new standard for measuring business performance (Rappaport, 1998, pp.1-3). Srivastava, Servani, and Fahey (1998) emphasised the idea that if a

company wants to achieve financial performance, it has to pay attention to its assets and the way they are used because it can play a vital role in *enabling the firm to accelerate the receipt of cash flow or generating cash flows sooner than otherwise* (p.10 of the work cited).

Analysing the literature, we deduced that our dependent variable should be 'performance'. A manager will choose one of the above ways to increase the value of an entity even if implies a significant number of risks in order to maximize its gains. Measuring an entity's performance can be made through the financial indicators Batrancea, et. all (2013, p.119) warned that *choosing the adequate measurement in assessing the performance represents a challenge for the firm's partners.* Further, Anghel (2002, pp.29-30) reported from a review of relevant literature that more than 150 financial rates were used in financial diagnostics. To choose the best the financial ratio to use in our study, we have to determine what 'performance' is. Even if we offered a theoretical perspective in Subchapter 2.4. of this paper, we still must explain why we chose one measure to the detriment of another.

According to the Cambridge Dictionary Online, performance is defined as 'how successful investment, company, etc. is and how much profit it makes'. From here we understand that performance means success and profit, and a company is successful and has a profit when it earns money, especially after it pays all the costs of producing and selling goods and services. For a business to succeed and gain profit, it has to have a financial equilibrium.

Nobel laureate James Tobin came up with a ratio to explain general equilibrium and how a company can grow its money-capital economy if it understands its true value (Tobin, 1969) We use this ratio as a proxy for measuring a firm's value and its performance. The ratio is well known in the academic literature, and a number of authors have used it (Wernerfelt & Montgomery, 1988; Chung & Pruitt, 1994; Capozza & Seguin, 2003; Villalonga, 2004; Gijsbertsen, 2013). This methodology is common in the literature. For example, the method has been used in cross-listing (see Doidge, Karolyi, and Stulz, 2003), corporate diversification (Lang and Stulz, 1994; Servaes, 1996), takeovers (Servaes, 1991), equity ownership (La Porta, Lopez de Silanes, Shleifer, and Vishny, 2002; Lins, 2003), and risk management (Shin and Stulz, 2000; Allayannis and Weston, 2001).

The ratio measures the market value of the entity compared to the replacement value of the entity's assets

$$Perform_{it} = \frac{Combined\ market\ value_{(i,t)}}{Replacement\ costs_{(i,t)}} \qquad (1)$$

The 'combined market value' was calculated through the proxy of market capitalisation. The indicator of 'replacement cost' was defined through the proxy of 'total assets'. In equation (1), the Q ratio may be above 1.0 or below 1.0. A Q ratio above 1.0 signifies that a company is overvalued, and a Q ratio below 1.0 undervalued. The financial equilibrium is fulfilled if the Q ratio is equal to 1.0.

By observing a company's mean Tobin's Q ratio in comparison with the rest of the sample, a company can be classified as overvalued or undervalued according to the mean of the market (the rest of the sample). From this point of view, a company's individual valuation is not relevant, but its valuation in comparison to the market mean is more important.

Figure 3.3 presents the evolution of our dependent variable as an average for all 162 companies throughout an eight-year period.

Figure 3.3. Distribution of the dependent variable through an

eight-year period

We noticed that the smallest register value was in 2008 with an average of 0.4585, and the largest registered value was in 2007 with an average of 0.7822. Another important measure that the graph shows is that none of the 162 financial investment companies were under-evaluated in the market. There were 298 individual-year observations that registered over 1.0, meaning that all the enterprises in the market over-evaluated their business's performance.

Even if a majority of managers were concerned with the entity's value, a lot of attention was directed at the associated risks and the need to observe them (Simko, 1999, pp.252-253). In the section below we describe our explanatory variables.

3.3.2. *Explanatory Variables*

Bearing in mind the reasoning in the previous section, we analysed the elements that influence the performance of financial investment companies. We established the corresponding variables that will be included in our model to test our hypothesis.

Investment Risk Measurement

Investment risk, in the case of financial investment companies, is defined as the likelihood of loss resulting from the failure of the second party to meet their payment obligations. We found several concepts that help to analyse investment risks, such as default probability, loss given default, insolvency risk, and migration risk (Negrea, 2006, p.172; Resti & Sironi, 2015, pp.27-283). All these concepts are important for evaluating investment risk, but the most critical factor is the probability of default, which is the likelihood that a financial obligation will not be repaid and will fall into default. The status of the general economy can intuitively be traced back to the relationship between the business cycle and the individual firms within an industry.

The relationship can be divided further into two parts−the firm and the individual perspective−and also through the analysis of a bank's loan portfolios. The business cycle affects a firm's performance. Hakim and Neami (2001) examined the relationship between default risk and a financial performance of banks in Egypt and Lebanon in the period 1993-1999. They found a positive relationship between default risk and a firm's performance.

Business cycles also have a great impact on the credit portfolio of banks, since a loan is made up of different individual loans representing different companies, and it is usually large enough to diversify away the idiosyncratic risk, leaving only the influence of macro factors.

Several studies considered macro factors when analysing probability of default, as an investment risk: Jonsson, Fridson, & Zhong, 1996; Friedson, Garman, & Wu, 1997; Wilson, 1997(a),(b); Lakstutiene, Breiteryte, & Rumsaite, 2009; Joslin, Priebsch, & Singleton, 2009; Dewachtera, Ianiaa, Lyrioe, & de Sola Pereaa, 2015, etc.

Investment risk, or default risk, can be determined from the financial investment company's perspective. Investment risk, in the case of our financial investment companies, is the uncertainty of a firm's ability to service its debts and obligations. Before default, there is no way to discriminate between firms that will default and those that will not. At best, we can

only make probabilistic assessments of the likelihood of default. Therefore, the expected loss, calculated as the product of default probability and the loss-given default, can only be estimated by considering the probability of default. Investment risk is unique. The loss suffered by a lender or counterparty in the event of default is usually significant.

To be able to measure investment risk, one has to choose an appropriate credit risk model. The selection of a model is imperative for investment risk (as a default risk management). An inadequate model might contain model errors. Those model errors would introduce uncertainty into the investment risk management process.

In recent years, many new approaches have been developed, such as the expert system and the rating system. These new approaches use different assumptions and information and can be classified into four types (Koyluoglu & Hickman, 1998; Crouhy, Galai, & Mark, 2000; Virolainen, 2004; Bluhm, Overbeck, & Wagner, 2010):

- *Structural models*, which is based on Merton's Option Pricing Theory;

- *Rating based models*, which is based on ratings and rating migrations;

- *Econometric risk factor models*, which analyses the default rate in a multi-factor econometric model;

- *Actuarial models*, which is a probabilistic model assuming only two states for a firm, default and not default. This is similar to the way premiums are set for household insurance.

Structural Models

KMV Corporation[27] relies on Merton's model of a firm's capital structure: a firm defaults when its asset value falls below its liabilities. In 1974, Merton [28] proposed a model through which he defined default as a decrease under a certain level of an entity's financial assets (Negrea, 2006). For this reason, a borrower's probability of default depended on the amount by which assets exceed liabilities and the volatility of those assets. If changes in asset value are normally distributed, the default probability can be expressed as the probability of a standard normal variable falling below some critical value. KMV computes the actual

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[27] KMV is a trademark of KMV Corporation. Stephen Kealhofer, John McQuown and Oldrich Vasicek founded KMV Corporation in 1989

[28] In his paper, Merton is warning us that even if it is really difficult, we could never forget the relation between credit risk and market risk. The default risk can be easily influenced by the market risk and on a debt market the credit risk will be reflected in the yield curve. These curves will be situated at a high level with as the securities issued are perceived as high risk bearing. In order to determine this level of risk, companies are rated in accordance with a rating scale. This rating it is made by the independent agencies. For example Standard and Poor's has the best credit rating denoted by AAA, and the level is dropping as the letters are changing: AA, A, BBB, BB, B, CCC, CC, C and the lowest level is D.

likelihood of default, the Expected Default Frequency (EDF), for each obligor. The EDF is a function of a firm's capital structure, the volatility of the asset returns, and the current asset value. Based on stock market data, the EDF is forward-looking.

Rating Based approach

The *CreditMetrics^{TM}* approach from J.P. Morgan (1997) was based on credit migration analysis, i.e., the probability of moving from one credit quality to another, including default, within a given time horizon. It estimates the loan or loan portfolio by viewing rating upgrades and downgrades (RiskMetrics Group, 2007). *CreditMetrics^{TM}* models the volatility of value to credit quality changes. The model uses two assumptions: first, all firms within the same rating class have the same default rate, and second, the actual default rate is equal to the historical average default rate. The model works in close collaboration with the rating system, which is where it departs from KMV. In KMV's framework, each issuer is concrete and is characterised by its asset returns distribution, its capital structure, and its default probability. Whereas in *CreditMetrics^{TM}*, the model assumes that all issuers are credit-homogeneous within the same rating class, with the same transition probabilities, and the same default probability. This assumption did not take into account individuality. The issuers might differ by location, business cycles, or even collateral. A Monte Carlo Simulation measures the portfolio loss distribution.

Econometric Risk Factor Model

CreditPortfolioView from McKinsey (Wilson, 1998) is a measurement of the likelihood of loss resulting from the failure of the second party to meet their payment obligations. It is a discrete-time multi-period model, where default probabilities are a function of macro-variables that to a large extent drive credit cycles, such as unemployment, the level of interest rates, the growth rate of the economy, and government expenses.

Actuarial Model

Credit Risk+ from Credit Suisse Financial Products (Avesani, Liu, Mirestean, & Salvati, 2006) like *CreditPortfolioView,* only focuses on the likelihood of loss resulting from the failure of the second party to meet their payment obligations. This model is different than *CreditMetrics*, in that it only focuses on measuring expected and unexpected losses. *Credit Risk+* allows for stochastic default rates which partially account for, although not rigorously, migration risk. The model assumes that for a loan, the probability of default in a given period,

e.g., one month, is the same as any other month. Moreover, it also assumes that for a large number of obligors, the probability of default of any particular obligor is small, and the number of defaults that occur in any given period is independent of the number of defaults that take place in any other period.

In the empirical study, we adopted the model offered by KMV. We denoted investment risk as *CR*. In KMV, EDF is calculated based on a firm's profile as well as market information. The EDF is directly linked to an individual entity's default profile, and it is considered to be more accurate compared to the probability of default modelling of other models. It does not take macroeconomic factors into consideration when analysing the likelihood of default of a certain entity, whereas the entity's risk profile is closely linked with the state of the economy. Merton (1974) determined that a firm is expected to default when the value of its assets falls below a threshold value which is determined by its callable liabilities. If the value of the company falls below a certain threshold, the owners will put the firm to the debt-holders. The probability of default is thus a function of a company's capital structure, the volatility of its asset returns, and its current asset value.

KMV's EDF combines Asset Value and Asset Risk into a single measure of default risk which compares the market net worth of a firm to the size of one standard deviation move in the asset value.

$$CR_{it} = \frac{Market\ value\ of\ Assets_{(i,t)} - Book\ value\ of\ Assets_{(i,t)}{}^{29}}{Market\ value\ of\ Assets_{(i,t)}\ x\ Assets\ volatility_{(i,t)}} \qquad (2)$$

The formula is composed of two main elements that can determine the default probability of a firm:

Asset Value: the market value of a firm's assets. This is a measure of the future prospects of a company and industry. It is calculated from the present value of future free cash flows produced by the firm's assets discounted back at the proper discount rate.

Asset Risk: the uncertainty or risk of an asset value. The value of a firm's assets is an estimate and is thus uncertain. Asset Risk is measured by asset volatility, which is the standard deviation of the annual percentage change in an asset value. Asset volatility relates to the size and nature of the firm's business and represents the business and industry risk of the firm.

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[29] In the original paper Merton uses the concept of *Default Point*. Defining it as the assets value at which the firm will default and it refers at the book value of the assets

Hakim and Neami (2001) found a strong and significant relation between capital adequacy ratio and the return on a bank's equity. Their analysis showed that the higher the profit (and performance), the higher the risk, and the relation between the two variables was always negative. The same relationship existed in Berríos's (2013) study. His result presented evidence that there was a significant negative relationship between ROA and ROE and default risk in the case of a group of state commercial banks. In our empirical research, we expected the same significant negative relationship between the *Investment Risk* variable and our dependent variable *Perform*.

Liquidity Risk Measurement

The recent credit crisis compounded itself quickly into a grave liquidity crisis because it led to the insolvency of major financial institutions (Chen, 2012, p.3). We noticed that before the global financial crisis, the majority of institutions omitted the aspect of liquidity risk.

The notion of liquidity relates to the ability of an economic agent to exchange his or her existing wealth for goods and services or other assets[30]. Liquidity is dynamic and can change both to internal and external factors related to the entity that is why (in the majority of the cases) we can identify the following two types of liquidity risk:

i)   Funding (cash flow liquidity risk) represents the risk that an entity will not be able to pay its current liabilities, and

ii)   Market (asset liquidity risk) is the risk that an asset owned by an entity will not sell on the market. Because we are looking at the internal component of an entity, and we want to identify the risks related to owning financial instruments and not trading them, we will see the aspect of *cash flow liquidity risk*.

Because of its fluidity, it is often considered that liquidity risk is one of the most difficult measurements in comparison with other financial risks (Banks, 2014, p.155). Although specific measurement techniques vary by entity or by industry, we can group them into three approaches (Mills & Yamamura, 1998; CPA Australia, 2010; Ehiedu, 2014; Banks, 2014):

•   *Indicators of operating cash flow*: These indicators show users how much an entity generates internally and identifies the entity's safety net. These indicators provide cues to an entity's health and performance. Usually it is measured through: the ratio of earnings before interest and tax (EBIT) (analysis may indicate a weakness to an unexpected downturn in

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[30] This remark draws heavily from Williamson's (2008) discussion of liquidity constraints. According to his discussion, such constraints "affect the ability of an economic agent to exchange his or her existing wealth for goods and services or for other assets".

income, which may result in insolvency), the ratio of debt to gross cash flow (indicates the financial strength of the business), the amount of retained cash (net available cash), and the amount of available uncommitted.

- *Ratios of liquidity*: Normally these ratios are used to indicate past performance and should not be used to forecast cash flow. In assessing liquidity, the following ratios are useful: the acid ratio (indicates the extent to which current liabilities can be paid immediately out of liquid assets), and the current ratio (may indicate a shortage of funds). From these two ratios, we can branch off and calculate other ratios.

- *Financial strength*: This indicator regularly refers to the leverage ratio and shows any vulnerability to any downtown in cash flows.

When investigating liquidity risk arising from financial instruments, we noticed that the main element studied was cash flow. Liquidity risk is defined as the variability in cash flow that occurs in a timeframe (Leautier, 2007). Gijsbertsen (2013, pp.7-8) argued that risk is often noted as cash flow volatility, and it is the acknowledgement that future cash flow is uncertain. We argue that a company's demand for external finance not only depends on current cash flow but also on future expected cash flow. This is important because now cash flow volatility has an indirect impact on a company's demand for external funds. Companies with high cash flow volatility are less likely to derive much information from a positive cash flow shock today than about cash flow tomorrow.

We measure the liquidity risk as a ratio of the volatility of an entity's net cash-flow minus the mean of the net cash flow and total assets. We denote liquidity risk by *LR*.

$$LR_{it} \ (volatility \ of \ cash \ flow) = \frac{Std.Dev.(\widehat{NetCF})_{(i,t)} - Mean(\overline{NetCF})_{(i,t)}}{Total \ Assets_{(i,t)}} \qquad (3)$$

Bearing in mind that result will be read as: the higher the standard deviation, the higher the liquidity risk. As Beaver (1966, p.80) was saying *the purpose of introducing the cash-flow model is that […] a firm has to be seen as a reservoir of liquid assets, which is supplied by inflows and drained by outflows*. This reservoir is viewed as a cushion against the variations in the flow. Therefore, it is important for all researchers to consider the volatility of cash flow when investigating liquidity risk.

In the academic literature we found empirical results that demonstrated the impact of liquidity risk on a financial institution's performance. Some studies implied a strong positive relation between liquidity risk and performance (Maudos & de Guevara, 2004; Ahokpossi,

2013). Other studies implied a negative relation between a financial institution's performance and liquidity risk (Sohaimi, 2013; Ly, 2015). Alzorqan (2014) proved that there was a direct positive relation between loan-to-deposit ratio and the return on investment (ROI) and return on equity (ROE) of a banking system, but there was a direct negative relation between current liquidity and the ROI and ROE in the Jordan banking system. Farooq et al. (2015) repeated the study and confirmed Alzorqan's results in the case of the Askari Bank, but invalidated his findings in the case of the Muslin Commercial Bank.

For our empirical research, we expected to find a significant positive relation between a financial investment companies' performance and liquidity risk (if a business performs more in capital markets, we expect liquidity risk to increase).

Market Risk Measurement

Market risk is defined by IFRS 7 as the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market price. To determine and measure market risk, current literature has identified four approaches:

- *Capital Asset Pricing Model* − A model that describes the relationship between risks and expected return used to price risky securities. The general idea behind CAPM is that investors need to be compensated in two ways: time value of money and risk. The time value of money is represented by the risk-free (R_f) rate in the formula and compensates investors for placing money in any investment over a period. The other half of the formula represents risk and calculates the amount of compensation an investor needs for taking on additional risk. This is calculated by taking a risk measurement (Beta) that compares the returns of the asset to the market over a period and to the market premium (R_m-R_f).

- *Asset Pricing Model* − This model is used when there are no arbitrage opportunities, then the market risk of any asset must be captured by Betas about factors that affect all investments. The concept of asset pricing helps investors to distinguish between systemic risk and idiosyncratic risk. It is measured as the risk exposure of any asset to market factors.

- *Multi-Factor Models* – These models originated from the idea that since market risk affects most or all investments, it comes from macroeconomic factors. Most of the models use Betas of assets related to specific macroeconomic factors, and it measures the risk exposure of any asset to macroeconomic factors.

- *Proxy Models* − Proxy models measure market risks by capturing the proxy variable. In an efficient market, differences in returns across long periods must be due to market risk differences. Looking for variables correlated with returns should give us proxies for this risk.

When analysing the conceptual framework, we notice that a constant always appears in connection with the concept of financial instruments: cash flow. We can simply say that financial instruments are cash-flow risk carriers, and to determine the risks we have to determine the predictable character of cash flow. To determine if an entity is exposed to the market risk, we have to look at its cash flow. The market risk adjustment is deduced from the expected cash flows. When an entity is preparing its financial reports, it provides its "best estimate" of the future cash flow (Zyla, 2013, pp.199-220).

$$MR_{it} = CF_{(i,t)} - CF_{(i,t)} \left(\frac{1 + R_{f(i,t)}}{1 + D_{(i,t)}} \right)^{P} \qquad (4)$$

Market risk is denoted by *MR*. The formula is composed of three main elements that can be used to determine the market risk of the financial investment companies:

- *Cash flow* (CF) measured through the net operating cash flow.

- *Risk-free rate* (R_f) represents the interests that an investor would expect from an absolutely free risk investment in a given period. It is a theoretical concept used as a starting point for calculating the cost of equity and capital. Using a higher risk-free rate will increase discount rates and reduce present value in a discounted cash flow valuation (Damodaran, 2008). The risk-free rate in our empirical study was calculated specifically for each company according to the risk-free rate of its country.

- *Total discount rate* (D) includes the risk-free rate and a market risk premium and represents the rate of return that is a theoretical concept for an investment with zero risks. The discount rate used for our empirical research was calculated specifically for each company according to the discount rate of its country.

In our empirical research, we expected to find a significant positive relation between a financial investment firms' performance and market risk. We predicted that if a business became more profitable and operated in the capital market, then there would be a strong positive relation between the market risks.

3.3.3. Control Variables

Callan & Thomas (2009, pp.63-67) found that control variables must be properly specified to avoid bias. Using appropriate control variables is crucial to obtaining reliable results when investigating the relationship between performance and risk.

Size

Size is an important control variable since larger firms seem to have less risk in comparison with smaller firms. According to Burke and Edell (1989), as firms grow, they attract the attention of more stakeholders. Beaver (1966) argued that the size of a company is an important element that has to be taken into consideration when measuring its maturity, because the larger the liquidity assets, the smaller the possibility of failure. When investigating the effect of a firm's size on profitability, Doğan (2013) found a positive relationship between the variables. Other studies that argue that size defined as total assets should be taken into consideration when investigating a company's performance are Friend & Lang (1988), Deesomsak, Paudyal, & Pescetto (2004), or Saliha & Abdessatar (2011).

In our study, the size of the companies was defined as the natural logarithm of total assets, and it is denoted by *LogAssets*.

$$Size = \ln(Total\ Assets) \qquad (5)$$

Leverage

A company's leverage ratio is one of the most-common independent variables when analysing a firm's performance. We found studies that declared a negative relation between a company's performance and its leverage rate (Almeida, Campello, & Weisbach, 2004; Dickinson, 2011; Doğan, 2013), but also studies that found a positive relation between the two variables (Jensen, 1989; Saliha & Abdessatar, 2011). Agency theory suggests that firms with high leverage tend to underinvest, or invest suboptimally, and thus transfer wealth away from debt holders to equity holders (Deesomsak, Paudyal, & Pescetto, 2004, p.8).

In our study, the company leverage was calculated as a ratio of total debt to total assets, and it is denoted as *LEV*.

$$Leverage = \frac{Total\ debt}{Total\ assets} \qquad (6)$$

Auditor Opinion

The audit report is an instrument by which the auditor transfers his opinion about the reliability and faithful representation of financial statements. When analysing any financial ratio (liquidity ratios, return ratios, performance ratios, profitability ratios, or market ratios), the audit opinion has to be taken into consideration. The variable audit opinion is regularly investigated because researchers want to be certain of the authenticity of the financial results they are studying (Ghale Rudkhani & Jabbabi, 2013). Gaganis, Pasioras, & Michacl (2007) found a positive relation between a company profitability and auditor opinion. They argue

that the variable auditor opinion has an effect on the performance of companies, noticing that 24% was highly significant. The same positive results were obtained by other studies as well. The same positive results were obtained by other studies as well: (Kirkos, Spathis, Nanopoulos, & Manolopoulos, 2007; Zdolšek, Jagrič, & Odar, 2015).

We defined a variable, labelled *Dummy_Au_Op*, to represent a dummy auditor where 1 represented an unqualified opinion and 0 a qualified opinion.

Audit Network

Recent financial crises have increased the need for effective controlling mechanisms. Auditing can enhance the credibility of a company and reduce misinformation. But modern auditing suffers from internal contradictions (Kirkos, Spathis, & Manolopoulos, 2010); an auditor has to remain independent and unbiased to protect investors, yet an auditor's biases may be affected by the fact that the company being audited establishes the auditor's fees and appointment. This is the main reason that the auditing market is split into two categories: the Big Four auditors and Non-Big Four auditors. We found studies that argued when auditors were in the Big Four category, the problem of audit quality and reliability was resolved. However, large audit companies are in a better position to resist client pressure in comparison with smaller audit companies (Craswell, Stokes, & Laughton, 2002; Knechel, Niemi, & Sundgren, 2008; Broye & Weill, 2008; Kirkos, Spathis, & Manolopoulos, 2010).

In our empirical research, we created a dummy variable, *Dummy_Au_Firm*, using 1 to represent a Big Four audit company and 0 to represent a Non-Big Four audit company.

3.4.   Descriptive Analysis

Without ignoring the link between accounting and economics, we conclude that the explanations provided by economics science according to which a company is considered an individual agent who wants to maximize its profit in a situation of perfect or imperfect information, it can not be considered a support to explain accounting model, but it is the fundamental scientific basis of accounting that must be sought to address the management perspective of the economic reality.

To fulfil the aim of this empirical research, we used the Thomson One database. The present research is fundamental, and the research methodology is deductive. We developed a hypothesis based on existing research and then projected a research strategy to test the hypothesis.

We analysed the published scientific articles and selected those of interest that best represented our needs. We then used the comparison method, through which we identified the similarities and differences between the published studies. Later, through the typological method, we classified the research by the amount it studied the connection between an entity's performance and risk arising from having financial investment company financial instruments in its patrimony.

To test the hypothesis, we split the research into two parts. First, we researched articles published in the last 20 years that had as the main subject 'financial instruments and the risk arising from them', and second, we concentrated on research dealing with the following themes: measuring performance, investment risk, liquidity risk, market risk, and measuring risk from financial instruments.
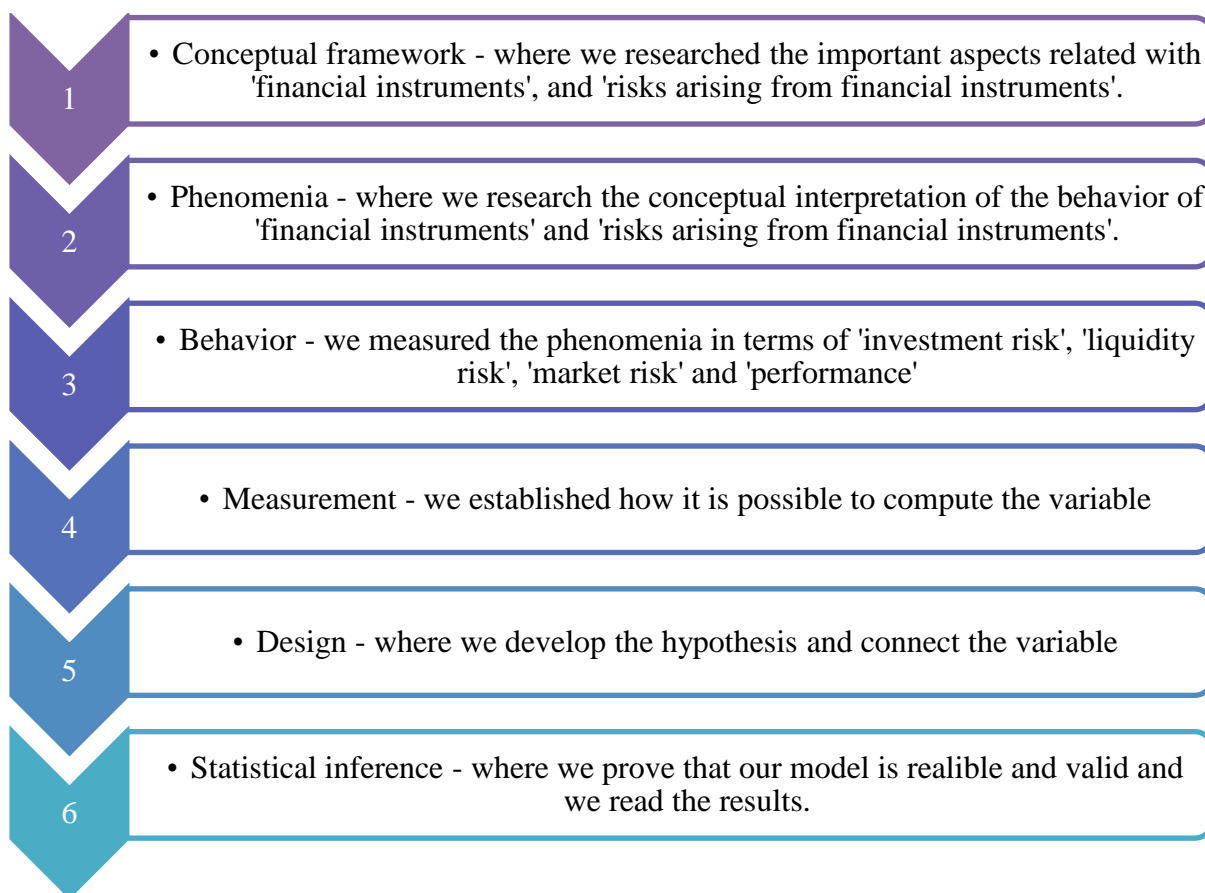
Figure 3.4. The process of testing the hypothesis

We decided to split the research into two parts after reading Anderson's books from 2001 and 2004, where he proved that *the real difficulty is to integrate statistics-design with empirical inquiry*. If research does not have a well-developed research judgement grounded in the conceptual framework, then the reliability and the validity cannot be proven. The same logic was followed in our study as shown in Figure 3.4.

We considered that the limitation of our approach could occur because we were trying to not to let the capital market influence our variable by excluding the variations from the security exchange or any other transactions with the financial instruments.

In Table 3.7 we present a summary of the relevant statistics for the dependent, explanatory, and control variables.

Table 3.7. Summarize of variables

	Number of Observations: 1181 (162 Companies)					
Variable	Obs.	Mean	St. Dev.	Median	Min	Max
Performance	1177	1.766	1.357	0.597	0.052	5.851
Default Risk	1177	0.029	0.738	0	-1.807	2.062
Liquidity Risk	1088	0.3709	1.516	0.055	-0.289	13.203
Market Risk	1177	1.110	1.100	0	-2.820	8.960
Natural logarithm of total assets	1177	7.581	1.262	7.576	3.357	11.940
Leverage	1172	0.408	0.464	0.306	0.001	3.159
Audit opinion (dummy)	1084	.	.	.	0	1
Audit Network (dummy)	1112	.	.	.	0	1

As shown in Table 3.7, even if the performance ratio had a maximum value of +1, 298 observation shows an over-evaluated firm in the European capital market. The average distribution, by year, of the dependent variable *Perform,* is presented in Figure 3.5.
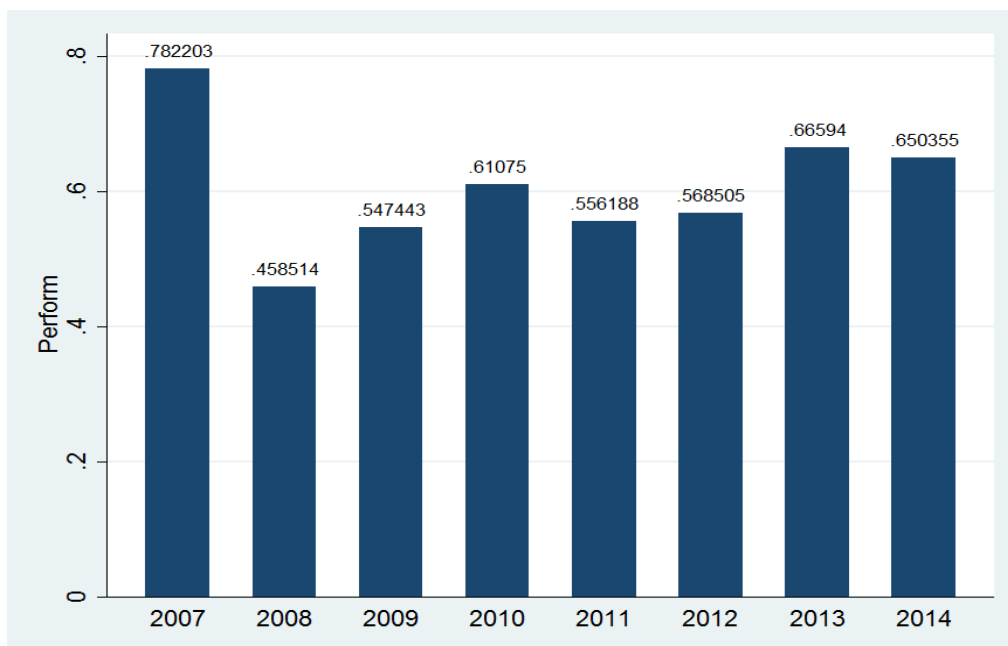
Figure 3.5. Average distribution of dependent variable *Perform* by year

A complete descriptive statistics of our dependable and explanatory variables it can be seen in Annex 5.

3.5. The models of analysis

Current accounting methodology of the research is based on statistical and mathematical tool and methods used by other social sciences which makes accounting "an increasingly technique more and more scientific, which in sciences philosophy is called a technoscience" (Colasse, 1993, p.24), i.e., a technique in symbiosis with science. The result of such research contributes to increasing the knowledge by accountants because it defines the concepts, methods, and accounting functions. Although fundamental accounting research is not a direct response to the needs of accounting practices, it provides substantiation, promoting and directing to the accounting practices.

For testing the formulated hypotheses, we proceeded to analyse the economic data with the help of an econometric model, especially because we wanted *to introduce the practical substance in the theoretical structure* (Anghelache, Mitruţ, Bugudui, Deatcu, & Dumbravă, 2009, p.10).

Risk indicators were not assessed in a single model; they were analysed by developing three models to prevent multicollinearity and autocorrelation problems in the empirical research and to split the impacts of each of the risks into the financial investment companies' performance separately.

The first model that corresponds to the H1 is defined as:

$$P_{it} = \beta_0 + \beta_1 InvestmentRisk_{it} + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 AuditorOpinion_{it} + \beta_5 AuditNetwork_{it} + \mu_{it} \qquad (7)$$

The second model that corresponds to the H2 is defined as:

$$P_{it} = \beta_0 + \beta_1 LiquidityRisk_{it} + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 AuditorOpinion_{it} + \beta_5 AuditNetwork_{it} + \mu_{it} \qquad (8)$$

The third model that corresponds to the H3 is defined as:

$$P_{it} = \beta_0 + \beta_1 MarketRisk_{it} + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 AuditorOpinion_{it} + \beta_5 AuditNetwork_{it} + \mu_{it} \qquad (9)$$

The P_{it} is the performance of the financial investment companies (*Perform*) observed in the current period t for the company i. *InvestmentRisk$_{it}$*, *LiquidityRisk$_{it}$*, and *MarketRisk$_{it}$* are our main explanatory variables that vary over time and are different from company to company (denoted by *CR*, *LR*, and *MR*). *Size$_{it}$*, *Leverage$_{it}$*, *AuditorOpinion$_{it}$*, and *AuditNetwork$_{it}$* are our control variables that vary among companies and over time (denoted as *LogAssets, LEV, Dummy_Au_Op*, and *Dummy_Au_Firm*).

The parameter β_0 is a constant and β_1, β_2, β_3, β_4, and β_5 are the associated vectors of coefficients. The equations *(5)* and *(6)* incorporate fixed-company effects that capture the heterogeneity and are fixed over time.

The last element of the equation is μ_{it}, and it represents the error term, measured over time and among companies.

All three equations are estimated by panel data methodology and do not control for biases in the coefficients because of the explanatory variable endogeneity problems.

We consider that the equations provide a benchmark for comparison with previous and future research and have to be considered as a baseline for this empirical research.

CHAPTER 4. ANALYSIS AND INTERPRETATION OF THE EMPIRICAL RESEARCH RESULTS

The empirical research was conducted by investigating the financial indicators of 162 financial investment companies over eight years. The financial items were collected through the Excel add-ins of the Thomson Reuters Report. After collecting the Thomson One Database data of 279 companies, we eliminated a total of 117 companies (70 were outside Europe, five had a missing identifier, and 42 had missing data for the variable of interest).

We present our three models and their results according to our statistical analysis.

4.1. Financial Investment Companies' Performance Analysis in the Light of the Investment Risk Impact

As we stated in the *Sample* section of this paper, our data are cross-sectional time-series data in which we observe the behaviour of the financial investment companies across an eight-year period. We were interested in analysing the impact of our variables that varied over time. First, to be sure that we were not biased with the predictor, we controlled for the correlation between the variables. We tested our first model for normality with the pooled regression of ordinary least squares (OLS).

Table 4.1. Pooled OLS regression for investment risk model

Explanatory variables		*p*-value
CR	-0.3125 (-6.74)	0.000***
LogAssets	-0.5654 (-19.99)	0.000***
LEV	0.4643 (6.38)	0.000***
Dummy_Au_Op	-0.0838 (-0.82)	0.410
Dummy_Au_Firm	0.0070 (0.08)	0.932
Number of observation	1044	
R²	0.3384	
Wald test *(F-statistic)*	106.18 (0.0000)	
Companies	162	

Notes: The dependent variable is *Perform*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *t* statistic.

*=significant at a 10% level; **=significant at a 5% level ***=significant at a 1% level.

Table 4.1 presents the results of our pooled OLS regression. The Root MSE was 1.11 and was close to zero, indicating a good fit. The p-value of our model was 0.000, which indicates a significant relationship between the dependent variable *Perform* and the explanatory variable *CR*. The R-square measurement showed that the explanatory variable

explained 33.84% of the variance in a financial investment company's performance (*Perform*). The same significant relationship was provided by the adjusted R-square measurement of 33.52%. The t-value test told us that the most important variable in our model was the size of the company (*LogAssets* = -9.99), followed by the exposure to risk (*CR* = -6.74), and the level of leverage (*LEV* = 6.38). All three variables were significant at a level of 99% confidence. The two-tail p-value results for the dummy variables (audit opinion and audit company size) were not significant for p-values of 0.01, 0.05, or 0.10.

The coefficient for our constant was 5.2037, the coefficient of our independent variable was -0.3125 (*CR*), and the coefficient for our control variables were -0.5654 (*LogAssets*) and 0.4643 (*LEV*). According to the p-value test, we had to drop our dummy variables. We were expecting that our performance would increase, on average, by 5.2037 when it was not affected by the default risk or another variable. However, this was a meaningful interpretation, because all our variables cannot be zero. In the model, we saw that if the default risk increased by one point, then the performance would decrease by 0.3125 points.

After we had pooled the ordinary least square regress the model, we tested the multicollinearity. This element was necessary because there is not expected to be high collinearity between variables in order not to cause a problem for our analysis.

Table 4.2. Variance inflation factors for investment risk model

Variables	VIF	1/VIF
LogAssets	1.08	0.930029
Dummy_Au_F~m	1.06	0.942856
Dummy_Au_Op	1.03	0.974149
LEV	1.02	0.980312
CR	1.01	0.988688
Mean VIF	1.04	

The variance inflation factor test tells us the extent to which the standard error of the coefficient interest has been inflated upwards. Table 4.2 offers the result for our variance inflation factor in order to detect the multicollinearity in our model. After running the VIF test, we rejected the null hypothesis according to which there was multicollinearity in our model, seeing that the "rule of thumb" was fulfilled and our VIF value was lower than 10.

The OLS estimator for the parameters of the model was straightforward, but we noticed the inference needs to control the likely correlation of the error μ_{it} over time for the given

individuals (Cameron & Trivedi, 2009, pp.231-233). The pooled OLS standard errors were the usual OLS standard errors, and they underestimated the true standard errors because they ignored the positive serial correlation. Therefore, we had to continue our model by choosing between FR or RE (Wooldridge, 2013). In order to determine if we should use a fixed-effects model or a random-effects model, we ran the Hausman test. Our null hypothesis was that our individual effects were random. Annex 6 (the result of random effects model), shows that our analysis leads to a high rejection of the null hypothesis that random effects provide consistent estimates, and we had to accept the alternative hypothesis.

Table 4.3. Fixed-effects (within) regression for investment risk model

Explanatory variables	Expected sign		*p*-value|
CR	-	-0.1995 (-5.59)	0.000***
LogAssets	-	-1.511 (-22.35)	0.000***
LEV	+	0.3535 (4.53)	0.000***
Dummy_Au_Op	+/-	-0.0125 (-0.14)	0.888
Dummy_Au_Firm	+/-	-0.0002 (-0.00)	0.998
Number of observation		1044	
Companies		160	
Within R²		0.4549	
Wald test (*F-statistic*)		146.74 (0.0000)	
Hausman test χ^2		171.80 (0.0000)	

Notes: The dependent variable is *Perform*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *t* statistic. Hausman's test refers to the null hypothesis of both fixed effects and random effects being equivalent

*=significant at a 10% level; **=significant at a 5% level ***=significant at a 1% level.

The results of the fixed-effect estimating equation were shown in Table 4.3. As was expected, the coefficient of investment risk (*CR*) was strongly significant, and its effect was negative on the performance of the financial investment companies. These results were ratified by H1. Thus, the financial investment companies that had a high expected performance were more likely to have a stronger risk management strategy. Bearing this in mind, the longer a financial investment company operates in the capital market, there was expected to be a strong negative significant relation with investment risk.

After running the regression with fixed-effect, we noticed that the coefficient of our constant was 12.3917, the coefficient of our independent variable was -0.1995 (*CR*), and the coefficient for our control variables were -1.5118 (*LogAssets*), 0.3535 (*LEV*), -0.0125

(*Dummy_Au_Op*), and -0.0007 (*Dummy_Au_Firm*). According to the p-value test we needed to drop our dummy variables. The constant is showing us which will be the value we would predict for performance that all our explanatory and control variables will be 0. We expected our performance to increase on average by 12.4 when it was not affected by the default risk or other variables. However, this was a meaningful interpretation, because all our variables cannot be zero. In the model, we can see that if the default risk increased by one point, then the performance decreased by 0.1995 points.

From Fama & French (1992) and Kim, Mauer, & Sherman (1998) we know that the performance of a company in the capital market was affected by its size. Therefore, we introduced the variable control *LogAssets* to the regression in order to filter out the effects of company size on our variable *Perform*. We noticed a negative relation between size and performance for financial investment companies. This means that the larger a company, the lower will be its specific risk. We cannot make any statements about the companies from other industries, but we see studies where the same relationship appeared in the case of companies from the oil and construction industries (Gijsbertsen, 2013). Larger companies were less likely to be risky in comparison with the smaller ones because their spread in activities was higher.

The financial leverage of a firm was positively related to the performance of the company, a well-known fact in the case of financial investment companies. This was an expected event, taking into consideration that the higher the debt level of a company, the more risk was involved, and a company can take more risks that can lead to a greater level of performance. Furthermore, our dummy variables were not significant at any level in the regression.

We were looking for our data not to be correlated because we assumed that each financial investment company's error term and constant were unique.

Table 4.4. Pearson correlations of variables or coefficients for investment risk model

	Perform	**CR**	**LogAss~s**	**LEV**	**Dummy_~p**	**Dummy_~m**
Perform	1.0000					
CR	-0.1934	1.0000				
LogAss~s	-0.5099	0.0136	1.0000			
LEV	0.1397	-0.0914	0.0821	1.0000		
Dummy_~p	-0.1220	0.0005	0.1520	-0.0253	1.0000	
Dummy_~m	-0.1041	-0.0140	0.2232	0.0863	0.0753	1.0000

In Table 4.4, shows a small negatively correlation between variable *CR* and the dependent variable *Perform*. This indicates that if a company spent more time in elaborating and implementing risk management strategies, the default risk would decrease, and the performance of the entity would increase.

4.2. Financial Investment Companies' Performance Analysis in the Light of the Liquidity Risk Impact

We started the empirical analysis for the second model by testing for normality with the pooled regression of ordinary least squares as shown in Table 4.5.

Table 4.5. Pooled OLS regression for liquidity risk model

Explanatory variables		*p*-value
LR	0.2490 (9.67)	0.000***
LogAssets	-0.3936 (12.62)	0.000***
LEV	0.1900 (2.45)	0.015**
Dummy_Au_Op	-0.0185 (-0.18)	0.854
Dummy_Au_Firm	-0.0988 (-1.21)	0.228***
Number of observation	1044	
R²	0.3579	
Wald test *(F-statistic)*	107.36 (0.0000)	
Companies	162	

Notes: The dependent variable is *Perform*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *t* statistic.

*=significant at a 10% level; **=significant at a 5%level ***=significant at a 1% level.

The table above presents the result of our pooled OLS regression. The Root MSE was 1.04 and was close to zero, indicating that the model was close to a good fit. The p-value of our model was 0.000 and showed a significant relationship between dependent variable *Perform* and explanatory variable *LR*. The R-square indicated that the explanatory variable explained 35.79% of the variance in a financial investment company's performance (*Perform*). The same significant relationship was provided by the adjusted R-square that was 35.46%. The t-value test proved that the most important variable in our model was the size of the company (*LogAssets* = -12.62), followed by the exposure to risk (*LR* = 9.67), and the level of leverage (*LEV* = 2.45). The first two variables were significant at a level of 99% confidence, and the third at a level of 95%. The two-tail p-value results for the dummy

variables (for the audit opinion and the audited network) were not significant for p-values of 0.01, 0.05, or 0.10.

The coefficient of our constant was 3.8407, the coefficient of our independent variable was 0.2490 (*LR*), and the coefficient for our control variables were - 0.3936 (*LogAssets*) and 0.1900 (*LEV*). According to the p-value test, we had to drop our dummy variables. We expected performance to increase on average by 3.84 when it was not affected by default risk or other variables; however, this was a meaningful interpretation because all our variables could not be zero. In the model, if the default risk increased by one point, then the performance increased by 0.2490 points.

After we OLS had regressed the model, we tested the multicollinearity. This element was important because is not expected to have high collinearity between variables in order not to cause a problem for our analysis.

Table 4.6. Variance inflation factors for liquidity risk model

Variables	VIF	1/VIF
LR	1.51	0.661857
LogAssets	1.36	0.733162
LEV	1.26	0.791316
Dummy_Au_F~m	1.09	0.920942
Dummy_Au_Op	1.02	0.975884
Mean VIF	1.25	

Table 4.6 presents the result for our variance inflation factor in order to detect the multicollinearity in our model. After running the VIF test, we rejected the null hypothesis according to which there was multicollinearity in our model, seeing that the "rule of thumb" was fulfilled and our VIF value was lower than 10.

In order to determine if we should use fixed-effects model or random-effects model, we ran the Hausman test. Our null hypothesis was that our individual effects were random. Annex 7 presents the results of the random effects, and our analysis leads to a firm rejection of the null hypothesis that random effects provide consistent estimates, and we had to accept the alternative hypothesis.

Table 4.7. Fixed-effects (within) regression for liquidity risk model

Explanatory variables	Expected sign		*p*-value|
LR	+	0.0940 (3.29)	0.001***
LogAssets	-	-1.2109 (-12.19)	0.000***
LEV	+	0.3837(4.48)	0.000***
Dummy_Au_Op	+/-	-0.0058 (-0.06)	0.950
Dummy_Au_Firm	+/-	-0.0439 (-0.51)	0.611
Number of observation		969	
Companies		148	
Within R²		0.4330	
Wald test (*F-statistic*)		124.62 (0.0000)	
Hausman test χ²		81.29 (0.0000)	

Notes: The dependent variable is *Perform*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *t* statistic. Hausman's test refers to the null hypothesis of both fixed effects and random effects being equivalent

*=significant at a 10% level; **=significant at a 5%level ***=significant at a 1% level.

The results of the fixed-effect estimating equation were shown in Table 4.7. As expected, the coefficient of liquidity risk (*LR*) was strongly significant, and its effect was positive on the performance of financial investment companies. With this result, H2 is confirmed. Thus, we can see the positive relation between our dependent variable and explanatory variable, confirming the studies from the academic literature. If a financial investment company has a high rate of performance in the market, it was more likely to suffer from the risk that another entity will encounter difficulties in meeting its obligations associated with financial liabilities which were settled by delivering cash or another financial asset. This was especially the case for a financial investment company because its liquidity assets were transactions in capital markets, and they need to protect these assets. This relation between the variables was expected, knowing that firms invest large sums of money in very liquid financial securities (Kim, Mauer, & Sherman, 1998).

After running the regression with fixed-effect, we noticed that the coefficient of our constant was 10.0626, the coefficient of our independent variable was 0.0940 (*LR*), and the coefficient for our control variables were -1.2109 (*LogAssets*), 0.3837 (*LEV*), -0.0058 (*Dummy_Au_Op*), and -0.0439 (*Dummy_Au_Firm*). According to the p-value test we had to drop our dummy variables. The constant indicated which will be the value we would predict for performance that all our explanatory and control variables would be zero. We expected performance to increase on average by 10.06 when not affected by default risk or other

variables; however, this was a meaningful interpretation, because all our variables cannot be zero. In the model, if the default risk increased by one point, then the performance increased by 0.0940 points.

We introduced the control variable *LogAssets* to the regression to filter out its effect on the variable *Perform*. There was a negative relation between size and performance for financial investment companies; indicating that the larger company, the lower its specific risk.

In the case of financial leverage of a financial investment company, our result from the regression indicated a positive relation to the performance of a company. This was expected, considering that the higher the debt level of a company, the more risk was involved, allowing a company to take more risks that can lead to a greater level of performance. Furthermore, again, our dummy variables were not significant at any level in the regression, and there were no facts that influenced the performance of the companies.

We were looking for our data not to be correlated because we assumed that each financial investment company's error term and constants were unique.

Table 4.8. Pearson correlations of variables or coefficients for liquidity risk model

	Perform	LR	LogAss~s	LEV	Dummy_~p	Dummy_~m
Perform	1.0000					
LR	0.4682	1.0000				
LogAss~s	-0.5099	-0.3805	1.0000			
LEV	0.1397	0.3898	0.0821	1.0000		
Dummy_~p	-0.1220	-0.0721	0.1520	-0.0253	1.0000	
Dummy_~m	-0.1041	0.0267	0.2232	0.0863	0.0753	1.0000

Table 4.8 shows that our variable *LR* was positively correlated with the dependent variable *Perform*, and the strength of association had a medium correlation. We can say that the more liquid assets a company had, implying the ability to make riskier transactions, the more the liquid assets variable were associated with better performance (if a company had high risk, the possibility existed that it would fail more rapidly and not be able to recover).

4.3. Financial Investment Companies' Performance Analysis in the Light of the Market Risk Impact

In order to test the normally of our third model, we used ones again the pooled regression of ordinary least squares, the same as in the case of the previous two models.

Table 4.9. Pooled OLS regression for market risk model

Explanatory variables		*p*-value
MR	9.0200 (2.75)	0.006***
LogAssets	-0.5987 (-19.95)	0.000***
LEV	0.4886 (6.58)	0.000**
Dummy_Au_Op	-0.0889 (-0.86)	0.391
Dummy_Au_Firm	0.0294 (0.35)	0.729
Number of observation	1044	
R^2	0.3144	
Wald test *(F-statistic)*	95.21 (0.0000)	
Companies	162	

Notes: The dependent variable is *Perform*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *t* statistic.

*=significant at a 10% level; **=significant at a 5% level ***=significant at a 1% level.

Table 4.9 provides the result of our pooled OLS regression. The Root MSE was 1.13 and was close to zero, indicating that the model was a close fit. The p-value of our model was 0.0, and it showed a significant relationship between the dependent variable *Perform* and the explanatory variable *MR*. The R-square showed that the explanatory variable explained 31.44% of the variance in a financial investment company's performance (*Perform*). The same significant relationship was provided by an adjusted R-square of 31.11%. The t-value test indicated that the most important variables in our model were the size of the company (*LogAssets* = -19.95), followed by the level of the leverage (*LEV* = 6.58), and the exposure to risk (*MR* = 2.75). All three variables were significant at a level of 99% confidence. The two-tail p-value results for the dummy variables (for the audit opinion and the audited network) were not significant for p-values of 0.01, 0.05, or 0.10.

The coefficient of our constant was 5.4265, the coefficient of our independent variable was 9.0200 (*MR*), and the coefficient for our control variables were -0.5987 (*LogAssets*) and 0.4886 (*LEV*). According to the p-value test, we had to drop our dummy variables. We expected that our performance would increase on average by 5.43 when it was not affected by default risk or other variables; however, this was a meaningful interpretation because all our variables could not be zero. In the model, we if the default risk increased by one point, then the performance increased by 9.02 points.

After we OLS had regressed the model, we tested the multicollinearity. This element was important because is not expected to have high collinearity between variables in order not to cause a problem for our analysis.

Table 4.10. Variance inflation factors for market risk model

Variables	VIF	1/VIF
LogAssets	1.17	0.856034
MR	1.10	0.905241
Dummy_Au_F~m	1.07	0.937341
Dummy_Au_Op	1.03	0.974185
LEV	1.02	0.977799
Mean VIF	1.08	

To determine if we should use a fixed-effects model or a random-effects model, we ran the Hausman test. Our null hypothesis was that our individual effects were random. Annex 8 presents the results of the random effect analysis, and our analysis leads to a strong rejection of the null hypothesis that random effects provide consistent estimates, and we have to accept the alternative hypothesis.

Table 4.11. Fixed-effects (within) regression for the market risk model

Explanatory variables	Expected sign		*p*-value|
MR	+	6.2300 (2.00)	0.046**
LogAssets	-	-1.5359 (-22.28)	0.000***
LEV	+	0.3861(4.89)	0.000***
Dummy_Au_Op	+/-	-0.0128 (-0.14)	0.887
Dummy_Au_Firm	+/-	0.0060 (0.07)	0.943
Number of observation		1044	
Companies		160	
Within R^2		0.4381	
Wald test (*F-statistic*)		137.06 (0.0000)	
Hausman test χ^2		157.28 (0.0000)	

Notes: The dependent variable is *Perform*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *t* statistic. Hausman's test refers to the null hypothesis of both fixed effects and random effects being equivalent

*=significant at a 10% level; **=significant at a 5% level ***=significant at a 1% level.

The results of the fixed-effect estimating equation are shown in Table 4.11. As expected, the coefficient of market risk (*MR*) was strongly significant, and its effect was positive on the performance of the financial investment companies. These results confirmed

our third hypothesis (H3). The results were significant at a 95% level of interval of confidence, a fact that was excepted considering that we assumed the risk of future cash flows of a financial instrument would fluctuate with changes in market price. We can see the positive relation between our dependent variable and explanatory variable, confirming the studies from the academic literature.

After running the regression with fixed-effect, we found that the coefficient of our constant was 12.5468, the coefficient of our independent variable was 6.2300 (*MR*), and the coefficient for our control variables were -1.5359 (*LogAssets*), 0.3861 (*LEV*), -0.0128 (*Dummy_Au_Op*), and 0.0060 (*Dummy_Au_Firm*). According to the p-value test, we had to drop our dummy variables. The constant indicated which will be the value we would predict for performance that all our explanatory and control variables will be zero. We expected performance to increase on average by 12.55 when it was not affected by default risk or other variables; however, this was a meaningful interpretation, because all our variables could not be zero. In the model, if the default risk increased by one point, then the performance increased by 6.23 points.

Tobin (1969) said that the convenient assumption in a capital market was that more money will be "needed for transactions purposes" at higher income level, meaning that the companies will be more affected when the market fluctuates. Even if one expected a financial investment company's performance to have a strong positive relation to market risk, the ideal situation would be for this relation to be insignificant, as a result of a complete and perfect equilibrium (Chung & Pruitt, 1994).

We introduced the control variable *LogAssets* to the regression to filter out its effects on our variable *Perform*. In the case of all three models, there was a negative relation between company size and performance for financial investment companies: the larger a financial investment company, the lower its specific risk.

Looking at the financial leverage of financial investment companies, our regression results indicated a positive relation to the performance of companies, the same result for all three models. This was expected considering that the higher the debt level of a company, the more risk was involved, allowing it to take more risks that could lead to a higher level of performance. As in the case of the other two models, the dummy variables for the audit report opinion and the audited network were not significant at any level in the regression, and there were no facts that influenced the performance of the companies.

Another thing that we needed to control in our database was the correlation between the variables. We were testing for our data not to be correlated because we assumed that each financial investment company's error term and constants were unique.

Table 4.12. Pearson correlations of variables or coefficients for market risk model

	Perform	**MR**	**LogAss~s**	**LEV**	**Dummy_~p**	**Dummy_~m**
Perform	1.0000					
MR	-0.0603	1.0000				
LogAss~s	-0.5099	0.2702	1.0000			
LEV	0.1397	0.1108	0.0821	1.0000		
Dummy_~p	-0.1220	0.0329	0.1520	-0.0253	1.0000	
Dummy_~m	-0.1041	-0.0009	0.2232	0.0863	0.0753	1.0000

Table 4.12 presents a small negatively correlation between variable *MR* and the dependent variable *Perform*. This result can be explained by the differences in the performance of companies, looking at the entities experience in transferring its securities into wide and various markets.

Wrapping up, we could notice that the results of the fixed effects regression model, for the three models, show us that between the explanatory variables coefficient and the dependent variable there is a significant relationship. The results from the first model confirm the first expressed hypothesis, being validated at a 99% confidence interval. In the case of the second model, one can observe that there is a significant positive relationship, confirming the second hypothesis, at a 99% confidence interval. The third hypothesis is confirmed by the results offered by the third model that are validated at a 95% confidence interval. The t-test confirms us that the control variables the size of the companies and leverage are significant, but is invalidating the results for the dummy variables.

To support our hypothesis and our result, in the following section, we provide a new regression where we changed the definition of the dependent variable and performed a robustness test on the models already defined.

CHAPTER 5. ROBUSTNESS OF THE EMPIRICAL RESEARCH RESULTS

In this section, we bring additional contributions of "proofs" in order to offer more robustness to the results of the empirical research obtained following the application of the theory according to which the risks generated by the financial instrument operations have an impact on the performance of the financial investment companies of Europe.

In order to be sure that our models maintain its 'nominal' behaviour when key assumptions are violated, we need to test for the robustness of them. The robustness of the empirical research results is made through a statistic test that is claimed as robust only if it still provides insight into an existing problem despite having its assumptions altered (or violated).

To corroborate that our findings were robust, we produced two specifications of our baseline model. First, because our models can have problems with the estimations carried out, it was possible to see the presence of heteroskedasticity in our explanatory variables. In the second part of the chapter, we changed the definition of our dependent variable to see if the independent variables would behave as we expected.

5.1. Robust Regression

In economics, the robustness of the empirical research is attributed to the regulated markets, and it is made in order to determine the models continue to perform despite alterations in market conditions. In statistics, being robust means that a system (the models in our case) can handle variability and remain effective in different conditions. It is an important part of the empirical research because if the assumptions are violated, then we may need to reject the null hypotheses.

The estimation methods allow the estimation equation to appraise more precisely the calculation of standard errors that were robust to the deviation assumptions of the classical model; i.e., deviations related to the existence of heteroskedasticity. Tables 5.1, 5.2, and 5.3 present the heteroskedasticity test results for the first, second, and the third model, respectively. The null hypothesis was the presence of homoscedasticity.

Table 5.1. Testing for heteroskedasticity for the first model

H0: sigma(i)^2	=	sigma^2 for all i
χ^2 (160)	=	1.2000
F statistic	=	0.0000

As shown in Table 5.1, we need to reject the null hypothesis and conclude the presence of heteroskedasticity for our first model.

Table 5.2. Testing for heteroskedasticity for the second model

H0: sigma(i)^2	=	sigma^2 for all i
χ^2 (160)	=	1.1000
F statistic	=	0.0000

As shown in Table 5.2, we need to reject the null hypothesis and conclude the presence of heteroskedasticity in our second model

Table 5.3. Testing for heteroskedasticity for the third model

H0: sigma(i)^2	=	sigma^2 for all i
χ^2 (160)	=	1.1000
F statistic	=	0.0000

H0 supported the null hypothesis and homoscedasticity. According to the result obtain from Wald test (Table 5.3), we must reject the null hypothesis and conclude the presence of heteroskedasticity in the third model.

After we test for heteroskedasticity in the case of all three models, we can present the new results with the 'robust' option to obtain heteroskedasticity-robust standard errors.

Table 5.4. Robust Regression of fixed effects for investment risk model

Explanatory variables	Expected sign		*p*-value|
CR	-	-0.1995 (-5.43)	0.000***
LogAssets	-	-1.511 (-11.83)	0.000***
LEV	+	0.3535 (2.19)	0.030**
Dummy_Au_Op	+/-	-0.0125 (-0.11)	0.912
Dummy_Au_Firm	+/-	-0.0002 (-0.00)	0.998
Number of observation		1044	
Companies		160	
Within R²		0.4549	
Wald test (*F-statistic*)		59.81 (0.0000)	
Hausman test χ^2		171.80 (0.0000)	

Notes: The dependent variable is *Perform*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *t* statistic. Hausman's test refers to the null hypothesis of both fixed effects and random effects being equivalent. The model was regressed with the robust estimator.

*=significant at a 10% level; **=significant at a 5% level ***=significant at a 1% level.

As expected, the sign of our coefficient for the explanatory variable *CR* was still negatively significant related with the dependent variable *Perform*, and our standard deviation and t-value decreased in comparison with the fixed-effect regression; however, our variables were still significant at a 99% confidence level).

Table 5.5. Robust Regression of fixed effects for liquidity risk model

Explanatory variables	Expected sign		*p*-value|
LR	+	0.0940 (1.37)	0.174***
LogAssets	-	-1.2109 (-5.41)	0.000***
LEV	+	0.3837(1.93)	0.055**
Dummy_Au_Op	+/-	-0.0058 (-0.05)	0.959
Dummy_Au_Firm	+/-	-0.0439 (-0.48)	0.630
Number of observation		969	
Companies		148	
Within R^2		0.4330	
Wald test (*F-statistic*)		43.83 (0.0000)	
Hausman test χ^2		81.29 (0.0000)	

Notes: The dependent variable is Perform. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the t statistic. Hausman's test refers to the null hypothesis of both fixed effects and random effects being equivalent. The model was regressed with the robust estimator.

*=significant at a 10% level; **=significant at a 5% level ***=significant at a 1% level.

The same as in the case of the first model, the results obtained from robust fixed-effect regressions were not surprising. The sign of our coefficient for the explanatory variable *LR* was still positively related with the dependent variable *Perform*. As expected, our standard deviation and t-value decreased in comparison with the fixed effect regression. Heteroskedasticity-consistent standard errors are instruments there are often relatively simple estimation alternatives that provide some protection against failures for the econometric models. The aim of using this robust method is to show that the estimate of some parameters is not very sensitive to the exact specification used. Even if the p-value was slightly above the 10% level, we were not worried about this aspect; it is expected in these situations.

Table 5.6. Robust Regression of fixed effects for market risk model

Explanatory variables	Expected sign		*p*-value|
MR	+	6.2300 (3.59)	0.046**
LogAssets	-	-1.5359 (-11.64)	0.000***
LEV	+	0.3861(2.23)	0.027**
Dummy_Au_Op	+/-	-0.0128 (-0.11)	0.914
Dummy_Au_Firm	+/-	0.0060 (0.07)	0.945
Number of observation		969	
Companies		148	
Within R²		0.4381	
Wald test (*F-statistic*)		. (.)	
Hausman test χ²		81.29 (0.0000)	

Notes: The dependent variable is *Perform*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *t* statistic. Hausman's test refers to the null hypothesis of both fixed effects and random effects being equivalent. The model was regressed with the robust estimator.

*=significant at a 10% level; **=significant at a 5% level ***=significant at a 1% level.

After we tested the robustness of our third model, the sign of our coefficient for the explanatory variable *MR* still exhibited a positive relation with the dependent variable *Perform*. As expected, the standard deviation and t-value decreased in comparison with the fixed-effect regression, and our variables were still significant at a 95% confidence level.

In the presence of heteroskedasticity, standard errors of the estimators will be shifted and should be calculated robust errors to correct the possible presence of heteroskedasticity. The most likely deviation from homoscedastic errors in the context of the panel of data is due to the specific variants individual. When the errors are homoscedastic within jogging cross-sectional area, but their variant is different between the units we have to deal with heteroskedasticity between groups. The results of our heteroskedasticity tests, show us that the standard errors do not influence our models, and the expected sign for them remains unchanged during the testing.

We can conclude by declaring that our model function normal in the specific parameters. In the presence of heteroskedasticity, the standard errors of the estimators shift and robust errors must be calculated in order to correct its possible existence. The Wald test determined the heteroskedasticity of the residues for the three regression models with tested fixed effects. The most probable deviation from the homoscedastic errors in the case of panel data is due to the variances specific to the individual. The test shows us that the errors are

homoscedastic within the models and submitted to the heteroscedasticity test, the coefficients behave normally, consolidating the results obtained.

5.2.   A New Specification of the Models

Robustness is necessary in order to valid the causal inference. In order check how the coefficient estimates behave when we modify the models in some way, we decided to change the 'core' variable. The supporting evidence that was proposed for proving the robustness of our models was to change the definition of the dependent variable *Perform*. To do that, we created a new variable denoted *PR*. In the proposed new model, the Tobin's Q ratio was designed as:

$$PR_{it} = \frac{Market\ capitalization_{(i,t)} + Book\ value\ debt_{(i,t)}}{Book\ value\ of\ assets_{(i,t)}} \qquad (10)$$

This method of calculating the Tobin's Q ratio is well-known in academic literature (Keeley, 1990; Villalonga, 2004; Gijsbertsen, 2013). Thus, we conducted the same statistical test on the same hypotheses but with a new specification for the models. We started by regressing the OLS pooled regression. After that, we continued with the fix effects regression (after performing the Hausman test). The results of the new regression are shown in Table 5.7 (investment risk model), Table 5.8 (liquidity risk model) and Table 5.9 (specific to market risk model).

Table 5.7. Robustness Estimation of fixed effect for investment risk model

Explanatory variables	Expected sign		*p*-value	Robust regression	*p*-value (robust)
CR	-	-0.9795 (-4.57)	0.000***	-0.9795 (-2.88)	0.004**
LogAssets	-	-8.3939 (-20.66)	0.000***	-8.3939 (-5.11)	0.000***
LEV	+	5.9454 (12.69)	0.000***	5.9454 (4.18)	0.000***
Dummy_Au_Op	+/-	0.3896 (0.73)	0.465	0.3896 (0.71)	0.477
Dummy_Au_Firm	+/-	0.2667 (0.54)	0.590	0.2667 (0.47)	0.640
Number of observation		1044			
Companies		160			
Within R²		0.5146			
Wald test (*F-statistic*)		186.40 (0.0000)	Wald test χ²	11.40(0.0000)	
Hausman test χ²		401.53 (0.0000)			

Notes: The dependent variable is *PR*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *t* statistic. The Hausman test checks if

the within-group estimator is valid against the random effects estimator. The table present the result for the fixed effect regression without the robust estimator and with the robust estimator.

*=significant at a 10% level; **=significant at a 5%level ***=significant at a 1% level.

Table 5.8. Robustness Estimation of fixed effect for liquidity risk model

Explanatory variables	Expected sign		*p*-value	Robust regression	*p*-value (robust)
LR	+	1.8024 (11.88)	0.000***	1.8024 (2.26)	0.020**
LogAssets	-	-3.1229 (-5.92)	0.000***	-3.1229 (-1.61)	0.110
LEV	+	4.5330 (9.96)	0.000***	4.5330 (2.81)	0.006**
Dummy_Au_Op	+/-	-0.2022 (-0.41)	0.680	-0.2022 (-0.40)	0.692
Dummy_Au_Firm	+/-	0.0422 (0.09)	0.927	0.0422 (0.07)	0.947
Number of observation		969			
Companies		148			
Within R²		0.5752			
Wald test (*F-statistic*)		220.99 (0.0000)	Wald test χ^2	1126.89 (0.0000)	
Hausman test χ^2		39.79 (0.0000)			

Notes: The dependent variable is *PR*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *t* statistic. The Hausman test checks if the within-group estimator is valid against the random effects estimator. The table present the result for the fixed effect regression without the robust estimator and with the robust estimator.

*=significant at a 10% level; **=significant at a 5%level ***=significant at a 1% level.

Table 5.9. Robustness Estimation of fixed effect for liquidity risk model

Explanatory variables	Expected sign		*p*-value	Robust regression	*p*-value (robust)
MR	+	3.0800(1.62)	0.099*	3.0800(2.29)	0.004**
LogAssets	-	-8.5125 (-20.67)	0.000***	-8.5125 (-5.15)	0.000***
LEV	+	6.1049 (12.94)	0.000***	6.1049 (4.30)	0.000***
Dummy_Au_Op	+/-	0.3881 (0.72)	0.471	0.3881 (0.69)	0.491
Dummy_Au_Firm	+/-	0.2980 (0.59)	0.552	0.2980 (0.51)	0.611
Number of observation		1044			
Companies		160			
Within R²		0.5046			
Wald test (*F-statistic*)		179.08 (0.0000)	Wald test χ^2	11.26 (0.0000)	
Hausman test χ^2		398.10 (0.0000)			

Notes: The dependent variable is *PR*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *t* statistic. The Hausman test checks if the within-group estimator is valid against the random effects estimator. The table present the result for the fixed effect regression without the robust estimator and with the robust estimator. *=significant at a 10% level; **=significant at a 5% level ***=significant at a 1% level.

The new regression analysis results remain qualitatively identical and display the same sign: a negative sign for the explanatory variable *CR*, a positive sign for the explanatory variable *LR,* and a positive sign for the explanatory variable *MR*. Another aspect that can be seen from the tables was that one of the explanatory variables was significant at a confident level of 90% (*MR*), and the other two were significant at a confident level of 99% (*CR* and *LR*).

The new models were estimated using the fixed-effects estimator because the Hausman test rejected the null hypothesis of using the random-effects estimator. The results of the random-effect regression tests for the three new models are presented as follows: first model, $\chi^2 = 401.53(0.0)$, in Annex 9; second model, $\chi^2 = 39.79(0.0)$, in Annex 10; and third model, $\chi^2 = 398.10(0.0)$, in Annex 11. The same expected sign was shown in the case where we regressed with the heteroskedasticity-robust standard errors (see Annex 9, Annex 10 and Annex 11).

After testing our models for heteroskedasticity-robust standard errors and changing the dependent variable definition, we can underline that our results held qualitatively in all cases, and we conclude that our models were correctly developed and are a significant contribution to the academic literature.

5.3. Exploitation of the Empirical Research in the Present Economic and Financial Content

We can notice the trend in the literature of studies that have as main theme: the relationship between accounting and decision-making process. 'People do try to formulate problems, they do try to find alternatives, and they do try to calculate and compute to arrive at a decision' (Mouritsen & Kreiner, 2016). The affirmation is true, especially in this present economic and financial content, the premises of discussing a new faster and improvement way of making decisions based on accounting information it is important. On the financial market, where financial instruments can fluctuate by second and financial investment companies have to make a decision fast, it is crucial to "avoid" and "escape" of any possible risk.

The models presented indicates, in the case of the financial investment companies, where are the areas that they have problems with the risks arising from financial instruments, and what is their impact on the entity. Through the results offered by our models the entity which operate with financial instruments can control and manage its risks arising from financial instruments and increase its performance. The information offered through the models help the entities to control the risks because they know to what exact extent risk can affect their performance and by knowing how risk affects performance they pay attention to them.

Even if the study is made by the financial investment companies, we believe other entities with similar activity can benefit from these models. For example, in the case of insurance companies, the liquidity risk can provide information and indicators about the financial situation in order to determinate if the entities can pay the possible damages or not.

The relationship between accounting and decision making in order to have a more perform entity, can be explored only in the situation when the company knows the impact and to what expect the risks arising from financial instruments can affect them. Taking into account that the new function of accounting is *leading into future* that it "translates" in the case of financial investment companies' performance, in identifying, determining and finding a solution in the case of risks is essential.

We can conclude that the results in the case of the first model are validated at a 99% confidence interval, for the second model of analysis the result confirms at the same level of confidence, and for the third model we can observe a level of trust of 90%. Thus, we can validate all the hypotheses developed in the third chapter, even if we are changing the specification of the dependent variable.

FINAL CONCLUSIONS

The thesis *Theoretical and Empirical Research regarding the Performance of Financial Investment Companies based on Accounting Information* has analysed the topic of financial instrument operations and associated risks from an accounting point of view, as well as from the perspective of the effects generated by the quotation of entities which operate with such instruments in the European regulated markets. The carried out analyses, the tested correlations, calculation and the results obtained through this research are presented and capitalized with the help of the figures, tables, and graphic schematizations. In the last part of the doctoral thesis we synthesized the empirical result and we developed the final conclusions which emerged from the scientific research carried out by us in:

- the conclusions that are drawn from the theoretical part;
- the conclusions that are drawn from the empirical part.

Theoretical research findings

Studies on financial instruments, especially those dedicated to the specific risks, they materialized in the form of scientific articles, books, various academic lectures and international conferences now more than half a century. The increased interest in the topics of financial instruments gradually led to the emergence of an impressive number of financial publications in the literature, where different and divergent aspects of this issue are much debated. Definition and the fluctuation of the accounting treatment of financial assets and liabilities, and theories on financial instruments were topics of research in the accounting field. Our approach aims to bring new scientific contributions to the literature concerning the relationship between the performance of entities operating with financial instruments and risk associated with these operations. The novelty of the theoretical research undertaken has resulted in from the way the financial and accounting disclosure are presented in the mandatory reporting and their relevance from the perspective of the risks arising from financial instruments. In the first chapter, we have examined in detail the provisions of the IASB on financial instruments. This analysis aimed at understanding the accounting treatment of financial instruments in order to investigate the risk associated with them. The first chapter provides a thorough understanding of the concept of financial instruments, of their typology and relevance of disclosure on financial assets, financial liabilities and own equity instruments.

History and historical sources are a primary source of information for understanding past events. The second chapter begins with a chronological analysis of the accounting regulations and the significant changes occurring on accounting policies for financial instruments.

The analyses underline the main changes that happened in the accounting referential IAS/IFRS and the way of how this affected the recognition and evaluation of financial assets, financial liabilities and own equity instruments in the last thirty years.

In the second part of the chapter we focus on the analysis of the performance registered by the entities which operate with financial instruments from an accounting point of view, and also through an interdisciplinary approach, taking into account the effects on the performance generated by the operations with this type of patrimonial elements.

We conclude that the way of identification and assessment of risks arising from financial instruments have an impact on the way how they are managed, especially from the accounting point of view. After analysing the IAS/IFRS accounting referential and the way of how the risks are defined, and taken also into account that our empirical study is based on the financial investment companies, we decided to readapt the concept of credit risk under the name of investment risk.

Empirical research findings

We conclude that the findings of our empirical research represent a starting point and a basis of information useful and real in analysing the performance of financial investment companies, which can be extended to other areas, but most importantly can be expanded and taken into econometric modelling. Modelling only possible through the theories of probability. The overall objective of the thesis was to prove that the impact of the risk arising from financial instruments on an entity's performance is significant and it should not be ignored by the financial investment companies which have as primary activity holding securities of other company for the purpose of reinvesting them.

We considered that we explored the conceptual framework enough to be able to proceed towards what we believe was the most challenging part of the paper, the empirical study. The empirical research that has been performed in this thesis, it was organized around a system of hypotheses that have been subject to validation or invalidation based on analysis of results of the calculated regression. The results of testing the hypotheses are presented in table 1.

Table 10. The hypotheses and their validation or invalidation

Hypothesis	Validation or invalidation of hypothesis
H1: The investment risk that results from the financial instruments operations will generate a negative, significant impact on the performance of the financial investment companies.	Validated
H2: The performance of the financial investment companies may be positively affected by the liquidity risk that results from the financial instruments operations.	Validated
H3: The market risk arising from financial instruments will generate a significant, positive impact on the financial investment companies' performance.	Validated

First hypothesis validation results show that the influence of investment risk is significant, and its effects on the performance of financial investment companies from Europe are negative. Thus, the successful financial investment companies on the European regulated market may be predisposed to negative effects of this type of risk. Consequently, the financial investment companies on the European capital market may register a level of investment risk which evolves indirectly proportional with the performance of these entities.

The validation of the second hypothesis proves us that the coefficient of the liquidity risk is strongly significant, from a statistical point of view, and has a positive effect on the performance of the financial investment companies. If a financial investment company has a high level of performance on the capital market, then, there is a significant probability that it encounters difficulties in fulfilling its financial obligation. This is due to the transaction of assets with a high degree of liquidity on the capital market, and the financial investment companies must „protect" these assets. Thus, the financial investment companies have to elaborate different strategies for managing this type of risk, taken into consideration that its effects will be observed in the cash flow, there are likely to encounter difficulties as entities with its liquidity.

The empirical research confirms us the third analysis, indicating us that the coefficient of the market risk is strongly significant, from the statistics point of view, and the influence of its effects are positive on the performance of the financial investment companies. We can observe that in the case of the first two models the confidence interval awarded is 99%, the results obtained for the third model demonstrate a 95% confidence interval, that was expected to take into account the multitude of the macroeconomic factors that influence the market risk.

To be sure that our results are robust, the last part of the thesis was dedicated to confirming this aspect. Heteroskedasticity testing by introduction of the robust estimation of standard deviation and changing the specification of the dependable variable, can let us to state that we can accept the assumption according to which our models are robust at a confident level of 99% (in the case of the first two models) and 90% (in the case of the last model). We note that we did not find statistical significance by introducing the dummy variables in the econometric models, both in the case of when the analysis is done, or when the robustness of the models is checked.

We conclude that the doctoral research results are relevant and meaningful by content and can be a benchmark for other studies, analyses, papers or projects which will have as spectrum investigate the effects of risk on the performance of companies.

PERSONAL CONTRIBUTIONS

Any research work, irrespective of its complexity, must have a „raison d'etre", that of bringing an added value to the research field, either we discuss accounting as a study subject, or as practice in the business entities. We believe that our research results are a relevant information basis and a starting point for assessing and quantifying the impact of risks associated with financial instruments operations (without pretending that we managed to adequately cover this area), and it can be extended to other measures of performance, profitability or yield.

In the first chapter, we defined the concepts of financial assets, financial liabilities and equity instruments, identifying the different approaches in the primary accounting referential. As well, we analysed the accounting policies and options applicable to the financial instruments, sketching the steps to be followed for identification, recognition, measurement and presentation of them. It will be noticed that in the chapter, for a better understanding of the concepts, of the various clarifications, rules or regulations, was often used to map in the form of figures and tables just for a better understanding of them.

In the second chapter, through the chronological analysis of the evolution of the normative accounting framework, we proved how the main changes in the accounting policies and options applicable to the financial instruments affect the way of evaluation and recognition of them, and how this issue is still debated in the financial literature.

The third chapter was dedicated to a literature review in order to establish the bases of our empirical research regarding the impact of the risks arising from financial instruments on a financial investment company's performance. Thus, we considered that the significant personal contribution it can be observed in the way of how we formulate the hypotheses, where was questioned and debated the problematic of the credit risk. Here, we analyse if in the case of an entity which operates with financial instruments we can talk about a credit risk or an investment risk, especially that the main operating activity of them is to hold financial instruments exclusive for investment purposes.

The significant personal contribution it can be found in the last two chapters of the doctoral thesis, were we made detailed analyses regarding the impact of risk arising from financial instruments on a financial investment company' performance, and we prove the robustness of the empirical research results. Through the results obtained within the research, we demonstrated that a financial investment company can manage and control the risks associated with financial instrument operations in order to increase the level of performance.

Thus, one can elaborate different strategies of risk management in order to „produce antibodies" in the zone possibly affected by it. A second aspect which results from the carried out analysis that we consider very useful is the possibility to prevent the future currency losses in the context of the activity of the entities that operate with financial instruments.

The models can be extrapolated and applied also in the case of companies that operate in similar fields of activity and at the same time, we can resort to a comparative analysis between the entities of type: insurance companies, real estate investment companies, and other financial companies. Actually, this aspect constitutes one of our future research directions.

A plus offered by this thesis we considered to be the fact that we managed to achieve a model for each specific risk associated with financial instrument operations, offering to the financial investment companies the possibility to understand to what extend their activity could be affected, in order to help the accounting and management practice to identify new methods of estimation and control of risks. We also believe that the sample size is another strong point of this thesis. Although the empirical research was carried out at the European level, we believe that the study can be replicated by other researchers from other continents where IAS / IFRS is applicable.

FUTURE RESEARCH DIRECTIONS

This doctoral thesis may be read by different categories of readers-users represented by researchers, the academic community, professors, doctoral candidates, students and people interested in the study of economic sciences.

From the foregoing, we consider that this research work may become a subject of interest for the financial analysts, regarding the environment in which the risks, taken into account along the work can affect the performance of the companies where they work. Given the high interdisciplinary character that this work requires, the thesis can represent an interesting point of view also for those interested in the finance field in order to establish new ways of estimation and prevention of the risks arising from financial instruments.

Another norm that we want to focus on in the future refers to the analysis of other fields of activity of the companies in Europe. Studying the relationship between the two concepts (risk and performance) can be achieved from the point of view of the stochastic models in order to determine exactly the internal and external factors that influence the variables by applying the calculations of probabilities to the results obtained.

Another method of analysis of the relationship between the risks associated with financial instrument operations and the performance of an entity can be achieved through the DID statistic method (difference in differences), method that tries to imitate an experimental research design using observational study data, by studying the differentiated effect of a treatment on a „group of treatment”, compared with a „control group” in a natural experiment.

A high-interest subject represents the analysis of the impact of risks generated by financial instruments operations on the accounting performance of an investment company, performance measured as a difference between the total income and total expenses.

We also find interesting the idea of a future research on the types of computer programs that should be achieved by the IT companies for the accountancy firms, in order to interact in the digital environment with their clients and to offer them consulting agency regarding the identification, evaluation and solution of risks associated with financial instruments operations.

Another research perspective that we can identify is referring to an extension of the empirical research by increasing the sample, in all countries that prepare financial statements in accordance with the rules and regulations of IAS/IFRS. Also, there can extend the period for the study sample, so a comparison can be made between the significance and impact of the specific risks arising from financial instruments on the performance of financial investment

companies, that had before the publication of IFRS 7 *Financial Instruments: Disclosures* and after the adoption of the standard.

We believe that the advantage of the thesis is that can generate new insights for future research directions by including new factors in the study, new variable, or redefining the existing variable, not be limited to a particular aspect.

In the future I wish to continue the research on the same thematic, extending the empirical research to the financial institutions.

SUMMARY

The thesis *Theoretical and Empirical Research regarding the Performance of Financial Investment Companies based on Accounting Information* will deal with the topic of financial instrument operations and associated risks from an accounting point of view, as well as from the perspective of the effects generated by the quotation of entities which operate with such instruments in the European regulated markets. The topic of our research is complex and actual, being debated upon in the literature. However, few published works so far have strictly dealt with the impact of the risks generated by the financial instrument operations on the performance of the financial investment companies.

The major changes in the accounting treatment of financial instruments that has suffered, that influenced the records in the financial statements and the increasing proportions that the risks arising from financial instruments have noted, have given this subject a safe place in academic publications. The changes to the conceptual framework regarding the disclosure of the risks arising from financial instruments had an impact on the way that the information is presented in the financial reports, it is a heavily debated theme in the specialist publications.

Objectives

This paper examines the link between the disclosures of risk associated with the financial instruments operations as an additional mechanism for controlling the entity's performance with the aim to achieve the planned financial objectives. According to authors Fatemi & Fooladi (2006), an efficient risk management may lead to a more efficient equilibrium between this one and profitability (understood as performance) in the case of financial institutions.

The starting point of our research was the adaptation of IFRS 7 *Financial Instruments: Disclosures*, which contributed to the improvement of the financial results of the entities. In the literature from the accounting field, we can find papers and research which analyse the impact of adopting the standard on the quality and quantity of information provided by entities (Abraham & Shrives, 2014; Armstrong, Barth, Jagolinzer, & Riedl, 2010; Atanasovski, Serafimoska, Jovanovski, & Jovevski, 2015; Moumrn, Othman, & Hussainey, 2015; Zaiceanu & Hlaciuc, 2015a). In this context, we wonder: what are the real effects of the risk associated with the financial instruments operations on the financial investment companies' performances?

In light of the above-mentioned and from the desire of discovering the answers to the questions and issues raised, through the scientific demarche we are proposing to *elaborate a model of estimation of the risks associated with financial instruments operations for the evaluation of their impact on the financial investment companies' performance*, this being the *general objective* of our research.

In order to achieve the general objective, we established since the beginning more secondary objectives which we are trying to fulfil them, and we think that we succeeded this thing, along this theoretical and empirical research. They are:

Secondary objective 1: Presentation of the requirements regarding the disclosure of information regarding the financial instruments and associated risks through the various scientific, theoretical and normative foundations.

Secondary objective 2: Identification of the main modifications regarding the accounting policies of the financial instruments and which were the main effects on the financial investment companies' performance.

Secondary objective 3: Defining and identifying of different methods of evaluation of risks arising from financial instruments by analysing the financial publication in the field.

Secondary objective 4: Analysis of the financial investment companies' performance from the point of view of the risks associated with financial instrument operations for the definition of methods for determining it.

Secondary objective 5: Determination, identification, and analysis of the impact of risks associated with financial instrument operations on the financial investment companies' performance.

In accomplishing the proposed objectives, we planned our scientific approach in several stages that are reflected in the five chapters of this doctoral thesis. During our research we combined the theoretical and practical aspects of the empirical studies, in order to form a clear picture, a logical structure and an aspect of continuity, starting from clarifying the concepts of financial instruments, risks and performance and ending with the last step: achieving an empirical research to prove the impact of risks associated with financial instruments on the entities' performance.

Research methodology

Scientific research in the accounting field implies resolving a problem occurred due to the economic context evolution, reconsideration of relations between accounting phenomena and procedures, and continuously renew the existing set of knowledge. The doctoral thesis is

structured to go through the entire scientific demarche. Through the fundamental scientific research method, we review the representative literature at the international level in order to investigate the theoretical and practical aspects of accounting of financial instruments. This subject considers the relationship between three elements that represents accounting themes debated through the literature: risk arising from financial instruments, the information presented in the financial statements and entity's performance. Thus, this thesis contributes to the existing body of accounting knowledge by development a new empirical research regarding *risk arising from financial instruments by determining the impact that they have on the financial investment companies' performance*. Our research thus falls into a descriptive, explanatory and comprehensive logic.

The overall analysis is the most common method of research that is carried out primarily by consulting the literature. Knowledge of the field of the research is to be made a fundamental part of any doctoral thesis.

The complexity and the global economic progress had led to increasing the uncertainty regarding the information around. These elements generate the necessity of investigating the specific phenomena and processes in a constructivist approach, which combines the deductive logic (which implies starting from theory to reach a remark) with inductive logic (which implies starting from a remark to reach the theory). In our theoretical and empirical research, we use the deductive approach starting from the changes in the international conceptual framework to develop various assumptions (hypotheses), which it shows how a specific risk of financial instruments can influence the performance of a company's operating with them.

In order to achieve the objectives regarding the approached topic, we used the methodology of scientific research which harmoniously combines the qualitative and quantitative research. Taking into account the objectives proposed in order to test the hypotheses put forward, we resorted to the analysis of financial indicators by means of an econometric model because we wanted *to introduce the practical substance in the theoretical structures* (Anghelache, Mitruț, Bugudui, Deatcu, & Dumbravă, 2009). The model was created by using the instruments offered by econometrics and it involved three steps, as follows:

- Step 1. Developing the hypotheses

The hypotheses that base the approach of our theoretical-empirical research were proposed following a detailed analysis of the actual stage of knowledge in the accounting field. Thus, developing the hypotheses is dependable on empirical scientific observation of the phenomenon being formulated the following hypotheses:

Hypothesis 1: The investment risk that results from the financial instruments operations will generate a negative, significant impact on the performance of the financial investment companies.

Hypothesis 2: The performance of the financial investment companies may be positively affected by the liquidity risk that results from the financial instruments operations.

Hypothesis 3: The market risk arising from financial instruments will generate a significant, positive impact on the financial investment companies' performance.

- Step 2. Creating the econometric model

The sample selected for testing hypotheses was based on the criterion of representativeness. As the world's total market capitalization represented 55% of European markets, we decided to focus on this area. Thus, there were selected the financial investment companies which operates on a regulated European market. The financial data that we selected for this sample are quantitative and have been extracted from the financial statements of the entities, which have been prepared in accordance with IAS/IFRS.

In order to avoid the problem of multicollinearity and autocorrelation in the empirical research, the variables of risks were not evaluated in one model but were analysed by developing three econometric models. We decided to approach it because we want to observe and investigate the impact of every type of risk associated with financial instrument operations on the performance of the financial investment companies, separately.

Following data collection, we select the variables, and we design the empirical model for each type of specific risk. The model takes the structure and types of variables chosen by the authors of similar studies. First, we define all the variables included in the empirical models. We will continue with the presentation of the specific model for each type of risk arising from financial instruments in order to be tested to verify the hypotheses. Each model includes a dependent variable (Performance - P_{it}), an explicative variable (Investment risk - *InvestmentRisk$_{it}$*, Liquidity risk - *LiquidityRisk$_{it}$* and Market risk - *MarketRisk$_{it}$*), as well some control variables (Size of the company – *Size$_{it}$*, Leverage – *Leverage$_{it}$*, Auditor opinion – *AuditorOpinion$_{it}$* and Audit network - *AuditNetwork$_{it}$*). We include control variables in our models in order to get a more precise answer to the assumptions made. By including the control variables in our research, we aim to get more accurate and safer parameter estimation. Even if the control variables are not directly explanatory to the tested hypotheses, their use improves the econometric models. Empirical models are designed after similar models in the literature, and we have adapted and customized them according to our research purposes.

- Step 3. Checking the econometric model

Even if all the results confirm the hypotheses made initial, the results will be tested to verify their robustness and explain the theory from which we started. We validate the models to determine their capacity to remain unaffected to the small and deliberate modifications and to observe if they fit into the same testing parameters. In order to confirm if our results are robust, we modified two specifications of the basic model. The first modification is made with the robust estimator of the standard deviation and the second modification is achieved by redefining the dependent variable (performance). The empirical results and conclusions of the study will be expressed at the end of chapters devoted to empirical research.

Any data analysis is done in two stages. In the first stage will be performing a descriptive analysis and the second stage will be represented by empirical analysis. It is important to use the descriptive analysis because represents the first step to provide an overview of the variables used in the doctoral thesis and it represents the basis for the empirical analysis.

Summarizing the conclusions

The carried out analyses, the tested correlations, calculation and the results obtained through this research are presented and capitalized with the help of the figures, tables, and graphic schematizations.

Our approach aims to bring new scientific contributions to the literature concerning the relationship between the performance of entities operating with financial instruments and risk associated with these operations. The novelty of the theoretical research undertaken has resulted in from the way the financial and accounting disclosure are presented in the mandatory reporting and their relevance from the perspective of the risks arising from financial instruments.

History and historical sources are a major source of information for understanding past events. The second chapter begins with a chronological analysis of the accounting regulations and the significant changes occurring on accounting policies for financial instruments. The analyses underline the main changes that happened in the accounting referential IAS/IFRS and the way of how this affected the recognition and evaluation of financial assets, financial liabilities and own equity instruments in the last thirty years.

We conclude that the way of identification and assessment of risks arising from financial instruments have an impact on the way how they are managed, especially from the accounting point of view. After analysing the IAS/IFRS accounting referential and the way of how the risks are defined, and taken also into account that our empirical study is based on the

financial investment companies, we decided to readapt the concept of credit risk under the name of investment risk.

Being on the top of 'construction' of our doctoral thesis, we considered that we explored the conceptual framework enough to be able to proceed towards what we believe was the most challenging part of the paper, the empirical study. The empirical research that has been performed in this thesis, it was organized around a system of hypotheses that have been subject to validation or invalidation based on analysis of results of the calculated regression.

The significant personal contribution it can be found in the last two chapters of the doctoral thesis, were we made detailed analyses regarding the impact of risk arising from financial instruments on a financial investment company' performance, and we prove the robustness of the empirical research results.

First hypothesis validation results show that the influence of investment risk is significant, and its effects on the performance of financial investment companies from Europe are negative. Thus, the successful financial investment companies on the European regulated market may be predisposed to negative effects of this type of risk. Consequently, the financial investment companies on the European capital market may register a level of investment risk which evolves indirectly proportional with the performance of these entities.

The validation of the second hypothesis proves us that the coefficient of the liquidity risk is strongly significant, from a statistical point of view, and has a positive effect on the performance of the financial investment companies. If a financial investment company has a high level of performance on the capital market, then, there is a significant probability that it encounters difficulties in fulfilling it's financial obligation. This is due to the transaction of assets with a high degree of liquidity on the capital market, and the financial investment companies must „protect" these assets.

The empirical research confirms us the third analysis, indicating us that the coefficient of the market risk is strongly significant, from the statistics point of view, and the influence of its effects are positive on the performance of the financial investment companies.

To be sure that our results are robust, the last part of the thesis was dedicated to confirming this aspect. Heteroskedasticity testing by introduction of the robust estimation of standard deviation and changing the specification of the dependable variable, can let us to state that we can accept the assumption according to which our models are robust at a confident level of 99% (in the case of the first two models) and 90% (in the case of the last

model). We note that we did not find statistical significance by introducing the dummy variables in the econometric models, both in the case of when the analysis is done, or when the robustness of the models is checked.

We conclude that the doctoral research results are relevant and meaningful by content and can be a benchmark for other studies, analyses, papers or projects which will have as spectrum investigate the effects of risk on the performance of companies.

REZUMAT

Lucrarea *Cercetare teoretico-empirică privind performanța societăților de investiții financiare pe baza informațiilor furnizate de contabilitate* tratează tematica operațiunilor cu instrumente financiare și a riscurilor asociate acestora atât din punct de vedere contabil, cât și din perspectiva efectelor generate de cotarea entităților care operează cu astfel de instrumente pe piețele europene reglementate. Tematica cercetării noastre este complexă și de actualitate fiind dezbătută în literatura de specialitate, totuși puține dintre lucrările publicate până în prezent au tratat, strict, impactul riscurilor generate de operațiunile cu instrumente financiare asupra performanței societăților de investiții financiare.

Modificările majore pe care tratamentul contabil al instrumentelor financiare le-a suferit, care au influențat înregistrările în situațiile financiare și creșterea proporțiilor pe care riscurile asociate activelor și datoriilor financiare le-au consemnat, au oferit acestui subiect un loc sigur în publicațiile academice. Schimbarea cadrului conceptual cu privire la informațiile de furnizat despre riscurile generate de operațiunile cu instrumente financiare a avut un impact asupra modului de prezentare a acestora în raportările obligatorii, fiind o tematică puternic dezbătută în publicațiile de specialitate.

Obiectivele cercetării

Lucrarea de față analizează legătura dintre informațiile prezentate cu privire la riscurile asociate operațiunilor cu instrumente financiare ca un mecanism adițional pentru a controla performanța entității cu scopul de a atinge obiectivele financiare planificate. Potrivit autorilor Fatemi & Fooladi (2006) o contabilizare eficientă al riscului conduce la un echilibru mai eficace între acesta și rentabilitate (înțeleasă ca performanță) în cazul instituțiilor financiare.

Punctul de pornire al cercetării noastre a fost adoptarea *IFRS 7 Instrumente financiare: informații de furnizat* care a contribuit la îmbunătățirea rezultatelor financiare a entităților. În literatura de specialitate din domeniul contabilității regăsim lucrări și cercetări care analizează impactul adoptării standardului asupra calității și cantității informațiilor furnizate de entități (Abraham & Shrives, 2014; Armstrong, Barth, Jagolinzer, & Riedl, 2010; Atanasovski, Serafimoska, Jovanovski, & Jovevski, 2015; Moumrn, Othman, & Hussainey, 2015; Zaiceanu & Hlaciuc, 2015a). În contextul actual, ne întrebăm: care sunt efectele riscului asociat operațiunilor cu instrumentele financiare asupra performanțelor societăților de investiții financiare?

Având în vedere aspectele precizate anterior și din dorința descoperirii răspunsurilor la întrebările și problematicile ridicate, prin demersul realizat ne propunem să *elaborăm un*

model de estimare a riscurilor asociate operaţiunilor cu instrumente financiare pentru evaluarea impactului acestora asupra performanţei societăţilor de investiţii financiare, acesta constituind *obiectivul general* al cercetării noastre.

Pentru a îndeplini acest obiectiv general am stabilit încă de la început mai multe obiective secundare pe care am încercat să le atingem, şi credem că am şi reuşit acest lucru, de-a lungul prezentei cercetări teoretico-empirice. Acestea fac referire la:

Obiectiv secundar 1: Prezentarea cerinţelor privind divulgarea informaţiilor cu privire la instrumentele financiare şi riscurile asociate prin prisma diverselor fundamente ştiinţifice, teoretice şi normative în vigoare.

Obiectiv secundar 2: Identificarea principalelor modificări în ceea ce priveşte politicile contabile ale instrumentelor financiare şi care au fost principalele efecte asupra performanţei societăţilor de investiţii financiare.

Obiectiv secundar 3: Definirea şi identificarea diferitelor metode de evaluare ale riscurilor asociate operaţiunilor cu instrumente financiare prin analiza publicaţiilor financiare de specialitate.

Obiectiv secundar 4: Analiza performanţei societăţilor de investiţii financiare prin prisma riscurilor asociate operaţiunilor cu instrumentele financiare pentru definirea metodelor de determinare a acesteia.

Obiectiv secundar 5: Determinarea, identificarea şi analiza impactului riscurilor asociate operaţiunilor cu instrumentele financiare asupra performanţei societăţilor de investiţii financiare.

În vederea atingerii obiectivelor propuse, am planificat demersul nostru ştiinţific în mai multe etape, acestea fiind reflectate în cele cinci capitole ale prezentei teze de doctorat. Pe tot parcursul cercetării noastre am îmbinat aspectele teoretice cu cele practice şi cu studiile empirice, astfel încât lucrarea să ofere o imagine clară, o succesiune logică şi un aspect de continuitate, pornind de la clarificarea noţiunilor de instrumente financiare, riscuri şi performanţă şi terminând cu ultima etapă realizarea unei cercetări empirice pentru a arăta impactul riscurilor asociate operaţiunilor cu instrumente financiare asupra performanţei.

Metodologia cercetării

Teza este structurată astfel încât să parcurgă întreg demersul ştiinţific. Prin metoda cercetării ştiinţifice fundamentale am analizat literatura de specialitate reprezentativă la nivel internaţional pentru a investiga fundamentele teoretice şi practice ale contabilităţii instrumentelor financiare. Acest subiect reconsideră relaţia dintre trei elemente care reprezintă teme de contabilitate dezbătute în literatura de specialitate: riscurile asociate operaţiunilor cu

instrumente financiare, informațiile prezentate în situațiile financiare și performanța entităților. Astfel, teza contribuie la ansamblul existent de cunoștințe de contabilitate prin dezvoltarea unei noi cercetări empirice privind *riscurile asociate operațiunilor cu instrumente financiare prin determinarea nivelului de impact pe care acestea le au asupra performanței societăților de investiții financiare*. Cercetarea noastră se înscrie astfel într-o logică descriptivă, explicativă și comprehensivă.

Analiza de ansamblu este cea mai utilizată metodă de cercetare care se desfășoară preponderent prin consultarea literaturii de specialitate. Cunoașterea domeniului în care urmează să fie făcută cercetarea este o parte fundamentală a oricărei teze de doctorat.

Complexitatea și progresul economiei globale au condus la creșterea incertitudinii în ceea ce privește informațiile din jur. Aceste elemente au generat necesitatea investigării fenomenelor și proceselor specifice într-o abordare constructivistă, care să combine logica deductivă (ce presupune plecarea de la teorie pentru a ajunge la o observație) cu logica inductivă (care presupune începerea cercetării de la observație pentru a ajunge la teorie). În cercetarea noastră teoretico-empirică folosim raționamentul deductiv: plecând de la schimbările din cadrul conceptual internațional pentru a dezvolta diferite ipoteze, pentru a arăta în ce măsură un risc specific unui instrument financiar poate influența performanța unei societății care operează cu instrumente financiare.

Pentru a îndeplini obiectivele cu privire la tema abordată, am îmbinat armonios cercetarea calitativă cu cea cantitativă. Luând în considerare obiectivele propuse în vederea testării ipotezelor emise, s-a recurs la analiza indicatorilor financiari cu ajutorul unui model econometric deoarece am dorit să *introducem substanța practică în structurile teoretice* (Anghelache, Mitruț, Bugudui, Deatcu, & Dumbravă, 2009). Modelul a fost creat prin utilizarea instrumentelor oferite de econometrie și a implicat trei pași după cum urmează:

- Pasul 1. Formularea ipotezelor

Ipotezele fundamentează demersul cercetării noastre teoretico-empirice și au fost propuse în urma unei analizei detaliate a stadiului actual al cunoașterii în domeniul contabilității. Astfel, elaborarea ipotezelor este dependentă de observația științifică a fenomenului empiric fiind formulate următoarele ipoteze de lucru:

Ipoteza 1: Riscul de investiții ce rezultă în urma operațiunilor cu instrumentele financiare va genera un impact negativ, semnificativ asupra performanței societăților de investiții financiare;

Ipoteza 2: Performanţa societăţilor de investiţii financiare poate fi afectată în mod pozitiv de riscul de lichiditate care rezultă din operaţiunile cu instrumentele financiare;

Ipoteza 3: Riscul de piaţă asociat operaţiunilor cu instrumente financiare va genera un impact semnificativ, pozitiv asupra performanţei societăţilor de investiţii financiare.

- Pasul 2. Crearea modelului econometric

Eşantionul ales pentru testarea ipotezelor s-a bazat pe criteriul reprezentativităţii. Deoarece totalul capitalizării bursiere din lume este reprezentată 55% de pieţele europene, am decis să ne concentrăm atenţia asupra acestei zone. Astfel, s-au selectat societăţile de investiţii financiare care îşi desfăşoară activitatea pe o piaţă europeană reglementată. Datele financiare pe care le-am colectat pentru acest eşantion sunt cantitative şi s-au extras din situaţiile financiare ale entităţilor, ce au fost întocmite în conformitate cu normele IAS/IFRS.

Pentru a evita problema multicoliniarităţii şi autocorelaţiei în cercetarea empirică, variabilele explicative nu au fost evaluate într-un singur model, ci au fost analizate prin dezvoltarea a trei modele econometrice distincte. Am decis această abordare deoarece vrem să observăm şi să investigăm separat impactul fiecărui tip de risc asociat operaţiunilor cu instrumente financiare asupra performanţei societăţii de investiţii financiare.

În urma colectării datelor vom selecta variabilele şi vom proiecta modelul empiric pentru fiecare tip de risc specific. Modelul preia structura şi tipurile de variabile alese de autorii unor studii similare. În primul rând vom defini toate variabilele care sunt incluse în modelele empirice. Vom continua cu prezentarea modelului specific pentru fiecare tip de risc generat de instrumente financiare care va fi testat pentru a verifica ipotezele. Fiecare model include o variabilă dependentă (Performanţa - P_{it}), o variabilă explicativă (Riscul de investiţii $InvestmentRisk_{it}$, Riscul de lichiditate - $LiquidityRisk_{it}$ şi Riscul de piaţă - $MarketRisk_{it}$) precum şi unele variabile de control (Mărimea companiei – $Size_{it}$, Gradul de îndatorare – $Leverage_{it}$, Opinia auditorului – $AuditorOpinion_{it}$ şi Tipul firmei de audit - $AuditNetwork_{it}$). Vom include variabilele de control în modelele noastre cu scopul de a obţine un răspuns mai precis la ipotezele formulate şi să obţinem o estimare a parametrilor mai precisă şi mai sigură. Deşi variabilele de control nu sunt direct explicative la ipotezele testate, utilizarea lor îmbunătăţeşte modelele econometrice create. Modelele empirice sunt concepute după modele similare din literatura de specialitate, pe care le-am adaptat şi personalizat în funcţie de scopul cercetării noastre.

- Pasul 3. Verificarea modelului econometric

Chiar dacă toate rezultatele confirmă ipotezele formulate iniţial, rezultatele vor fi testate pentru a le verifica robusteţea acestora şi de a explica teoria de la care am pornit. Vom valida

modelele pentru determinarea capacității acestora de a rămâne neafectate la micile și intenționatele modificări pentru a observa dacă se încadrează în aceeași parametri de testare. Pentru confirmarea robusteții rezultatelor empirice, vom recurge la modificarea a două specificații a modelului de bază. Prima modificare adusă se face cu ajutorul estimatorului robust a deviației standard iar a doua modificare se obține prin redefinirea variabilei dependente (performanța). Rezultatele și concluziile studiului empiric vor fi exprimate la finalul capitolelor dedicate cercetării empirice.

Orice analiză a datelor se realizează în două etape. În prima etapă se va efectua o analiza descriptivă iar ce-a de a doua etapă va fi reprezentată de analiza empirică. Este importantă utilizarea analizei descriptive deoarece reprezintă primul pas pentru a oferi o imagine de ansamblu asupra variabilelor folosite în teza de doctorat și temelia pentru analiza empirică.

Sintetizarea concluziilor

Analizele realizate, corelațiile testate, calculele și rezultatele obținute prin intermediul acestei cercetări au fost prezentate și valorificate cu ajutorul figurilor, tabelelor și schematizărilor grafice.

Demersul nostru științific a propus să aducă noi contribuții în literatura de specialitate cu privire la legătura dintre performanța unei entități care operează cu instrumente financiare și riscul asociat operațiunilor cu acestea. Noutatea adusă de cercetarea teoretică întreprinsă a rezultat din prezentarea informațiilor financiar-contabile în raportarea obligatorie și relevanța acestora din perspectiva riscurilor asociate operațiunilor cu instrumente financiare. Primul capitol oferă posibilitatea unei înțelegeri temeinice a conceptului de instrumente financiare, a tipologiei acestora și a relevanței prezentării informațiilor cu privire la activele financiare, datoriile financiare și instrumentele de capital propriu.

Istoria și izvoarele istorice sunt o importantă sursă de informații pentru cunoașterea evenimentelor trecute. Al doilea capitol debutează cu o analiză cronologică a reglementărilor contabile și a principalelor modificări intervenite asupra politicilor contabile ale instrumentelor financiare. Analiza evidențiază schimbările care au avut loc în cadrul referențialului contabil IFRS/IAS și modul în care acestea au afectat recunoașterea și evaluarea activelor financiare, datoriilor financiare și instrumentele de capital propriu pe parcursul ultimilor treizeci de ani.

Opinăm că modul de identificare și evaluare a riscurilor asociate operațiunilor cu instrumente financiare are un impact asupra gestionării acestora, din perspectivă contabilă.

După analiza referențialul contabil IAS/IFRS și a modului de definire a riscurilor, luând în considerare că studiul nostru empiric se bazează pe societățile de investiții financiare, am adaptat conceptul de risc de credit ca risc de investiții.

Ajunși aproape de vârful construcției tezei de doctorat, am considerat că am explorat îndeajuns cadrul conceptual pentru a putea să purcedem către ceea ce considerăm că a fost cea mai provocatoare parte a lucrării, studiul empiric. Cercetarea empirică ce a fost realizată în această lucrare, a fost organizată pornind de la un sistem de ipoteze care au fost supuse validării sau invalidării pe baza analizei rezultatelor regresiilor calculate.

Contribuția proprie cu importanța cea mai mare se regăseşte în ultimele două capitole a tezei de doctorat, unde am realizat analize aprofundate în ceea ce priveşte impactul riscurilor asociate operațiunilor cu instrumente financiare asupra performanței societăților de investiții financiare și am demonstrat robustețea rezultatelor cercetării empirice.

Rezultatele validării primei impoteze ne arată că influența riscul de investiții este semnificativă, iar efectele sale asupra performanței societăților de investiții financiare din Europa sunt negative. Astfel, societățile de investiții financiare performante pe piața europeană reglementată pot fi predispuse efectelor negative ale acestui tip de risc. Prin urmare, SIF-urile de pe piața europeană de capital pot înregistra un nivel al riscului de investiții care evoluează indirect proporțional cu performanța acestor entități.

Validarea celei de-a doua ipoteze formulate ne demonstrează că coeficientul riscului de lichiditate este semnificativ din punct de vedere statistic, exercitând un efect pozitiv asupra performanței societăților de investiții financiare. Dacă o societate de investiții financiare are un nivel al performanței ridicat pe piața reglementată, atunci există o probabilitate ridicată ca aceasta să întâmpine dificultăți în îndeplinirea obligațiilor sale financiare. Acest fapt se datorează tranzacționării activelor cu un grad ridicat de lichiditate pe piața de capital luând în considerare că societățile de investiții financiare trebuie să "protejeze" aceste active.

Analiza empirică ne confirmă cea de-a treia ipoteză, indicându-ne că coeficientul variabilei explicative riscul de piață este semnificativ din punct de vedere statistic iar influența efectelor sale este pozitivă asupra performanței societăților de investiții financiare.

Pentru a fi siguri că rezultatele empirice sunt robuste, ultima parte a tezei a fost dedicată confirmării acestui aspect. Testarea heteroscedasticității prin introducerea estimatorului rosbust a erorilor standard și schimbarea specificației variabilei dependente, ne permite să declarăm că putem accepta ipoteza conform căreia modelele sunt robuste la un interval de încredere de 90% (în cazul variabilei explicative riscul de piață) și 99% (în cazul variabilelor explicative riscul de investiții și riscul de lichiditate). Observăm că nu am găsit o semnificație

statistică prin introducerea variabilelor binare în modelele econometrice, nici atunci când se realizează prima analiză, nici atunci când verificăm robusteţea acestora.

Opinăm că rezultatele cercetării doctorale sunt relevante şi importante prin conţinut şi pot reprezenta un punct de reper pentru alte studii, cercetări, lucrări sau proiecte care vor avea drept spectru investigarea efectelor riscurilor asupra performanţei societăţilor. Considerăm că avantajul tezei de doctorat este de a genera noi perspective ale viitoarelor direcţii de cercetare prin includerea unor noi factori în studii, unor noi variabile, sau redefinirea celor existente, nefiind limitată la un anumit aspect.

RESUMEN

La presente tesis se inscribe en el *campo de la contabilidad*, ya que presenta una serie de aspectos teóricos relacionados con la contabilidad de los instrumentos financieros y los riesgos. Además también se adentra en la perspectiva de los efectos generados por la lista de entidades que operan este tipo de instrumentos en los mercados europeos regulados. El tema de esta investigación es complejo y de actualidad, siendo debatido en la literatura de especializada. Sin embargo pocos de los artículos publicados hasta ahora han tratado estrictamente el impacto de los riesgos procedentes de los instrumentos financieros sobre el desempeño de las entidades financieras de inversión.

Los cambios importantes que la contabilidad de los instrumentos financieros les ha sufrido, han influído en los registrosde las situaciones financieras y el aumento del porcentaje de los riesgos asociados con los activos y pasivos financieros, garantizándose un lugar seguro en las publicaciones académicas. El cambio del marco conceptual acerca de la información revelada sobre los riesgos procedentes de los instrumentos financieros ha tenido un impacto sobre su modo de presentación en los informes financieros, siendo un tema muy debatido en las publicaciones especializadas.

Objetivos de la investigación

La presente tesis analiza la conexión entre las diferentes informaciones presentadas sobre los riesgos procedentes de los instrumentos financieros como mecanismo adicional para controlar el rendimiento de la entidad con el fin de lograr los objetivos financieros planificados. Conforme Fatemi&Fooladi (2006) una gestion eficiente del riesgo lleva a un equilibrio mas eficazdel mismo y la rentabilidad con respecto a las entidades.

El punto de partida de nuestra investigacion fue la implementación de NIIF 7 Instrumentos Financieros: Informacion para Revelar, ayudando a mejorar los resultados financieros de la empresa. En la literatura especializada en el campo de la contabilidad encontramos trabajos e investigaciones que analizan el impacto de la implementacion del estándar acerca de la calidad y la cantidad de las informaciones proporcionadas por las entidades (Abraham &Shrives, 2014; Armstrong, Barth, Jagolinzer, &Riedl, 2010; Atanasovski, Serafimoska, Jovanovski, &Jovevski, 2015; Moumrn, Othman, &Hussainey, 2015; Zaiceanu&Hlaciuc, 2015a). En el contexto actual, nos hacemos la siguiente pregunta: ¿cuáles son los efectos reales del riesgo procedente de los instrumentos financieros en el rendimiento de las empresas de inversion?

Con el fin de encontrar las respuestas a las cuestiones planeadas, nos proponemos elaborar un modelo de estimacion de los riesgos procedentes de los instrumentos financieros para la evaluacion del impacto de los riesgos en el rendimiento de las entidades, modelo que constituye el objeto general de nuestra investigacion.

Los objetivos secundarios se derivan del objetivo principal y estan delimitados en el plano teoretico y práctico:

Objetivo secundario 1: Presentar los requisitos necesarios para revelar informacion sobre instrumentos financieros y riesgos procedentes desde el punto de vista de los diferentes fundamentos cientificos, teóricos y normativos.

Objetivo secundario 2: Identificar cómo el marco financiero ha cambiado con respecto a las políticas contables de los instrumentos financieros y cúales han sido los principales efectos sobre el rendimiento de las entidades

Objetivo secundario 3: Analizar e identificar las diferentes mediciones de los riesgos procedentes de los instrumentos financieros a través del análisis de las publicaciones de especialidad financiera

Objetivo secundario 4: Analizar la relevancia de los resultados a través de los riesgos procedentes de los instrumentos financieros para definir los métodos de determinación de los riesgos.

Objetivo secundario 5: Determinar, identificar y analizar el impacto de los riesgos procedentes de los instrumentos financieros en el rendimiento de las empresas de inversión financiera.

Los objetivos establecidos corroborados a través de la investigación teórica y empírica en los cinco capítulos de la tesis. A lo largo de la investigación hemos combinado los aspectos teóricos con los prácticos y con los estudios empíricos, por lo cual el trabajo ofrecerá una secuencia clara, lógica y continua. Empezando por aclarar los conceptos de instrumentos financieros, riesgos y rendimiento, y terminando con la realización de una investigación empírica que muestra el impacto de los riesgos procedentes de los instrumentos financierosen el rendimiento.

Metodología de la investigación

La tesis está estructurada para cruzar por todo el enfoque científico. A través del método fundamental de investigación científica hemos analizado la literatura específica a nivel internacional para investigar los aspectos teóricos y prácticos de la contabilidad de los instrumentos financieros. Este hecho reconsidera la relación entre tres elementos que

representan los aspectos contables debatidos en la literatura: riesgos procedentes de los instrumentos financieros, informaciones presentadas en los estados financieros y el desempeño de las entidades. Por lo tanto, la tesis contribuye al conjunto existente de conocimientos de contabilidad mediante el desarrollo de una nueva investigación empírica sobre los riesgos procedentes de los instrumentos financieros mediante la determinación del nivel de impacto que tienen sobre el desempeño de las empresas de inversión financiera. Por lo tanto, nuestra investigación tiene una lógica descriptiva, explicativa y comprensiva.

El análisis general es el método de investigación más utilizado, llevado a cabo consultando la literatura especializada. Conocer el campo de la futura investigación es una parte fundamental de cualquier tesis doctoral.

La complejidad de la ampliación de la economía global ha llevado a un incremento de incertidumbre en la información que nos rodea. Este hecho ha generado una necesidad para investigar los fenómenos y procesos específicos en un enfoque constructivista combinando la lógica deductiva (que implica pasar por la teoría para llegar a una observación) con la lógica inductiva (que parte de una investigación de la observación para llegar a la teoría). En nuestra investigación teórica y empírica se utiliza la lógica deductiva: partiendo de los cambios en el marco conceptual internacional para desarrollar diferentes hipótesis, para mostrar hasta que punto un riesgo procedente de los instrumentos financieros puede influir en el rendimiento de la empresa que los opera.

Para cumplirlos objetivos, unimos la investigación cualitativa con la investigación cuantitativa. Teniendo en cuenta los objetivos planteados para comprobar las hipótesis formuladas, se ha recurrido a analizar los indicadores financieros empleando un modelo econométrico para introducir la parte práctica en las estructuras teóricas (Anghelache, Mitruț, Bugudui, Deatcu, & Dumbravă, 2009). El modelo fue creado usando las herramientas que ofrece la econometría. El proceso implica tres pasos:

- Paso 1. Planteamiento de las hipótesis

Las hipótesis plantean el enfoque de la investigación teórica y empírica. Fueron sugeridas después de analizar detalladamente la situación actual de los conocimientos en materia de contabilidad. Por lo tanto, la elaboración de las hipótesis depende de la observación científica de los fenómenos empíricos, planteando las siguientes hipótesis:

Hipótesis 1: El riesgo de inversión derivado de los instrumentos financieros puede tener un fuerte impacto negativo significativo en el rendimiento de la empresa de inversión financiera.

Hipótesis 2: El rendimiento de la sociedad de inversión de capital variable puede verse afectado positivamente por el riesgo de liquidez derivado de instrumentos financieros.

Hipótesis 3: Se espera que el riesgo de mercado que surge de los instrumentos financieros se relacione positivamente con el desempeño de la compañía de inversión financiera.

- Paso 2. La elaboración del modelo econométrico

La muestra seleccionada para comprobar las hipótesis se basa en criterios de representatividad. Los mercados europeos representan el 55% del total de la capitalización del mercado mundial, por ello decidimos centrarnos en esta área. Por lo tanto, se han seleccionado entidades financieras de inversión que operan en el mercado regulado europeo. Los datos financieros que hemos recogido para la muestra son cuantitativos y se han extraído de los estados financieros de las entidades que han sido elaborados conforme NIC/NIIF.

Para evitar los problemas de multicolinealidad y de autocorrelaciónen la investigación empírica, las variables explicativas no han sido evaluadas en un único modelo, sino que fueron analizadas mediante el desarrollo de tres modelos econométricos distintos. Decidimos este enfoque porque queremos observar e investigar por separado el impacto de cada tipo de riesgo procedente de los instrumentos financieros en el rendimiento de las entidades financieras de inversión.

Tras la recogida de datos, seleccionamos las variables y diseñamos el modelo empírico para cada tipo de riesgo específico. El modelo tiene la estructura y los tipos de variables elegidas por los autores de estudios similares. Empezamos por definir todas las variables incluidas en los modelos empíricos. Continuamos con la presentación del modelo específico para cada tipo de riesgo procedente de los instrumentos financieros, modelo que va a ser comprobado para verificar las hipótesis. Cada modelo incluye una variable dependiente (Rendimiento - P_{it}), una variable explicativa (Riesgo de inversiones - *InvestmentRisk$_{it}$*, Riesgo de liquidez - *LiquidityRisk$_{it}$*, Riesgo de mercado - *MarketRisk$_{it}$*) también algunas variables de control (Tamaño de la empresa - *Size$_{it}$*, Endeudamiento - *Leverage$_{it}$*, Opinión del auditor - *AuditorOpinion$_{it}$*, Tipo de la empresa de auditoría - *AuditNetwork$_{it}$*). Vamos a incluir las variables de control en nuestros modelos con el fin de obtener una respuesta más precisa a las hipótesis planteadas. La utilización de las variables de control mejora los modelos econométricos creados. Los modelos empíricos son desarollados a partir de modelos similares a los de la literatura, modelos que se han adaptado y personalizado en función de los propósitos de nuestra investigación.

- Paso 3. Verificación del modelo econométrico

Aunque todos los resultados confirman las hipótesis planteadas inicialmente, los resultados serán comprobados para verificar su precisión y para explicar la teoría inicial. Se han validado los modelos para determinar su capacidad y evitar que se vean afectados por los pequeños e intencionados cambios, de esta forman observaremos si están dentro de los mismos parámetros de prueba. Para confirmar la certeza de los resultados empíricos, vamos a considerar la modificación de dos especificaciones del modelo básico. La primera modificación se realiza mediante la estimación de la desviación estándar y la segunda modificación se consigue mediante la redefinición de la variable dependiente (rendimiento). Los resultados y conclusiones del estudio empírico se expresarán al final de los capítulos dedicados a la investigación empírica.

Cualquier análisis de los datos se realiza en dos etapas. En la primera etapa se efectuará un análisis descriptivo y la segunda etapa efectuará un análisis empírico. Es importante utilizar el análisis descriptivo porqué representa el primer paso para proporcionar una visión general de las variables utilizadas en la tesis doctoral y la base para el análisis empírico.

Conclusiones

Los análisis realizados, las correlaciones probadas, los cálculos y los resultados obtenidos mediante esta investigación han sido presentados a través de figuras, tablas y gráficos.

Nuestro enfoque tiene como objetivo aportar nuevas contribuciones científicas en la literatura sobre la relación entre el rendimiento de una entidad con instrumentos financieros y riesgos procedentes. El primer capítulo proporciona un conocimiento profundo del concepto de instrumentos financieros, su tipología y la importancia de la presentación de las informaciones de los activos financieros, pasivos financieros e instrumentos de patrimonio.

La historia y sus fuentes son necesarias para la comprensión de los acontecimientos del pasado. El segundo capítulo se inicia con un análisis cronológico de la normativa contable y de los principales cambios que se producen en las políticas contables de los instrumentos financieros. El análisis subraya los cambios que han ocurrido en el referencial contable NIIF / NIC y cómo han afectado el reconocimiento y la evolución de los activos financieros, pasivos financieros e instrumentos de patrimonio en los últimos treinta años.

Creemos que la forma de identificar y evaluar los riesgos procedentes de los instrumentos financieros tiene un impacto en su gestión, desde un punto de vista contable. Después de analizar el referencial contable NIC/NIIF y la forma de definir el riesgo, teniendo

en cuenta que nuestro estudio empírico se basa en entidades financieras de inversión, hemos adaptado el concepto de riesgo de crédito como riesgo de inversión.

Consideramos que hemos explorado suficiente el marco conceptual para poder avanzar hacia lo que creemos fue la parte más difícil de la tesis doctoral, el estudio empírico. La investigación empírica que se ha realizado en este trabajo fue organizadaa partir de un sistema de hipótesis que ha sido objeto de validación o no basándose en el análisis de los resultados de regresión.

La contribución propia de mayor importancia se refleja en los dos últimos capítulos de la tesis doctoral, donde llevamos a cabo unos análisis detallados sobre el impacto de los riesgos procedentes de los instrumentos financieros en el rendimiento de las empresas de inversión y hemos desmostrado la precisión de los resultados de la investigación empírica.

Los resultados de la validación de la primera hipótesis muestran que la influencia del riesgo de inversión es importante y sus efectos en el rendimiento de las empresas de inversión financiera en Europa son negativos. Por lo tanto, las empresas de inversión financiera del mercado europeo regulado pueden ser propensas a los efectos negativos de este tipo de riesgo. Por lo tanto, las sociedades de inversión financiera en el mercado europeo de capitales pueden registrar un nivel de riesgo de la inversión que evoluciona indirectamente proporcional al rendimiento de estas entidades.

La validación de la segunda hipótesis formulada muestra que el coeficiente de riesgo de liquidez es estadísticamente significativo, ejerciendo un efecto positivo en el rendimiento de las empresas de inversión financiera. Si una compañía de inversión financiera tiene un alto nivel de rendimiento en el mercado regulado, hay una alta probabilidad de que pueda encontrar dificultades en el cumplimiento de sus obligaciones financieras. Esto se debe a los activos comerciales de gran liquidez en el mercado de capital de inversión teniendo en cuenta que las empresas financieras deben "proteger" a estos activos.

El análisis empírico confirma la tercera hipótesis planteada, que nos dice que el coeficiente de la variable explicativa riesgo de mercado es estadísticamente significativo y la influencia de sus efectos es positiva sobre el rendimiento de las empresas de inversión financiera.

Para asegurar que los resultados empíricos son robustos, la última parte de la tesis doctoral fue la confirmación de esta premisa. Las pruebas de heteroscedasticidad introduciendo el estimador rosbusto de errores estándar y cambiar la especificación de la variable dependiente nos permite concluir que aceptamos el supuesto de que los modelos son

robustos a un intervalo de confianza del 90% (en el caso de la variale explicativa Riesgo de mercado) y 99% (en el caso de las variables explicativas Riesgo de inversión y Riesgo de liquidez). No se encontró una significación estadística mediante la introducción de variables binarias en modelos econométricos, incluso cuando el análisis se realiza en primer lugar y tampoco cuando se comprueba su robustez.

Los resultados de investigación de doctorado son relevantes e importantes y se pueden convertir en un punto de referencia para los estudios de otros autores en sus investigaciones, trabajos o proyectos en este mismo campo. La tesis ayudarará a generar nuevas ideas en futuras investigaciones mediante la inclusión de nuevos factores en los estudios de nuevas variables y a redefinir los ya existentes, pues no solo se limita a un tema en particular.

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ANNEXES

Annex 1. The 10 Worst Corporate Accounting Scandals of All Time

	Company	What happened	Main players	How they did it	How they got caught	Penalties
Waste Management Scandal (1998)	Houston-based publicly traded waste management company	Reported $1.7 billion in fake earnings.	Founder/CEO/Chairman Dean L. Buntrock and other top executives; Arthur Andersen Company (auditors)	The company allegedly falsely increased the depreciation time length for their property, plant and equipment on the balance sheets.	A new CEO and management team went through the books.	Settled a shareholder class-action suit for $457 million. SEC fined Arthur Andersen $7 million.
Enron Scandal (2001)	Houston-based commodities, energy and service corporation	Shareholders lost $74 billion, thousands of employees and investors lost their retirement accounts, and many employees lost their jobs.	CEO Jeff Skilling and former CEO Ken Lay	Kept huge debts off balance sheets.	Turned in by internal whistle-blower Sherron Watkins; high stock prices fuelled external suspicions.	Lay died before serving time; Skilling got 24 years in prison. The company filed for bankruptcy. Arthur Andersen was found guilty of fudging Enron's accounts.

	Company	What happened	Main players	How they did it	How they got caught	Penalties
WorldCom Scandal (2002)	Telecommunications company; now MCI, Inc.	Inflated assets by as much as $11 billion, leading to 30,000 lost jobs and $180 billion in losses for investors.	CEO Bernie Ebbers	Underreported line costs by capitalizing rather than expensing and inflated revenues with fake accounting entries.	WorldCom's internal auditing department uncovered $3.8 billion of fraud.	CFO was fired, controller resigned, and the company filed for bankruptcy. Ebbers sentenced to 25 years for fraud, conspiracy and filing false documents with regulators.
Tyco Scandal (2002)	New Jersey-based blue-chip Swiss security systems.	CEO and CFO stole $150 million and inflated company income by $500 million.	CEO Dennis Kozlowski and former CFO Mark Swartz.	Siphoned money through unapproved loans and fraudulent stock sales. Money was smuggled out of company disguised as executive bonuses or benefits.	SEC and Manhattan D.A. investigations uncovered questionable accounting practices, including large loans made to Kozlowski that were then forgiven.	Kozlowski and Swartz were sentenced to 8-25 years in prison. A class-action lawsuit forced Tyco to pay $2.92 billion to investors.

	Company	What happened	Main players	How they did it	How they got caught	Penalties
HealthSouth Scandal (2003)	Largest publicly traded health care company in the U.S.	Earnings numbers were allegedly inflated $1.4 billion to meet stockholder expectations.	CEO Richard Scrushy.	Allegedly told underlings to make up numbers and transactions from 1996-2003.	Sold $75 million in stock a day before the company posted a huge loss, triggering SEC suspicions.	Scrushy was acquitted of all 36 counts of accounting fraud, but convicted of bribing the governor of Alabama, leading to a 7-year prison sentence.
Freddie Mac (2003)	Federally backed mortgage-financing giant.	$5 billion in earnings were misstated.	President/COO David Glenn, Chairman/CEO Leland Brendsel, ex-CFO Vaughn Clarke, former senior VPs Robert Dean and Nazir Dossani.	Intentionally misstated and understated earnings on the books.	An SEC investigation.	$125 million in fines and the firing of Glenn, Clarke and Brendsel.

	Company	What happened	Main players	How they did it	How they got caught	Penalties
American International Group (AIG) Scandal (2005)	Multinational insurance corporation.	Massive accounting fraud to the tune of $3.9 billion was alleged, along with bid-rigging and stock price manipulation.	CEO Hank Greenberg.	Allegedly booked loans as revenue, steered clients to insurers with whom AIG had payoff agreements, and told traders to inflate AIG stock price.	SEC regulator investigations, possibly tipped off by a whistleblower.	Settled with the SEC for $10 million in 2003 and $1.64 billion in 2006, with a Louisiana pension fund for $115 million, and with 3 Ohio pension funds for $725 million. Greenberg was fired, but has faced no criminal charges.
Lehman Brothers Scandal (2008)	Global financial services firm.	Hid over $50 billion in loans disguised as sales.	Lehman executives and the company's auditors, Ernst & Young.	Allegedly sold toxic assets to Cayman Island banks with the understanding that they would be bought back eventually. Created the impression Lehman had $50 billion more cash and $50 billion less in toxic assets than it really did.	Went bankrupt.	Forced into the largest bankruptcy in U.S. history. SEC didn't prosecute due to lack of evidence.

	Company	What happened	Main players	How they did it	How they got caught	Penalties
Bernie Madoff Scandal (2008)	Bernard L. Madoff Investment Securities LLC was a Wall Street investment firm founded by Madoff.	Tricked investors out of $64.8 billion through the largest Ponzi scheme in history.	Bernie Madoff, his accountant, David Friehling, and Frank DiPascalli.	Investors were paid returns out of their own money or that of other investors rather than from profits.	Madoff told his sons about his scheme and they reported him to the SEC. He was arrested the next day.	150 years in prison for Madoff + $170 billion restitution. Prison time for Friehling and DiPascalli.
Satyam Scandal (2009)	Indian IT services and back-office accounting firm.	Falsely boosted revenue by $1.5 billion.	Founder/Chairman Ramalinga Raju.	Falsified revenues, margins and cash balances to the tune of 50 billion rupees.	Admitted the fraud in a letter to the company's board of directors.	Raju and his brother charged with breach of trust, conspiracy, cheating and falsification of records. Released after the Central Bureau of Investigation failed to file charges on time.

Annex 2. List of the entire population considered in the empirical study

Quote Symbol	Entity Name	Instrument Type	Region Code	SIC Code
ABE-VI	AB Effectenbeteiligungen AG	EQ	EA NU	6726
APF-JO	Accprop	EQ	EA EM NU	6726
ACKB-BT	Ackermans & Van Haaren	EQ	EA NU	6331 1629 8711 6531 6799 6035 6726 6519
ACO-LN	Acorn Minerals PLC	EQ	EA NU	6726
AQSP-5	Acquired Sales Corp.	EQ	EA NU	6726
6A6-BG	Advance Terrafund	EQ	EA EM NU	6726
AVF-FR	Advenis	EQ	EA NU	6282 6799 6512 6726 6231 6719
AGS-BT	Ageas (Ex-Fortis) NV	EQ	EA NU	6411 6311 6726 6324 6331 6712
6A7-BG	Agricultural Land Opportunity Fund	EQ	EA EM NU	6726
AS5-BG	Agroenergy Reit	EQ	EA EM NU	6726
AITG-5	Air Transport Group Holdings Inc	EQ	EA NU	4581 6726
5AX-BG	Aktiv Properties Reit	EQ	EA EM NU	6726
AAA-LN	All Asia Asset Capital Limited	EQ	EA NU	6726
ALM-LN	Allied Minds PLC	EQ	EA NU	6726 8731
ATRUST-AT	Alpha Trust Investment Services SA	EQ	EA NU	6282 6726
AAT-WA	Alta	EQ	EA EM NU	6512 6531 1542 7941 6726
ARFYO-IS	Alternatif Yatirim Ortakligi AS	EQ	EA EM NU	6726 6282
ALTN-EB	Altin AG	EQ	EA NU	6726
AMED-LN	Amedeo Resources PLC	EQ	EA NU	6726
AGRN-5	America Greener Technologies Inc	EQ	EA NU	6726
AQUUU-O	Aquasition Corporation	EQ	EA NU	6726
PNR-WNC	Aramus SA	EQ	EA EM NU	6531 6512 6726
ARC1T-	Arco Vara AS	EQ	EA EM	6531 1542 1531 6512

Quote Symbol	Entity Name	Instrument Type	Region Code	SIC Code
ET			NU	6513 6726 6282
ARGO-LN	Argo Group Limited	EQ	EA NU	6726 6712
ACP-LN	Armadale Capital PLC	EQ	EA NU	1221 1041 6726 6719
ARN-DU	Arn Georg AG	EQ	EA NU	6512 6726
ARW-LN	Arrow Global Group PLC	EQ	EA NU	7819 7322 6726
ATAGY-IS	ATA Gayrimenkul BAS	EQ	EA EM NU	6726 6282
AJG-LN	Atlantis Japan Growth Fund Limited	EQ	EA NU	6726
ATMA-LN	Atlas Mara Co-Nvest	EQ	EA NU	6726
ATLAS-IS	Atlas Yatirim Ort AS	EQ	EA EM NU	6726 6282
AUR-LN	Aurum Mining PLC	EQ	EA NU	6726
AVTUR-IS	Avrasya Petrol VE Turistik	EQ	EA EM NU	6726 6282
AXMA-5	Axiom Management Inc	EQ	EA NU	7361 6726
5H4-BG	Balkan Sea Properties Reit	EQ	EA EM NU	6726
BD2-BG	Balkanika Estates PLC	EQ	EA EM NU	6726
BARA-5	Banyan Rail Services Inc	EQ	EA NU	6726
BELUS-BT	Beluga NV	EQ	EA NU	6726
BOTH-5	Bioethics Limited	EQ	EA NU	6726
BIZZ-5	Bizingo Incorporation	EQ	EA NU	6726
BKSA-LN	Black Sea Property Fund Limited	EQ	EA NU	6726 6513 6531
CGG-LN	Blenheim Natural Resources PLC	EQ	EA NU	6726 1499 6719
BLU-LN	Blue Star Capital PLC	EQ	EA NU	6726
BLBK-U	Boldface Group Inc	EQ	EA NU	7389 6726
5BU-BG	Bulgarian Real Estate Fund Reit	EQ	EA EM NU	6726
5BD-BG	Bulland Investments	EQ	EA EM NU	6726
C8I-VI	C-Quadrat Investment AG	EQ	EA NU	6282 6726 6211
CAMG-U	Cam Group Inc	EQ	EA NU	6726
NHT-ST	Camera Work AG	EQ	EA NU	6726 6719
CNMI-LN	Camper & Nicholsons Marina Investments	EQ	EA NU	4493 6531 6726
CFCP-PM	Capital For Colleagues	EQ	EA NU	6726

Quote Symbol	Entity Name	Instrument Type	Region Code	SIC Code
CMIP-LN	Capital Management & Investment PLC	EQ	EA NU	6726 6719
CPF-JO	Capprop	EQ	EA EM NU	6726 6531
CASS-MI	Cattolica Assicurazioni	EQ	EA NU	6311 6324 6331 6371 6726 8299 7538
CEPS-LN	Ceps PLC	EQ	EA NU	6726
CDBH-5	China Domestica Bio Technology Holdings	EQ	EA NU	6726
CIE-EB	CI Com SA	EQ	EA NU	6726
4OY-BG	Citi Properties Reit	EQ	EA EM NU	6726
CDX-BG	City Development Reit	EQ	EA EM NU	6726
CIN-LN	City Of London Group PLC	EQ	EA NU	6726
CLIG-LN	City Of London Investment Group PLC	EQ	EA NU	6282 6726 6719
CLP-LN	Clear Leisure PLC	EQ	EA NU	6726 7996
CLNR-LN	Cluff Natural Resources PLC	EQ	EA NU	6726
GPG-LN	Coats Group PLC	EQ	EA NU	2284 5148 3355 6726 6719
JABA-5	Code Green Apparel Corp.	EQ	EA EM NU	6726
COMS-BT	Compagnie Du Bois Sauvage	EQ	EA NU	6282 6726 6799 6512 6289
	Compagnie Nationale A Portefeuille	EQ	EA NU	6726 6719
COM-KO	Copenhagen Network A/S	EQ	EA NU	6726
CRV-LN	Craven House Capital PLC	EQ	EA NU	6726
OPI-JO	Delta Interest Ltd	EQ	EA EM NU	6726
DEM-CP	Demetra Investment Public Limited	EQ	EA EM NU	6726
BBH-FF	Deutsche Balaton AG	EQ	EA NU	6799 6726
DIMID-5	Dimi Telematics International	EQ	EA NU	6726
DLB-ST	DLB-Anlageservice	EQ	EA NU	6726 6282
DN1-MU	DNI Beteiligungen AG	EQ	EA NU	6726
IDM-WA	Dom Maklerski IDM SA	EQ	EA EM NU	6211 6726 6282 6289

Quote Symbol	Entity Name	Instrument Type	Region Code	SIC Code
DQ7-DB	Donegal Investment Group PLC	EQ	EA NU	2026 5191 2064 0119 0182 6726 4491
DRG-LN	Draganfly Investments Limited	EQ	EA NU	6726 6719
1DRS001E-BS	Druha Strategicka	EQ	EA EM NU	6726
ECONET-ZB	Econet Wireless Limited	EQ	EA EM NU	4812 7375 7374 4813 6719 6726 6282 6029
ECBYO-IS	Eczacibasi YO AS	EQ	EA EM NU	6726 6282
EFGN-EB	EFG International AG	EQ	EA NU	6029 6726 6282 6091
NUMB-5	Efleets Corp.	EQ	EA NU	3824 6726
EIH-LN	EIH PLC	EQ	EA NU	6726
ELR-JO	Elb Group Limited	EQ	EA EM NU	5082 2449 5099 6719 6726
EMI-JO	Emira Property Fund	EQ	EA EM NU	6726
EM.P-PM	Equatorial Mining And Exploration	EQ	EA NU	6726
5ER-BG	ERG Capital-3 Reit	EQ	EA EM NU	6726
EMBYO-IS	Euro MEN K YO AS	EQ	EA EM NU	6726 6282
ECT-AE	Eurocastle Investment Limited	EQ	EA NU	6726 6531
EWG-LN	European Wealth Group Limited	EQ	EA NU	6726 6282
EFH-WA	Europejski Fundusz Hipoteczny SA	EQ	EA EM NU	6726 6531 6512 7011
EXC-FF	Exceet Group SE	EQ	EA NU	6726
XTRM-5	Extreme Biodiesel Inc	EQ	EA NU	3433 6726
6F3-BG	Fairplay Properties Reit	EQ	EA EM NU	6726
FAK-BE	Falkenstein Nebenwerte	EQ	EA NU	6726 6719
FDBK-LN	Feedback PLC	EQ	EA NU	6726
FSC-O	Fifth Street Finance Corp.	EQ	EA NU	6726
SPA-MI	Fila	EQ	EA NU	6726
FIPP-FR	Fipp	EQ	EA NU	6726
6BMA-BG	Fund Estates Reit Sofia	EQ	EA EM NU	6726
ICGYH-IS	GEN Yatirim	EQ	EA EM NU	6726 6282

Quote Symbol	Entity Name	Instrument Type	Region Code	SIC Code
GOHG-5	Global Holdings Inc	EQ	EA NU	8742 6726
GWI-LN	Globalworth Real Estate Investment Limit	EQ	EA NU	6726 6531
GFMN-EB	Gottex Fund Management Holdings Limited	EQ	EA NU	6726 6282
GOZDE-IS	Gozde Girisim Sermayesi	EQ	EA EM NU	6282 6726 6719
GRI-LN	Grainger PLC	EQ	EA NU	6513 6282 6726 6289 6719 6531
GIPO-LN	Grand Group Investment PLC	EQ	EA NU	6726
GRF-JO	Group Five Limited	EQ	EA EM NU	1542 1541 1611 1623 1629 6719 6726
GUS-LN	Gusbourne PLC	EQ	EA NU	6726
HAL-AE	HAL Trust NV	EQ	EA NU	6726
HJOEE-U	Hangover Joe's Holdings Corp.	EQ	EA NU	6552 6726
HLCL-LN	Helical Bar PLC	EQ	EA NU	6512 6552 6726 6712
EXAE-AT	Hellenic Exchanges Holdings SA	EQ	EA NU	6231 6289 6726
HBRN-LN	Hibernia Reit PLC	EQ	EA NU	6726
HWC-LN	Highway Capital PLC	EQ	EA NU	6726
5V2-BG	Holding Varna AD	EQ	EA EM NU	6513 6211 7389 4724 6726 2211 6282 8711
HPCQ-U	HPC Acquisitions Inc	EQ	EA NU	6726
HYP-JO	Hyprop Investments Limited	EQ	EA EM NU	6512 1542 6726
I7O-FF	IC Immobilien Holding AG	EQ	EA NU	6531 6726 6513 6512 6719
	Imjack PLC	EQ	EA NU	6726
YESIL-IS	Info Menkul Yatirim AS	EQ	EA EM NU	6726 6282
ANSA-IS	Infotrend B Tipi Menkul	EQ	EA EM NU	6726 6282
I3C-FF	Innovativ Capital AG	EQ	EA NU	6726
INSP-LN	Inspirit Energy Holdings PLC	EQ	EA NU	4911 6726
IKG-MI	Intek Group Spa	EQ	EA NU	3331 3351 3341 3366 6282 6726 6531 6719
4IC-BG	Intercapital Property Development	EQ	EA EM NU	6726
5IP-BG	Invest Property Reit	EQ	EA EM	6726

Quote Symbol	Entity Name	Instrument Type	Region Code	SIC Code
			NU	
IPF-JO	Investec Property Fund Limited	EQ	EA EM NU	6726
	John Laing Group PLC	EQ	EA NU	6282 6726
KBCA-BT	KBC Ancora	EQ	EA NU	6726 6029 6411 6712
KENV-LN	Kennedy Ventures PLC	EQ	EA NU	6726
KNORF-5	Knorr Capital Partner AG	EQ	EA NU	6726 6282 8748
KRGYO-IS	Korfez Gayrimen	EQ	EA EM NU	6513 6512 6726
KRI-WA	Kredytin SA	EQ	EA EM NU	7322 8111 6726 6282 6159 6531
KSIH-5	KS International Holdings Corp.	EQ	EA NU	6726 8742
KSFR-LJ	KS Nalozbe DD	EQ	EA EM NU	6726
PMIG-5	Kung Fu Dragon Group Limited	EQ	EA NU	6726
LTTV-5	Latin American Telecommunications Ventur	EQ	EA NU	6726
LVIDE-AE	Lavide Holding NV	EQ	EA NU	6726
LEAL-LN	Lead All Investments Limited	EQ	EA NU	6726
LDP-LN	Leed Resources PLC	EQ	EA NU	6726 6719
LGEN-LN	Legal & General Group PLC	EQ	EA NU	6282 6311 6324 6331 6726 6371 6719
LEG-LN	Legendary Investments PLC	EQ	EA NU	6726
LBH-JO	Liberty Holdings Limited	EQ	EA EM NU	6324 6311 6282 6726 6719
LAH1-MU	Life & Art Holding AG	EQ	EA NU	6726
LME-LN	Limitless Earth PLC	EQ	EA NU	6726
L1O-FF	Lloyd Fonds K AG	EQ	EA NU	6726 6722 6282
LAS-LN	London & Associates Properties PLC	EQ	EA NU	6512 6726
LFI-LN	London Finance & Investment Group PLC	EQ	EA NU	6726
GDKGS-IS	Marbas B Tipi Menkul Kiymetler AS	EQ	EA EM NU	6726 6282
MIG-AT	Marfin Investment Group	EQ	EA NU	2026 2037 4813 7374

Quote Symbol	Entity Name	Instrument Type	Region Code	SIC Code
	Holdings SA			7373 6531 6726 6719
SHOK-LN	Marlowe Holdings Limited	EQ	EA NU	6726
MMP-JO	Marshall Monteagle PLC	EQ	EA EM	8742 4412 5141 5149 5084 6512 6726
MMP-LN	Marwyn Management Partners PLC	EQ	EA NU	6726
MBB-FF	MBB AG	EQ	EA NU	6726 6799 6719
MCB-MP	MCB Group Ltd	EQ	EA EM NU	6029 6726 6331 6512 6099 8412
MMAM-5	Medical Makeover Of America Corp.	EQ	EA NU	7389 6726
MEME-5	Meemee Media Inc	EQ	EA NU	6726
BRDY-LN	Metal Tiger PLC	EQ	EA NU	6726
METAL-IS	Metro Gayrimenk AS	EQ	EA EM NU	6726 6282
ASAP-LN	MI Pay Group PLC	EQ	EA NU	6726
7468'A-LU	Midilux Holdings SA	EQ	EA NU	6726
MLVP-PM	Milamber Venture	EQ	EA NU	6726 6719
MINE-CP	Minerva Insurance Company Public Limited	EQ	EA EM NU	6324 6311 6331 6531 6726 6282
MIT-MI	Mittel	EQ	EA NU	6799 6282 6211 6022 6733 6726
MLP-FF	MLP AG	EQ	EA NU	6282 6324 6211 6035 6726 6029 6371 6411
MMBF-5	Momentum Biofuels Inc	EQ	EA NU	6726
MGNS-LN	Morgan Sindall Group PLC	EQ	EA NU	8711 1542 8712 7389 1531 1629 1611 6726
KZS-WA	Narodowy Fundusz Inwestycyjny Krezus SA	EQ	EA EM NU	6726 5812 5944
NITL-MP	National Investment Trust Limited	EQ	EA EM NU	6726
NEW-LN	New World Oil And Gas PLC	EQ	EA NU	6726
NIKN-LJ	Nika Redne	EQ	EA EM NU	6726
NIV-JO	Niveus Investments Limited	EQ	EA EM NU	6726
OLDW-	Oldwebsites.com Inc	EQ	EA NU	7389 6726

Quote Symbol	Entity Name	Instrument Type	Region Code	SIC Code
5				
ORNC-U	Oranco Inc	EQ	EA NU	6726
ORE-LB	Orey Antunes SA	EQ	EA EM NU	4412 4499 4491 7389 5084 8711 6282 6726
OYAYO-IS	Oyak Yatirim Ortakligi AS	EQ	EA EM NU	6726 6282
PARN-AT	Parnassos Enterprises SA	EQ	EA NU	4493 6531 6726
PRS-LN	Paternoster Resources PLC	EQ	EA NU	6726 5511
MERE-AE	PC Emerg EUR Reit	EQ	EA NU	6726
EGCT-U	Peartrack Security Systems Inc	EQ	EA NU	6726
PTF-LN	Phaunos Timber Fund Limited	EQ	EA NU	6726
PHNX-LN	Phoenix Group Holdings	EQ	EA NU	6311 6282 6726
PMEA-LN	PME African Infrastructure Opportunities	EQ	EA NU	6726
POL-MP	Policy Limited	EQ	EA EM NU	6726
POL-LN	Polo Resources Limited	EQ	EA NU	6726
PEBI-LN	Port Erin Biopharma Investments	EQ	EA NU	6726
PTI-WA	Powszechne Towarz Inwestycyjne	EQ	EA EM NU	6799 6282 6726 6719
PPC-JO	PPC Limited	EQ	EA EM NU	3241 1422 1411 3274 6726
PNRC-5	Premier Energy Corp.	EQ	EA NU	1311 6726
4PY-BG	Prime Property BG Reit	EQ	EA EM NU	6726
PRPM-5	Protek Capital Inc	EQ	EA NU	7372 6726
PPE-JO	Purple Capital Limited	EQ	EA EM NU	6726
S26-DU	Pyrolyx AG	EQ	EA NU	6726 8742
QCAP-BN	Q Capital	EQ	EA NU	6282 6726 6719
QIF-LN	Qatar Investment Fund PLC	EQ	EA NU	6726 6719
5Q1-BG	Quantum Developments Reit	EQ	EA EM NU	6726
QFG-BT	Quest For Growth SA	EQ	EA NU	6726 6289 6282
7495-	Quilvest	EQ	EA NU	6282 6722 6289 6719

Quote Symbol	Entity Name	Instrument Type	Region Code	SIC Code
LU				6726
ROGI-5	Radiant Oil Gas Inc	EQ	EA NU	6726
RAT-LN	Rathbone Brothers PLC	EQ	EA NU	6282 6091 6022 6726
	Reabold Resources PLC	EQ	EA NU	6726
SGGH-5	Real Industry Inc	EQ	EA NU	6022 6726 6719
RACP-JO	Recm & Calibre Limited	EQ	EA EM NU	6282 6726
145569 -LU	Reinet Investments SCA	EQ	EA NU	6726 6722 6799 6289
R4-MC	Renta 4 Servicios De Inversion SA	EQ	EA NU	6211 6221 6282 6799 6726
6R3-BG	Republica Holding AD	EQ	EA EM NU	6513 6726 2082 1531 1542 1796 6719
RYGYO-IS	Reysas Gayrimenkul	EQ	EA EM NU	6726
RYSAS-IS	Reysas Logistics AS	EQ	EA EM NU	4213 4212 4412 4011 4225 7549 5194 6726
RHJI-BT	RHJ International	EQ	EA NU	6282 3694 3714 3651 7997 3652 6726 6289
PROF-U	Rise Resources Inc	EQ	EA NU	6726
RMO-FF	RM Rheiner Management AG	EQ	EA NU	6726 6799 6719
SCN-LN	Sacoven PLC	EQ	EA NU	6726 6719
STJ-LN	Saint James's Place PLC	EQ	EA NU	6311 6282 6371 6726 6163 6719
SLM-JO	Sanlam Limited	EQ	EA EM NU	6311 6282 6726 6719
	Sanne Group PLC	EQ	EA NU	6726 6282 6091
SRC-LN	Sarossa PLC	EQ	EA NU	6726 6719
FP-RO	SC Fondul Proprietatea	EQ	EA EM NU	6726
SPHT-5	Secure Path Technology Holdings Inc	EQ	EA NU	6726
SIGB-LN	Sherborne Investors (Guernsey) B	EQ	EA NU	6726
	Shieldtech PLC	EQ	EA NU	6726 6719
SIF1-RO	SIF 1 Banat Crisana	EQ	EA EM NU	6726
SIF2-RO	SIF 2 Moldova	EQ	EA EM NU	6726
SIF3-RO	SIF 3 Transilvania	EQ	EA EM NU	6726
SIF4-RO	SIF 4 Muntenia	EQ	EA EM NU	6726

Quote Symbol	Entity Name	Instrument Type	Region Code	SIC Code
SIF5-RO	SIF 5 Oltenia	EQ	EA EM NU	6726
SOF-BT	Sofina SA	EQ	EA NU	6726 6289 4911 4953 4412 3845 5411 2023
SOFR-FR	Sofragi	EQ	EA NU	6726 6211
SWRF-5	Sooum Corp.	EQ	EA NU	3861 6726
4OX-BG	Sopharma Buildings Reit	EQ	EA EM NU	6726
SOURC-AE	Source Group	EQ	EA NU	6722 6726
SAPO-LN	South African Property Opportunities PLC	EQ	EA NU	6726
	Space2	EQ	EA NU	6726
SLBEN-LB	Sport Lisboa E Benfica	EQ	EA EM NU	7941 6794 1542 8011 8049 6726 6411
SPQS-5	Sportsquest Inc	EQ	EA NU	6799 6726 6719
SPNI-U	Sputnik Enterprises Inc	EQ	EA NU	6726
SVE-LN	Starvest PLC	EQ	EA NU	6726
STQN-5	Strategic Acquisitions Inc	EQ	EA NU	6726 6733
STGR-LN	Stratmin Global Resources PLC	EQ	EA NU	6726 6719
SRNW-5	Stratos Renewables Corp.	EQ	EA NU	6726 2869
STBR-5	Strongbow Resources Inc	EQ	EA NU	3942 6726
SMTG-LN	Summit Germany Limited	EQ	EA NU	6512 6726 6719
SVP-BT	SV Patrimonia	EQ	EA NU	6531 6513 6512 6519 6726
SYC-JO	Sycom Property Fund	EQ	EA EM NU	6726
SIHL-LN	Symphony International Holdings Limited	EQ	EA NU	6726 6719
SGA-JO	Synergy Income Fund Limited	EQ	EA EM NU	6726
ASPT-AT	T Bank SA	EQ	EA NU	6029 6035 6726 6159 6282 6411
TCHOL-IS	Tacirler Yatirim CAS	EQ	EA EM NU	6726 6282
SPR-LN	Teathers Financial PLC	EQ	EA NU	6726
TERN-LN	Tern PLC	EQ	EA NU	6726
VPF-JO	Texton Property Fund	EQ	EA EM NU	6726
ADI-LN	Tiziana Life Sciences PLC	EQ	EA NU	6726
TOM-LN	Tomco Energy PLC	EQ	EA NU	1311 6726

Quote Symbol	Entity Name	Instrument Type	Region Code	SIC Code
COV-CP	Toxotis Investments Public Ltd	EQ	EA EM NU	6726
TRE-LN	Trading Emissions PLC	EQ	EA NU	6726
TSGYO-IS	TSKB Gayrimenkul Yatirim Ortakligi AS	EQ	EA EM NU	6531 6726
UNC-MD	Union Catalana De Valores SA	EQ	EA NU	6211 6799 6726
5U7-BG	United Properties Reit	EQ	EA EM NU	6726
ZMDC-5	USA Zhimingde International Group	EQ	EA NU	6726
VKBYO-IS	Vakif Yatrim Ort AS	EQ	EA EM NU	6726 6282
VHMC-5	Valley High Mining Company	EQ	EA NU	6726
VGTL-5	Vgtel Inc	EQ	EA NU	7389 6726
VIPRO-KO	Victoria Properties A/S	EQ	EA NU	6513 6512 6531 6726
VIRE-CP	Vireta Investments	EQ	EA EM NU	6726
3V7-BE	Volta Finance	EQ	EA NU	6726
VNIL-SK	Vostok New Ventures SDR	EQ	EA NU	6726
WST-LN	Westside Investments PLC	EQ	EA NU	6726
WILD-U	Wild Craze Inc	EQ	EA NU	7331 6726
WCRE-5	Wilson Creek Mining Corp.	EQ	EA NU	6726
WTS-LN	World Trade Systems PLC	EQ	EA NU	6726
YOW-FF	Yatra	EQ	EA NU	6531 6722 6726
YOU-FF	Youniq AG	EQ	EA NU	6512 6726 6519 6531 6719
	Yuanta 2 Special Purpose Acquisition Com	EQ	EA EM NU	6726
ZDVN-5	ZD Ventures Corp.	EQ	EA NU	6726
ZED-JO	Zeder Investments Limited	EQ	EA EM NU	6726
MRHD-U	Zendex Holdings Inc	EQ	EA NU	6726
ZONC-OS	Zoncolan ASA	EQ	EA NU	6211 6726
IDGG-5	Zonzia Media Inc	EQ	EA NU	1311 6726

Annex 3. Sample of companies

No.	Simbol	Name of company	Country
1	ACKB-BT	Ackermans & Van Haaren	Belgium
2	6A6-BG	Advance Terrafund REIT Sofia	Bulgaria
3	AGS-BT	Ageas SA NV	Belgium
4	6A7-BG	Agroenergy Invest ADSITS Sofia	Bulgaria
5	5AX-BG	Aktiv Properties ADSITS Plovdiv	Bulgaria
6	ATRUST-AT	Alpha Trust Mutual Fund and Alternative Investment Fund Management SA	Greece
7	AAT-WA	Alta SA	Poland
8	ALTN-EB	Altin AG	Switzerland
9	AMED-LN	Amedeo Resources Plc	United Kingdom-
10	ARC1T-ET	Arco Vara AS	Estonia
11	ARGO-LN	Argo Group Limited	Isle of Man
12	ACP-LN	Armadale Capital Plc	United Kingdom-
13	ATAGY-IS	Ata Gayrimenkul Yatirim Ortakligi AS	Turkey
14	ATLAS-IS	Atlas Menkul Kiymetler Yatirim Ortakligi	Turkey
15	AVTUR-IS	Avrasya Petrol ve Turistik Tesisler Yatirimlar AS	Turkey
16	5H4-BG	Balkan and Sea Properties ADSITS Varna	Bulgaria
17	5BU-BG	Bulgarian Real Estate Fund ADSITS Sofia	Bulgaria
18	LAH1-MU	Convertis AG	Germany
19	C8I-VI	C Quadrat Investment AG	Austria
20	CNMI-LN	Camper & Nicholsons Marina Investments Limited	Guernsey
21	CASS-MI	Societa Cattolica di Assicurazione Sc	Italy
22	CEPS-LN	CEPS PLC	United Kingdom-
23	CIE-EB	Ci Com SA	Switzerland
24	4OY-BG	Citi Properties ADSITS Sofia	Bulgaria
25	CLP-LN	Clear Leisure plc	United Kingdom-
26	CRV-LN	Craven House Capital Plc	United Kingdom-
27	DEM-CP	Demetra Investment Public Ltd	Cyprus

No.	Simbol	Name of company	Country
28	BBH-FF	Deutsche Balaton AG	Germany
29	DLB-ST	DLB Anlageservice Aktiengesellschaft	Germany
30	DN1-MU	DNI Beteiligungen AG	Germany
31	IDM-WA	IDM SA	Poland
32	DQ7-DB	Donegal Investment Group plc	Ireland
33	1DRS001E-BS	Druha Strategicka as	Slovakia
34	ECBYO-IS	Eczacibasi Yatirim Ortakligi AS	Turkey
35	EFGN-EB	EFG International AG	Switzerland
36	EIH-LN	EIH plc	Isle of Man
37	5ER-BG	ERG Capital 3 ADSITS Sofia	Bulgaria
38	ECT-AE	Eurocastle Investment Limited	Guernsey
39	EWG-LN	European Wealth Group Limited	Guernsey
40	EFH-WA	Europejski Fundusz Hipoteczny SA	Poland
41	6F3-BG	Fairplay Properties ADSITS Sofia	Bulgaria
42	FAK-BE	Falkenstein Nebenwerte AG	Germany
43	6BMA-BG	Fund Estates ADSITS Sofia	Bulgaria
44	GFMN-EB	Gottex Fund Management Holdings Limited	Guernsey
45	HAL-AE	Hal Trust	Monaco
46	EXAE-AT	Hellenic Exchanges Athens Stock Exchange SA	Greece
47	5V2-BG	Holding Varna AD Varna	Bulgaria
48	YESIL-IS	Yesil Yatirim Holding AS	Turkey
49	ANSA-IS	ANSA Yatirim Holding AS	Turkey
50	I3C-FF	Innovativ Capital AG	Germany
51	IKG-MI	Intek Group SpA	Italy
52	4IC-BG	Intercapital Property Development ADSITS Sofia	Bulgaria
53	5IP-BG	Invest Property ADSITS Vratsa	Bulgaria
54	KSFR-LJ	KS Nalozbe dd	Slovenia
55	LVIDE-AE	Lavide Holding NV	Netherlands
56	LGEN-LN	Legal & General Group plc	United Kingdom-
57	5BD-BG	Bulgarian Real Estate Fund ADSITS Sofia	Bulgaria
58	LAS-LN	London & Associated Properties PLC	United Kingdom-
59	GDKGS-IS	Gedik Girisim Sermayesi Yatirim Ortakligi AS	Turkey
60	MIG-AT	Marfin Investment Group Holdings SA	Greece

No.	Simbol	Name of company	Country
61	MBB-FF	MBB SE	Germany
62	METAL-IS	Metro Altin Isletmeciligi Insaat Sanayi ve Ticaret AS	Turkey
63	7468'A-LU	Midilux Holdings SA	Luxembourg
64	MINE-CP	Minerva Insurance Company Public Ltd	Cyprus
65	MLP-FF	MLP AG	Germany
66	MGNS-LN	Morgan Sindall Group plc	United Kingdom-
67	KZS-WA	Krezus SA	Poland
68	NIKN-LJ	Nika dd Brezice	Slovenia
69	ORE-LB	Sociedade Comercial Orey Antunes SA	Portugal
70	OYAYO-IS	Oyak Yatirim Ortakligi AS	Turkey
71	PARN-AT	Parnassos Enterprises SA	Greece
72	MERE-AE	Palmer Capital Emerging Europe Property Fund NV	Netherlands
73	PTF-LN	Phaunos Timber Fund Limited	Guernsey
74	PMEA-LN	PME African Infrastructure Opportunities plc	Isle of Man
75	TPM-WA	Topmedical SA	Poland
76	4PY-BG	Prime Property BG ADSITS Sofia	Bulgaria
77	5Q1-BG	Quantum Developments ADSITS Sofia	Bulgaria
78	QFG-BT	Quest for Growth NV	Belgium
79	7495-LU	Quilvest SA	Luxembourg
80	RAT-LN	Rathbone Brothers Plc	United Kingdom-
81	R4-MC	Renta 4 Banco SA	Spain
82	RYSAS-IS	Reysas Tasimacilik ve Lojistik Ticaret AS	Turkey
83	STJ-LN	St. James's Place plc	United Kingdom-
84	SIF1-RO	Societatea de Investitii Financiare Banat Crisana SA	Romania
85	SIF2-RO	Societatea de Investitii Financiare Moldova SA	Romania
86	SIF3-RO	Societatea de Investitii Financiare Transilvania SA	Romania
87	SIF4-RO	Societatea de Investitii Financiare Muntenia SA	Romania
88	SIF5-RO	Societatea de Investitii Financiare Oltenia SA	Romania
89	SOF-BT	Sofina SA	Belgium
90	SOFR-FR	Societe Francaise de Gestion et d'Investissement Sofragi SA	France
91	STGR-LN	StratMin Global Resources plc	United Kingdom-

No.	Simbol	Name of company	Country
92	ASPT-AT	T-Bank SA	Greece
93	TCHOL-IS	Tacirler Yatirim Holding AS	Turkey
94	COV-CP	Toxotis Investments Public Ltd	Cyprus
95	TSGYO-IS	TSKB Gayrimenkul Yatirim Ortakligi AS	Turkey
96	WST-LN	Westside Investments PLC	United Kingdom
97	YOU-FF	Youniq AG	Germany
98	ZONC-OS	Zoncolan	Norway
99	ARN-DU	Arn. Georg AG	Germany
100	ARW-LN	Arrow Global Group PLC	United Kingdom
101	NHT-ST	Camera Work AG	Germany
102	CFCP-PM	Capital for Colleagues PLC	United Kingdom
103	CLNR-LN	Cluff Natural Resources Plc	United Kingdom
104	CPHNW-KO	Copenhagen Network A/S	Denmark
105	EM.P-PM	Equatorial Mining and Exploration plc	United Kingdom
106	EXC-FF	Exceet Group SE	Luxembourg
107	GWI-LN	Globalworth Real Estate Investments Limited	United Kingdom
108	GOZDE-IS	Gozde Girisim Sermayesi Yatirim Ortakligi AS	Turkey
109	I7O-ST	IC Immobilien Holding AG	Germany
110	MMP-JO	Marshall Monteagle PLC	Australia
111	MMP-LN	Marwyn Management Partners plc	United Kingdom
112	MPAY-LN	Mi-Pay Group plc	United Kingdom
113	PRS-LN	Paternoster Resources plc	United Kingdom
114	S26-DU	Pyrolyx AG	Germany
115	QCAP-BN	Q Capital AG	Switzerland
116	RYGYO-IS	Reysas Gayrimenkul Yatirim Ortakligi AS	Turkey
117	SIGB-LN	Sherborne Investors	United Kingdom
118	4OX-BG	Sopharma Buildings ADSITS Sofia	Bulgaria

No.	Simbol	Name of company	Country
119	SOURC-AE	AamigoO Group NV	United Kingdom
120	TEA-LN	Teathers Financial Plc	United Kingdom
121	Tern-ln	Tern Plc	United Kingdom
122	TILS-LN	Tiziana Life Sciences PLC	United Kingdom
123	VKFYO-IS	Vakif Menkul Kiymet Yatirim Ortakligi AS	Turkey
124	VIPRO-KO	Victoria Properties A/S	Denmark
125	VIRE-CP	Vireta Investments PLC	Cyprus
126	3V7-BE	Volta Finance Limited	United Kingdom
127	VNV'SDB-SK	Vostok New Ventures Ltd.	United Kingdom
128	AJG-LN	Atlantis Japan Growth Fund Limited	United Kingdom
129	AUR-LN	Aurum Mining Plc	United Kingdom
130	BLU-LN	Blue Star Capital Plc	United Kingdom
131	CFCP-PM	Capital for Colleagues PLC	United Kingdom
132	CIN-LN	City of London Group plc	United Kingdom
133	CLIG-LN	City of London Investment Group PLC	United Kingdom
134	COMB-BT	Compagnie du Bois Sauvage SA	Belgium
135	CPHNW-KO	Copenhagen Network A/S	Denmark
136	EUYO-IS	Euro Menkul Kiymet Yatirim Ortakligi AS	Turkey
137	FDBK-LN	Feedback plc	United Kingdom
138	GRI-LN	Grainger plc	United Kingdom
139	GUS-LN	Gusbourne PLC	United Kingdom
140	HLCL-LN	Helical Bar plc	United Kingdom
141	HBRN-LN	Hibernia REIT plc	Ireland
142	HWC-LN	Highway Capital Plc	United Kingdom

No.	Simbol	Name of company	Country
143	KBCA-BT	KBC Ancora CVA	Belgium
144	KENV-LN	Kennedy Ventures plc	United Kingdom
145	KRI-WA	Kredyt Inkaso SA	Poland
146	LDP-LN	Leed Resources PLC	United Kingdom
147	LEG-LN	Legendary Investments Plc	United Kingdom
148	LFI-LN	London Finance & Investment Group P.L.C	United Kingdom
149	MTR-LN	Metal Tiger Plc	United Kingdom
150	MLVP-PM	Milamber Ventures plc	United Kingdom
151	MIT-MI	Mittel SpA	Italy
152	PEBI-LN	Port Erin Biopharma Investments Limited	United Kingdom
153	QIF-LN	Qatar Investment Fund plc	United Kingdom
154	145569-LU	Reinet Investments SCA	Luxembourg
155	SAPO-LN	South African Property Opportunities plc	United Kingdom
156	SLBEN-LB	Sport Lisboa e Benfica Futebol Sad	Portugal
157	SVE-LN	Starvest plc	United Kingdom
158	SVP-BT	SV Patrimonia SA	Belgium
159	TERN-LN	Tern Plc	United Kingdom
160	TOM-LN	TomCo Energy Plc	United Kingdom
161	TRE-LN	Trading Emissions PLC	United Kingdom
162	WTS-LN	World Trade Systems Plc	United Kingdom

Annex 4. Descriptive statistics of the sample

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
1	2007	4887955000	3307893000	2244299000	0.459148867
1	2008	5219598000	3702453000	1219290599	0.233598564
1	2009	5322018000	3726516000	1741503530	0.327226163
1	2010	5603677000	3892325000	2092886178	0.373484442
1	2011	6516665000	4634034000	1930761316	0.296280585
1	2012	6759483000	4752327000	2085851628	0.308581533
1	2013	10887514000	8635975000	2852595636	0.262006151
1	2014	11489375000	9087178000	3420033825	0.297669266
2	2007	47821991.65	5601515.375	45732144.53	0.956299454
2	2008	84487356.35	2407057.388	48299880.23	0.571681756
2	2009	84405392.95	596175.7219	57883202.79	0.685776119
2	2010	80628383.66	2647953.981	52169893.09	0.647041286
2	2011	108035070.7	10708315.23	63047690.18	0.583585402
2	2012	122379809	20215279.9	97922711.49	0.800154146
2	2013	119236965.2	17011788.17	103553967.7	0.868472017
2	2014	115016742.2	13198752.02	106175462.3	0.923130496
3	2007	8.71179E+11	8.38132E+11	39175341124	0.044968188
3	2008	92870000000	86075000000	2184635289	0.023523584
3	2009	93243000000	84893000000	6168404817	0.066154079
3	2010	99166700000	90919600000	4203836069	0.04239161
3	2011	90602200000	82841900000	2950061706	0.032560597
3	2012	97112900000	87202300000	5400938506	0.055615047
3	2013	95735600000	87210500000	7226388524	0.075482773
3	2014	1.03559E+11	93335700000	6815542856	0.065813139
4	2007	8224861.065	26586.2358	1763422.793	0.21440153
4	2008	17160831.07	106366.6745	14295089.59	0.833006836
4	2009	18128650.43	58799.4923	11437827.67	0.630925491
4	2010	18218168.81	311373.6194	11293412.49	0.619898334
4	2011	17836967.36	1152833.517	10723513.38	0.601195997
4	2012	20906610.36	1717076.691	10008866.19	0.4787417
4	2013	24660546.71	1639092.746	14296191.02	0.579719144
4	2014	28037202.67	4160375.676	15723806.85	0.560819388
5	2007	18821521.13	719362.188	22867661.25	1.214974129
5	2008	16025059.99	448478.7188	4639649.241	0.28952461
5	2009	14477457.6	323141.5577	6052799.457	0.418084419
5	2010	13023495.62	237748.33	3530423.475	0.271081097
5	2011	11770149.02	209094.8595	3025689.124	0.25706464
5	2012	12149928.31	177946.0061	2198902.922	0.180980732
5	2013	12165085.53	238320.5053	1634171.7	0.13433294
5	2014	12004422.67	198284.3574	2370377.205	0.197458659
6	2008	16161060	7133320	46650000	2.886568084

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
6	2009	15207680	6310430	31100000	2.045019359
6	2010	12573560	5411620	30166999.07	2.399240873
6	2011	12911700	5170920	27989999.38	2.167801248
6	2012	21208130	8858720	16327499.38	0.769869827
6	2013	20018550	11300220	19561900	0.977188658
6	2014	14026510	8811550	15052400.62	1.073139407
7	2007	85372264.43	31212008.43	39299440.11	0.4603303
7	2008	70316727.43	24210016.94	12911028.15	0.183612472
7	2009	70351583.53	23917828.65	27564887.47	0.391816162
7	2010	75495962.62	26001944.67	22951594.91	0.304010892
7	2011	64157935.84	24047560.86	11943962.13	0.186165
7	2012	66597318.81	24060734.37	7199385.035	0.108103226
7	2013	63018111.62	22244883.77	15187577.28	0.24100337
7	2014	43964546.56	641446.2801	7305102.848	0.166158949
8	2007	333902511.5	71624113.96	268127815.1	0.803012274
8	2008	242604222.9	55305924.25	141126973	0.581716886
8	2009	234066611.1	40914453.58	172742159.3	0.738004274
8	2010	263065876.3	59274723.96	180246883.3	0.685177743
8	2011	244036663.9	41810294.23	153121345.3	0.627452215
8	2012	262392393.2	72869414.77	136051620.8	0.51850444
8	2013	227667219.8	56279263.58	153726780.6	0.6752258
8	2014	269825280.7	61580941.68	170690141.1	0.632595065
9	2007	4982381.007	321882.3348	6349576.11	1.274405972
9	2008	4196935.768	221456.2412	4244878.092	1.011423173
9	2009	1128329.39	401762.029	21033888.69	18.64162086
9	2010	637584.1775	66819.67939	11918111.08	18.69260797
9	2011	607203.7668	121127.6971	7966040.451	13.11922107
9	2012	154171.381	66475.70371	7573641.79	49.12482292
9	2013	13192109.18	98108.88463	23191014.44	1.757945915
9	2014	13098778.92	147437.6291	21026500.61	1.605226009
10	2007	227784988	106076919	135303374.2	0.593996011
10	2008	125944476	80684618	16198296.59	0.128614586
10	2009	88148645	63603241	16198296.59	0.183761152
10	2010	70583390	42755211	26250732.05	0.371910899
10	2011	60013000	36030000	9767913.843	0.162763299
10	2012	31229000	27857000	7491896.902	0.239901915
10	2013	25157000	18315000	6638388.237	0.263878373
10	2014	27003000	17989000	5064885.418	0.187567508
11	2008	30843494.84	1401388.439	3737335.882	0.12117096
11	2009	32990423.35	1961317.713	11211370.36	0.339837117
11	2010	34139617.17	934739.7365	10316399.46	0.302182634
11	2011	34280343.12	828872.3669	11704923.07	0.34144708
11	2012	21527617.39	506674.9494	10391510.86	0.482706036

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
11	2013	21007296.49	328023.5608	11447432.34	0.54492649
11	2014	21791666.9	309078.2139	9123106.549	0.418651156
12	2007	3565933.74	73524.40702	28639927.79	8.031536724
12	2008	2050990.351	592646.2284	2619985.501	1.277424587
12	2009	3733626.104	1665957.623	6573288.625	1.760564246
12	2010	4534247.693	2577720.811	3429563.754	0.756368859
12	2011	5339123.86	2395833.918	4124857.74	0.772572027
12	2012	4766280.654	56774.75384	2926432.552	0.613986621
12	2013	5848906.531	222848.5684	7198036.36	1.230663599
12	2014	6043850.423	529682.3795	3509355.366	0.580648944
13	2007	5602593.601	50179.44695	4404530.084	0.786159125
13	2008	3402391.312	55463.6392	1629531.041	0.478936986
13	2009	4694512.926	71569.09047	3436155.385	0.731951416
13	2010	5513652.292	84023.94285	4349018.006	0.788772628
13	2011	4060987.414	68568.76779	4083781.778	1.00561301
13	2012	11719381.79	95165.67549	13222762.36	1.12828156
13	2013	9942331.359	426613.7765	12514774.74	1.258736436
13	2014	11792777.24	1821967.363	17211367.65	1.459483826
14	2007	4479974.345	36175.88036	2643312.629	0.590028519
14	2008	1504509.474	30761.34611	735811.367	0.489070611
14	2009	2011508.99	27242.93796	1340469.69	0.666400049
14	2010	2562081.236	669876.38	3025326.414	1.180808154
14	2011	1251621.681	109369.0405	1959783.147	1.565795141
14	2012	1283508.373	63095.28485	1487766.343	1.159140349
14	2013	3002915.251	71930.42202	2398244.594	0.798638787
14	2014	4350244.996	1341982.798	2474549.078	0.56882982
15	2007	1759781.535	87522.2912	1697932.397	0.964854082
15	2008	1434266.406	136240.1376	1174524.096	0.818902326
15	2009	1622658.945	243163.7965	1255434.901	0.773689939
15	2010	1391388.64	9536.727201	3981304.818	2.86138948
15	2011	29221189.56	2050557.342	47538441.6	1.626848267
15	2012	30007804.67	2305166.639	28687402.18	0.955998031
15	2013	24354712	2414805.095	26752228.96	1.098441606
15	2014	27579722.61	2273335.546	27838666.39	1.009388919
16	2007	623753.9939	3067.642593	32152651.23	2.038978294
16	2008	2003579.955	7670.673639	33533781.38	1.431562507
16	2009	15769001.23	2356070.091	32152651.23	2.038978294
16	2010	23424601.59	10334127.41	33533781.38	1.431562507
16	2011	29122466.19	17259272.51	39814497.29	1.367140304
16	2012	27729919.28	16465630.29	39540820.5	1.425926275
16	2013	32090418.6	21420206.1	39526671.7	1.231728143
16	2014	32487813.22	22553561.43	39533744.84	1.216879221
17	2007	1562874.581	49929.91003	7349162.084	4.702336434
17	2008	1412179.418	7193.985828	4494082.947	3.182373917

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
17	2009	6297746.569	3534825.622	6099607.362	0.968538079
17	2010	7969923.445	4449502.773	6811674.094	0.854672462
17	2011	8781841.101	5093667.199	2587913.195	0.294689139
17	2012	2383291.256	4545837.586	3168058.098	1.329278614
17	2013	27598.97349	435879.4493	7496245.509	271.6132001
17	2014	332548.3243	255543.2227	3488488.203	10.49016924
18	2007	60306352.51	385322.3553	46933200.13	0.778246373
18	2008	41121167.1	546103.3309	10469938.45	0.254611899
18	2009	28951455.76	448342.6343	14991902.13	0.517828957
18	2010	22197549.94	488638.6353	6528810.618	0.294123029
18	2011	17926925.1	110140.0734	6059414.778	0.338006364
18	2012	5532659.693	52324.00766	3941180.47	0.712348254
18	2013	3967127.595	176334.1431	2241271.1	0.564960679
18	2014	310173.3216	68011.08351	1235755.875	3.984081768
19	2007	85841331.4	33700098.98	11437154.46	0.22046241
19	2008	68030181.75	25812839.55	16224661.33	0.326417452
19	2009	51878025.11	13141942.18	11437154.46	0.22046241
19	2010	49705250.87	11835265.26	16224661.33	0.326417452
19	2011	49232892.82	12189872.45	20334909.64	0.413035036
19	2012	41982985.29	4973795.405	16073840.57	0.382865593
19	2013	39863451.56	3810059.58	16440572.34	0.412422199
19	2014	36852123.84	2540197.273	16689510.45	0.452877846
20	2007	8455445.533	13293.1179	1957486.514	0.221661028
20	2008	8830990.872	57274.36317	1957486.514	0.221661028
20	2009	8967178.226	92033.98795	4493285.63	0.501081334
20	2010	9118798.852	70557.56892	5856565.221	0.642251827
20	2011	9175634.57	33741.46878	4585424.094	0.49973918
20	2012	9805438.541	42441.14513	6390450.919	0.651725152
20	2013	18302605.67	8975886.67	5976206.727	0.326522181
20	2014	14704377.54	5858634.965	6782159.502	0.461234043
21	2007	65643000	28375000	35778198.56	0.996996003
21	2008	35886000	15260000	35778198.56	0.996996003
21	2009	36509000	10147000	43675581.95	1.196296309
21	2010	57874000	18861000	109079970	1.884783668
21	2011	39245000	9043000	76792259.61	1.956739957
21	2012	51583000	23035000	104716771.2	2.03006361
21	2013	60428000	27231000	106854699.3	1.768297798
21	2014	77848000	29513000	140494988.3	1.804734717
22	2007	62875000	12596000	44591181.08	0.709203675
22	2008	66483130	21162820	12607298.96	0.18963155
22	2009	63518970	22583980	17683316.34	0.278394255
22	2010	73377520	35222140	14398607.88	0.196226418
22	2011	61057970	32921430	12968851.18	0.212402266

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22	2012	56785090	34321180	10387833.1	0.182932405
22	2013	47033990	22786170	16189309.69	0.344204472
22	2014	47441000	20803000	19493319.23	0.410896044
23	2007	17225754000	15878295000	1789018500	0.103857195
23	2008	16152963000	15001766000	1293986258	0.080108291
23	2009	18542569000	17163750000	1283503278	0.06921928
23	2010	18787163000	17643379000	1028749415	0.054758103
23	2011	17921591000	16903167000	781039528.4	0.043580926
23	2012	18448534000	17131630000	663342707.2	0.035956391
23	2013	19385769000	18051510000	1113143073	0.05742063
23	2014	22768951000	20806253000	997831845.7	0.043824234
24	2007	15022125.6	9295391.236	6169587.559	0.410700038
24	2008	12150799.11	7094171.868	1590877.747	0.130927829
24	2009	12812201.46	6773594.691	2339545.842	0.182602955
24	2010	13618486.79	7249810.606	1746593.683	0.128251671
24	2011	12989345.61	6552137.192	2040495.33	0.157089925
24	2012	10526446.22	5936383.056	1833272.381	0.174158718
24	2013	10266827.42	5903846.438	1982187.666	0.193067204
24	2014	14390825.7	10043167.58	2647659.804	0.18398248
25	2007	4323215.061	3230328.526	3045056.903	0.704350087
25	2008	4552061.286	3318577.716	1714099.546	0.376554585
25	2009	4741551.358	3783812.503	2204171.376	0.464862913
25	2010	2230894.306	2095598.926	1657357.596	0.742911751
25	2011	2021204.882	2099333.248	777710.3574	0.384775618
25	2012	1117882.373	1552486.428	967408.7257	0.865394025
25	2013	7457793.526	8308002.159	927032.1129	0.124303805
25	2014	7133066.195	8304672.093	2989690.666	0.41913121
26	2007	244900.1337	1533.821296	332319.3673	0.654431443
26	2008	507798.5949	350805.4744	332319.3673	0.654431443
26	2009	455568.2403	367113.3519	332711.0562	0.730321007
26	2010	430871.5542	393634.5415	332668.5455	0.772082869
26	2011	113509.3684	7218.629381	199417.1522	1.756834304
26	2012	408350.2902	6867.284085	565044.0141	1.383723797
26	2013	376316.2605	10402.22978	598793.6202	1.591197838
26	2014	345559.2934	17958.60398	598854.9814	1.733002101
27	2007	5184580	326502	1913638.914	0.369102013
27	2008	1642793	341115	598572.3121	0.36436259
27	2009	2068343	157975	4224460.365	2.042437045
27	2010	26935675	10667455	12839441.63	0.476670499
27	2011	31549972	15240953	6007735.82	0.190419688
27	2012	99747102	63467702	10891318.88	0.109189326
27	2013	50562000	33606000	5153002.415	0.101914529
27	2014	47388000	29445000	2505302.754	0.052867873
28	2007	5571516.176	4521751.032	6389971.296	1.146899891

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
28	2008	2278.553171	292794.0824	241961.4486	638.9711832
28	2009	2278.553171	292794.0824	1455929.816	638.9711832
28	2010	52098.75328	164584.6979	1593039.054	30.57729703
28	2011	725857.2411	952544.5183	1425275.545	1.963575568
28	2012	3728138.513	840231.5514	1535065.316	0.411751149
28	2013	5471135.287	976779.552	4010473.894	0.733024077
28	2014	7632452.46	834665.0379	4218427.877	0.552696253
29	2007	274136487	2545815	156039990	0.569205478
29	2008	190489000	3871000	55999996	0.293980209
29	2009	190418000	13362000	64080000	0.336522808
29	2010	171932710	9210260	45400000	0.264056793
29	2011	155065400	7098850	36399998	0.234739652
29	2012	150511090	5970400	50000000	0.332201434
29	2013	154096190	1207210	69599998	0.451665924
29	2014	140950210	1545380	73599996	0.522170176
30	2007	132857000	30508000	117475000	0.884221381
30	2008	121733000	57186000	60578994.92	0.497638232
30	2009	140454000	54532000	78104996.19	0.556089511
30	2010	171533000	57095000	104763780	0.610750001
30	2011	206125000	89095000	96464158.21	0.467988639
30	2012	303329000	130016000	115368095.4	0.380339814
30	2013	351868000	127421000	145505250	0.413522258
30	2014	333912000	127750000	130663726.1	0.391311861
31	2007	4394000	780000	3463320	0.78819299
31	2008	3032000	243000	2349059.941	0.774755917
31	2009	3190000	247070	2263799.971	0.709655163
31	2010	3255470	62310	2760659.824	0.848006532
31	2011	3619760	601620	2469599.912	0.682255153
31	2012	3207430	103620	3057599.89	0.953286553
31	2013	3363240	143400	2866502.34	0.852303832
31	2014	4068580	145260	3360002.52	0.825841576
32	2007	2820000	1426000	2254500	0.799468085
32	2008	1612000	721000	1498499.97	0.929590552
32	2009	2274260	1213160	1665000	0.732106268
32	2010	2634420	1125690	2100000	0.797139408
32	2011	1574490	473670	1977000	1.255644685
32	2012	1699050	653610	1726500	1.016156087
32	2013	1915900	867120	1725000	0.900360144
32	2014	2028450	1097420	1800000	0.887377061
33	2007	364882559.4	190222797.8	363923567.3	0.997371779
33	2008	228466905.9	75321401.54	46679295.64	0.204315349
33	2009	251293197.7	90305798.61	126999892.8	0.505385319
33	2010	325548081.3	146256775.8	164036489	0.503877917

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
33	2011	249559116.1	150656517.4	63136808.9	0.252993398
33	2012	128783196.6	100240193.2	11234921.04	0.087239029
33	2013	69513457.98	58331611.11	13778114.23	0.198207867
33	2014	12149322.92	26132246.91	1479851.595	0.121805273
34	2007	114244000	48078000	64799200.11	0.567200029
34	2008	115237000	54424000	27484139.63	0.238500999
34	2009	106298000	47205000	21804764.42	0.205128642
34	2010	114333000	53604000	40567009.23	0.354814526
34	2011	119423000	67761000	31476953.59	0.263575305
34	2012	112287000	53994000	32960695	0.293539724
34	2013	102566000	42268000	60850513.85	0.593281534
34	2014	102945000	44784000	57756604.74	0.561043322
35	2007	49067636	24667192	9258234.893	0.188683125
35	2008	54371805	20148094	11817296.4	0.21734236
35	2009	57824877	19844004	12174412.5	0.210539358
35	2010	61112370	19512550	8124391.275	0.132941846
35	2011	307386750	252913180	8116275	0.026404115
35	2012	278498490	232354280	8116275	0.029142977
35	2013	277219210	247979420	8116275	0.029277462
35	2014	283244820	269079930	8116275	0.028654628
36	2007	15842118.19	51346.41084	7923684.518	0.500165724
36	2008	10316236.89	47540.26217	3001561.521	0.290955079
36	2009	17007655.97	631725.5567	9243715.676	0.543503214
36	2010	19818670.44	1067788.936	10374640.42	0.523478124
36	2011	14479255.27	583766.5329	8051558.362	0.556075448
36	2012	18995794.72	77766.23482	10799205.14	0.568505045
36	2013	13626868	67735.18444	6880594.746	0.504928553
36	2014	17202439.92	170697.8646	8685664.656	0.504908879
37	2007	10896604355	9424379260	4019809420	0.368904779
37	2008	12770306097	11308847727	1842675413	0.144293755
37	2009	13923072898	12471634689	1408867468	0.101189405
37	2010	16708555613	15688202288	1508780962	0.090299904
37	2011	17333310157	16520310533	859069396.4	0.049561762
37	2012	19577318388	18572926275	1081180413	0.055226175
37	2013	17705927511	16806946916	1535933733	0.086746867
37	2014	21078809268	20117109024	1453627663	0.068961564
38	2007	51786892.3	318470.7495	48681635.61	0.940037786
38	2008	34031711.09	703614.9779	35538289.99	1.044269855
38	2009	43699238.97	148778.564	21519431.61	0.492444082
38	2010	55217767.15	202623.8457	31977936.9	0.579124049
38	2011	39516043.3	54284.97741	28817950.48	0.729272166
38	2012	35611861.2	48627.14223	26173779.7	0.734973652
38	2013	35057924.46	73043.29955	24106465.53	0.687618161
38	2014	26599378.52	41684.23826	19455812.97	0.731438629

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
39	2007	20803729.52	5476764.576	6979955.715	0.234049271
39	2008	27274358.57	12748659.59	6495231.988	0.224542165
39	2009	29822591.19	15844673.62	6979955.715	0.234049271
39	2010	28926558.11	15499657.26	6495231.988	0.224542165
39	2011	28064722.27	15116689.25	13849336.98	0.493478497
39	2012	28073027.81	15530902.42	12080692.58	0.430330945
39	2013	22767279.52	10652824.3	15137265.69	0.664869322
39	2014	13922541.29	3773053.382	15460919.31	1.11049549
40	2007	7508195000	6034507000	1063944590	0.141704443
40	2008	6248309000	5437263000	13270197.99	0.002123806
40	2009	5401081000	5037723000	21714869.99	0.004020467
40	2010	4882283000	4596745000	17092316.8	0.003500886
40	2011	2870807000	2507872000	5194630.713	0.001809467
40	2012	2651698000	2359592000	3803720.146	0.001434447
40	2013	2317241000	1993103000	242459455.4	0.104632818
40	2014	1533923000	1327560000	237586433.5	0.154888109
41	2007	5924161.017	776090.963	4686063.135	0.791008739
41	2008	260640.2261	216165.9018	205366.2953	0.787930161
41	2009	130001.6927	44335.64222	956834.3026	7.36016803
41	2010	273793.5557	117138.3597	2016780.939	7.36606431
41	2011	519466.0788	65581.23066	1115426.596	2.147255887
41	2012	4952250.336	859265.2484	4341673.093	0.876707113
41	2013	10318678.38	693701.9564	9520908.719	0.922686837
41	2014	30961923.35	9512273.939	24009421.88	0.775449949
42	2007	114572703.2	87951456.68	7962564.547	0.121407958
42	2008	65585194.46	43972567.69	7962564.547	0.121407958
42	2009	61596756.61	46346318.65	8432849.075	0.136904109
42	2010	98747847.16	45386336.39	42535110.64	0.430744688
42	2011	87890988.22	37077903.03	14141220.79	0.160895003
42	2012	75133702.2	38309443.66	6470662.318	0.086121968
42	2013	57474207.11	38672648.18	2651474.366	0.046133292
42	2014	80733.35481	14147880.61	615133.6499	7.619324768
43	2007	43453157.33	11286368.37	21255146.73	0.303199693
43	2008	70102797.77	29121456.78	21255146.73	0.303199693
43	2009	68075495.68	29975981.17	13987741.05	0.205473951
43	2010	63068240.88	26945322.03	7775873.813	0.123293019
43	2011	57040464.2	22011196.03	6649784.337	0.116580123
43	2012	52065058.29	18330483.98	7621892.555	0.146391703
43	2013	42692101.16	15158411.54	7049163.178	0.165116333
43	2014	37834299.21	11703400.3	7292491.45	0.192748157
44	2007	41069000	12013000	39204994.5	0.954612834
44	2008	20540000	1426000	17750000	0.864167478
44	2009	2565550	104310	2594999.8	1.011478942

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
44	2010	575830	39320	2875000	4.992793012
44	2011	580680	30020	1399999.65	2.41096585
44	2012	606950	23160	1625000.78	2.677322317
44	2013	830300	216980	1500000.72	1.806576804
44	2014	909160	559770	1448999.9	1.593778763
45	2007	24332541.05	603814.317	8958629.39	0.288833151
45	2008	31016624.55	15135773.22	8958629.39	0.288833151
45	2009	37988051.13	23269259.95	5694353.346	0.149898539
45	2010	40177422.63	25996885.14	2392034.849	0.059536792
45	2011	39497967.84	29104572.99	956813.796	0.02422438
45	2012	39857348.66	30629211.96	1076663.227	0.027012916
45	2013	32641726.55	23778863.12	478394.8629	0.01465593
45	2014	28620754.56	24306271.87	442583.2281	0.015463716
46	2007	74498845.63	65114074.46	1257657869	16.88157525
46	2008	81248156.54	45649437.07	54573281	0.671686391
46	2009	60771575.7	31047227.26	158640016.1	2.610431181
46	2010	64086322.84	31099104.1	141502563.4	2.207999416
46	2011	61003773.68	27389763.83	65741728.62	1.077666588
46	2012	52367283.21	23745458.03	70420199.45	1.344736544
46	2013	44982045.06	25224431.25	65648707.98	1.459442493
46	2014	60749570.86	32065625.07	58482521.43	0.96268205
47	2007	4403400000	1687200000	5250992959	1.192486024
47	2008	4793700000	1986200000	3276695959	0.683542141
47	2009	4957200000	1824800000	4553609060	0.918584899
47	2010	5778400000	2183300000	6155171700	1.065203465
47	2011	6530500000	2560600000	5774670512	0.88426162
47	2012	7037400000	2737100000	6734430855	0.95694871
47	2013	7123800000	2483100000	7412585130	1.040538074
47	2014	13674100000	8610700000	9323269733	0.681819625
48	2007	241267000	52102000	1691653440	7.011540907
48	2008	184864000	24480000	394719100.8	2.135186411
48	2009	182105000	31542000	477190442.2	2.62041373
48	2010	171646000	22985000	320305924.4	1.866084409
48	2011	165728000	13066000	188915099.2	1.139910571
48	2012	164186000	11660000	284355117.3	1.731908429
48	2013	217732000	36969000	522952000	2.401815075
48	2014	310422000	121214000	303965830.4	0.979201959
49	2007	51496516.21	15942538.56	49340768.95	0.958137998
49	2008	93738700.14	23713631.87	37343596.45	0.398379713
49	2009	162169511.1	85455603.01	28383535.32	0.175023869
49	2010	158563308.8	79301594.6	20968096.58	0.132238011
49	2011	164371053.9	82611385.19	13648865.72	0.083036918
49	2012	199545992.2	117277667.5	16037561.13	0.080370249
49	2013	206953230.9	130184366	39837511	0.192495236

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
49	2014	194953077.5	119362046.3	43313506.01	0.222174005
50	2007	2665928.99	93357.11061	2258075.008	0.847012436
50	2008	1640977.991	200116.5389	692130.2666	0.421779128
50	2009	1886816.403	157594.2817	1694838.481	0.898252992
50	2010	2225941.874	455554.2984	1809025.177	0.812700996
50	2011	3163544.567	21727.78693	3689277.756	1.166184853
50	2012	2412130.275	46635.09097	3385113.641	1.403370986
50	2013	1509008.715	58311.10004	2280021.704	1.51094005
50	2014	1840544.149	23080.46386	1694182.604	0.920479199
51	2007	3267965.657	43119.31546	2713190.881	0.830238493
51	2008	2602773.424	136943.9199	1048682.231	0.402909535
51	2009	2603939.434	12047.52556	1673914.441	0.642839238
51	2010	2759378.637	122766.5944	3511494.159	1.272566987
51	2011	4602081.503	19072.48577	5914267.219	1.285128743
51	2012	3985942.408	29766.89849	6884978.851	1.727315186
51	2013	3851839.477	2400115.008	3918258.545	1.017243468
51	2014	6171162.443	5684266.819	2227094.202	0.360887308
52	2007	916000	8000	1109999.7	1.211790066
52	2008	913000	6000	533999.98	0.584884973
52	2009	902000	5000	582999.95	0.659338117
52	2010	895450	13980	299999.96	0.337567891
52	2011	884220	3100	582999.95	0.659338117
52	2012	888710	1540	299999.96	0.337567891
52	2013	890070	6610	299999.96	0.337052097
52	2014	883560	530	299999.96	0.33953547
53	2007	1803951000	1268018000	350865152.9	0.194498161
53	2008	1633606000	1177780000	104557228.5	0.064003945
53	2009	1769483000	1349608000	109033833.1	0.061619034
53	2010	2021053000	1568988000	148720116.7	0.073585461
53	2011	1927487000	1496489000	135704407.7	0.070404837
53	2012	1831244000	1479492000	114811812.6	0.062696076
53	2013	1748472000	1480909000	110423893.1	0.06315451
53	2014	552991000	110653000	112842449.4	0.204058383
54	2007	34432243.01	25397013.03	25874325.74	0.751456295
54	2008	31754031.97	23380213.25	14796775.46	0.465980996
54	2009	35872292	25209131.9	7375045.643	0.205591704
54	2010	35079382.63	24878189.77	5522671.625	0.157433547
54	2011	32719511.26	27902660.97	1997627.405	0.061053094
54	2012	30110714.12	27513111.5	614796.0743	0.020417851
54	2013	30357225.05	28136650.73	737566.6696	0.024296248
54	2014	30422265.55	28863216.26	1475284.774	0.048493587
55	2007	37445310	1278800	7819755	0.206329474
55	2008	37899360	1219650	7819755	0.206329474

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55	2009	41382670	11555120	7624260.734	0.184238009
55	2010	38554660	11868130	1172963.094	0.030423381
55	2011	33681620	8024310	1954938.75	0.058041708
55	2012	27537800	3192540	899271.6686	0.032655901
55	2013	24183320	2468790	977469.375	0.040419156
55	2014	24581830	2045910	1016568.15	0.041354454
56	2007	138855000	67446000	73802790.95	0.531509783
56	2008	118582000	70035000	25303809.13	0.213386594
56	2009	95511000	54850000	39863087.82	0.417366459
56	2010	83181000	48895000	32782837	0.394114485
56	2011	73181000	42658000	19978652.79	0.273003277
56	2012	1001000	396000	1765301.183	1.763537645
56	2013	171000	49000	1245893.934	7.285929439
56	2014	81000	158000	640018.2864	7.901460326
57	2007	3.82987E+11	3.75572E+11	11200671696	0.029245545
57	2008	2.65529E+11	2.61818E+11	4655973354	0.017534688
57	2009	3.3434E+11	3.29617E+11	5317903338	0.015905694
57	2010	3.77981E+11	3.72348E+11	6624263814	0.017525389
57	2011	3.9114E+11	3.84914E+11	7226619551	0.018475801
57	2012	4.26952E+11	4.20244E+11	10613986458	0.024859887
57	2013	4.36495E+11	4.29714E+11	15837225546	0.036282702
57	2014	5.14855E+11	5.07087E+11	19033791852	0.036969248
58	2007	441000	415000	264999.99	0.600907007
58	2008	49000	71000	612500	12.5
58	2009	48000	73000	635500	13.23958333
58	2010	49000	50000	609500	12.43877551
58	2011	29620	0	334999.995	11.30992556
58	2012	29620	3620	299499.99	10.11141087
58	2013	29980	3670	219999.985	7.338224983
58	2014	28070	2670	227250.005	8.095832027
59	2007	432576764	311409902.8	88907438.14	0.205529852
59	2008	280650569.2	238962613	19963650.01	0.071133474
59	2009	302215103.9	235690255	38763581.01	0.12826487
59	2010	289673815.4	224597078.5	40970688.17	0.14143732
59	2011	298119249.3	250317260.3	26399034.64	0.088551929
59	2012	321973882.5	264697340.9	22861954.15	0.071005617
59	2013	296456745	236680299.8	44575329.52	0.150360315
59	2014	183712394.4	128887317.3	42469896.04	0.231175998
60	2007	2119206.411	2333.927765	1960499.148	0.92511005
60	2008	1772240.383	3146.046762	1370278.089	0.773189744
60	2009	2084421.861	4854.348392	1871992.051	0.89808694
60	2010	2308861.513	9328.459415	2090619.557	0.905476376
60	2011	2406224.94	11897.87018	2666706.625	1.108253257
60	2012	2515502.672	7785.97345	3019292.183	1.200273892

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
60	2013	6969130.685	27981.76173	6958279.713	0.998442995
60	2014	7570925.94	16197.685	7565045	0.99922322
61	2007	9352829000	4407214000	4930159751	0.527130321
61	2008	7620521000	3465561000	2406980263	0.315855079
61	2009	7835931000	3937313000	1512629096	0.193037572
61	2010	5411679000	3451161000	539229704.3	0.099641849
61	2011	4498480000	3060991000	284251060.2	0.063188246
61	2012	3919209000	3009363000	330471032.1	0.084320849
61	2013	3284114000	2688639000	293495265.1	0.089368172
61	2014	3028036000	2527413000	178053225.6	0.058801555
62	2007	131918000	85391000	52733998.68	0.399748319
62	2008	139885000	88997000	33659996.7	0.240626205
62	2009	101939000	50009000	39203997.36	0.384582911
62	2010	91749000	46684000	44780999.34	0.488081607
62	2011	86308000	42143000	38900416.46	0.450716231
62	2012	148652000	93576000	100980058.1	0.679305076
62	2013	177206000	112270000	138600079.8	0.78214101
62	2014	196691000	121648000	135960124.5	0.691237141
63	2007	1721271.727	14587.04853	2363100.987	1.372880847
63	2008	630621.5777	18559.34549	629209.3383	0.99776056
63	2009	627033.9499	8355.616916	1185688.502	1.890947854
63	2010	2632267.48	649253.0258	3257693.925	1.237599883
63	2011	1388314.627	9907.414013	4331690.558	3.120107268
63	2012	712327.321	5575.980986	1629870.442	2.288091996
63	2013	645769.3394	9221.415924	1275461.114	1.975103239
63	2014	2129186.047	32738.27168	3817875.775	1.793115158
64	2007	88767375	56498566	19603500	0.220841272
64	2008	63756820	49480510	5590915.926	0.087691261
64	2009	67539000	50884000	7057257.961	0.104491597
64	2010	65809560	54160480	3920746.343	0.059577155
64	2011	55923190	47602400	2744522.315	0.049076641
64	2012	48461460	41572770	1176223.715	0.024271322
64	2013	42277110	34915090	1803543.312	0.042660043
64	2014	38981070	31502890	2195618.118	0.05632524
65	2007	1424212000	1084553000	1079117100	0.757694149
65	2008	1534419000	1105294000	1060732234	0.691292426
65	2009	1475532000	1057000000	862888000	0.58479789
65	2010	1505411000	1077020000	819870314.1	0.544615599
65	2011	1487792000	1088450000	555246354.2	0.3732016
65	2012	1493108000	1105554000	548665826.5	0.3674656
65	2013	1536865000	1162388000	566141978.3	0.368374567
65	2014	1624668000	1247873000	401952224.9	0.247405762
66	2007	1389202824	1163591819	605502180.7	0.435863051

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
66	2008	1018772312	819878996.9	241072311.8	0.236630216
66	2009	1002757645	767066264.9	291476719.1	0.29067514
66	2010	1192507482	933535657.4	355344934.7	0.297981304
66	2011	1193702904	911289389.8	307054602.4	0.257228663
66	2012	1172605176	864751625.2	274722122.6	0.234283566
66	2013	1160216402	850721194.7	392557459.2	0.338348483
66	2014	1360092813	1014109942	351763464.1	0.258631956
67	2007	29838979.31	25586.12102	65278045.01	2.187676875
67	2008	10245827.76	29377.84736	15937742.11	1.555534847
67	2009	16273612.38	658816.1918	19318613.45	1.187112794
67	2010	18469302.91	462211.941	34503780.79	1.868169089
67	2011	12261344.26	310246.2422	73628607.3	6.004937612
67	2012	16912484.41	2690243.76	246814613.8	14.59363437
67	2013	16912484.41		197876601.9	11.70003159
67	2014	10051301.17	5931241.083	62405563.09	6.208704927
68	2007	5759000	1897000	2595060.083	0.450609495
68	2008	4928190	2047190	2811200.504	0.570432655
68	2009	4827490	2062960	2805502.125	0.581151307
68	2010	4649200	2038630	2887178.896	0.621005527
68	2011	3749490	1462750	3419027.64	0.911864718
68	2012	3484050	1115260	4653676.51	1.335708876
68	2013	3353070	1122500	5470441.945	1.631472634
68	2014	3245200	1006060	6401178.956	1.972506766
69	2007	75157000	53946000	27900000	0.371222907
69	2008	77076370	48694000	31373876.45	0.407049222
69	2009	78418940	51637960	23512487.63	0.299831745
69	2010	103739560	77202070	24049993.5	0.231830495
69	2011	95788150	69949580	13799996.4	0.144067887
69	2012	86789180	52380320	16799996.4	0.193572475
69	2013	97812890	71133550	20879997.6	0.213468773
69	2014	138319440	114743180	21720006	0.157027862
70	2007	6508793.569	114636.697	4667855.297	0.717161368
70	2008	3903526.266	14546.38806	1538067.259	0.394019959
70	2009	4814276.769	18952.41767	3487320.642	0.724370619
70	2010	6022295.502	105088.0498	4020054.163	0.667528546
70	2011	3997818.982	25676.06884	3236530.679	0.809574094
70	2012	5235999.145	8665.72045	2981364.638	0.569397465
70	2013	3504516.366	17949.67188	6758993.093	1.92865217
70	2014	3930360.135	49819.72387	3618142.823	0.920562671
71	2007	37497000	3346000	66692985.85	1.778621912
71	2008	42315000	4088000	23039387.87	0.544473304
71	2009	48506000	6018000	26879459.6	0.554147108
71	2010	66133570	21642420	12530273.39	0.189469182
71	2011	73118970	30632520	4991899.236	0.068270918

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
71	2012	68122230	28666710	12004811.08	0.176224576
71	2013	68199630	28907000	2748575.916	0.040301918
71	2014	7034690	62303210	1414708.259	0.201104563
72	2007	81176000	40848000	40304975.25	0.496513443
72	2008	74291000	50535000	25651724.83	0.345287112
72	2009	78995000	53402000	26323201.24	0.333226169
72	2010	77496000	48902000	26464908.43	0.341500315
72	2011	69068000	45398000	7912314.632	0.114558328
72	2012	64502000	38031000	12214381.8	0.189364389
72	2013	60707000	33893000	10915799.9	0.179811223
72	2014	58636000	30082000	10864371.05	0.185284996
73	2007	327477284.5	129270.589	313942822.1	0.958670531
73	2008	388013402.4	31917449.01	317209324.6	0.817521567
73	2009	407466751.9	6673840.043	224029144.3	0.54980963
73	2010	454037527.8	10578063.48	347342608.7	0.76500859
73	2011	440058045.7	9615997.915	285509073.8	0.648798668
73	2012	376577054.2	6122575.138	238344017.8	0.632922307
73	2013	310638312.1	6567002.659	198807248.4	0.639995907
73	2014	269687269.9	4173382.3	173418859.6	0.643036876
74	2007	119909756.8	278376.3477	136381958	1.13737165
74	2008	122572569.3	2220783.425	54522492.82	0.444818063
74	2009	107406190.8	9430216.295	71345941.84	0.664262845
74	2010	80511354.81	4200365.562	55844433.77	0.693621836
74	2011	51147433.59	6864388.161	20485141.06	0.400511612
74	2012	30749404.87	756978.4424	15154620.73	0.492842733
74	2013	26143187.51	758373.0554	10861792.86	0.415473165
74	2014	16317511.59	1166894.219	7928793.478	0.485907023
75	2007	2493256.249	1041243.882	36331069.6	4.732327714
75	2008	2618513.089	29620.63949	37619880.56	1.719929439
75	2009	5855548.571	1117186.644	56711468.5	1.695770616
75	2010	7677209.144	1455513.476	36331069.6	4.732327714
75	2011	21872920.9	6021648.503	37619880.56	1.719929439
75	2012	33442889.02	9990688.428	56711468.5	1.695770616
75	2013	50468266.44	16812814.57	62940864.89	1.247137445
75	2014	41041626.86	16638981.56	53405760.3	1.301258366
76	2007	37411435.24	1713789.662	12533090.42	0.335006939
76	2008	35548969.91	2650984.81	7768562.774	0.218531305
76	2009	28030484.93	598220.9217	4748926.262	0.169420054
76	2010	19835880.03	497481.9895	5993473.964	0.302153167
76	2011	19360445.8	382914.5472	10770240.68	0.556301275
76	2012	19275438.63	328279.7009	11137765.7	0.577821647
76	2013	19628199.56	887820.5948	12777777.6	0.650990813
76	2014	19435462.86	837828.4637	12596527.95	0.648120811

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
77	2007	4970603.548	345109.7917	3068112.402	0.617251481
77	2008	5586807.3	678598.9279	3068112.402	0.549170973
77	2009	6029248.81	871720.3688	3067093.749	0.508702468
77	2010	5548483.608	207582.4129	3067093.749	0.552780537
77	2011	5476853.864	140589.4532	3987223.346	0.728013463
77	2012	5237135.041	141129.591	3987223.346	0.761336745
77	2013	5239471.194	131434.2701	3987223.346	0.760997284
77	2014	5365492.522	132018.3416	3987223.346	0.743123456
78	2007	116499000	729000	99021296.46	0.849975506
78	2008	67673000	308000	37132983.96	0.548711953
78	2009	85563900	122330	54820008.96	0.640690863
78	2010	106076440	66780	62600911.61	0.590149062
78	2011	91224490	123180	54767215	0.600356494
78	2012	106898300	95180	65720656.85	0.61479609
78	2013	125347620	15510360	94660797.02	0.755186233
78	2014	118650380	8801760	87754374.49	0.739604665
79	2007	809660685.2	198667692.2	498236404.3	0.615364453
79	2008	779169814	249687421.3	558398040	0.716657691
79	2009	926690557.9	406107769.2	507310155.7	0.547442888
79	2010	1019495436	476494389.1	535834269.3	0.525587708
79	2011	1848490913	1289172308	564003288.7	0.305115532
79	2012	2508510508	1952685813	544990809.1	0.217256738
79	2013	2607438965	2036257779	477385147.9	0.183085838
79	2014	3717207649	3070769738	494999355.7	0.1331643
80	2007	1670124606	1418575824	610312986.6	0.365429612
80	2008	1355377787	1164416416	369047332.7	0.27228374
80	2009	1167300394	961898845	389814415.6	0.333945245
80	2010	1199885670	983542078	553805556.2	0.461548604
80	2011	1417262112	1189017162	552158468.1	0.389595166
80	2012	1402673000	1119732531	734366061.1	0.523547585
80	2013	1478097427	1176414720	896966073.8	0.606838262
80	2014	2149654073	1800795098	1261274432	0.586733674
81	2007	717982000	554586000	329613279.7	0.459082929
81	2008	539832000	462792000	214452093.7	0.397257098
81	2009	508006000	445131000	213638250	0.420542769
81	2010	417113000	355636000	199396618.8	0.478039809
81	2011	490789000	422802000	204279797.5	0.416227335
81	2012	619776000	562672000	190851044.8	0.30793552
81	2013	904699000	831667000	205500581	0.227148014
81	2014	1491835000	1412509000	223405605	0.149752221
82	2007	185477239.5	114884093.4	179420688.2	0.967346121
82	2008	196559874.8	143927211.6	24748900.64	0.125910238
82	2009	182311438	126149677.3	109734312.3	0.601905802
82	2010	232565390.3	168403350.4	110304422.7	0.47429423

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
82	2011	176267835.9	129768463	34098816.93	0.193448888
82	2012	204077533.8	149947941.9	33659902.18	0.164936833
82	2013	193744515.7	137192936.1	24151339.85	0.124655605
82	2014	280647308.6	214562068.8	31108622.73	0.110845969
83	2007	21898563849	21296072180	1790427135	0.081760025
83	2008	15713192488	15187774889	882870588.8	0.056186583
83	2009	22171985666	21564410656	1333949929	0.060163756
83	2010	29628757529	28944507053	1507276833	0.05087209
83	2011	32613792624	31801749017	1916206772	0.058754491
83	2012	41627422120	40687340691	2631160755	0.063207391
83	2013	54494353581	53405291029	4508137873	0.082726697
83	2014	67900910197	66559189913	5451835828	0.080291057
84	2007	158999362.2	28839107.22	559085842	3.516277262
84	2008	137200843	34639226.38	77455025.02	0.56453753
84	2009	415082484.8	86445784.25	147315724.3	0.354907108
84	2010	430676045.8	103248836.8	129684153.3	0.301117637
84	2011	430676045.8		114578880.1	0.266044237
84	2012	248706144.7		149944573.7	0.602898549
84	2013	248706144.7	18329201.09	158558491.8	0.637533471
84	2014	365458974.3	21982957.02	159366886.3	0.43607326
85	2007	128551549.3	20276992.2	518344676.9	4.032193152
85	2008	99765931.07	15297545.25	73255261.05	0.734271312
85	2009	122301153.9	14597546.11	140560992.1	1.149302256
85	2010	306924612	45899500.15	140554330.5	0.45794415
85	2011	265151345.8	37219397.73	129607362.6	0.488805223
85	2012	276882721.5	37245522.13	169522455.8	0.612253646
85	2013	182234378.7	27828829.65	170621312.6	0.936274011
85	2014	302908114	31962021.63	184040200.7	0.607577652
86	2007	207868568.7	29579507.53	727050608.9	3.497645717
86	2008	170613935	27269774.36	73036310.05	0.428079395
86	2009	183532623.6	27927023.98	176403150.3	0.96115419
86	2010	746866060.5	200292960.3	138316805.7	0.185196266
86	2011	226057663.5		143161495.4	0.63329636
86	2012	226057663.5	36478388.99	175013450	0.774198261
86	2013	222579225.9	37139210.89	163983210.1	0.736740859
86	2014	224760170.2	30095021.08	119839002.4	0.533186117
87	2007	628894399	61464650.01	558094118.7	0.887421035
87	2008	369777337	61453756.51	122099473.9	0.330197288
87	2009	374565957.1	55827359.25	136103564.6	0.363363413
87	2010	471873051.3	109156435.4	121108609.3	0.256655066
87	2011	285374221.3	38085501.15	106535165.1	0.37331741
87	2012	259999570.4	46469295.52	139959040	0.538304889
87	2013	231959884.9	48347508.89	159160635.3	0.686155864

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
87	2014	312608618.4	76616839.96	158441693.7	0.506837254
88	2007	195092274.6	31685343.08	722501709.2	3.703384518
88	2008	141204066.5	28021572.03	87037749.62	0.616396906
88	2009	182796440.2	29588101.25	175014308.2	0.957427333
88	2010	191925640.7	35967444.07	170340635	0.887534539
88	2011	188413523.4	37484881.52	141771977.8	0.752451179
88	2012	192309246.7	41265729.53	183327106.3	0.953293248
88	2013	214682440.2	42375503.69	257375626.2	1.198866689
88	2014	220630897.3	27913532.48	215908071.4	0.978593996
89	2007	4747407000	375117000	2920000000	0.615072607
89	2008	3493890000	259646000	1750174891	0.50092444
89	2009	3529464000	111725000	2414000000	0.683956544
89	2010	3806315000	99339000	2442044787	0.641577165
89	2011	3591637000	126211000	2112959645	0.588299888
89	2012	3880749000	196550000	2380375000	0.613380304
89	2013	4303564000	194096000	2876952292	0.668504591
89	2014	4883998000	233422000	3019774792	0.61829976
90	2007	178362000	342000	151000000	0.846592884
90	2008	149952000	467000	92499000	0.616857394
90	2009	173153360	978380	136900000	0.790628608
90	2010	179729530	442280	144800000	0.805655031
90	2011	163026400	459040	124500000	0.763679993
90	2012	179409290	456730	110900000	0.618139674
90	2013	187205810	464810	130900000	0.699230435
90	2014	189355360	291400	140500000	0.741991143
91	2007	78280346.9	32305807.51	68813393.65	0.879063473
91	2008	24949061.64	22209236.41	1300414.3	0.052122774
91	2009	13046317.06	12939389.26	778341.9143	0.059659896
91	2010	1867304.728	165723.2946	3301555.883	1.768086287
91	2011	1137315.975	101759.8504	946033.8696	0.831812698
91	2012	1506596.074	182468.2642	5671272.244	3.764295118
91	2013	8028846.54	1848557.781	9979672.796	1.242977151
91	2014	8940145.84	953546.8321	9615381.573	1.075528492
92	2007	1840753000	1720572000	201864422.1	0.109664046
92	2008	1915197000	1795985000	60220207	0.031443349
92	2009	2214622000	2100876000	58298283.58	0.026324259
92	2010	2312369000	2112730000	33278248.01	0.014391409
92	2011	2944443000	2760843000	6945026.446	0.002358689
92	2012	2623828000	2502076000	6945026.446	0.002646906
92	2013	2428022000	2361387000	6945026.446	0.002860364
92	2014	2732456000	2696347000	6945026.446	0.002541679
93	2007	2954169.069	7585.265237	2217231.377	0.750543156
93	2008	1808860.368	6525.134024	792337.6563	0.438031409
93	2009	2454091.651	12856.58362	2394627.238	0.975769278

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93	2010	2892335.823	12907.75926	2106896.519	0.72844118
93	2011	2122221.922	8202.474096	2039403.364	0.960975543
93	2012	2309429.375	15967.19555	2209994.144	0.956943809
93	2013	1510498.329	14301.6392	1452458.49	0.961575701
93	2014	1739805.295	23236.00688	1855912.857	1.066735952
94	2007	2062401	187844	2691000	1.304789903
94	2008	1282150	223210	1448999.855	1.130132867
94	2009	1128470	121190	828000	0.73373683
94	2010	1085050	102980	828000	0.763098475
94	2011	1068290	72750	372600	0.348781698
94	2012	878580	74150	206999.9586	0.23560741
94	2013	650860	58550	372600	0.572473343
94	2014	599060	55380	703799.9793	1.174840549
95	2007	71293324.48	24192911.73	68292487.21	0.418175887
95	2008	86883091.69	36178605.6	36709245.5	0.2642674
95	2009	138726954.6	62408600.27	49724849.05	0.321098481
95	2010	163310437.8	56302575.51	68292487.21	0.418175887
95	2011	138909473.9	49952316.75	36709245.5	0.2642674
95	2012	154858562.2	54922643.46	49724849.05	0.321098481
95	2013	127069179.3	56474572.3	37493681.61	0.295065112
95	2014	129663571.4	55245782.19	38178759.34	0.294444761
96	2007	6421131.546	1222683.657	6058286.812	0.943492088
96	2008	2250607.667	613331.9606	2301033.115	1.022405259
96	2009	2122561.837	996555.8331	815656.6227	0.384279322
96	2010	1242399.53	1012032.48	845737.4422	0.680729042
96	2011	1466263.671	332838.5131	3991934.964	2.722521907
96	2012	1132560.79	367784.5129	2739853.4	2.419166745
96	2013	1044375.05	357500.0172	3673787.93	3.517690249
96	2014	1704864.421	551201.612	5053731.108	2.964300882
97	2007	148310000	88887000	118439915.4	0.798596962
97	2008	164948000	122651000	105750000	0.641111138
97	2009	183987520	139658730	105750000	0.574767245
97	2010	188074930	140340010	91650000	0.487305778
97	2011	183695560	96242190	64646421.74	0.351921526
97	2012	157574000	76633000	50544016.32	0.320763681
97	2013	125453000	98437000	24190402.02	0.19282442
97	2014	93694000	72713000	10119203.79	0.108002687
98	2007	16010456.26	233286.1143	13240642.75	0.826999714
98	2008	9724706.847	80959.59975	8468345.53	0.870807281
98	2009	11673755.01	170120.3511	6216391.589	0.532510026
98	2010	13355776.39	666602.5798	5148285.954	0.385472608
98	2011	14372492.55	2752830.302	5655790.099	0.393514909
98	2012	13966228.23	2057460.808	7051594.627	0.504903293

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
98	2013	6533729.672	202276.3566	9225375.487	1.411961613
98	2014	1975221.725	35933.16308	925375.284	0.468491852
99	2011	12014000	9291000	2400000	0.199766939
99	2012	12009000	9254000	2280001.674	0.189857746
99	2013	10962000	8103000	3000002.4	0.273672906
99	2014	10434000	8085000	3600002.88	0.345026153
100	2013	282273473.2	266794493.1	558225241.5	1.977604325
100	2014	406894250.3	280484388.5	511369926	1.256763706
101	2010	517000	30000	173812500	336.1943907
101	2011	2922000	2405000	162225000	55.51848049
101	2012	64625000	3912000	169950066	2.629788255
101	2013	64849000	4061000	181537570.5	2.799388896
101	2014	63476000	2638000	193125075	3.042489681
102	2014	4351005.759	79430.12541	5349861.326	1.229568891
103	2013	3669584.741	213056.3564	8150538.687	2.221106545
104	2007	4691861.733	3772070.22	31388143.34	6.689912263
104	2008	18062970.58	6176866.476	29085491.09	1.610227452
104	2009	38920602.53	31593825.65	10897925.19	0.280004021
104	2010	22624717.84	8693819.488	13836890.14	0.611582882
104	2011	19212110.3	8045241.512	6373813.466	0.331760195
104	2012	18514738	7637289.06	7831268.235	0.422974834
104	2013	12591426.19	5342751.33	5656257.86	0.449215027
104	2014	8222537.468	5878545.281	8384748.699	1.019727637
105	2012	1289668.429	1819.70556	11928238.2	9.249073588
105	2013	775490.123	24657.87355	11628598.41	14.99515992
105	2014	176682.7008	51682.69479	12466983.69	70.56142808
106	2010	743760	895680	192999994	259.4923013
106	2011	205168180	15802370	302953400.1	1.476610068
106	2012	171051000	85450000	78113160.04	0.456665907
106	2013	179138000	90179000	116205072.1	0.648690239
106	2014	182795000	84053000	107749320	0.589454416
107	2014	165549050	45858310	375515602	2.268304179
108	2011	37992194.9	2992270.456	216105833.7	5.688163958
108	2012	235949298.5	90390093.92	260037068.5	1.102088755
108	2013	542972351.5	356024707.2	243464817.8	0.448392662
108	2014	328805072	179068321.5	393329478.7	1.196239086
109	2007	46054000	20774000	37940000	0.823815521
109	2008	106027000	83667000	13719999.16	0.129400994
109	2009	46904200	36006800	7979998.6	0.170133988
109	2010	40977400	30181100	8595999.16	0.209774148
109	2011	39653600	30852200	12949999.65	0.326578158
109	2012	62766800	56741600	13126117.43	0.209125165
109	2013	64611800	58218000	7137767.155	0.110471573
109	2014	62789200	56891400	6926827.342	0.11031877

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
110	2011	94376710.33	51214507.83	19614158.87	0.207828381
110	2012	96442594.42	50690925.85	21523723.92	0.223176534
110	2013	111242129.8	60830936.65	20844377.8	0.187378449
110	2014	96590756.31	48327144.14	27635845.86	0.286112739
111	2011	235668.4201	176751.3151	33079120.19	140.3629734
111	2012	148763323.9	85262782.9	15942262.97	0.107165278
111	2013	48806562	24962398.28	6633693.603	0.135918068
111	2014	43649040.56	43050482.84	25915686.03	0.593728652
112	2007	29555473.54	10812616.12	9487386.512	0.32100269
112	2008	26460617.15	10421403.91	1237008.467	0.046749041
112	2009	20005171.64	7212080.542	4682318.686	0.234055412
112	2010	20613428.58	6429174.622	4612249.124	0.223749732
112	2011	20430647.85	5744296.169	3112659.827	0.152352478
112	2012	20630911.79	5905662.848	4167186.175	0.201987494
112	2013	4766366.956	22192.08619	4166971.326	0.874244758
112	2014	4616586.76	45673.07912	14889164.42	3.225145586
113	2009	4115835.789	2876236.726	3698344.321	0.898564596
113	2010	773211.7994	227722.4456	671078.8069	0.867910717
113	2011	59567.02082	54852.07638	3458983.221	58.06876312
113	2012	2658829.259	63234.76822	2208555.216	0.830649508
113	2013	3323610.117	48625.32663	2430892.278	0.731401155
113	2014	3218762.174	40552.88657	2124220.723	0.659949573
114	2011	2354520	1260440	24999993.75	10.61787275
114	2012	3873380	2423550	26488018.48	6.838476597
114	2013	6011230	4206700	18344684.19	3.051735533
114	2014	8727400	7650660	16226659.79	1.859277653
115	2010	6908530.414	587289.4104	17875307.21	2.587425421
115	2011	13375581.03	2766440.425	17497319.09	1.308153945
115	2012	17901831.84	2129588.19	19889780.78	1.111047235
115	2013	11819814.07	215606.1693	19080839.74	1.614309635
115	2014	17957406.32	3637812.396	18980241.57	1.056958963
116	2010	4637930.009	63692.39873	79044888.1	17.04313949
116	2011	143887408.3	7439940.414	53391538.8	0.371064706
116	2012	149217809.9	24335231.49	57332302.88	0.384218901
116	2013	191325890.1	48038967.44	30052355.85	0.157074172
116	2014	171440028.5	56521723.12	52601823.82	0.306823466
117	2014	249399507.2	12092236.16	253398587.7	1.016034837
118	2008	750191.8819	6647.917154	3288818.772	4.383970091
118	2009	748543.102	5112.99933	1495529.227	1.99791999
118	2010	751080.2083	7669.300969	1329256.957	1.769793616
118	2011	844047.9538	91510.9532	978515.5024	1.159312688
118	2012	763429.2732	10226.78196	978515.5024	1.281736943
118	2013	756897.7421	6137.00872	664679.6563	0.878163085

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
118	2014	751014.8461	4623.210407	498445.8245	0.663696366
119	2008	6265000	1232000	2475493.82	0.395130698
119	2009	5305000	847000	1540302.822	0.29034926
119	2010	248000	28000	14625810	58.97504032
119	2011	43046000	41662000	9653030.03	0.224249176
119	2012	142064000	139574000	13562765	0.095469401
119	2013	111387000	114556000	13078902.48	0.117418572
119	2014	44740000	44405000	18156592.79	0.405824604
120	2007	1451404.771	162387.938	1486107.833	1.023909982
120	2008	1402484.026	154871.1322	637104.9949	0.454268985
120	2009	1142966.361	91743.11927	558596.8048	0.488725499
120	2010	1010468.104	99419.05932	575142.3742	0.569184096
120	2011	867383.7174	70708.00348	1712665.414	1.97451875
120	2012	452178.4465	75114.27501	497295.978	1.099778156
120	2013	276620.8878	268726.3141	472701.4946	1.708842374
120	2014	189825.1027	529898.3754	1310418.247	6.903292705
121	2011	4782760.857	789596.5805	3488240.736	0.729336222
121	2012	433670.351	1555517.295	2838857.218	6.546117833
121	2013	357848.5749	328185.1119	458184.2101	1.280385734
121	2014	1761883.945	545944.2187	5215105.366	2.95995964
122	2007	4577365.56	1086456.417	7891976.471	1.724130697
122	2008	3952617.659	630403.712	898437.7422	0.22730196
122	2009	2052024.637	662977.718	981860.8046	0.478483926
122	2010	1946761.279	581360.8165	2403244.204	1.234483257
122	2011	1342930.548	578969.5015	960207.1634	0.715008803
122	2012	748234.1942	119717.4711	546343.3006	0.730176868
122	2013	118357.793	167673.5401	608849.3009	5.144142057
122	2014	151442.315	326923.0926	56189931.89	371.0319134
123	2007	6494448.659	136966.6544	6155733.606	0.947845449
123	2008	8319705.626	90906.48646	1957540.032	0.235289579
123	2009	5418657.726	38218.64214	4463770.2	0.823777848
123	2010	6994730.103	336326.3677	9081448.736	1.298327255
123	2011	7934096.904	423466.5291	5995841.089	0.755705553
123	2012	5661848.498	54745.7023	6948721.205	1.227288439
123	2013	6228846.76	98956.66256	4154703.878	0.667010129
123	2014	4447097.075	60334.40705	6858033.583	1.542137144
124	2007	51270000	12325000	81507932.79	1.589778287
124	2008	173556000	121969000	50403978.51	0.290419107
124	2009	260254000	206825000	38244101.4	0.14694914
124	2010	252759000	202461000	46678857.78	0.184677332
124	2011	258035000	212817000	46754321.34	0.181193719
124	2012	302561000	263179000	18693427.93	0.061783997
124	2013	279753000	261546000	7002926.359	0.025032534
124	2014	236430000	236450000	4917959.036	0.02080091

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
125	2014	3630618.474	22547.99123	26000000	7.161314301
126	2008	167387500	1855480	15021015	0.089737973
126	2009	59124270	689860	43264760.55	0.731759742
126	2010	101447410	2865180	72097577.57	0.710689189
126	2011	145222690	2655510	115786057.6	0.797300048
126	2012	176132810	5166390	130848701.4	0.742897938
126	2013	250112420	3817200	203194986.7	0.81241462
126	2014	275792520	2143820	231521349.6	0.839476537
127	2007	298739020.3	6482390.731	559900421.3	1.874212551
127	2008	587690772.4	37808569.41	111767952	0.190181567
127	2009	235355562.7	57021689.87	308985150.2	1.31284405
127	2010	340857363.5	990416.656	419308276.5	1.230157601
127	2011	467492114.9	1291789.444	297324193.7	0.635998307
127	2012	380383857.3	1322652.281	203776581.5	0.535713011
127	2013	251220514	1231796.584	544342288.9	2.166790762
127	2014	462377511.9	2298342.073	301742871.2	0.65258985
128	2007	255461641.7	48793142.73	174785127.2	0.684193236
128	2008	178197117.2	39591728.93	117026060.9	0.656722526
128	2009	226910841.2	24883992.03	169151200.3	0.745452264
128	2010	170223814.4	28246837.74	133082234.5	0.781807381
128	2011	112145425.9	14053122.16	90905438.53	0.810603177
128	2012	82572846.85	10577977.31	65593056.08	0.794365928
128	2013	70200858.25	9556813.674	56661734.05	0.807137341
128	2014	94797257.02	11348005.84	77949178.68	0.822272512
129	2007	42317116.14	1031770.487	593830.6676	0.014032872
129	2008	30639253.27	305969.9914	18728024.34	0.611242845
129	2009	11906344.22	371404.0818	7562756.655	0.635187133
129	2010	898375.702	126829.3248	2471521.754	2.751100401
129	2011	2171696.067	145179.6818	4784806.798	2.20325803
129	2012	2075326.77	117069.7152	4385869.075	2.113339036
129	2013	1498729.926	136688.0401	2350020.354	1.568007893
129	2014	1516345.395	123021.641	1918408.78	1.265152904
130	2007	6224286.662	188748.8019	11132476.63	1.788554614
130	2008	6228780.441	171907.4639	7196222.936	1.155318124
130	2009	5119289.405	247461.9321	7398367.305	1.44519419
130	2010	5326921.779	130860.5547	4119229.172	0.773285087
130	2011	3190431.119	153032.8389	5059581.64	1.585861425
130	2012	3466415.135	850264.1608	685409.6812	0.197728678
130	2013	2247282.682	797439.4877	1384917.664	0.616263221
130	2014	1531343.554	910168.7349	3040481.455	1.985499235
131	2014	4351005.759	79430.12541	5349861.326	1.229568891
132	2007	12243996.24	1147782.559	15351365.41	1.253787171
132	2008	10573847.87	199435.5647	10605084.62	1.002954152

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
132	2009	6902731.371	133865.9196	3794004.907	0.549638209
132	2010	10575483.79	1608441.285	8279028.452	0.782851037
132	2011	19069310.05	7622433.16	11746353.74	0.615982105
132	2012	30844083.31	16062152.07	14723235.09	0.477343902
132	2013	43859754.93	31452730.16	16128966.79	0.367739556
132	2014	26952946.1	18711745.95	5954951.79	0.220938808
133	2007	17302462.58	4718853.432	104906645.2	6.063104874
133	2008	18465061.03	6039295.786	108040459.5	5.851075137
133	2009	12637357.17	2678165.826	66475208.47	5.260214424
133	2010	18250335.36	5689385.149	85934488.08	4.708652547
133	2011	22724975.93	6398683.455	133761635.2	5.886106793
133	2012	24386083.88	5355038.411	117102846.4	4.802035742
133	2013	21667930.05	4553769.667	81139914.26	3.744700766
133	2014	20057938.06	2689796.596	98440177.97	4.907791503
134	2007	883409000	324660000	568365444.3	0.643377466
134	2008	1095944000	439940000	237063016	0.216309425
134	2009	811324000	469994000	264082362.9	0.325495564
134	2010	795934000	422562000	317230130	0.398563361
134	2011	764000000	347998000	258261500	0.338038613
134	2012	551981000	182783000	300890780.4	0.545110756
134	2013	495731000	145627000	337170961.9	0.680149036
134	2014	487354000	169245000	333287516.3	0.683871511
135	2007	4691861.733	3772070.22	31388143.34	6.689912262
135	2008	18062970.58	6176866.476	29085491.09	1.610227452
135	2009	38920602.53	31593825.65	10897925.19	0.280004021
135	2010	22624717.84	8693819.488	13836890.14	0.611582882
135	2011	19212110.3	8045241.512	6373813.466	0.331760195
135	2012	18514738	7637289.06	7831268.235	0.422974834
135	2013	12591426.19	5342751.33	5656257.86	0.449215027
135	2014	8222537.468	5878545.281	8384748.699	1.019727637
136	2007	1668718.972	20879.06317	5251337.472	3.14692741
136	2008	5880331.005	38509.80813	3666752.457	0.623562254
136	2009	4718412.968	47470.35002	3242371.238	0.687174111
136	2010	5585183.562	126975.6187	3550628.211	0.635722742
136	2011	5959287.232	99706.99144	10282985.88	1.725539562
136	2012	8313450.185	68756.39276	4103445.836	0.493591198
136	2013	9398218.202	97269.41831	2808376.927	0.298820145
136	2014	7445817.088	10204.35806	3322964.835	0.446286122
137	2007	6404998.257	16188166.35	1167979.431	0.182354371
137	2008	7677243.348	3380174.395	3817044.408	0.497189451
137	2009	6841355.895	2329820.617	2331528.698	0.340799212
137	2010	6596412.603	2396542.651	2719547.458	0.412276736
137	2011	5235560.195	2202759.199	2030605.745	0.387848801
137	2012	2828157.163	1443953.481	2648761.342	0.936567945

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
137	2013	1517225.244	627010.5867	842494.8092	0.555286575
137	2014	2373693.944	901044.8789	2930954.902	1.234765295
138	2007	2853663900	2390946310	820993429.8	0.287698012
138	2008	2682106633	2390609167	325480271	0.121352472
138	2009	2132720678	1992231588	451315152.1	0.21161475
138	2010	2349050615	1950597334	527650709	0.224622963
138	2011	2605979711	2156284495	417153782	0.160075606
138	2012	2623697918	2133174478	560826285.8	0.213754138
138	2013	2047254579	1490489382	867569082.1	0.423771958
138	2014	2302233178	1612294744	991030055.8	0.430464675
139	2010	4421893.603	46421.24632	2869793.045	0.648996403
139	2011	4680231.086	19057.22837	4156781.703	0.888157364
139	2012	4830001.184	15813.84859	4367387.335	0.904220759
139	2013	5153278.788	28795.96995	4115176.45	0.798554982
139	2014	4802223.369	288535.4598	14456847.58	3.0104488
140	2007	749345830.2	333571543.6	602669103.5	0.804260302
140	2008	715692711.6	378907504	451494095.6	0.63084909
140	2009	647813890.2	392055493.8	332370834.1	0.51306531
140	2010	604787868.6	332961168.1	406849238.3	0.672713954
140	2011	616004751.1	327656165.5	361717535	0.587199262
140	2012	653676916.6	349379103.7	268606960.6	0.410917005
140	2013	654729529	354725967.2	330740167.9	0.505155416
140	2014	937384805.5	525500194.2	534097704.4	0.569774229
141	2013	371900000	934000	407714653.5	1.096301838
141	2014	808041000	54907000	784271308	0.970583557
142	2007	634213.474	36690.03569	1457628.238	2.298324299
142	2008	460131.3109	24689.97278	646494.0744	1.405020826
142	2009	362552.2936	23927.71514	753392.6544	2.078024792
142	2010	273763.5551	25741.87592	654962.8765	2.392439988
142	2011	167482.6925	27143.54082	1233499.796	7.364938894
142	2012	67878.08497	66693.75985	1383855.158	20.387363
142	2013	58144.75732	74646.60831	2014968.828	34.65435098
142	2014	24951.77804	214921.4719	1685902.186	67.56641484
143	2007	3821381780	570196480	4345753785	1.137220523
143	2008	2589843970	597340000	572386630.5	0.221012014
143	2009	2589834130	627789840	1145548165	0.442324916
143	2010	2589828070	597616780	995209650.1	0.384276339
143	2011	2589824940	628042720	536363934.3	0.20710432
143	2012	2589823370	577240800	1174519650	0.453513419
143	2013	2441805250	402829740	1727717466	0.707557438
143	2014	2443180250	376987480	2834507187	1.160171128
144	2007	20859204.04	13511445.93	10013225.07	0.480038694
144	2008	19214077.72	6194537.474	17834811.84	0.928215869

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
144	2009	16888067.38	8432263.049	13426695.07	0.795040354
144	2010	23559245.72	13029481.68	7405758.441	0.314346161
144	2011	567297.0107	397973.0663	503454.577	0.887462066
144	2012	359393.2322	243873.979	440604.6645	1.225968174
144	2013	703134.801	106157.1192	2537062.926	3.608216977
144	2014	1250617.616	540616.8701	3559958.516	2.846560348
145	2007	28493175.68	8019340.615	18440018.11	0.647173145
145	2008	27079514.36	8204241.067	10506399.33	0.387983299
145	2009	37720273.02	12175467.23	22897888.52	0.607044613
145	2010	66704975.56	13775965.52	32196214.69	0.482665864
145	2011	213585613.4	72025869.36	46690177.19	0.218601695
145	2012	187459933.1	70538379.27	42559507.69	0.227032556
145	2013	119640766	74094263.56	68344420.77	0.571246934
145	2014	145835329.1	89500264.45	81010051.15	0.555489892
146	2007	99541441.19	33665051.96	187080392.9	1.879422185
146	2008	140065339.9	44646120.97	64816376.71	0.462758144
146	2009	144633055.7	34693139.59	30384806.53	0.210082034
146	2010	2659539.486	84879.02579	3602659.148	1.354617657
146	2011	2767272.346	67976.76599	8247643.345	2.980423433
146	2012	2123687.281	70011.66861	5072634.154	2.388597511
146	2013	1947046.456	43711.75495	2520748.436	1.294652435
146	2014	1966264.491	131272.5037	2191529.198	1.114564804
147	2007	4811539.788	4204452.912	944771.621	0.196355359
147	2008	79887.72622	152218.5054	901519.0916	11.28482602
147	2009	43719.52392	136763.6389	1013078.481	23.17222124
147	2010	273353.6685	73421.43989	2765644.865	10.11746021
147	2011	825484.4718	79188.91735	3023897.012	3.663178552
147	2012	767457.0221	112339.6257	1457472.414	1.899093203
147	2013	2095076.862	277004.9662	2484801.433	1.186019223
147	2014	2745179.539	110581.2503	3232362.665	1.177468584
148	2007	19286300.76	4052295.838	12316041.93	0.638590162
148	2008	11251615.08	3436656.301	6410934.083	0.569779008
148	2009	11700763.79	2838473.386	7050222.696	0.602543802
148	2010	12456675.29	2281158.423	7257035.074	0.582582022
148	2011	14979607.34	2799406.817	7521147.352	0.502092423
148	2012	17964994.17	1327887.981	10742356.97	0.597960504
148	2013	19078307.67	1656051.059	12277194.96	0.643515933
148	2014	25208555.31	3157597.75	15858128.31	0.629077236
149	2007	3279134.873	4413724.135	1111702.303	0.339023049
149	2008	2968274.149	3903553.349	798750.5279	0.269095942
149	2009	2529678.949	3396247.171	527454.0246	0.208506311
149	2010	2556761.124	3587291.51	495205.5798	0.193684727
149	2011	571543.1787	84245.1844	1188174.423	2.078888293
149	2012	372272.2459	92208.11812	7491.10782	0.02012266

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
149	2013	301093.7645	236165.8767	2770199.973	9.200456136
149	2014	1455499.039	127066.5583	3975532.287	2.731387779
150	2007	1421135.188	324866.7375	3684538.202	2.592672557
150	2008	1336500.068	322789.5965	1551872.323	1.16114646
150	2009	1252127.165	382523.414	840759.9156	0.671465279
150	2010	530690.1675	68372.30395	705975.2282	1.330296417
150	2011	244441.7899	24620.5543	449936.8774	1.840670851
150	2012	160101.7045	87837.76209	369538.0947	2.308145912
150	2013	212156.773	155425.1882	124742.9232	0.58797521
150	2014	607118.7095	75319.65411	117492.5573	0.19352485
151	2007	590774230	214241990	246765750	0.417698907
151	2008	634370320	258546800	251701043.8	0.396773045
151	2009	601639380	251653230	222089342.8	0.369140303
151	2010	997489740	703695810	120069209.3	0.120371373
151	2011	736728610	394719410	130014471.4	0.176475394
151	2012	790479950	463434040	153397810.9	0.194056549
151	2013	666867230	386262390	132563802.5	0.1987859
151	2014	564060130	280254790	141090796.1	0.250134318
152	2010	3900815.818	39426.52427	2549128.719	0.65348605
152	2011				
152	2012	4238448.075	37806.30105	2864877.726	0.675926111
152	2013	6722131.055	500786.8428	5075282.533	0.755010947
152	2014	3836784.746	44604.42061	2864861.128	0.746682787
153	2007	223066978.8	10761326.91	180671317.8	0.809942013
153	2008	129176211.4	743592.5387	110125804.8	0.852523879
153	2009	160416452.2	719242.7982	133417312.2	0.831693448
153	2010	166735961.2	942856.6778	139410634.6	0.836116178
153	2011	180535876.6	1051968.256	156684718.4	0.867886879
153	2012	158462179	1053968.09	138287391.9	0.872683897
153	2013	160737766.1	554358.827	145546091.4	0.905487832
153	2014	191585045.3	667743.8524	156860227.3	0.818749851
154	2008	1850000000	4000000	1361791876	0.736103717
154	2009	2594000000	55000000	2341498296	0.902659328
154	2010	2958000000	174000000	2440448642	0.825033348
154	2011	4210000000	561000000	2723583792	0.646932017
154	2012	4579000000	556000000	2960672741	0.64657627
154	2013	4123000000	8000000	3073338977	0.745413286
154	2014	5078000000	1000000	3624913680	0.713846727
155	2007	77500157.9	3687235.521	78883968.3	1.017855582
155	2008	95923452.85	13522367.82	49369054.81	0.514671369
155	2009	108769469.6	16362748.69	42606354.02	0.391712437
155	2010	99278007.82	23884614.58	44492376	0.448159436
155	2011	83222100.69	15871956.89	40419854.6	0.485686546

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
155	2012	55358226.37	5208868.145	37074661.34	0.669722709
155	2013	30217311.74	1070313.543	22563992.05	0.746724005
155	2014	19847555.64	951372.7688	16596462.85	0.836196817
156	2007	148089000	125051000	28949991	0.195490489
156	2008	166846000	178637000	26999989.5	0.161825812
156	2009	381231590	373792620	35249992.5	0.092463462
156	2010	382078820	379628950	17549988	0.045932899
156	2011	411920850	426073480	15870000	0.038526819
156	2012	416671200	440480630	15179999.31	0.036431602
156	2013	440679000	449080000	25299988.5	0.057411378
156	2014	430210000	429635000	20953000.46	0.048704122
157	2007	5053299.557	2054568.554	5428122.711	1.074173943
157	2008	3557087.485	932217.3291	4489057.998	1.262003821
157	2009	3265747.1	435897.7319	3284568.291	1.005763211
157	2010	6142246.806	1006687.965	5222479.708	0.850255594
157	2011	4468595.737	58039.41622	3028267.484	0.677677656
157	2012	3054695.72	55820.07751	2497720.768	0.81766598
157	2013	2816722.424	56917.35405	2798559.918	0.993551901
157	2014	1786470.397	169846.6595	1385159.337	0.775360924
158	2007	15953000	13286000	6629999.35	0.415595772
158	2008	15688000	12522000	6083999.22	0.387812291
158	2009				
158	2010				
158	2011				
158	2012	9909090	8458860	2183999.22	0.220403611
158	2013	8399660	6661700	1169999.974	0.139291349
158	2014	16554520	14525530	1430000.52	0.086381274
159	2007	3423412.141	1762574.007	2911140.736	0.850362333
159	2008	232230.1392	1073745.396	1371735.908	5.906795357
159	2009	120490.2076	125818.4892	159296.5546	1.322070546
159	2010	4782760.857	789596.5805	3488240.736	0.729336222
159	2011	433670.351	1555517.295	2838857.218	6.546117832
159	2012	357848.5749	328185.1119	458184.2101	1.280385734
159	2013	1761883.945	545944.2187	5215105.366	2.959959639
159	2014	2476439.862	180964.6564	13086540.89	5.284416993
160	2007	8791634.215	133228.2845	6315928.898	0.718402147
160	2008	10082487.44	918781.7375	2824897.517	0.28017863
160	2009	8128453.683	1723289.077	2824897.517	0.347531969
160	2010	8906331.159	3390084.839	12557189.84	1.409917239
160	2011	11057184.45	1753265.623	29604926.31	2.677438044
160	2012	14847496.85	51462.28514	36342406.11	2.447712667
160	2013	15530566.79	264385.7079	14035298.31	0.903720933
160	2014	16978953.64	284907.6122	4921691.539	0.289870132
161	2007	884307459.1	82632476.47	535780443.9	0.605875749

ID	Year	Total assets	Total Liabilities	Market Capitalization	Q ratio
161	2008	554116505.5	103454274	303284359.9	0.54732959
161	2009	504302919.2	71378323.23	332499836.6	0.659325623
161	2010	417729938.4	82798299.25	242041049.3	0.579419924
161	2011	314341869.1	119909779.3	60975774.68	0.193979169
161	2012	239921820.3	152247374.6	97646428.61	0.406992697
161	2013	144013996.8	107071319.3	23788232.7	0.165180005
161	2014	41551276.25	4031336.243	17630051.1	0.42429626
162	2007	171907.4639	624597.1187	529147.1621	3.078093005
162	2008	119289.3416	626903.5613	431012.2076	3.61316612

Annex 5. Descriptive statistics of variables

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
1	2007	0.459149	0	-0.03385	6500000.00
1	2008	0.233599	-0.20846	-0.02874	-4600000.00
1	2009	0.327226	-0.03957	-0.01273	27000000.00
1	2010	0.373484	-0.08432	0.007654	-19052.80
1	2011	0.296281	-0.33276	0.001754	6181.33
1	2012	0.308582	-0.08049	0.014334	1500000.00
1	2013	0.262006	-1.06796	0.013911	-1100000.00
1	2014	0.297669	-0.1236	0.009217	-1500000.00
2	2007	0.956299	0	0.332346	5700000.00
2	2008	0.571682	-0.32514	0.226095	-2800000.00
2	2009	0.685776	0.000445	0.173415	3000000.00
2	2010	0.647041	0.025554	0.15083	224781.00
2	2011	0.583585	-0.18101	0.11109	-20000000.00
2	2012	0.800154	-0.02928	0.093304	91402.60
2	2013	0.868472	0.003992	0.072804	1000000.00
2	2014	0.92313	0.003055	0.056673	377166.00
3	2007	0.044968	0	-0.01401	-1700000.00
3	2008	0.023524	347.8843	0.071419	20000000.00
3	2009	0.066154	-0.05647	0.023777	1500000.00
3	2010	0.042392	-1.34938	0.015966	23000000.00
3	2011	0.032561	2.808631	0.019204	0.00
3	2012	0.055615	-1.13843	0.016184	367680.00
3	2013	0.075483	0.176207	0.0142	-504650.00
3	2014	0.065813	-1.07233	0.012268	-6000000.00
4	2007	0.214402	0	0.021197	837085.00
4	2008	0.833007	-0.10439	0.026385	1300000.00
4	2009	0.630925	-0.03123	0.021773	3100000000.00
4	2010	0.619898	-0.00301	0.019576	0.00
4	2011	0.601196	0.014177	0.021742	3200000.00
4	2012	0.478742	-0.15987	0.014683	1600000.00
4	2013	0.579719	-0.11036	0.009865	0.00
4	2014	0.560819	-0.09431	0.041145	-306573.00
5	2007	1.214974	0	-0.01288	0.00
5	2008	0.289525	0.428226	-0.0065	0.00
5	2009	0.418084	0.148786	-0.0013	-2600000.00
5	2010	0.271081	0.300196	-0.00017	-786119.00
5	2011	0.257065	0.30775	0.001404	9700000.00
5	2012	0.180981	-0.14146	0.001182	-25523.70
5	2013	0.134333	-0.00803	0.000921	38000000.00
5	2014	0.197459	0.054396	0.005753	49249.20
6	2008	2.886568	0	0.032485	31387.30

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
6	2009	2.045019	-0.03204	0.04091	613737.00
6	2010	2.399241	-0.12218	0.062901	1900000.00
6	2011	2.167801	0.014108	0.060997	110000000.00
6	2012	0.76987	-0.11694	0.041601	-64433.50
6	2013	0.977189	0.001387	0.042755	13000000.00
6	2014	1.073139	-0.02912	0.054546	158523.00
7	2007	0.46033	0	0.062045	-24000000.00
7	2008	0.183612	0.951989	0.180426	-6400000.00
7	2009	0.391816	-0.00077	0.159447	-4500000.00
7	2010	0.304011	-0.156	0.127275	-1200000.00
7	2011	0.186165	0.772548	0.131644	611397.00
7	2012	0.108103	-0.3022	0.113372	-1500000.00
7	2013	0.241003	0.17887	0.111845	183884.00
7	2014	0.166159	2.174869	0.148033	190000000.00
8	2007	0.803012	0	0.074792	8300000.00
8	2008	0.581717	0.270597	0.164164	29000000.00
8	2009	0.738004	0.012949	0.12356	-630000000.00
8	2010	0.685178	-0.05065	0.086845	77000000.00
8	2011	0.627452	0.046299	0.073513	-1800000.00
8	2012	0.518504	-0.06496	0.081031	352062.00
8	2013	0.675226	0.073363	0.07755	93000000.00
8	2014	0.632595	-0.09074	0.062165	814000.00
9	2007	1.274406	0	-0.02678	-7500000.00
9	2008	1.011423	-0.00211	0.040875	225838.00
9	2009	18.64162	-2.57371	0.507131	-2700000.00
9	2010	18.69261	-0.72852	0.730702	6181.33
9	2011	13.11922	-0.04622	0.671052	460000000.00
9	2012	49.12482	-2.87868	2.628361	-122149.00
9	2013	1.757946	0.426116	0.047334	13000000.00
9	2014	1.605226	-0.00269	0.051355	-278583.00
10	2007	0.593996	0	0.153737	-375268.00
10	2008	0.128615	5.478498	0.32223	87199.20
10	2009	0.183761	1.904548	0.370245	-1400000.00
10	2010	0.371911	0.420276	0.388758	5900000.00
10	2011	0.162763	0.906019	0.397791	136587.00
10	2012	0.239902	2.92031	0.67764	657623.00
10	2013	0.263878	0.673316	0.765144	4800000.00
10	2014	0.187568	-0.29611	0.657209	-179113.00
11	2008	0.121171	0	-0.0742	-421520.00
11	2009	0.339837	-0.12642	-0.06785	24000000.00
11	2010	0.302183	-0.07773	-0.02588	84009.90
11	2011	0.341447	-0.00792	-0.01081	-125078.00
11	2012	0.482706	0.634836	-0.00839	546346.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
11	2013	0.544926	0.020684	0.003189	2700000.00
11	2014	0.418651	-0.04998	0.015388	-7500000.00
12	2007	8.031537	0	0.386478	8300000.00
12	2008	1.277425	-0.16041	0.704322	4800000.00
12	2009	1.760564	0.19469	0.378107	6500000.00
12	2010	0.756369	-0.05687	0.291902	0.00
12	2011	0.772572	-0.04438	0.242881	-1900000.00
12	2012	0.613987	0.075561	0.266658	0.00
12	2013	1.230664	0.034693	0.20876	-401535.00
12	2014	0.580649	-0.02329	0.195703	562623.00
13	2007	0.786159	0	-0.01864	280000000.00
13	2008	0.478937	0.703542	0.283661	-49000000.00
13	2009	0.731951	-0.1008	0.169821	-30094.70
13	2010	0.788773	-0.03978	0.10297	-417309.00
13	2011	1.005613	-0.002	0.15851	-38000000.00
13	2012	1.128282	0.074298	0.057637	2787.69
13	2013	1.258736	-0.03674	0.067565	71633.00
13	2014	1.459484	0.0494	0.058224	2700000.00
14	2007	0.590029	0	-0.04129	-2400000.00
14	2008	0.489071	2.06609	1.050829	0.00
14	2009	0.6664	-0.12618	0.569867	2000000.00
14	2010	1.180808	0.032905	0.352038	-1562.03
14	2011	1.565795	-0.37833	0.930951	-54095.80
14	2012	1.15914	0.003411	0.781488	1000000.00
14	2013	0.798639	-0.14436	0.309263	588.95
14	2014	0.56883	-0.23476	0.202726	0.00
15	2007	0.964854	0	0.112069	636228.00
15	2008	0.818902	0.050191	0.20647	-65635.50
15	2009	0.77369	-0.03396	0.13017	-2900000.00
15	2010	2.861389	-0.10813	0.107497	-39000000.00
15	2011	1.626848	0.366967	0.005992	915847.00
15	2012	0.955998	-0.00121	0.005611	-5900000.00
15	2013	1.098442	-0.0208	0.006109	575221.00
15	2014	1.009389	0.001088	0.133885	17000000.00
16	2007	2.038978	0	0.656557	-304467.00
16	2008	1.431563	0.647533	0.248846	771079.00
16	2009	2.038978	0.444815	0.048175	-793528.00
16	2010	1.431563	0.098524	0.029361	-40866.20
16	2011	1.36714	0.052542	0.049576	-2500000.00
16	2012	1.425926	-0.015	0.057475	4100000000.00
16	2013	1.231728	0.025564	0.09664	0.00
16	2014	1.216879	0.00218	0.086804	0.00
17	2007	4.702336	0		6400000.00
17	2008	3.182374	-0.07318		-2400000.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
17	2009	0.968538	-0.0252	0.093468	-110000000.00
17	2010	0.854672	-0.03568	0.068428	-5733.91
17	2011	0.294689	-0.22128	0.061502	80000000.00
17	2012	1.329279	-0.66505	0.399993	-288649.00
17	2013	271.6132	-85.0401	33.58725	4200000.00
17	2014	10.49017	0.829592	2.589956	952315.00
18	2007	0.778246	0	0.052307	-92000000.00
18	2008	0.254612	1.365854	0.083143	-7741.14
18	2009	0.517829	0.391403	0.130246	-85000000.00
18	2010	0.294123	0.730214	0.174786	-1200000.00
18	2011	0.338006	0.466568	0.194671	-3500000.00
18	2012	0.712348	0.90461	0.578111	425168.00
18	2013	0.564961	0.303876	0.751945	190000000.00
18	2014	3.984082	-8.83075	9.084743	-2400000.00
19	2007	0.220462	0	-0.01211	425168.00
19	2008	0.326417	0.83597	0.038788	14000000.00
19	2009	0.220462	1.100904	0.06387	-67870.30
19	2010	0.326417	0.090205	0.054684	5637.09
19	2011	0.413035	0.013635	0.048423	12079.50
19	2012	0.382866	0.278351	0.049587	-78000000.00
19	2013	0.412422	0.075751	0.045955	-16000000.00
19	2014	0.452878	0.098719	0.044676	-919419.00
20	2007	0.221661	0	0.082598	-1100000.00
20	2008	0.221661	-0.14932	0.09159	-31000000.00
20	2009	0.501081	-0.01512	0.211065	0.00
20	2010	0.642252	-0.00926	0.17736	-7100000.00
20	2011	0.499739	-0.0062	0.154872	110404.00
20	2012	0.651725	-0.03432	0.165981	95772.70
20	2013	0.326522	-0.95757	0.082967	0.00
20	2014	0.461234	0.285839	0.0996	0.00
21	2007	0.996996	0	-0.07373	0.00
21	2008	0.996996	0.002498	-0.03732	9600000.00
21	2009	1.196296	0.0028	-0.05488	814368.00
21	2010	1.884784	0.173299	0.011258	-4600000.00
21	2011	1.95674	-0.2321	-0.01012	-31000000.00
21	2012	2.030064	0.121365	0.01413	-19422.80
21	2013	1.768298	0.063597	-0.00154	-513474.00
21	2014	1.804735	0.099779	-0.00879	-496074.00
22	2007	0.709204	0	-0.04256	-1200000.00
22	2008	0.189632	-0.23192	0.084719	0.00
22	2009	0.278394	0.120959	0.091981	-4956.85
22	2010	0.196226	-0.55033	0.075701	1000000.00
22	2011	0.212402	0.748166	0.08598	-459497.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
22	2012	0.182932	0.336089	0.083168	1800000.00
22	2013	0.344204	0.394997	0.093043	4400000.00
22	2014	0.410896	-0.0123	0.086416	26000000.00
23	2007	0.103857	0	0.172746	2100000.00
23	2008	0.080108	0.762645	0.198555	-56032.30
23	2009	0.069219	-1.73291	0.202098	72000000.00
23	2010	0.054758	-0.22474	0.162101	-10000000.00
23	2011	0.043581	1.059933	0.149665	-973353.00
23	2012	0.035956	-0.76581	0.133331	-49000000.00
23	2013	0.057421	-0.79363	0.111874	-5000000.00
23	2014	0.043824	-3.24195	0.084362	-102843.00
24	2007	0.4107	0	-0.08837	0.00
24	2008	0.130928	1.568562	-0.09554	-4000000.00
24	2009	0.182603	-0.23108	-0.08658	18000000.00
24	2010	0.128252	-0.40243	-0.0127	0.00
24	2011	0.15709	0.259893	-0.02102	-391839.00
24	2012	0.174159	1.109472	-0.02016	-1500000.00
24	2013	0.193067	0.105689	-0.01594	21000000.00
24	2014	0.183982	-1.27103	-0.01275	30864.30
25	2007	0.70435	0	0.084316	15838.10
25	2008	0.376555	-0.08324	0.138317	-740000000.00
25	2009	0.464863	-0.04601	0.151741	-110000000.00
25	2010	0.742912	0.389452	0.301152	556700.00
25	2011	0.384776	0.165879	0.490082	0.00
25	2012	0.865394	0.125689	0.827915	-2600000.00
25	2013	0.124304	-5.98883	0.116961	749634.00
25	2014	0.419131	0.063091	0.118538	-13000000.00
26	2007	0.654431	0	0.045929	6600000.00
26	2008	0.654431	-0.27338	0.124268	262414.00
26	2009	0.730321	0.042335	0.116483	-6400000.00
26	2010	0.772083	0.01692	0.113109	13000000.00
26	2011	1.756834	-1.20446	1.040972	-1200000.00
26	2012	1.383724	0.200228	0.265054	-4100000.00
26	2013	1.591198	-0.03163	0.265819	-6500000.00
26	2014	1.733002	-0.03765	0.267453	-5100000.00
27	2007	0.369102	0	0.05515	231276.00
27	2008	0.364363	3.761103	0.282386	1100000.00
27	2009	2.042437	0.10501	0.292235	-197473.00
27	2010	0.47667	-1.01358	0.040606	114917.00
27	2011	0.19042	-0.62181	0.043093	-2800000.00
27	2012	0.109189	-5.5779	0.013684	##########
27	2013	0.101915	8.572173	0.039245	8500000.00
27	2014	0.052868	1.199934	0.039499	-511557.00
28	2007	1.1469	0	0.152004	34000000.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
28	2008	638.9712	-2421.18	433.3313	4700000.00
28	2009	638.9712	0	345.0921	0.00
28	2010	30.5773	0.924991	13.66118	14863.60
28	2011	1.963576	0.455503	0.891781	-162336.00
28	2012	0.411751	-1.1505	0.172945	-258609.00
28	2013	0.733024	-0.11603	0.117701	-46000000.00
28	2014	0.552696	-0.22918	0.079156	203507.00
29	2007	0.569205	0	-0.04426	-649094.00
29	2008	0.29398	1.054586	-0.06275	7100000.00
29	2009	0.336523	0.000735	0.029081	93882.50
29	2010	0.264057	0.29965	0.028934	1200000.00
29	2011	0.23474	0.354612	0.018026	6400000.00
29	2012	0.332201	0.060827	0.033164	1700000.00
29	2013	0.451666	-0.02824	0.033671	528042.00
29	2014	0.52217	0.085347		5100000.00
30	2007	0.884221	0	-0.10352	312823.00
30	2008	0.497638	0.092248	0.142045	34000000.00
30	2009	0.55609	-0.1064	0.076463	-451308.00
30	2010	0.61075	-0.11547	0.076511	-6700000.00
30	2011	0.467989	-0.19078	0.052565	3700000.00
30	2012	0.38034	-0.5221	0.027006	7100000.00
30	2013	0.413522	-0.19564	0.018698	94133.20
30	2014	0.391312	0.083647	0.023265	0.00
31	2007	0.788193	0		-180859.00
31	2008	0.774756	0.130598		7800000.00
31	2009	0.709655	-0.02026		-2600000.00
31	2010	0.848007	-0.0036		392665.00
31	2011	0.682255	-0.04687		-565639.00
31	2012	0.953287	0.0063		-876529.00
31	2013	0.852304	-0.00803		-5300000.00
31	2014	0.825842	-0.03656		-1500000.00
32	2007	0.799468	0		-4300000.00
32	2008	0.929591	0.05676		-262288.00
32	2009	0.732106	-0.10656		-40000000.00
32	2010	0.797139	-0.03479		-1500000.00
32	2011	1.255645	-0.13706		-26346.80
32	2012	1.016156	0.001166		1700000000.00
32	2013	0.90036	-0.01253		-5100000.00
32	2014	0.887377	-0.00704		15728.30
33	2007	0.997372	0	0.23132	-9500000.00
33	2008	0.204315	2.32531	0.525561	242216.00
33	2009	0.505385	-0.0889	0.491838	-548254.00
33	2010	0.503878	-0.22458	0.332375	-4500000.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
33	2011	0.252993	0.899068	0.402055	0.00
33	2012	0.087239	9.812223	0.709976	-4900000.00
33	2013	0.198208	3.449094	1.210484	-1800000.00
33	2014	0.121805	34.04185	6.416848	-20000000.00
34	2007	0.5672	0	-0.00131	-6000000.00
34	2008	0.238501	-0.02751	0.004203	21000000.00
34	2009	0.205129	0.325863	0.003634	0.00
34	2010	0.354815	-0.12779	0.0059	-320769.00
34	2011	0.263575	-0.11908	0.017278	843827.00
34	2012	0.29354	0.152949	0.016313	-31000000.00
34	2013	0.593282	0.064974	0.012756	9454.67
34	2014	0.561043	-0.00288	0.014813	-5379.14
35	2007	0.188683	0		-64000000.00
35	2008	0.217342	-0.35129		-18000000.00
35	2009	0.210539	-0.22392		2900000.00
35	2010	0.132942	-0.35085	0.085359	-5700000.00
35	2011	0.026404	-29.5421	0.021255	79000000.00
35	2012	0.029143	3.455572	0.016681	0.00
35	2013	0.029277	0.153004	0.013321	613717.00
35	2014	0.028655	-0.72114	0.048014	2900000.00
36	2007	0.500166	0	-0.19498	-311996.00
36	2008	0.290955	1.305353	0.049252	-1000000.00
36	2009	0.543503	-0.33045	-0.0102	-9700000.00
36	2010	0.523478	-0.12911	0.033554	337846.00
36	2011	0.556075	0.29439	0.084731	-280000000.00
36	2012	0.568505	-0.18046	0.056772	-3700000.00
36	2013	0.504929	0.386304	0.067536	124498.00
36	2014	0.504909	-0.20381	0.046287	65000000.00
37	2007	0.368905	0	-0.00897	40000000.00
37	2008	0.144294	-0.87011	-0.00687	392479.00
37	2009	0.101189	-0.73543	-0.0069	11000000.00
37	2010	0.0903	-1.67947	-0.00601	-509196.00
37	2011	0.049562	-0.6912	-0.00503	-126062.00
37	2012	0.055226	-1.96089	0.001528	757056.00
37	2013	0.086747	1.112713	0.000803	82370.50
37	2014	0.068962	-2.16031	0.000183	1100000.00
38	2007	0.940038	0	-0.00623	2100000.00
38	2008	1.04427	-0.02212	-0.00506	
38	2009	0.492444	-0.22802	0.020709	-17429.80
38	2010	0.579124	-0.1516	0.018044	-719341.00
38	2011	0.729272	0.147509	0.024097	-480000000.00
38	2012	0.734974	0.039532	0.025049	-8300000.00
38	2013	0.687618	0.007178	0.024232	-6300000.00
38	2014	0.731439	0.116759	0.031033	-5000000.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
39	2007	0.234049	0	0.72782	-750000000.00
39	2008	0.224542	-0.75897	0.61236	-18000000.00
39	2009	0.234049	-0.27963	0.501481	-1900000.00
39	2010	0.224542	0.106976	0.448439	-116910.00
39	2011	0.493478	0.031521	0.40499	-182888.00
39	2012	0.430331	-0.00039	0.360659	-324336.00
39	2013	0.664869	0.117466	0.405576	57000000.00
39	2014	1.110495	-0.06321	0.595928	417816.00
40	2007	0.141704	0	-0.01656	-2800000.00
40	2008	0.002124	94.73937	-0.00582	-9700000.00
40	2009	0.00402	38.85917	-0.00458	467107.00
40	2010	0.003501	30.24644	-0.00071	3674.97
40	2011	0.001809	386.5215	0.000742	-11742.20
40	2012	0.001434	57.52124	0.00301	19000000.00
40	2013	0.104633	1.235101	0.002429	-73000000.00
40	2014	0.154888	2.786318	0.003465	3900000.00
41	2007	0.791009	0	0.054051	-21000000.00
41	2008	0.78793	5.848389	1.420244	-925051.00
41	2009	7.360168	-0.86837	2.775856	0.00
41	2010	7.366064	0.453886	1.367004	5600000.00
41	2011	2.147256	0.252683	0.758911	27063.30
41	2012	0.876707	-0.12588	0.07853	-249015.00
41	2013	0.922687	-0.04358	0.036988	-141795.00
41	2014	0.77545	-0.19307	0.015098	-1000000.00
42	2007	0.121408	0	-0.04999	-2292.12
42	2008	0.121408	5.405298	0.039798	-1700000.00
42	2009	0.136904	0.408214	0.04481	-515707.00
42	2010	0.430745	-0.4972	0.019975	5000000.00
42	2011	0.160895	0.644219	0.029871	5000000.00
42	2012	0.086122	1.801764	0.036304	-402038.00
42	2013	0.046133	6.352995	0.042707	-6000000.00
42	2014	7.619325	-617.599	28.34445	-12000000.00
43	2007	0.3032	0	-0.24763	5000000.00
43	2008	0.3032	-0.87365	0.074188	1700000.00
43	2009	0.205474	0.115154	0.031116	-976859.00
43	2010	0.123293	0.564553		72000000.00
43	2011	0.11658	0.800787	0.005376	-332698.00
43	2012	0.146392	0.557217	-0.00164	79000000.00
43	2013	0.165116	1.110108	-0.00308	-511455.00
43	2014	0.192748	0.537741	-0.00245	-120000000.00
44	2007	0.954613	-0.00374		11000000.00
44	2008	0.864167	0.157099		95275.70
44	2009	1.011479	-0.07951		-120000000.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
44	2010	4.992793	-2.76332		223290.00
44	2011	2.410966	0.004888		33000000.00
44	2012	2.677322	0.027116		826524.00
44	2013	1.806577	0.120099		0.00
44	2014	1.593779	0.032316		-2600000.00
45	2007	0.288833	0	0.097306	-423333.00
45	2008	0.288833	-0.53061	0.088111	-1100000.00
45	2009	0.149899	-1.04075	0.066054	0.00
45	2010	0.059537	-0.86078	0.048473	8100000.00
45	2011	0.024224	0.69292	0.042405	-298116.00
45	2012	0.027013	-0.32477	0.036744	-401007.00
45	2013	0.014656	14.86193	0.040759	-1700000.00
45	2014	0.015464	8.944742	0.04325	-849090.00
46	2007	16.88158	0	-1.10487	9000000.00
46	2008	0.671686	-0.0406	-0.44774	-21804.40
46	2009	2.610431	-0.20787	-0.23161	33000000.00
46	2010	2.207999	0.028298	-0.05337	-8900000.00
46	2011	1.077667	-0.00364	0.042407	383.42
46	2012	1.344737	-0.04228	0.148381	-4400000.00
46	2013	1.459442	-0.05169	0.252395	-103253.00
46	2014	0.962682	-0.01006	0.241343	74085.90
47	2007	1.192486	0	-0.09474	20000000.00
47	2008	0.683542	-0.03769	-0.08502	-10774.30
47	2009	0.918585	-0.00292	-0.07672	1000000.00
47	2010	1.065203	0.008699	-0.05968	-3900000.00
47	2011	0.884262	-0.01507	-0.05226	467107.00
47	2012	0.956949	-0.00324	-0.04934	4700000.00
47	2013	1.040538	0.000473	-0.04948	-90957.30
47	2014	0.68182	-0.22355	-0.01668	-5000000.00
48	2007	7.011541	0	-0.36496	23445.90
48	2008	2.135186	-0.16221	-0.1497	496141.00
48	2009	2.620414	-0.00937	-0.13016	22670.50
48	2010	1.866084	-0.02828	-0.0872	-35000000.00
48	2011	1.139911	-0.00438	-0.0576	-11000000.00
48	2012	1.731908	-0.00397	-0.03142	-838624.00
48	2013	2.401815	0.143534	-0.04384	84172.30
48	2014	0.979202	-0.00634	-0.01571	0.00
49	2007	0.958138	0	-0.03683	1000000.00
49	2008	0.39838	-0.68054	-0.01516	-2200000.00
49	2009	0.175024	-1.98896	-0.00788	24000000.00
49	2010	0.132238	0.149242	-0.00906	-284905.00
49	2011	0.083037	-0.39018	-0.01054	334171.00
49	2012	0.08037	-2.01701	-0.00881	-110000000.00
49	2013	0.192495	-0.15014	-0.00352	4700000.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
49	2014	0.222174	0.215499	0.001367	60000000.00
50	2007	0.847012	0	-0.10549	0.00
50	2008	0.421779	0.856267	0.248325	-893773.00
50	2009	0.898253	-0.01476	0.148558	-1800000.00
50	2010	0.812701	-0.03511	0.090932	-387566.00
50	2011	1.166185	0.042235	0.241008	0.00
50	2012	1.403371	-0.08954	0.272588	-9300000.00
50	2013	1.51094	-0.20238	0.397484	1900000.00
50	2014	0.920479	-0.01556	0.301888	-4900000.00
51	2007	0.830238	0	-0.09231	-20000000.00
51	2008	0.40291	0.378742	-0.08763	91000000.00
51	2009	0.642839	-0.00025	0.256007	-402433.00
51	2010	1.272567	0.012065	0.164465	1000000.00
51	2011	1.285129	0.088837	0.178175	-22703.10
51	2012	1.727315	-0.06509	0.16958	0.00
51	2013	1.017243	-0.00059	0.440839	0.00
51	2014	0.360887	-0.66558	0.255212	5600000.00
52	2007	1.21179	0		-28000000.00
52	2008	0.584885	0.002332		-162111.00
52	2009	0.659338	0.006673		-4900000.00
52	2010	0.337568	0.014519		168242.00
52	2011	0.659338	0.006562		2200000.00
52	2012	0.337568	-0.00991		0.00
52	2013	0.337052	-0.00301		-555971.00
52	2014	0.339535	0.014332		-8400000.00
53	2007	0.194498	0	-0.11191	-110000000.00
53	2008	0.064004	1.524928	-0.04448	73610.50
53	2009	0.061619	-1.1694	-0.04663	0.00
53	2010	0.073585	-1.56709	-0.04573	-73000000.00
53	2011	0.070405	0.640941	-0.05283	-410645.00
53	2012	0.062696	0.785711	-0.02805	1100000.00
53	2013	0.063155	0.702245	-0.01881	-29696.80
53	2014	0.204058	8.432404	-0.03202	42000000.00
54	2007	0.751456	0	0.140394	-73000000.00
54	2008	0.465981	0.096657	0.17047	81258.50
54	2009	0.205592	-0.4436	0.141306	-3700000.00
54	2010	0.157434	0.12097	0.117902	-2400000000.00
54	2011	0.061053	1.109213	0.106104	-2300000.00
54	2012	0.020418	4.156713	0.100159	0.00
54	2013	0.024296	-0.3261	0.089023	-385709.00
54	2014	0.048494	-0.04195	0.080678	-2800000.00
55	2007	0.206329	0	-0.01959	69494.00
55	2008	0.206329	-0.04608	0.024254	1400000.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
55	2009	0.184238	-0.3727	0.0192	15841.90
55	2010	0.030423	2.337646	0.035989	-851691.00
55	2011	0.058042	2.348002	0.034972	6200000.00
55	2012	0.032656	6.608891	0.038612	135550.00
55	2013	0.040419	3.29309	0.039085	0.00
55	2014	0.041354	-0.3758	0.034417	-82000000.00
56	2007	0.53151	0	0.024817	-5900000.00
56	2008	0.213387	0.630222	0.033702	0.00
56	2009	0.417366	0.337203	0.052813	11000000.00
56	2010	0.394114	0.22788	0.048915	-44000000.00
56	2011	0.273003	0.363887	0.052423	-423183.00
56	2012	1.763538	-31.2197	5.86542	-616893.00
56	2013	7.285929	-4.18761	31.15656	-12000000.00
56	2014	7.90146	-0.97049	60.9987	-515874.00
57	2007	0.029246	0	-0.01503	441596.00
57	2008	0.017535	24.78502	-0.00062	342010.00
57	2009	0.015906	-12.7336	0.000533	-1000000.00
57	2010	0.017525	-6.47265	-0.0012	958312.00
57	2011	0.018476	-1.78723	-0.00139	73364.60
57	2012	0.02486	-3.29021	-0.00203	-4400000.00
57	2013	0.036283	-0.5807	-0.00188	-12499.20
57	2014	0.036969	-3.96467	-0.00165	-24000000.00
58	2007	0.600907	0		-10000000.00
58	2008	12.5	-7.36		-2400000.00
58	2009	13.23958	-0.01926		0.00
58	2010	12.43878	0.018767		0.00
58	2011	11.30993	-0.59644		-357362.00
58	2012	10.11141	0		-5000000.00
58	2013	7.338225	0.010372		147467.00
58	2014	8.095832	-0.05964		-750000000.00
59	2007	0.20553	0	0.011013	369875.00
59	2008	0.071133	7.068805	0.021045	7467.04
59	2009	0.128265	-0.48495	0.014339	-1200000.00
59	2010	0.141437	0.262809	0.021399	9400000.00
59	2011	0.088552	-0.29159	0.018133	-9500000.00
59	2012	0.071006	-0.96933	0.015433	-745752.00
59	2013	0.15036	0.486376	0.016365	1800000.00
59	2014	0.231176	2.040988	0.026597	-159368.00
60	2007	0.92511	0	-0.1641	-1400000.00
60	2008	0.77319	0.05743	0.02979	-32909.40
60	2009	0.898087	-0.017	0.008927	173550.00
60	2010	0.905476	-0.01015	0.188081	-385709.00
60	2011	1.108253	0.003952	0.128447	-20000000.00
60	2012	1.200274	0.007249	0.16773	-131918.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
60	2013	0.998443	-0.001	0.190477	192394.00
60	2014	0.999223	-6.2E-05	0.184333	0.00
61	2007	0.52713	0	0.01649	87000000.00
61	2008	0.315855	0.49238	0.02661	36000000.00
61	2009	0.193038	-0.11492	0.024417	-306797.00
61	2010	0.099642	4.047802	0.033565	0.00
61	2011	0.063188	3.009648	0.04495	1400000.00
61	2012	0.084321	1.605062	0.048439	-175227.00
61	2013	0.089368	1.970518	0.053425	-7799.82
61	2014	0.058802	1.353641	0.054609	1800000.00
62	2007	0.399748	0	-0.03348	-420564.00
62	2008	0.240626	-0.17974	-0.02924	-200000000.00
62	2009	0.384583	0.595669	-0.00204	-3000000.00
62	2010	0.488082	0.116488	-0.01243	-1600000.00
62	2011	0.450716	0.076828	-0.0204	153495.00
62	2012	0.679305	-0.19799	-0.00386	-36000000.00
62	2013	0.782141	-0.04488	-0.0085	-30465.30
62	2014	0.691237	-0.04425	-0.01167	47000000.00
63	2007	1.372881	0	-0.02678	-1100000.00
63	2008	0.997761	0.003882	1.220432	76000000.00
63	2009	1.890948	-0.0027	0.918292	1933.90
63	2010	1.2376	0.146252	0.19493	5500000.00
63	2011	3.120107	-0.60884	0.820218	2900000.00
63	2012	2.288092	-0.53424	1.389382	-504570.00
63	2013	1.975103	-0.05088	1.401802	0.00
63	2014	1.793115	0.308161	0.391198	-4900000.00
64	2007	0.220841	0	-0.00792	-261439.00
64	2008	0.087691	4.081147	-0.01001	-9500000.00
64	2009	0.104492	-0.47993	0.027285	407917.00
64	2010	0.059577	0.41482	0.023589	166934.00
64	2011	0.049077	3.425434	0.036789	0.00
64	2012	0.024271	6.189829	0.071215	0.00
64	2013	0.04266	3.282719	0.07653	18000000.00
64	2014	0.056325	1.416635	0.085579	-239396.00
65	2007	0.757694	0	-0.05857	-37557.70
65	2008	0.691292	-0.03207	-0.05246	0.00
65	2009	0.584798	0.028335	-0.05254	-472122.00
65	2010	0.544616	-0.0166	-0.05143	-3100000.00
65	2011	0.373202	0.019889	-0.04252	-170501.00
65	2012	0.367466	-0.00613	-0.02845	-23362.80
65	2013	0.368375	-0.04882	-0.02904	213722.00
65	2014	0.247406	-0.1644	-0.02369	2700000000.00
66	2007	0.435863	0	-0.16319	15000000.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
66	2008	0.23663	1.17299	0.115081	697628.00
66	2009	0.290675	0.038973	0.077486	-2200000.00
66	2010	0.297981	-0.37487	0.035241	17000000.00
66	2011	0.257229	-0.00289	0.043238	-514728.00
66	2012	0.234284	0.058804	0.063614	-748145.00
66	2013	0.338348	0.020881	0.058297	-5300000.00
66	2014	0.258632	-0.42125	0.048	405352.00
67	2007	2.187677	0	0.387485	-544211.00
67	2008	1.555535	-0.68295	1.352466	-1991.21
67	2009	1.187113	0.058383	0.654079	-549344.00
67	2010	1.868169	0.055247	0.480613	0.00
67	2011	6.004938	-0.42199	0.627942	-2200000.00
67	2012	14.59363	0.256168	0.42783	2700000.00
67	2013	11.70003	0	0.163607	-79994.90
67	2014	6.208705	-0.57267	0.679782	11000000.00
68	2007	0.450609	0	-0.01059	-3000000.00
68	2008	0.570433	0.126952	0.093541	1100000.00
68	2009	0.581151	0.015034	0.085927	-28588.70
68	2010	0.621006	0.023404	0.075629	-663402.00
68	2011	0.911865	0.023193	0.082078	9600000.00
68	2012	1.335709	-0.01915	0.078953	622833.00
68	2013	1.631473	-0.01512	0.075301	
68	2014	1.972507	-0.01639	0.074088	-284853.00
69	2007	0.371223	0	-0.03148	1713.07
69	2008	0.407049	-0.03628	-0.02266	-108238.00
69	2009	0.299832	-0.03998	0.02922	1200000.00
69	2010	0.23183	-0.80875	0.020607	-29000000.00
69	2011	0.144068	0.493179	0.131049	-506648.00
69	2012	0.193572	0.431965	0.141659	5801.75
69	2013	0.213469	-0.41525	0.132596	130000000.00
69	2014	0.157028	-1.57209	0.090305	-328485.00
70	2007	0.717161	0	-0.04685	19000000.00
70	2008	0.39402	1.026444	-0.04641	-23000000.00
70	2009	0.724371	-0.07198	-0.01543	379786.00
70	2010	0.667529	-0.09991	0.023291	430000000.00
70	2011	0.809574	0.119113	0.032468	-1500000.00
70	2012	0.569397	-0.17883	0.039947	2200000.00
70	2013	1.928652	-0.2379	0.077331	-69000000.00
70	2014	0.920563	-0.00935	0.059021	-9800000.00
71	2007	1.778622	0	-0.00565	2900000.00
71	2008	0.544473	-0.09526	0.187765	9304.23
71	2009	0.554147	-0.10269	0.14219	-1600000.00
71	2010	0.189469	-1.14025	0.089145	-110045.00
71	2011	0.068271	-1.30381	0.07123	3600000.00

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71	2012	0.176225	0.342879	0.068843	-47000000.00
71	2013	0.040302	-0.02703	0.062392	-428692.00
71	2014	0.201105	34.54026	0.558822	3400000.00
72	2007	0.496513	0	-0.04156	0.00
72	2008	0.345287	0.175727	0.038539	120000000.00
72	2009	0.333226	-0.11915	0.017987	-686395.00
72	2010	0.3415	0.037298	0.010035	492463.00
72	2011	0.114558	0.94315	0.005812	-1100000.00
72	2012	0.189364	0.303033	0.004114	0.00
72	2013	0.179811	0.285148	0.001611	-14000000.00
72	2014	0.185285	0.155303	0.001532	-7700000.00
73	2007	0.958671	0	-0.01474	552296.00
73	2008	0.817522	-0.03482	0.017576	325033.00
73	2009	0.54981	-0.03909	0.016461	-3400000.00
73	2010	0.765009	-0.03151	0.018972	-49000000.00
73	2011	0.648799	0.017196	0.027324	0.00
73	2012	0.632922	0.097768	0.028708	-6600000.00
73	2013	0.639996	0.119403	0.034476	-3000000.00
73	2014	0.643037	0.084293	0.037708	346466.00
74	2007	1.137372	0	-0.00917	12000000.00
74	2008	0.444818	-0.02711	0.047285	100983.00
74	2009	0.664263	0.071369	0.101085	-410201.00
74	2010	0.693622	0.147553	0.132134	-207614.00
74	2011	0.400512	0.859322	0.199584	200000000.00
74	2012	0.492843	0.682631	0.311113	-465696.00
74	2013	0.415473	0.247883	0.336846	689721.00
74	2014	0.485907	0.637084	0.504856	1000000.00
75	2007	4.732328	0	0.071835	2511.84
75	2008	1.719929	0.044506	0.21763	-1600000.00
75	2009	1.695771	0.495736	0.084267	76000000.00
75	2010	4.732328	0.187141	0.064343	-1300000.00
75	2011	1.719929	0.271663	0.121775	8244.67
75	2012	1.695771	0.141947	0.088704	-326870.00
75	2013	1.247137	0.06685	0.070367	23000000.00
75	2014	1.301258	-0.05318	0.080703	791907.00
76	2007	0.335007	0	-0.0007	180000000.00
76	2008	0.218531	0.187352	0.010067	248488.00
76	2009	0.16942	1.314972	0.042691	-18048.80
76	2010	0.302153	0.954134	0.056101	
76	2011	0.556301	0.019586	0.052167	637280.00
76	2012	0.577822	0.003222	0.048896	-272138.00
76	2013	0.650991	-0.00964	0.044652	-16000000.00
76	2014	0.648121	0.005384	0.042929	22130.50

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
77	2007	0.617251	0	-0.0576	-3400000.00
77	2008	0.549171	-0.09055	0.063318	-105082.00
77	2009	0.508702	-0.07087	0.033398	993785.00
77	2010	0.552781	0.070101	0.044407	-786858.00
77	2011	0.728013	0.004886	0.038743	0.00
77	2012	0.761337	0.014349	0.023929	5800000.00
77	2013	0.760997	-0.00014	0.01145	-453006.00
77	2014	0.743123	-0.00812	0.001272	-2900000.00
78	2007	0.849976	0		-744843.00
78	2008	0.548712	0.593397		-74000000.00
78	2009	0.640691	-0.11726		-71635.30
78	2010	0.590149	-0.1343		-6300000.00
78	2011	0.600356	0.108377		-18220.10
78	2012	0.614796	-0.09187		-315654.00
78	2013	0.755186	-0.04771		1300000.00
78	2014	0.739605	0.019873		0.00
79	2007	0.615364	0	0.086702	-10000000.00
79	2008	0.716658	0.015472	0.12558	0.00
79	2009	0.547443	-0.1316	0.090145	334396.00
79	2010	0.525588	-0.08217	0.103305	0.00
79	2011	0.305116	-1.02137	0.055115	89711.00
79	2012	0.217257	-0.94795	0.041172	-147052.00
79	2013	0.183086	-0.16929	0.03318	-408258.00
79	2014	0.133164	-1.94341	0.024082	5596.80
80	2007	0.36543	0	-0.27572	190000000.00
80	2008	0.272284	0.620642	-0.08	134337.00
80	2009	0.333945	0.321358	0.242275	-18285.60
80	2010	0.461549	-0.03168	0.192935	-92552.90
80	2011	0.389595	-0.24031	0.119492	-2800000.00
80	2012	0.523548	0.009465	0.162979	698144.00
80	2013	0.606838	-0.03306	0.12899	-4100000.00
80	2014	0.586734	-0.22004	0.075695	82110.40
81	2007	0.459083	0	0.034768	-325131.00
81	2008	0.397257	0.500712	0.072513	0.00
81	2009	0.420543	0.086323	0.066294	-3200000.00
81	2010	0.47804	0.23793	0.098801	-1700000.00
81	2011	0.416227	-0.21054	0.068225	0.00
81	2012	0.307936	-0.46773	0.09895	9500000.00
81	2013	0.227148	-1.07155	0.068576	0.00
81	2014	0.149752	-2.23455	0.046118	20000000.00
82	2007	0.967346	0	-0.09574	
82	2008	0.12591	-0.39142	0.033333	-2500000.00
82	2009	0.601906	0.05169	0.03112	548.05
82	2010	0.474294	-0.23951	0.013502	-479436.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
82	2011	0.193449	1.331626	0.023487	284643.00
82	2012	0.164937	-0.68993	0.012682	3800000.00
82	2013	0.124656	0.374511	0.010272	3100000.00
82	2014	0.110846	-2.48388	0.003895	0.00
83	2007	0.08176	0	-0.02211	0.00
83	2008	0.056187	6.612335	-0.01304	-471377.00
83	2009	0.060164	-4.55055	0.018877	-26342.90
83	2010	0.050872	-4.69551	0.050647	6028.43
83	2011	0.058754	-1.46626	0.030553	-9500000.00
83	2012	0.063207	-3.20919	0.01809	19000000.00
83	2013	0.082727	-2.61804	0.014228	0.00
83	2014	0.080291	-2.26165	0.009238	335608.00
84	2007	3.516277	0	0.032204	2000000.00
84	2008	0.564538	0.122554	0.037636	340000000.00
84	2009	0.354907	-1.21684	0.015643	-2900000.00
84	2010	0.301118	-0.08404	0.013097	1300000000.00
84	2011	0.266044	0		77627.50
84	2012	0.602899	0.481915		180029.00
84	2013	0.637533	0	0.019525	-180000000.00
84	2014	0.436073	-0.41314	0.015828	106677.00
85	2007	4.032193	0	0.129329	0.00
85	2008	0.734271	0.104418	0.188118	-22000000.00
85	2009	1.149302	0.023937	0.128186	-5700000.00
85	2010	0.457944	-0.71201	0.045074	-207.24
85	2011	0.488805	0.164761	0.047324	-33000000.00
85	2012	0.612254	-0.02683	0.048874	-670035.00
85	2013	0.936274	0.035351	0.076015	0.00
85	2014	0.607578	-0.25731	0.043529	-470000000.00
86	2007	3.497646	0	0.04422	490000000.00
86	2008	0.428079	0.291727	0.055286	-841677.00
86	2009	0.961154	-0.00284	0.050632	-560000000.00
86	2010	0.185196	-3.31851	0.01188	-13000000.00
86	2011	0.633296	1.334034	0.039251	109349.00
86	2012	0.774198	0	0.039251	-585271.00
86	2013	0.736741	0.005584	0.047052	4800000.00
86	2014	0.533186	-0.0085	0.045514	108180.00
87	2007	0.887421	0	0.012053	-2000000.00
87	2008	0.330197	1.421442	0.026479	-18691.40
87	2009	0.363363	-0.0224	0.025473	728435.00
87	2010	0.256655	-0.59726	0.034319	-2500000.00
87	2011	0.373317	1.097061	0.056747	-31000000.00
87	2012	0.538305	0.083706	0.062285	-1900000.00
87	2013	0.686156	0.055291	0.068066	0.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
87	2014	0.506837	-0.25103	0.053867	45311.30
88	2007	3.703385	0	0.040095	-589002.00
88	2008	0.616397	0.237503	0.058194	-22000000.00
88	2009	0.957427	-0.01012	0.042199	-2500000.00
88	2010	0.887535	-0.00603	0.06147	76776.40
88	2011	0.752451	0.006133	0.050548	-601383.00
88	2012	0.953293	-0.00099	0.039045	-5200000.00
88	2013	1.198867	0.017287	0.061717	330784.00
88	2014	0.978594	-0.00059	0.042291	5700000.00
89	2007	0.615073	0	-0.06329	-18285.60
89	2008	0.500924	0.35745	-0.00065	-17000000.00
89	2009	0.683957	-0.00466	-0.01577	867319.00
89	2010	0.641577	-0.04063	-0.0108	-225198.00
89	2011	0.5883	0.041829	-0.00955	190956.00
89	2012	0.61338	-0.04696	0.005022	60000000.00
89	2013	0.668505	-0.04872	0.003114	-70000000.00
89	2014	0.6183	-0.07337	0.002795	-1500000.00
90	2007	0.846593	0		-1300000.00
90	2008	0.616857	0.117678		0.00
90	2009	0.790629	-0.03548		339987.00
90	2010	0.805655	-0.00883		-35000000.00
90	2011	0.76368	0.031705		5400000.00
90	2012	0.61814	-0.05641		379258.00
90	2013	0.69923	-0.01791		-1500000.00
90	2014	0.741991	-0.00395		-557840.00
91	2007	0.879063	0	-0.01018	200000000.00
91	2008	0.052123	38.87339	-0.02659	-2900000.00
91	2009	0.05966	14.38009	0.063148	6500000.00
91	2010	1.768086	-2.60073	1.151294	-980837.00
91	2011	0.831813	0.129778	1.701161	-6000000.00
91	2012	3.764295	0.179995	1.22951	210713.00
91	2013	1.242977	0.158799	0.267128	-167319.00
91	2014	1.075528	0.007158	0.28616	-13086.60
92	2007	0.109664	0		-2400000.00
92	2008	0.031443	-1.19733		9794.82
92	2009	0.026324	-5.00088	-0.0113	194599.00
92	2010	0.014391	-2.89499	-0.00833	-311594.00
92	2011	0.002359	-90.7964	-0.00792	-3400000.00
92	2012	0.002647	46.0425	0.004725	983561.00
92	2013	0.00286	28.11306	0.024841	-330000000.00
92	2014	0.002542	-43.7234	0.028241	20000000.00
93	2007	0.750543	0	0.015011	4300000.00
93	2008	0.438031	0.812315	0.141871	363587.00
93	2009	0.975769	-0.00653	0.371646	19923.90

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
93	2010	0.728441	-0.05649	0.243796	0.00
93	2011	0.960976	0.014736	0.283783	-2000000.00
93	2012	0.956944	-0.00365	0.231196	-5400000.00
93	2013	0.961576	0.021135	0.332378	3600000.00
93	2014	1.066736	0.008246	0.286816	7300000.00
94	2007	1.30479	0	-0.21998	661753.00
94	2008	1.130133	-0.07007	0.064609	2200000.00
94	2009	0.733737	0.049419	0.161165	0.00
94	2010	0.763098	0.012423	0.135181	-11000000.00
94	2011	0.348782	0.029293	0.14342	38466.30
94	2012	0.235607	0.700546	0.175618	-122552.00
94	2013	0.572473	0.261289	0.230506	-1760.56
94	2014	1.174841	-0.01287	0.245393	-470727.00
95	2007	0.418176	0	-0.10848	270277.00
95	2008	0.264267	-0.24525	0.074365	-93183.40
95	2009	0.321098	-0.6689	0.033954	121982.00
95	2010	0.418176	-0.20944	0.029297	-16000000.00
95	2011	0.264267	0.489048	0.027401	282291.00
95	2012	0.321098	-0.21776	0.01932	-1800000.00
95	2013	0.295065	0.52248	0.01935	-770835.00
95	2014	0.294445	-0.04795	0.016928	-8600000.00
96	2007	0.943492	0	0.030244	579514.00
96	2008	1.022405	-0.04061	0.300869	1300000.00
96	2009	0.384279	0.096659	0.352629	-714588.00
96	2010	0.680729	0.332267	0.553519	249408.00
96	2011	2.722522	0.096597	0.436137	0.00
96	2012	2.419167	-0.17285	0.540862	2100000.00
96	2013	3.51769	-0.06043	0.560593	-2100000.00
96	2014	2.964301	0.256721	0.340154	-120000000.00
97	2007	0.798597	0	0.195594	-297061.00
97	2008	0.641111	-0.05647	0.203145	0.00
97	2009	0.574767	-0.07656	0.147212	-10000000.00
97	2010	0.487306	-0.02287	0.123077	46199.10
97	2011	0.351922	0.043903	0.107328	0.00
97	2012	0.320764	0.351035	0.111582	-7400000.00
97	2013	0.192824	1.071801	0.157839	3400000.00
97	2014	0.108003	2.799523	0.197246	5900000.00
98	2007	0.827	0	0.180649	-10400.40
98	2008	0.870807	0.095895	0.757437	42000000.00
98	2009	0.53251	-0.14657	0.545379	-1900000.00
98	2010	0.385473	-0.20078	0.412293	-178644.00
98	2011	0.393515	-0.10903	0.347991	-17265.10
98	2012	0.504903	0.028524	0.326227	-6100000.00

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98	2013	1.411962	-0.3319	0.642889	-522812.00
98	2014	0.468492	2.618272	1.966558	-232366.00
99	2011	0.199767	0		4500000.00
99	2012	0.189858	0.001777		0.00
99	2013	0.273673	0.253488		0.00
99	2014	0.345026	0.096063		2400000.00
100	2013	1.977604	0	0.153696	800000000.00
100	2014	1.256764	0.062573	0.124596	237535.00
101	2010	336.1944	0		-236315.00
101	2011	55.51848	0.808241		-4300000.00
101	2012	2.629788	0.59172	-0.01632	-12000000.00
101	2013	2.799389	0.00222	-0.00139	-7600000.00
101	2014	3.04249	-0.01452	0.002921	-70875.30
102	2014	1.229569	0	-0.13186	-178644.00
103	2013	2.221107	0		0.00
104	2007	6.689912	0	-0.2897	-70000000.00
104	2008	1.610227	0.280532	-0.0689	-431990.00
104	2009	0.280004	-1.37801	-0.03278	318549.00
104	2010	0.611583	0.457444	-0.05895	0.00
104	2011	0.33176	0.357783	-0.03778	1200000.00
104	2012	0.422975	0.051384	-0.04285	688345.00
104	2013	0.449215	0.57679	-0.06922	384330.00
104	2014	1.019728	-0.01028	-0.02597	-8100000.00
105	2012	9.249074	0	0.069667	-665358.00
105	2013	14.99516	-0.61882	0.8703	116985.00
105	2014	70.56143	-3.34114	4.037933	-3000000.00
106	2010	259.4923	0	0.010611	30000000.00
106	2011	1.47661	0.321603	0.004673	312166.00
106	2012	0.456666	0.23731	0.029911	-530918.00
106	2013	0.64869	-0.02445	0.024953	-19052.80
106	2014	0.589454	-0.01393	0.013695	-130000000.00
107	2014	2.268304	0	-2.5E-05	0.00
108	2011	5.688164	0		4800000.00
108	2012	1.102089	0.077717		19000000.00
108	2013	0.448393	-0.69561	0.08078	-2800000.00
108	2014	1.196239	-0.10685	0.115506	2100000.00
109	2007	0.823816	0	0.168237	-9614.33
109	2008	0.129401	-3.80557	0.097516	-181264.00
109	2009	0.170134	6.148372	0.148883	-775685.00
109	2010	0.209774	0.544848	0.126623	1500000.00
109	2011	0.326578	0.06884	0.119741	204958.00
109	2012	0.209125	-1.39262	0.063326	655531.00
109	2013	0.110472	-0.22993	0.051285	-123902.00
109	2014	0.110319	0.234095	0.04794	3700000.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
110	2011	0.207828	0		-199324.00
110	2012	0.223177	-0.07456	-0.05335	0.00
110	2013	0.187378	-0.57696	0.030888	1300000000.00
110	2014	0.286113	0.378473	0.017815	1900000.00
111	2011	140.363	0		-250000000.00
111	2012	0.107165	-8.31818	0.029289	-1200000.00
111	2013	0.135918	13.02002	0.104462	9140.34
111	2014	0.593729	0.080853	0.170961	68164.60
112	2007	0.321003	0	-0.13217	-154005.00
112	2008	0.046749	2.384927	-0.10812	0.00
112	2009	0.234055	1.055997	-0.10317	-532232.00
112	2010	0.22375	-0.10237	-0.08347	25000000.00
112	2011	0.152352	0.049775	-0.06932	-10908.00
112	2012	0.201987	-0.03835	-0.05868	0.00
112	2013	0.874245	0.478777	-0.14587	330000000.00
112	2014	3.225146	-0.02238	-0.07706	-18843.20
113	2009	0.898565	0	-0.0367	14000000.00
113	2010	0.867911	0.657933	0.752656	120000000.00
113	2011	58.06876	-11.7742	13.20368	57991.30
113	2012	0.83065	-0.19931	0.290321	170310.00
113	2013	0.731401	-0.07345	0.211897	-396212.00
113	2014	0.65995	0.016784	0.213236	-71262.20
114	2011	10.61787	0		-362016.00
114	2012	6.838477	0.334786	0.456475	-219802.00
114	2013	3.051736	0.239105	0.318302	2100000.00
114	2014	1.859278	0.143834	0.287646	3100000000.00
115	2010	2.587425	0		19000000.00
115	2011	1.308154	0.113894		-21778.30
115	2012	1.111047	0.025271	-0.08957	0.00
115	2013	1.61431	-0.19581	0.620844	-171929.00
115	2014	1.056959	0.018419	0.291377	-478768.00
116	2010	17.04314	0	-0.10839	-272877.00
116	2011	0.371065	-1.64031	0.054873	-1700000.00
116	2012	0.384219	-0.05725	0.039386	7900000.00
116	2013	0.157074	-1.18107	0.030525	-712704.00
116	2014	0.306823	0.262052	0.030153	-6300000.00
117	2014	1.016035	0		20000000.00
118	2008	4.38397	0		95571.40
118	2009	1.99792	-0.0011		289080.00
118	2010	1.769794	0.001469	0.059103	-14000000.00
118	2011	1.159313	0.015136	0.050917	-190000000.00
118	2012	1.281737	-0.02321	0.055429	-48528.40
118	2013	0.878163	0.001197	0.055422	565867.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
118	2014	0.663696	0.003969	0.05791	0.00
119	2008	0.395131	0	-0.66927	-5900000.00
119	2009	0.290349	0.442293	0.908665	-2100000.00
119	2010	58.97504	-20.0454	14.63588	-26000000.00
119	2011	0.224249	-3.4394	0.076005	-47472.90
119	2012	0.095469	-6.60373	0.033597	0.00
119	2013	0.117419	2.070124	0.050637	-96923.10
119	2014	0.405825	2.181026	0.106445	2463.08
120	2007	1.02391	0	0.027165	0.00
120	2008	0.454269	0.041905	0.034925	-13000000.00
120	2009	0.488725	0.237532	0.032386	20000000.00
120	2010	0.569184	0.099249	0.030665	-41038.90
120	2011	1.974519	-0.08142	0.059751	-1200000.00
120	2012	1.099778	-0.08331	0.233721	-2800000.00
120	2013	1.708842	-0.26326	0.582054	0.00
120	2014	6.903293	-0.39101	0.837117	3500000.00
121	2011	0.729336	0	0.113594	2200000.00
121	2012	6.546118	-8.49658	3.406309	-4300000.00
121	2013	1.280386	-0.0464	3.487778	109946.00
121	2014	2.95996	0.52767	0.625699	245877.00
122	2007	1.724131	0	0.664443	920000000.00
122	2008	0.227302	0.537312	0.776354	-100000000.00
122	2009	0.478484	1.009501	1.692689	-766560.00
122	2010	1.234483	-0.01027	1.61975	-283141.00
122	2011	0.715009	0.179218	2.135467	2600000.00
122	2012	0.730177	0.293703	3.557401	-369220.00
122	2013	5.144142	-4.28726	20.97468	-158703.00
122	2014	371.0319	0.217874	15.37275	2500000.00
123	2007	0.947845	0	-0.13461	343827.00
123	2008	0.23529	-0.71303	-0.08185	794053.00
123	2009	0.823778	0.114529	0.212827	406522.00
123	2010	1.298327	0.051774	0.116679	190000000.00
123	2011	0.755706	-0.03827	0.086976	-300878.00
123	2012	1.227288	-0.07432	0.144796	160000000.00
123	2013	0.66701	-0.04544	0.11084	6548.11
123	2014	1.542137	-0.14085	0.20336	552625.00
124	2007	1.589778	0	-0.03248	153252.00
124	2008	0.290419	-1.72153	0.003787	7700000.00
124	2009	0.146949	-1.93384	0.006888	41512.40
124	2010	0.184677	0.130912	0.007407	1700000.00
124	2011	0.181194	-0.0924	0.005957	-98.82
124	2012	0.061784	-2.23474	0.004449	-71000000.00
124	2013	0.025033	3.175395	0.00449	-32935.20
124	2014	0.020801	8.625904	0.010681	4800000.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
125	2014	7.161314	0		121894.00
126	2008	0.089738	0	-0.23437	-585171.00
126	2009	0.73176	0.671229	-0.2917	0.00
126	2010	0.710689	-0.16983	-0.11996	126643.00
126	2011	0.7973	-0.07663	-0.08643	42836.20
126	2012	0.742898	-0.06073	-0.08321	-21000000.00
126	2013	0.812415	-0.0683	-0.06229	-694010.00
126	2014	0.839477	-0.01781	-0.05895	580000000.00
127	2007	1.874213	0	0.293113	-96118.40
127	2008	0.190182	-2.09361	0.207015	-647296.00
127	2009	1.312844	-0.35674	0.531681	-966396.00
127	2010	1.230158	0.05791	0.323313	-60781.30
127	2011	0.635998	-0.15503	0.209299	-50000000.00
127	2012	0.535713	0.198468	0.232668	3300000.00
127	2013	2.166791	-0.27686	0.412718	-210000000.00
127	2014	0.65259	-0.24311	0.196118	-15059.80
128	2007	0.684193	0	0.003497	43960.20
128	2008	0.656723	0.226643	0.007613	0.00
128	2009	0.745452	-0.07331	0.005014	64289.00
128	2010	0.781807	0.09294	0.008399	100000000.00
128	2011	0.810603	0.121003	0.010449	-7200000.00
128	2012	0.794366	0.09271	0.012021	-5500000.00
128	2013	0.807137	0.042111	0.013221	279107.00
128	2014	0.822273	-0.05608	0.009899	-1100000000.00
129	2007	0.014033	0	0.026516	-201324.00
129	2008	0.611243	0.24241	0.091675	-22000000.00
129	2009	0.635187	0.90364	0.20742	-951387.00
129	2010	2.7511	-7.79927	2.542551	2300000.00
129	2011	2.203258	0.320208	0.989998	-1700000.00
129	2012	2.113339	-0.02446	0.986458	2900000.00
129	2013	1.568008	-0.13937	1.309999	625876.00
129	2014	1.265153	0.002435	1.241117	-7800000.00
130	2007	1.788555	0	0.12396	6800000.00
130	2008	1.155318	9.7E-05	0.190308	3200000.00
130	2009	1.445194	-0.06676	0.229195	-34633.30
130	2010	0.773285	-0.01143	0.2002	1900000.00
130	2011	1.585861	-0.24739	0.311921	-32000000.00
130	2012	0.197729	-0.32304	0.270086	-217107.00
130	2013	0.616263	0.337801	0.402981	110000000.00
130	2014	1.985499	-0.23205	0.570333	986473.00
131	2014	1.229569	0		70256.50
132	2007	1.253787	0	0.024036	-1100000.00
132	2008	1.002954	-0.00047	0.041073	0.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
132	2009	0.549638	0.435775	0.045919	673049.00
132	2010	0.782851	-0.09633	0.057835	-262564.00
132	2011	0.615982	-0.27768	0.033774	1300000.00
132	2012	0.477344	-0.41799	0.189589	60332.00
132	2013	0.36774	-0.51022	0.129998	837799.00
132	2014	0.220939	2.211846	0.259504	-89805.00
133	2007	6.063105	0	-0.48552	-336282.00
133	2008	5.851075	0.052201	-0.44366	0.00
133	2009	5.260214	-0.37348	-0.33438	0.00
133	2010	4.708653	0.242238	-0.279	-12586.20
133	2011	5.886107	0.163452	-0.25315	-16000000.00
133	2012	4.802036	0.053932	-0.25374	509364.00
133	2013	3.744701	-0.09195	-0.29645	-314969.00
133	2014	4.907792	-0.06391	-0.28054	442378.00
134	2007	0.643377	0	-0.01278	-1800000.00
134	2008	0.216309	-0.70261	-0.00543	-45943.20
134	2009	0.325496	0.726961	-0.01093	-1500000.00
134	2010	0.398563	0.029178	-0.0026	-65506.50
134	2011	0.338039	0.081851	0.00638	-498734.00
134	2012	0.545111	0.320532	0.005179	27000000.00
134	2013	0.680149	0.053361	0.000505	5500000.00
134	2014	0.683872	0.007946	0.001875	13000000.00
135	2007	6.689912	0	-0.2897	3600000.00
135	2008	1.610227	0.280532	-0.0689	584609.00
135	2009	0.280004	-1.37801	-0.03278	0.00
135	2010	0.611583	0.457444	-0.05895	-4400000.00
135	2011	0.33176	0.357783	-0.03778	0.00
135	2012	0.422975	0.051384	-0.04285	-6500000.00
135	2013	0.449215	0.57679	-0.06922	2000000.00
135	2014	1.019728	-0.01028	-0.02597	0.00
136	2007	3.146927	0	-0.0231	51000000.00
136	2008	0.623562	-0.43237	0.008014	0.00
136	2009	0.687174	0.112103	0.344423	405694.00
136	2010	0.635723	-0.08893	0.270307	-14778.50
136	2011	1.72554	0.026396	0.423133	-154051.00
136	2012	0.493591	-0.29053	0.358881	132021.00
136	2013	0.29882	-0.27084	0.30034	-277121.00
136	2014	0.446286	0.325333	0.364382	-5200000.00
137	2007	0.182354	0	0.131834	460871.00
137	2008	0.497189	-0.16759	0.158447	14944.70
137	2009	0.340799	0.236333	0.11445	0.00
137	2010	0.412277	0.052935	0.084226	-82096.20
137	2011	0.387849	0.410246	0.077562	900000000.00
137	2012	0.936568	0.057652	0.152382	-200511.00

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137	2013	0.555287	0.691979	0.258894	-23109.70
137	2014	1.234765	0.068602	0.216051	32000000.00
138	2007	0.287698	0	0.028464	-5200000.00
138	2008	0.121352	0.463126	0.03445	3700000.00
138	2009	0.211615	0.959701	0.056088	-24000000.00
138	2010	0.224623	-0.31789	0.040995	5700000.00
138	2011	0.160076	-0.51732	0.031879	-14000000.00
138	2012	0.213754	-0.02484	0.025331	-80963.00
138	2013	0.423772	0.382866	0.025596	646311.00
138	2014	0.430465	-0.14653	0.030776	-35736.30
139	2010	0.648996	0	-0.0188	396165.00
139	2011	0.888157	-0.00695	-0.01752	48000000.00
139	2012	0.904221	-0.00328	-0.0163	39000000.00
139	2013	0.798555	-0.01583	0.00572	-437489.00
139	2014	3.010449	-0.04882	0.092446	-77326.20
140	2007	0.80426	0	0.073965	257431.00
140	2008	0.630849	0.027515	0.079744	2300000.00
140	2009	0.513065	0.099445	0.086919	-47327.20
140	2010	0.672714	0.034612	0.102619	258824.00
140	2011	0.587199	-0.0128	0.092483	-8987.00
140	2012	0.410917	-0.08262	0.076735	-739.36
140	2013	0.505155	-0.00157	0.069355	-509273.00
140	2014	0.569774	-0.22768	0.0464	1900000.00
141	2013	1.096302	0	0.003245	-16000000.00
141	2014	0.970584	-0.01636	0.005049	180000000.00
142	2007	2.298324	0	0.099339	627169.00
142	2008	1.405021	-0.10906	0.186045	653632.00
142	2009	2.078025	-0.13963	0.265218	7100000.00
142	2010	2.39244	-0.18876	0.392093	-130000000.00
142	2011	7.364939	-0.54842	0.669904	2300000.00
142	2012	20.38736	-1.39543	1.652924	400000000.00
142	2013	34.65435	-0.16257	2.32131	258724.00
142	2014	67.56641	-1.3106	5.260118	-4419.61
143	2007	1.137221	0	-0.07529	0.00
143	2008	0.221012	1.676058	0.038668	283165.00
143	2009	0.442325	4.79E-06	0.042457	467154.00
143	2010	0.384276	3.75E-06	0.034295	2700000.00
143	2011	0.207104	4.63E-06	0.036185	-48000000.00
143	2012	0.453513	7.31E-07	0.03016	-414987.00
143	2013	0.707557	0.025054	0.033231	7100000.00
143	2014	1.160171	7.77E-05	0.026885	-3050.21
144	2007	0.480039	0	0.207216	872411.00
144	2008	0.928216	0.006622	0.267359	382441.00

ID	Year	Performance -main variable-	Investment Risk	Liquidity Risk	Market risk
144	2009	0.79504	0.035507	0.312831	6800000000.00
144	2010	0.314346	-0.61764	0.204568	-28985.30
144	2011	0.887462	5.139424	8.498406	10500.40
144	2012	1.225968	-0.10663	12.70854	0.00
144	2013	3.608217	0.353382	6.106558	-9993.27
144	2014	2.84656	0.283981	3.221557	51000000.00
145	2007	0.647173	0	0.355543	68474.80
145	2008	0.387983	0.082348	0.435272	-1000000.00
145	2009	0.607045	-0.18261	0.249619	670365.00
145	2010	0.482666	-0.46573	0.158803	-413289.00
145	2011	0.218602	-2.45817	0.179151	744045.00
145	2012	0.227033	0.474496	0.182317	5900000.00
145	2013	0.571247	0.425458	0.262693	-1500000.00
145	2014	0.55549	-0.14373	0.196956	890186.00
146	2007	1.879422	0	-0.04877	55418.50
146	2008	0.462758	-0.33589	-0.02616	145834.00
146	2009	0.210082	-0.11875	-0.02431	725.51
146	2010	1.354618	-13.9748	0.413283	34000000.00
146	2011	2.980423	0.025869	0.584593	-590183.00
146	2012	2.388598	-0.17618	0.938875	-8000000.00
146	2013	1.294652	-0.02065	1.124031	1400000.00
146	2014	1.114565	0.001005	1.155554	91395.60
147	2007	0.196355	0	0.036236	3300000.00
147	2008	11.28483	-53.9802	2.42452	724509.00
147	2009	23.17222	-0.79158	4.265531	396433.00
147	2010	10.11746	0.757031	1.09535	150000000.00
147	2011	3.663179	0.486268	0.356877	3200000.00
147	2012	1.899093	-0.0358	0.370202	-11000000.00
147	2013	1.186019	0.099389	0.138163	1500000.00
147	2014	1.177469	0.035693	0.128262	1200000.00
148	2007	0.63859	0	0.013427	2200000.00
148	2008	0.569779	0.539187	0.030267	2600000.00
148	2009	0.602544	-0.02532	0.029452	27000000.00
148	2010	0.582582	-0.04348	0.022741	-360618.00
148	2011	0.502092	-0.16702	0.015564	3600000.00
148	2012	0.597961	-0.11173	0.010808	677911.00
148	2013	0.643516	-0.03233	0.009938	-1095.03
148	2014	0.629077	-0.14339	0.00744	32000000.00
149	2007	0.339023	0	0.087183	1700000000.00
149	2008	0.269096	0.284456	0.114916	711786.00
149	2009	0.208506	0.658153	0.112886	1400000.00
149	2010	0.193685	-0.0441	0.087782	-3504.62
149	2011	2.078888	-1.80262	0.344152	-4862.00
149	2012	0.020123	26.06571	0.871696	0.00

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149	2013	9.200456	-0.21071	1.057815	330000000.00
149	2014	2.731388	0.502756	0.261541	-2400000.00
150	2007	2.592673	0	-0.24822	-340721.00
150	2008	1.161146	-0.00879	-0.05947	4900000.00
150	2009	0.671465	0.032969	0.096977	6600000.00
150	2010	1.330296	-0.33753	0.247692	-15220.90
150	2011	1.840671	-0.53483	0.839573	65985.90
150	2012	2.308146	-0.29856	1.138227	-197044.00
150	2013	0.587975	-0.17194	0.803797	249383.00
150	2014	0.193525	-2.71104	0.305052	-46408.70
151	2007	0.417699	0	0.164493	-1200000.00
151	2008	0.396773	-0.10448	0.301936	-838083.00
151	2009	0.36914	0.092974	0.296763	-32808.60
151	2010	0.120371	-2.90001	0.156004	1000000.00
151	2011	0.176475	1.651687	0.181241	0.00
151	2012	0.194057	-0.28241	0.15179	309798.00
151	2013	0.198786	0.747114	0.163932	-186509.00
151	2014	0.250134	0.546396	0.193811	-2800000.00
152	2010	0.653486	0	0	-9800000.00
152	2011				-521510.00
152	2012	0.675926	-0.03819		660000000.00
152	2013	0.755011	-0.11989	0.103749	0.00
152	2014	0.746683	0.255129	0.343021	445228.00
153	2007	0.809942	0	-0.01327	11000000.00
153	2008	0.852524	0.125735	0.072491	-36803.00
153	2009	0.831693	-0.03941	0.039529	-6500000.00
153	2010	0.836116	-0.00743	0.027127	-192347.00
153	2011	0.867887	-0.01164	0.021134	107222.00
153	2012	0.872684	0.020322	0.044061	-7500000.00
153	2013	0.905488	-0.00148	0.043437	1100000.00
153	2014	0.81875	-0.03564	0.025089	0.00
154	2008	0.736104	0	0.611892	-723983.00
154	2009	0.902659	-0.03093	0.532999	-1100000.00
154	2010	0.825033	-0.0261	0.346186	5000000.00
154	2011	0.646932	-0.1623	0.205069	21837.80
154	2012	0.646576	-0.04405	0.161901	-44193.60
154	2013	0.745413	0.037774	0.159698	220285.00
154	2014	0.713847	-0.07539	0.116884	-506069.00
155	2007	1.017856	0	0.38849	-10000000.00
155	2008	0.514671	-0.18111	0.338075	-6700000.00
155	2009	0.391712	-0.1834	0.278746	-167464.00
155	2010	0.448159	0.117723	0.271434	370222.00
155	2011	0.485687	0.2043	0.297862	0.00

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155	2012	0.669723	0.248224	0.425227	0.00
155	2013	0.746724	0.282201	0.718082	-752687.00
155	2014	0.836197	0.102347	1.003983	149514.00
156	2007	0.19549	0	0.056509	-64688.60
156	2008	0.161826	-0.58228	0.153638	-2800000.00
156	2009	0.092463	-5.51951	0.069865	765010.00
156	2010	0.045933	-0.04606	0.064072	-112969.00
156	2011	0.038527	-1.80796	0.055732	-130000000.00
156	2012	0.036432	-0.30153	0.052909	-84000000.00
156	2013	0.057411	-0.89445	0.053708	-1200000.00
156	2014	0.048704	0.475307	0.061055	-8900000.00
157	2007	1.074174	0	0.8334	0.00
157	2008	1.262004	-0.08733	1.480897	-856569.00
157	2009	1.005763	-0.00051	1.161059	0.00
157	2010	0.850256	-0.08248	0.484104	-7823.28
157	2011	0.677678	0.17814	0.684737	-706819.00
157	2012	0.817666	0.103215	0.885679	9600000.00
157	2013	0.993552	0.000548	0.87114	-20892.90
157	2014	0.775361	0.167082	1.264298	-11000000.00
158	2007	0.415596	0	0	227831.00
158	2008	0.387812	0.026665	0	3900000.00
158	2009				-4500000.00
158	2010				450000000.00
158	2011				-2200000.00
158	2012	0.220404	2.062829	-0.01713	-1800000.00
158	2013	0.139291	1.11041		0.00
158	2014	0.086381	-5.21009		456047.00
159	2007	0.850362	0	0.168849	-66000000.00
159	2008	5.906795	-11.4151	3.025845	8169.19
159	2009	1.322071	-0.22592	4.619308	986.86
159	2010	0.729336	-0.36176	0.128144	-68246.90
159	2011	6.546118	-8.49658	2.380319	3100000.00
159	2012	1.280386	-0.0464	2.671527	-571670.00
159	2013	2.95996	0.52767	0.512056	212929.00
159	2014	5.284417	0.233939	0.348876	149873.00
160	2007	0.718402	0	0.083102	-367540.00
160	2008	0.280179	-0.32893	0.152422	4900000.00
160	2009	0.347532	0.451324	0.169135	160000000.00
160	2010	1.409917	0.025393	0.176028	-723983.00
160	2011	2.677438	0.121869	0.172579	-1200000.00
160	2012	2.447713	0.150988	0.123842	1900000000.00
160	2013	0.903721	-0.00469	0.113587	2600000.00
160	2014	0.28987	-0.20898	0.099459	-250195.00
161	2007	0.605876	0	0.131731	-16000000.00

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161	2008	0.54733	0.49283	0.258646	8500000.00
161	2009	0.659326	0.051038	0.214727	-2324.83
161	2010	0.57942	0.150433	0.215026	-1500000.00
161	2011	0.193979	1.366657	0.244258	-149209.00
161	2012	0.406993	0.451953	0.332419	0.00
161	2013	0.16518	3.365772	0.500327	0.00
161	2014	0.424296	3.345888	1.585609	-141491.00
162	2007	3.078093	0	0.808333	182366.00
162	2008	3.613166	-0.31902	1.351061	147.38

Annex 6. Random effects and Hausman test for investment risk model (*Perform* – dependent variable)

Explanatory variables	Expected sign		*p*-value|
CR	-	-0. 2198 (-5.94)	0.000***
LogAssets	-	-0.9660 (-20.40)	0.000***
LEV	+	0.5436 (7.42)	0.000***
Dummy_Au_Op	+/-	-0.0224 (-0.25)	0.802
Dummy_Au_Firm	+/-	0.0803 (0.99)	0.325
Number of observation		1044	
Companies		160	
Within R²		0.4338	
Wald χ²		616.81 (0.0000)	
Hausman test χ²		171.80 (0.0000)	

Notes: The dependent variable is *Perform*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *z* statistic. Hausman's test refers to the null hypothesis of both fixed effects and random effects being equivalent

*=significant at a 10% level; **=significant at a 5%level ***=significant at a 1% level.

Annex 7. Random effects and Hausman test for liquidity risk model (*Perform* – dependent variable)

Explanatory variables	Expected sign		*p*-value|
LR	+	0.205(8.60)	0.000***
LogAssets	-	-0.6203 (-11.56)	0.000***
LEV	+	0.3710(4.67)	0.000***
Dummy_Au_Op	+/-	-0.0353 (-0.39)	0.694
Dummy_Au_Firm	+/-	-0.0162 (-0.20)	0.843
Number of observation		969	
Companies		148	
Within R²		0.4114	
Wald χ² (*F-statistic*)		613.13 (0.0000)	
Hausman test χ²		81.29 (0.0000)	

Notes: The dependent variable is *Perform*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *z* statistic. Hausman's test refers to the null hypothesis of both fixed effects and random effects being equivalent

*=significant at a 10% level; **=significant at a 5%level ***=significant at a 1% level.

Annex 8. Random effects and Hausman test for market risk model (*Perform* – dependent variable)

Explanatory variables	Expected sign		*p*-value|
MR	+	7.66 (2.46)	0.014**
LogAssets	-	-1.0003 (-20.48)	0.000***
LEV	+	0.5720(7.72)	0.000***
Dummy_Au_Op	+/-	-0.02425 (-0.27)	0.790
Dummy_Au_Firm	+/-	0.0900 (1.09)	0.278
Number of observation		1044	
Companies		160	
Within R²		0.4381	
Wald χ² (*F-statistic*)		.	
Hausman test χ²		157.78 (0.0000)	

Notes: The dependent variable is *Perform*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *z* statistic. Hausman's test refers to the null hypothesis of both fixed effects and random effects being equivalent

*=significant at a 10% level; **=significant at a 5%level ***=significant at a 1% level.

Annex 9. Random effects and Hausman test for investment risk model (*PR* – dependent variable)

Explanatory variables	Expected sign		*p*-value	Robust regression	*p*-value (robust)
CR	-	-1.1086 (-4.84)	0.000***	-1.1086 (-3.09)	0.002**
LogAssets	-	-3.5255 (-15.21)	0.000***	-3.5255 (-5.57)	0.000***
LEV	+	6.8543 (16.09)	0.000***	6.8543 (4.81)	0.000***
Dummy_Au_Op	+/-	0.2517 (0.46)	0.642	0.2517 (0.41)	0.683
Dummy_Au_Firm	+/-	0.8482 (1.96)	0.050**	0.8482 (1.57)	0.116
Number of observation		1044			
Companies		160			
Within R²		0.4561			
Wald test (*F-statistic*)		607.40 (0.0000)	**Wald test χ²**	40.19 (0.0000)	
Hausman test χ²		401.53 (0.0000)			

Notes: The dependent variable is *PR*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *z* statistic. The Hausman test checks if the within-group estimator is valid against the random effects estimator. The table present the result for the fixed effect regression without the robust estimator and with the robust estimator.

*=significant at a 10% level; **=significant at a 5% level ***=significant at a 1% level.

Annex 10. Random effects and Hausman test for liquidity risk model (*PR* – dependent variable)

Explanatory variables	Expected sign		*p*-value	Robust regression	*p*-value (robust)
LR	+	2.1969 (18.69)	0.000***	2.1969 (3.50)	0.000***
LogAssets	-	-1.1422 (-5.39)	0.000***	-1.1422 (-2.34)	0.019**
LEV	+	3.7690 (9.77)	0.000***	3.7690 (2.85)	0.004**
Dummy_Au_Op	+/-	-0.2179 (-0.48)	0.631	-0.2179 (-0.42)	0.674
Dummy_Au_Firm	+/-	0.0285 (0.07)	0.944	0.0285 (0.05)	0.962
Number of observation		969			
Companies		148			
Within R²		0.5671			
Wald test (*F-statistic*)		1126.89 (0.0000)	Wald test χ²	1126.89 (0.0000)	
Hausman test χ²		39.79 (0.0000)			

Notes: The dependent variable is *PR*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *t* statistic. The Hausman test checks if the within-group estimator is valid against the random effects estimator. The table present the result for the fixed effect regression without the robust estimator and with the robust estimator.

*=significant at a 10% level; **=significant at a 5% level ***=significant at a 1% level.

Annex 11. Random effects and Hausman test for market risk model (*PR* – dependent variable)

Explanatory variables	Expected sign		*p*-value	Robust regression	*p*-value (robust)
LR	+	3.6800(1.99)	0.046*	3.6800(2.54)	0.011**
LogAssets	-	-3.6697 (-15.33)	0.000***	-3.6697 (-5.55)	0.000***
LEV	+	6.9876 (16.27)	0.000***	6.9876 (4.88)	0.000***
Dummy_Au_Op	+/-	0.2377 (0.43)	0.664	0.2377 (0.38)	0.703
Dummy_Au_Firm	+/-	1.0035 (2.05)	0.041**	1.0035 (1.67)	0.096*
Number of observation		1044			
Companies		160			
Within R²		0.449			
Wald test (*F-statistic*)		577.79 (0.0000)	**Wald test χ²**	11.26 (0.0000)	
Hausman test χ²		398.10 (0.0000)			

Notes: The dependent variable is *PR*. Wald's test statistic refers to the null hypothesis that all coefficients for the explanatory variables are equal to zero. The value in brackets refers to the *z* statistic. The Hausman test checks if the within-group estimator is valid against the random effects estimator. The table present the result for the fixed effect regression without the robust estimator and with the robust estimator.

*=significant at a 10% level; **=significant at a 5%level ***=significant at a 1% level.