

THE DETERMINANTS OF CAPITAL STRUCTURE: THE
CASE OF EUROPEAN FIRMS

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Abstract

The Capital structure is considered a matter of discussion in the area of corporate finance for many researchers, and the conclusions are not consensual. The present study aims to assess the determinants of capital structure in European companies, identifying the impact of economic and institutional variables on it.

This analysis covers 753 European companies for a period of nine years, and the results are in line with the Pecking Order Theory, and suggest that company size, reputation, collateral, business sector and economic context of local and global factors influence the capital structure of companies.

It is essential to understand the determinants of capital structure in order to make funding decisions with assertiveness that maximize the goals envisaged by the companies.

Key words: capital structure, financial leverage, debt and financial risk.

Sumário

A estrutura de capital é considerada um tema em discussão, na área das finanças empresariais, por muitos investigadores sendo que as conclusões não são consensuais.

O estudo apresentado tem como objectivo avaliar os determinantes da estrutura de capital nas empresas europeias, identificando o impacto das variáveis institucionais e económicas nas mesmas.

Esta análise incide sobre 753 empresas num período de 9 anos, sendo que os resultados obtidos estão alinhados com a teoria de Pecking Order, e sugerem que a dimensão da empresa, reputação, garantias, sector de actividade e o contexto económico local e global são factores que influenciam a estrutura de capital das empresas.

É essencial conhecer os determinantes da estrutura de capital de forma a tomar decisões de financiamento com assertividade que maximizam os objectivos preconizados pelas empresas.

Palavras-chave: estrutura de capital, alavancagem financeira, endividamento e risco financeiro.

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I. Introduction

This study was performed on 753 companies from 12 different European countries, and aims to identify the average impact of institutional variables on financing decisions, as well as the type of companies that are mostly subjected to institutional constraints. The development of this theme requires important theory contributions such as trade-off, pecking order agency and asymmetric information.

The companies were ranked by sector and by rating in order to conclude whether there is a sector of "dominance" in the acquisition financing. From this we might as well see which are the companies less able to be financed and understand which are their constraints.

This work is divided into four parts. In section II, we discuss the main theories on the subject of capital structure. Section III evaluates the process used for the treatment of data, analyzes the most significant variables to be included in the study, where they are detailed, and also present a brief description of the countries represented. The data analyzed refers to the period between 1999 and 2007. We report the macro-economic development of countries and world economic context that marked each year, indicating the main events and what might have impacted the activities of the companies in the study. In section IV, we analyze the variables and define models to be tested through multiple linear regressions. Section V shows the main conclusions drawn after the analysis of the regressions performed in the previous paragraph and supported by section VII with charts, tables and results of all the tests performed.

II. Literature Review

The capital owners or managers, when decide to invest in a particular entity, require a return on their capital invested therein, taking into account the risk associated to it. The capital that the company has in its possession has no effect on its financial operations, either through equity or debt capital. The equity is understood as the current owner of the investment and debt capital financing from third parties, through bank loans or by issuing securities – shares and bonds, for example.

The main theories on capital structure aim to explain the levels of debt shown on the balance sheet liabilities of companies. The capital structure of a company reveals how its assets are distributed through a combination of assets – cash, shares and debt securities.

Most tests on theories of capital structure have examined debt ratios of public US companies. These theories and tests are really focusing on financing strategy, the determination of overall debt ratios for a particular type of firm in a particular institutional setting.

The Modigliani and Miller (MM's) theories are the basis for modern thinking on capital structure, although it is often understood as a completion, visible only in theory. MM's (1958), in her study, assert that in a perfect market, the way the company is financed is irrelevant to its value. However, in the real market, it is important to look at the factors that can contribute and affect the company's capital structure, such as agency costs, asymmetric information, or taxes. Thus, in addressing the issue of capital structure, it is essential to know and understand the various theories developed in this area and behind this study, such as the Trade-off theory, Agency problems, Pecking Order theory and Asymmetric information.

The trade-off theory, defended by Kraus and Litzenberger (1973) says that the choice of debt ratios of companies should take into account the tax benefits (expenses deducted of the financial tax) arising from debt and financing costs and even possible bankruptcy due to financial difficulties. They showed that the companies have an excellence level of debt when the marginal benefits of an additional unit of debt are equal to its marginal cost.

The financial costs of a company can sometimes be related to agency costs. When a company shows financial difficulties, these can be caused by the problem of agency costs, particularly because managers and owners, or managers and stakeholders, don't have their interest aligned, leading to a down turn in the market value of the company. One way to solve the agency costs is through the investment, usually high risk investment in order to ensure a greater return on shareholders.

The Pecking Order theory, developed by Myers, S. Majluf (1984), arises in the context of asymmetric information on the issues of funding decisions, and recommends an optimal hierarchy in the type of funding for the company. This theory defends that when an extra need in the investment arises (increase of the investment) it is covered firstly with internal equity, secondly with debt, and thirdly with outside equity. It is however important to recognize that the Myers-Majluf (1984) model does not provide a theory of capital structure. Instead, it is a theory of debt, which predicts that equity is dominated by debt and so it is never issued in equilibrium.

Managers or investors have a priori more information than the company's shareholders and therefore, to avoid problems of asymmetric information at the time of funding, this theory suggests a hierarchy of forms of funding according to Myers (1984): firstly, firms prefer to finance with internal funds such as reinvesting profits; secondly, companies trying to finance themselves with new issues of debt securities in the case of the impossibility of achieving the financing required for the investment opportunity on external finance with the credit institutions.

The Pecking Order theory also justifies why the most profitable firms generally borrow less - not because they have low target debt ratios but because they don't need outside money. An attractive interest tax is assumed as second-order effect. Debt ratios change when there is an imbalance of internal cash flow, net of dividends, and real investment opportunities. High profitable firms with limited investment opportunities showed low debt ratios, for example. Debt ratios tend to be low in high-tech companies or, high-growth industries, even when there is the need for external capital.

The Financing theories, as Trade-off and Asymmetric information, end up being very much related with the Pecking Order theory. This is because what originated the Trade-off theory were the conflicts between costs and benefits, represented as the agency

problems and asymmetric information which are, by turn, when these exist, the obtained funding resolved with resource to the Pecking Order theory, ranking the excellent financing ways for enterprises.

The literature on capital structure in the US is enormous. Differences in the accounting rules existed before 2005, which created impediments to the empirical research of capital structure in Europe – so much that, to the best of our knowledge, the only cross-country empirical test was conducted by Rajan and Zingales (1995). They analyzed the capital structure in G-7 countries (France, Germany, Italy and the United Kingdom) subsequently adjusting the data to the differences in accounting standards. Several interesting patterns emerged from their study. Firstly, firms in the UK and Germany have lower leverage than in France and Italy, independently of the company size. Institutional differences probably explain some of the cross-country differences. For example, creditor protection is higher in Germany and UK than in France and Italy, and that might be the reason for the lower leverage levels in the former two countries (i.e. firms may be less likely to lever up if they anticipate that they will be automatically liquidated in case of bankruptcy). Secondly, the factors affecting leverage are remarkably similar across countries. Tangible assets on the total assets ratio is positively correlated with leverage – presumably because tangible assets can better serve as collateral. Market-to-book value (Tobin Q – a proxy for investment opportunities) is negatively correlated with leverage. This finding is consistent with the idea that highly levered companies are more likely to pass up profitable investment opportunities; it is also consistent with firms attempting to time the market and to issue equity when they perceive their stock price to be high. Rajan and Zingales (1995) also reported a puzzling finding: size is positively correlated with leverage in all countries except Germany. While this theory gives ambiguous predictions on the relation between size and leverage, why the relation in Germany should run opposite to the one in other countries is unclear. The authors conclude that “a deeper understanding of the actual determinants of the effects of institutional differences is necessary”.

According to Rajan and Zingales (1995), the main difference between bank and market oriented countries seems to be that the choice is between public (stocks and bonds) and private financing (bank loans) rather than in the amount of leverage. They tested the significance of legal rules, degree of investor’s protection and enforcement as important determinants of the company’s level of leverage, the hypothesis that company debt is,

on average, of shorter maturity in countries where the quality of the enforcement is lower. This study attempts to identify not only the average impact of institutional variables on financing decisions but also what kind of firms are more vulnerable to institutional constraints. Modigliani and Miller (1958), showed that neither the dividend policy or funding decisions are relevant in the context of perfect capital market¹. Their famous “proposition I” states that a firm cannot change the total value of its securities just by splitting its cash flows into different streams: the firm’s value is determined by its real assets, not by the securities it issues.

Essentially, these authors derive a set of propositions under stringent assumptions: the first proposition demonstrates that under the absence of taxes, the capital structure is irrelevant to determining the value of firms in equilibrium – in this state arbitrage profits are not allowed; hence levered and unlevered firms should have a similar value. The second proposition demonstrates that the introduction of corporate taxes allow firms to deduct interest on debt in computing taxable profits.

Another point to be made here is that when companies feel the need to finance it is especially desirable that they resort to internal financing. Firms that have worked down the pecking order and need external equity may end up living with excessive debt or passing by good investments because shares can’t be sold at what managers consider a fair price. In other words, financial slack is valuable. Having financial slack means to have cash, marketable securities, readily saleable real assets, and ready access debt markets or to the bank financing. Ready access basically requires conservative financing so that potential lenders see the company’s debt as a safe investment.

In the long run, a company’s value rests more on this capital investment and operating decisions than on financing. The financial slack is fairly valued on companies with high growth opportunities, so that they usually aspire to have conservative capital structures. Thus, two leverage models were tested and discussed, while the debt maturity was explained in this paper.

¹ MM's basic argument was anticipated in 1938 by J.B. Williams and to some extent by David Durand. see J. B. Williams, *The theory of Investment Value*, Harvard University Press, Cambridge, MA, 1938; and D. Durand, "Cost of Debt and Equity Funds for Business: trends and Problems of Measurement," in *Conference on Research in Business Finance*, National Bureau of economic Research, New York, 1952.

III. Variables and hypotheses for model definition

With this study we want to demonstrate the most important variables used to explain the capital structure and firm leverage.

We had to analyze the characteristics of variables to define the model. Using the theories mentioned above, macro-economic characteristics of the countries under analysis and variables available in the databases we conducted a preliminary study for the creation of a model which integrates the various interactions one would want.

Data and Methodology

The private database files, used for this study, are composed of three databases with financial information of a universe of 12.342 European companies.

In order to obtain more complete information, we checked some consecutively repeated data. On the other hand, the lack of relevance of some data for the analysis of our companies, made us choose to not consider them since they would not have any relevance on the continuing study. This process of merging databases resulted in 887 companies eligible for analysis. However, it was found that, for some of these companies, there was no record of certain variables such as the “date of corporation”, “ticker symbol” or “main exchange”, so the final number eligible for this study is of 753 companies. These companies were had later on some of the variables calculated, such as “growth rate of sales”, “long term maturity assets” and “short term maturity assets”.

Inspired in Djankov et al. (2008) studies, we analyzed the variables of control and stock market development, presented in table 3.

Another important variable that we include in this study is the “index of creditors protection” also addressed by the authors Djankov et al. (2004) where we intend to determine which is the index of creditor protection achieved in this study. The index varies within a range of 0 (weak creditor rights) and 4 (strong creditor rights).

To analyze the data from 753 firms in the study, and given the high number of variables controlled, we prepared the analysis in two models to be tested, using the model on multiple linear regression.

The multiple linear regressions allow us to control more accurately many other factors that simultaneously affect the dependent variable. The model testing methodology encompasses a large number of variables that may be relevant to their explanation, and so it was necessary to do this analysis using the multiple linear regression method in order to study in greater detail and accuracy the results obtained.

Multiple linear regression assumes that there is a linear relationship between a variable y (the dependent variable) and k independent variables, x_i ($i=1, 2, \dots, k$) that can be described by the equation:

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_k x_{ik} + u_i \quad (1)$$

The independent variables are also explanatory variables or regressors, since they are used to explain the variation of y . The variable u , called the error term or disturbance of the relationship, represents other factors, besides x_1, x_2, \dots, x_k , which affect the independent variable y . No matter how many variables are the incubation models, there will always be factors that won't be included and which turn into u .

A calculation tool used is SPSS (Statistical Package for the Social Sciences) is a powerful software tool that allows a more appropriate data treatment, making complex statistical calculations possible with immediate results.

Description of the countries, rating and sectors

The capital structure of companies is directly linked to both the operating country and its sector of activity. It is important to start from the present distribution of the analysis data, by country, rating level and sector of activity. Thus, the analysis consists of 753 companies, 78% of which are German.

Germany makes up the vast majority of the database under study, followed by Netherlands with 7% and Poland with 6% (graph 1). As the most populous country of the European Union, it showed a GDP growth of around 2.5% per year until 2007, with rising inflation. The sectors that contribute most to GDP growth are mainly services, followed by the exportation and the importation of goods and services sectors, and lastly the industry. German products are mainly related to large engineering, for example automobiles, machines and wind turbines. It is to be stated that 14% of exportation refers to high-tech products. Foreign Direct Investment (FDI) in this

country also suffered steep decline in the period of 2000-2005, and had a positive year in 2007. However, later it returned to decrease. Following Germany is the Netherlands, a densely populated country where the economy shows prosperity with a GDP growth of around 3% per year, and a decline in inflation in 2007, which stood at 1.2% of GDP. The main activities in this country are related to the exportation and importation of goods and services, followed by the services sector which is of great importance (about 74% of GDP), and lastly the industry. This country is a major producer in the food industry, chemicals and petrochemicals, and an average of 30% of the exportation refers to high-tech products. After recording a high drop of the FDI in between 2005 and 2006-2007, a high growth was registered. Finally, after 1990 Poland became a market economy and since then it is characterized by its diversified economy between Industry and Agriculture. With a growth of about 6.6% per year until 2007, the Service sector, importing and exporting (mainly food products) goods and services, as well as the industry sector, drive this economy.

The companies under study are mainly concentrated in the sectors of manufacturing. These sector include consultancy activities, scientific and technical activities, and also others in the information activities and communication areas. As shown in table 5, the Manufacturing sector comprises about 28% of companies, which dominate the Chemical and Pharmaceutical industries, Machinery and Equipment, Automobiles and related products, Textiles, Hardware and electronics. The sector that appears next, with about 21% of companies, comprises Business and Financial consulting activities of accounting and engineering, Scientific activities such as Research and Development in the areas of Biotech, Chemistry, Social sciences, for instance, all activities requiring a high degree of knowledge and specialized training (graph 2). The other sector with more representation (11%) is the sector of Information and Communication, which includes radio and television providers, television programs, activities, film, publishing activities (newspapers and magazines), telecommunications (mobile and fixed).

The remaining firms are distributed among various sectors such as mining, Financial activities and Insurance and also Real State, Human health activities, accommodation, transportation, construction, etc.

Another definition to highlight here is the level of company rating. The classification of credit risk associated with a firm, shows if this company has the ability to meet its

financial commitments, and simultaneously highlights the level of risk which reflects the contract financing (graph 3).

From the analysis of 753 firms, it seems that 33% of the companies show a level D rating, which means that these are faced with situations of uncertainty (of the business and financial performance or even of the economic climate), therefore compliance with its financial commitments may be conditioned, and may even reach a situation of default. In turn, about 30% of the companies in the study show a level of A + rating, which means they have a good ability to pay and have a low credit risk associated. Companies with the rating level B, approximately 28% of companies in the study, have a weak capacity to pay its commitments and therefore the credit risk associated to them is high.

The analysis of the 3 factors outlined above: rating, sector and country, gives us the following ideas: there are companies belonging to all sectors Rated A +, but especially on C sectors (Manufacturing sector), J (the sector of Consultancy activities and Financial activities accounting and Engineering) and M (Field of Information and Communication). Companies rated A +, are mostly German. Thus, it appears that in Germany there are about 165 companies with activities in these sectors that show a strong capacity to pay and low credit risk. A similar situation is seen when it comes to levels of B + rating and D, since the dominant sectors are referenced above (C, J, and M) and Germany evidently leads all them. At the rating level B +, there are 3 countries taking charge of this sector and they are: Germany (159 companies), Greece (22 companies) and Ireland (11 companies). In the D rating there are 247 companies in total, 209 of which are German, and it appears once more that the predominant sectors are the C, J and M.

Description of variables

An initial explanation was done, a descriptive analysis of the independent and dependent variables, presenting as tables 6 and 7, the mean and standard deviation of each. The variable maturity of assets defined as long-term assets on total assets, which is expected to be positively correlated with the maturity of liabilities (Barclay and Smith, 1995). In our study, although this relationship does not assume statistical

significance, there is a tendency for a negative correlation between the variables (table 8).

Another relevant relation is between the ratio of tangible assets and total assets, as well as the ratio between intangible assets and total assets (as the proxy for the availability of collateral or the lack thereof. Studies have generally found a positive relation between tangibility of assets and leverage (Titman and Wessels, 1988; Rajan and Zingales, 1995), and with this study, we propose to confirm this fact.

According to the study by Giannetti (2003), the growth rate of sales, defined as the difference between the logarithm of sales at time t and $t-1$, is a proxy for growth opportunities and has been found to be negatively correlated with leverage (Kim and Soresen (1986) and Lang et al. (1996)), supposedly because high-growth firms are more vulnerable to underinvestment (Myers, 1977) and asset substitution problems, as they have more flexibility in their choice of future investment (Titman and Wessels, 1988). Our study has identified this theory only for the years 2003 and 2007, years of depreciation of the dollar, the slowdown of economic activity as well as high volatility in bond markets and shareholder value, with consequences on spreads (table 9).

The age of a company defined as the number of years from the date of incorporation of the firm, is also a variable with relevance to the model as reflected in its experience of market. The average age of companies in this study is of 43 years (table 10), yet if we look at the country, we can conclude that the difference between countries and their business environment, companies or stronger market volatility Dutch companies have an average age of 68 years and Lithuanian companies an average of 4 years.

The company reputation consists on the image that a company conveys to society and is another important variable addressed in this study. Since reputation is related to external factors that can affect negatively or positively its reputation, we can characterize this variable as being very volatile. Given the importance of this variable, many companies have specialized teams dedicated to managing and maintaining their good image amongst society. For example, we can observe that most multinational companies have social responsibility measures that allow the preservation and leverage of the company's reputation in society. Diamond (1991) shows that firms' reputation can affect financing choices only when the firm becomes sufficiently mature to be able to access the bond

market, the relation is likely to be non-linear. In this study, the business' reputation takes a scale from 0 to 2 and the average of all firms under study is of 0,9. With this data we can conclude that all companies in the study have a moderate reputation.

A variable non-debt tax shields was defined by Giannetti (2003) as “depreciation to earnings before taxes and interest, which are a good substitute for debt in order to avoid taxation.” In our study, we expect this variable to be positively correlated with the level of debt because the grater the depreciation of the profits before tax, the lower the amount available to reduce the debt. However, previous studies found no consensus with this relationship: MacKie-Mason (1990) finds that the negative relation holds only for firms with low cash flow, which are more likely to be close to tax exhaustion.

To control the financial return, we studied the return on assets variable, which measures how the return on a company is generated from its total assets. Although Myers (1984) argues that the variable is expected to be negatively correlated with leverage, because internal funds are cheaper than external funds, the analysis notes that the variables in this study did not show significant correlation (table 11).

The industrial sectors variability of the return on assets, defines the standard deviation of the return on assets by sector and country in a given year (proxy for business risk). This variable has not been frequently used before with exception of Booth et al. (2001), who showed that business risk seems to have a different effect on debt maturity across countries.

The share of the firm equity is held by the dominant shareholder, which allows the study of the relation between ownership structure and leverage: certain types of controlling shareholders may use debt more often in order to retain control. This relationship is consistent with the theory of asymmetric information defended by Akerlof (1970) which refers to the idea of adverse information on markets.

To have a better understanding of the legal system and financial development, we analyzed some indicators. Financial development is measured by the ratios of stock market capitalization to GDP and of bond market capitalization to GDP. These indexes proxy for the availability of equity and bond markets in a country, as well as are indirect measures of the importance of banks. Concerning the banking system, its openness provides complementary information on the market power of banks in a country:

openness of the banking system is likely to increase competition and therefore to decrease the cost of bank loans. Note that the issue of concentration of banking systems, since measured by the share of assets of the three largest banks, provides complementary information on the market power of banks in a country: high concentration of the banking system is likely to reduce competition and therefore to increase the cost of bank loans.

The descriptive analysis of the variable (stock market capitalization to GDP) reveals that the companies in this thesis consider that banks assume a moderate level of the importance. Based on the Doing Business report², where it is referred that economies are classified relatively to their capacity and easiness to close, simpler it is of one to classify the economy (this classification goes from 1 to 183), easier it is to do business, with a regulatory and favorable environment to the development of new activities and companies in that market. Figure 2 shows the index rating “ease of Doing Business” in 2007, for the present countries in our study. For this classification indexes, as starting or closing a business, getting credit, protecting investors, paying taxes are also analyzed as shown in the table 12 (in attachments).

Still based in this study on Doing Business, it is revealed that regarding what concerns easiness on obtaining credit of the companies as a mean to make business, a more effective way to improve access to credit is to increase information about potential borrowers’ creditworthiness and make it easy to create and enforce collateral agreements.

In this way, a bank, when gives a credit, doesn’t only evaluate initially the activity of the company, but also the history of creditors and guarantees given for it, so that the value of the loan tends to be less when these 3 parameters are not well defined or if they verify a big uncertainty related to them.

Doing Business concludes that the problems of accessing credit are generally associated to two subjects: the first one reveals the lack of information about obtaining credit, and the second refers to the application of inadequate laws about financing guarantees. As figure 3 shows, the economies where it is easier to obtain financing are in the U.K., Hong Kong, Australia and Germany.

² The indicators presented measure business regulations and protecting the rights and property. Data in *Doing Business 2007* report, referring to the period of April 2006.

Another indicator of this analysis is to highlight the creditors' rights protection indexes, as developed by Simeon Djankov, Caralee McLiesh, and Andrei Shleifer (2004). These authors argue that "The creditors rights protection indexes from the updated creditor rights an index aggregating creditor rights, following La Porta and others (1998). A score range goes from 0 to 4 and is assigned when each of the following rights of secured lenders are defined in laws and regulations: first, there are restrictions, such as creditor consent or minimum dividends, for a debtor to file for reorganization; second, secured creditors are able to seize their collateral after the reorganization petition is approved, i.e. there is no "automatic stay" or "asset freeze"; third, secured creditors are paid first out of the proceeds of liquidating a bankrupt firm, as opposed to other creditors such as the government or workers; and lastly, the administrator, and not the management, is responsible for running the business during the reorganization. The index ranges varies from 0 (weak creditor rights) to 4 (strong creditor rights). About 85% of the companies of this study assume the third position in the ranking of protection of creditors. Thus, most of companies reinforce a strong protection of the rights of creditors.

We emphasize here that the fact that a big part of these companies are German. On the other hand, approximately 11% are companies from Poland, Greece and Ireland, and present a low level of creditors' protection (graphic 4).

Lastly, it is noted the effect of corporate taxes on investment and entrepreneurship by Djankov et al (2008) where they prove that the taxes over societies have a negative effect on the investment of companies and their level of enterprise. This effect is robust if we control other tax rates, including, property rights protection, regulations, economic development, openness to foreign trade, and inflation. Showing that when the companies have more taxes, lower will be its level of instrument in production activities, so that a company becomes more dependent on the capital financing and has more contact with parallel economies.

In summary, we aim to demonstrate that the variables have some kind of correlation according to table 4.

It is intended that during the presentation of the analysis of variables and models, to statistically verify all these interactions and conclusions, as it is important to give its reasons in accordance with the economic global and country environment.

In order to evaluate financing decisions and types of companies more vulnerable to institutional constraints, we based this study on two models: leverage and debt maturity. For each model, descriptive analysis regressions, which were run in SPSS, were created and performed.

IV. Data and Regressions

Testing models

A. Leverage

We want to prove with this model, that the value of debt is closely linked with the reputation and company's size. Through knowing and observing the market, a company with good reputation is more easily granted financing than a firm with low reputation in the market. The Return on assets (ROA), the economic risk of the market and especially the guarantees given are obtaining the funding, crucial to test this model. It is necessary to assess whether the company's ROA is positive and if the guarantees given minimize the risk of default.

Thus, the model advocated and tested is:

$$\begin{aligned} \text{Leverage} = & c + \beta_1(\text{AssetMaturity}) + \beta_2(\text{Reputation}) + \beta_3(\text{Size}) + \beta_4(\text{Collateral}) \\ & + \beta_5(\text{ROA}) + \beta_6(\text{MBV}) + \beta_7\left(\text{LN}\left(\frac{\text{GDP}}{\text{POP}}\right)\right) + \beta_8(\text{Growth rate of sales}) \\ & + \beta_9(\text{stock market capitalization to GDP}) \\ & + \beta_{10}(\text{time to collect on a bounced check}) + \beta_{11}(\text{IPOS to GDP}) \\ & + \beta_{12}(\text{Non debt tax shields}) + \beta_{13}(\text{Industry}) + \beta_{14}(\text{EBIT}) \\ & + \beta_{15}(\text{Tax Evasion}) + \beta_{16}(\text{Listed firms per million population}) + u \end{aligned}$$

B. Maturity

With this variable, it is intended to demonstrate that the maturity of the debt is closely related to the volatility of debt, with the guarantees given for obtaining financing and especially with the size of the company. The intent of this model is to justify that the maturity of assets is closely related to factors arising from normal economic activity, and therefore to consider the volatility of assets. We also understand that the size of the company contracted to finance and the sector where it belongs because there are sectors where the barriers for financing may be lower. (eg: companies in sectors of technology).

$$\text{Maturity} = c + \beta_1(\text{Volatility}) + \beta_2(\text{collateral}) + \beta_3(\text{Size}) + \beta_4(\text{Tax Evasion}) + u$$

Evaluating the model after testing can lead us to the conclusion that for each year of analysis, the most significant variable and the one that best explains the maturity of assets, is the "collateral" variable. Thus, we can say that to access the maturity of assets and their decision to finance depends on the guarantees provided. Given the markets instability, since 2000, the volatility of assets included a decisive variable for the evaluation of the maturity of assets. Note that in 2006, that in addition to the assurances given, the size of a company was also a factor that contributed significantly to access the maturity of assets in grant funding.

Evaluation of correlations

The analysis made, shows correlations with the most important variables which explain the amount of corporate indebtedness.

It also an important fact that in the present study, firm size is measured by turnover observed. In the analysis it is observable that the larger the firm size, is the greater will be the need for its financing. It may be explained by tendency that is to operate in these markets, growing and expanding their economic activities. Looking at the variable "total debt", we note that it is directly correlated with size to firm, so the larger the size of the company, the greater the amount of requested funding. As showed in table 13, for all the analyzed years, these variables are correlated assuming a significance level of 1%, which gives us great accuracy on what the relationship between firm size and value of its debt incurs. However, the larger the firm size is, the greater the market risk there will

be. This relationship is evident for the years of 2000 and 2001, where we can see underlined the capital markets fragility. Since these variables are related to a significance level of 5 % and show that the larger the company size is (table 14), the greater the risk that the market can provide, given the huge amounts of funding. To fight the high economic risk associated with loans contracted by large companies, it was required a high level of assurance between 2000 to 2003 (with a significance level of 5%). Subsequently in the years of 2006 and 2007 (with significance of 1%) it was shown that the larger the size of the company, the greater the guarantees for the financing. In fact analyzing the financing and guarantees for economic risk, it was with relevant statistic that for some years this study was proven, namely on between 2001 and 2005. This relationship assumes a degree of accuracy of 1%, demonstrating the strong relationship between the financing guarantees and economic risk it also presents. Thus, the higher the economic risk of investment, the greater the level of safeguards required for companies (tables 15 and 16).

Moreover, the larger the size of the company, the higher the return generated from its activities. In the year of 2002, these two components are related to a significance level of 1%, and 5% for the remaining years of the analysis. Also the rate of sales growth shows a positive relationship, where the higher number of sales, the greater the size of the company.

Another variable to emphasize its importance and contribution in this study is the age of a firm. Although this does not present statistical significance when correlated with the total debt (table 17), when correlated with firm size findings it is different. In fact, the age of the company reveals the experience of the market where it operates in. The analysis is positively related to firm size assuming a significance level of 5%, showing that the older the company is, the more likely it will be a large company with vast experience in the market. Another interesting relationship of the variable age of the company "is with the assurances given to acquisition financing. Note that, in most of studied years there is an opposite relationship between these variables, indicating that the vast experience of long time businesses are a key determinant to define the guarantees provided in the act of funding. Table 18 shows that there is a significant proven relationship that the oldest company will have lowest level of required collateral and a lower the maturity of assets in debt (especially in the years 1999 and 2004 to 2007) because the company reveals a history over the years showing the activity of their

market conduct, and reputation, as shown in table 19. This relationship assumes a level of significance at 1%. In this line, although not taking the desired significance, the relationship between firm age and economic risk assumes an opposite trend, ie the older the company, the less likely to be the market risk it may seem (view table 20).

Concerning of sectors of activity here depicted in the study also evaluated the correlations with other variables. It can be concluded that the oldest sectors portrayed in this study include manufacturing, the activity developed in technical and scientific areas, and industry behavior management services. For all the years under review, the sectors with the largest sectors are Manufacturing (sector C), the Retail, Wholesale and Motor vehicles (sector G), Real State (sector L) as well as the sector that involves the Administration and support Services (sector N).

The sectors that have more shareholders registered are the M and N, respectively, the sector that includes the Technical activities, Professional and Scientific sector and the Administration and support services (table 21). M is also the sector that shows a positive relationship with the variable "collateral" for what can be concluded with a significance level of 1% and 5% as this sector to be able to finance itself, has required guarantees high enough (possibly because they are dealing with activities related to scientific research). Moreover, in table 22, it appears that the acquisition of the funding guarantees are in inverse relation to the industry, so we can conclude that for this sector, the guarantees are of lesser value. This can be explained by the level of risk and what this dimension presents.

For the sector that is exposed to increased economic risks, we have in the analysis of table 23, an inverse relationship between these variables, ie the larger number of companies in this sector, less the guarantees for entrepreneurs. In the years 2000 and 2001, this relationship has assumed a relevance degree of 1% for the business lines L and N. We also intend to evaluate the relationship between the business sector and company size, and so clarify which sectors reached larger size in different years under study. One important finding of the analysis of the table 24 is, for example, a negative relationship between them, as is the case of Financial intermediation and insurance sector (K) in 2000, which shows a negative correlation between the variables so that, although the industry is extremely important, companies that make up tend to be small or medium, and not of high dimension. On the other side, the F sector was

positively correlated with the size variable for all years under review, by expressing the idea of big companies are the basis of the importance of the sector.

Concluding on these interactions, the larger the size of the sector, the lower the economic risk and therefore lower guarantees will be required at the time of funding. Another important notion is that debt ratios vary across industries. For example, large integrated oil companies have relied mostly on debt for external financing. At the other extreme, the major pharmaceutical companies typically operate at negative debt ratios due to their holdings of cash and marketable securities exceed their outstanding debt, so they are net lenders. According Myers (2001), industry debt ratios are low or negative when profitability and business risk are high.

Following on what is presented by Myers (2001), it is noticeable that companies that demonstrate biggest dimension of debts, belong to sectors of transports and storage, and to the sector that includes financial activities and insurance intermediation (table 25). In line with the studies of Rajan and Zingales (1995), our analysis reveals a positive correlation between total assets and tangible fixed assets that the company owns (table 26), so we can state that these assets serve as collateral when it comes to financing. Against the tangible assets variable, Myers (2001) reveals a tendency on firms with more tangible assets to lend more.

Another important relationship to highlight is related to the analysis of the non-debt tax shields variable, defined by Giannetti (2003), such as depreciation of earnings before taxes and interest share with contract. Given the discord that exist in many studies already conducted on this relationship, our study reveals a positive relationship between these variables, so we can conclude that a major depreciation of the profits before tax implies higher debt value, ie, the lower profits made, the higher debt evidenced by the company (table 27).

Large listed companies have easier access to international financial markets, and for this reason, their corporate finance decisions are less subjected to the institutional constraints imposed by domestic markets. The institutional variables examined are proxies for the quality of protection of creditor rights, the enforcement of laws, and the degree of financial development.

Evaluation of Regressions and Models

After analyzing the model of debt presented, and interpreting the regressions for each year, it is concluded that the most significant variables for the acquisition of funding are the growth rate of sales, and non-debt tax shields, according to table 28 (in attachments).

In 1999, the tested model had a very high correlation coefficient, which aptly describes reality and tells us that the variables presented in the model are extremely important for the explanation of debt in this year. The variables that contributed most to explain this debt were the growth rate of sales, non-debt tax shields and corporate reputation in the market in which they operate.

These facts can be explained by their economic context. After instability and slowdown in 1998, the following years were distinguished by a slight recovery of the economic and financial area of the European countries and especially in the economies of emerging markets, which saw the rise of global demand, allowing the exchange recovery trade between markets. On the other hand, it was early in the decade that the rise in price of raw materials driven by rising oil prices could be observed due to a cut in production agreed in March 1999 by OPEC.

However, in 2000, the liberalization of capital movements, despite the positive aspects, triggered a greater financial volatility, with periods of excessive increase of assets, credit expansion and over-investment. In this sense, the model also revealed that variables such as firm size, maturity of assets and reputation, assume high significance in 2000, on obtaining of company's financing.

Later, in 2001, one began to feel a climate of uncertainty, which led to the economic slowdown and the consequent deterioration in expectations for economic growth of the global markets. Thus, our model, in line with real data on financing, shows companies that had to present the growth rate of its sales and EBIT. This year, the model was reduced to its statistical significance, coming to a correlation coefficient of 0.704.

In subsequent years, particularly in 2003 and 2004, the correlation coefficient between the variables were high, so we can conclude that the model is robust and is well specified. Variables with more emphasis continued to be non-debt tax shields, growth

rate of sales and EBIT. In two years there was a strengthening in global activity within a framework of recovery in investment and trade. However the growth was processed at an uneven pace reflecting the market uncertainty environment and the imminence of a possible military conflict in Iraq. There was gradual recovery driven by economic recovery of US and Japan mainly due to FDI inflows, which contributed for this recovery. Anyway, this was directed mostly to Asian economies, registering a decrease on its application on the economies of the euro zone. And so, there was an increase in global imbalances between countries, increased oil prices and consequently the price of raw materials also showed higher levels than those observed before. The volatility of the assets was felt in the difficulties of public debt and private debt, they are seen mostly in companies with the lowest rating. However, the year of 2004 saw a market valuation of capital (shareholder and bondholder), prompting investors to make applications with higher return potential and reduce their risk aversion, given the economic recovery.

In 2006 and 2007 variables size and Industry also gained importance and took on its relevance in the conclusion. The model appears more robust in recent years than in earlier years previously analyzed. With a correlation coefficient above 90%, this model features a new explanatory variable, with 95% confidence - Size of enterprise. To summarize from this year of analysis, firm size is an important variable for the acquisition of funding. The global economy, on a sign of balance, unleashed uncertainty and distrust in the interest rates levels, oil prices and raw materials very volatile. In 2007 this climate of uncertainty worsened, especially with the strong financial market turmoil which began in summer and was triggered by growing concerns about credit quality in the segments of the mortgage market with a higher risk (subprime) in the US. In the first half of 2007, there was a sharp increase in default rate in the context of rising interest rates, and correction in house prices. In the second semester, these problems intensified, with the failure of companies specialized in the provision of funding, which was exposed to the vulnerability of other financial markets and put additional difficulties for financial institutions in general.

In the model of maturity of assets presented in table 29, it was shown that for all years under review, the maturity of debt is a function of financing guarantees, since the collateral variable is presented as the most significant. Assuming always a confidence level of approximately 95%, we can say that to define the maturity of assets in debt

securities it is important to know that a company may grant the creditor for breach of funding.

Only in 2006 there was another variable with a considerable importance to justify the debt maturity: the size of the company. It should be noted that this year specifically, as previously mentioned above, world economic activity was in a weak position. Although it shows a balanced economic growth, the climate of uncertainty associated with interest rate rises and price volatility (especially the "black gold" - oil) was noticeable in all sectors.

However, we should notice that in this model, the sector of activity is not significant to justify the maturity of the funding assets, but the size of the company has been revealed as a variable to consider. While the business sector where the company operates does not reveal statistical significance for the model analysis, the variable size of the company, is significant (although not in all years studied) to justify the maturity of assets and the company funding contracts, regardless of the sector where it operates.

V. Conclusions

This research work presents the determinant factors for the structure of capital evidenced in European companies. For all the years analyzed, capital structure shows that most of these companies prefer equity.

The Trade-off theory defends when it is time for a company funding decision and which are the costs and benefits arising from that financing. The company financing moment generates agency problems, especially when there is asymmetric information between managers and business owners, overriding the interest of the company's interests.

In this study, a capital structure of the European companies is determined mainly by the sector of company and economic context. Throughout this research, that focuses data from 1999 to 2007, we can observe that. Towards the volatility and uncertainty of the financial systems, the European enterprises chosen for this study reveal that their capital structure is conditioned by the business sector and by the corresponding economic risk that the sector lives, the area where they develop their activity and their main activity and the reputation that it has.

Reputation of companies is very associated with the age and experience of markets, it is a very volatile variable, and where it is associated to external factors and to the perception society has towards the politics and processes developed by the company.

Towards the fragile economic context during the years used for our research, companies finance themselves through their own equity avoiding to appeal to the financing by credit institutions, so that these, because of the uncertainty climate, lived in recent years, have strong restrictive measures to the acquisition of funding, according to the characteristics of the company and specially the market where it operates.

The organizations' dimension assumes in this study a big significance, showing that the companies of bigger dimension are companies with activities related to sectors of production activities and transforming industries (manufacturing), retail trade and administrative activities and support. It is important to refer that companies of bigger dimension show higher financial indexes. However, the maturities of these assets tend to be of short term towards the associated economic risk.

Because of all these facts shown above with our analysis, it is clear that companies prefer financing their investments through their own equity, than recurring to banking financing or the issuing of debt securities, due to the uncertainty and instability of markets as a constant in this scenery. The volatility of the interest in finances, a fragile economic context, the level of guarantees that are demanded and sometimes the lack of rules that guide the creditors protection are determining factors in the definition of the capital structure of an enterprise.

Acknowledgment

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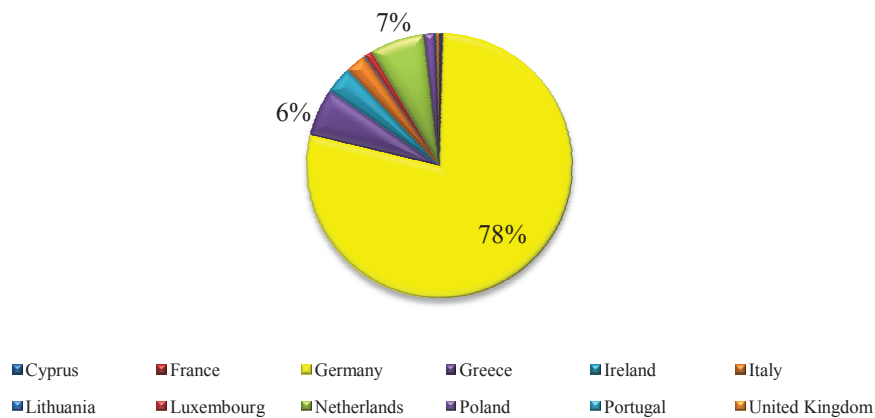
VII. Attachments

i. Graphics

Graphic 1 – Distribution by countries

The graph shows the distribution by firms in the study. Of the 12 countries represented, Germany, holds the largest number of companies.

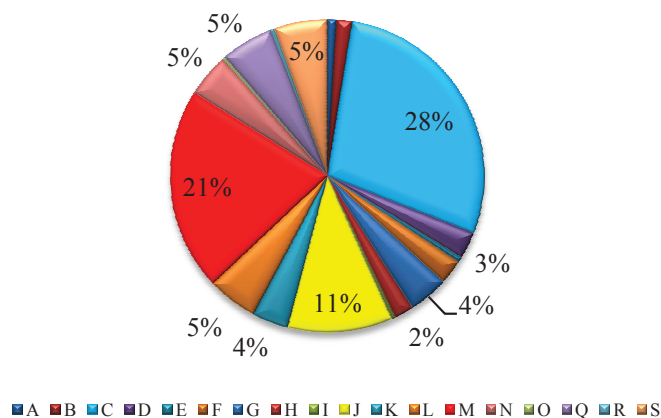
Distribution by countries



Graphic 2 – Distribution by sectors

The graph shows the distribution of firms presented in the study, according to their sector of activity, according to the NACE classification. The most representative sector is the manufacturing industry, followed by the sector that includes professional activities, scientific and technical development.

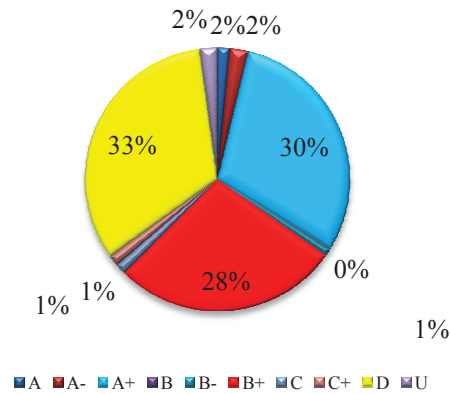
Distribution by sectors



Graphic 3 – Distribution by rating

The graph shows the distribution of firms presented in the study, according to their rating. The analysis of the rating companies reflects the ability and willingness of an entity to honor, on time and in full, the financial commitments, or assess the probability of default (PD) financial commitments.

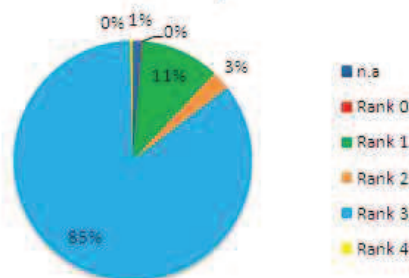
Distribution by rating



Graphic 4 – Index of Creditor protection

The index of creditor protection reveals the level of protection available to creditors and applicable in business. On a scale from 0 (low rights) to 4 (higher duties) companies have their rights protected by regulation and legislation in the country where they operate. In this study, mainly companies enjoy a level of protection 3. The index “n.a” refers to firms that were not cataloged in it. By consulting the database, it appears that these companies are in Luxembourg.

Index of creditor protection



Index of creditor protection	Frequency	Percent	Cumulative Percent
n.a	9	0.93	1.46
Rank 0	1	0.13	1.33
Rank 1	80	10.62	11.95
Rank 2	20	2.66	14.61
Rank 3	640	84.99	99.60
Rank 4	3	0.40	100.00
	753	100	

ii. Tables

Table 1 – Rankings on the ease of Doing Business

Rankings on the ease of doing business		
<i>Economy</i>	2007 Rank	2006 Rank
United Kingdom	6	5
Ireland	10	10
Lithuania	16	15
Germany	21	21
Netherlands	22	22
France	35	47
Portugal	40	45
Italy	82	69
Greece	109	111

Source: Doing Business database

Table 2 – Countries where there is greater ease in acquiring credit

Where is getting credit easy - and where not?			
Easiest	Rank	Most difficult	Rank
United Kingdom	1	Comoros	166
Hong Kong, China	2	Congo, Dem. Rep.	167
Australia	3	Egypt	168
Germany	4	Eritrea	169
Malaysia	5	Guyana	170
New Zealand	6	Rwanda	171
Ireland	7	Timor-Leste	172
Canada	8	Lao PDR	173
Singapore	9	Afghanistan	174
United States	10	Cambodia	175

Source: Doing Business, 2007 report

Table 3 – Variables and sources

Study variables	Mnemonic	Source
Rating	Rating	Website Moody's
Date of incorporation	Age of Firm	Website
Size of firm	Size_n	Datastream
Guarantees	Collateral_n	Private database
No of recorded shareholders	No of recorded shareholders	Website
Total Assets	TotAsst_n	Datastream
Market to book Value	MBV_n	Private database
Total Debt	TotDeb_n	Datastream
Corporate tax rates	Corporate tax rates	Report KPMG 1993- 2007
Industry	Industry	Datastream
Creditor rights aggregate score	CR	Private credit in 129 countries, La Porta
Return on Assets	RetOAsst_n	Datastream
Sales	Growth rate of sales_n	Datastream
Assets Maturity	Assets_Maturityn	Datastream
Assets Maturity current	A.Maturitycur_n	Datastream
Total Capital	Total Capital	Datastream
EBIT	EBIT	Datastream
Immediate_shareholder- Percentage_of_ownership,total	Immediate_shareholder- Percentage_of_ownership,total	Selfdealing data, Journal of Financial Economics (2008)
Stock_market_capitalization_to_GDP	Stock_market_capitalization_to_GDP	Selfdealing data, Journal of Financial Economics (2008)
Block_premium	Block_premium	Selfdealing data, Journal of Financial Economics (2008)
Listed_firms_per_million_population	Listed_firms_per_million_population	Selfdealing data, Journal of Financial Economics (2008)
IPOs_to_GDP	IPOs_to_GDP	Selfdealing data, Journal of Financial Economics (2008)
Ownership_concentration	Ownership_concentration	Selfdealing data, Journal of Financial Economics (2008)
Ln_GDP/POP	Ln_GDP/POP	Selfdealing data, Journal of Financial Economics (2008)
Time_to_collect_on_a_bounced_check	Time_to_collect_on_a_bounced_check	Selfdealing data, Journal of Financial Economics (2008)
Disclosure_in_the_prospectus	Disclosure_in_the_prospectus	Selfdealing data, Journal of Financial Economics (2008)
Prospectus_liability	Prospectus_liability	Selfdealing data, Journal of Financial Economics (2008)
Tax_evasion	Tax_evasion	Selfdealing data, Journal of Financial Economics (2008)
Newspaper_circulation	Newspaper_circulation	Selfdealing data, Journal of Financial Economics (2008)
Proportional_representation	Proportional_representation	Selfdealing data, Journal of Financial Economics (2008)

Table 4 – Expected correlation matrix of variables

The following matrix presents the expected correlation (positive or negative) between variables on this study.

Variables	Maturity of Assets	Debt to equity ratio	Non Debt tax shields	Return of Assets	Size of Firm	Growth rate of sales	Age of Firm	Collateral Value	Economic risk	Rating	Macro Economic Characteristics	Sectors
Maturity of Assets	1											
Debt to equity ratio	+	1										
Non Debt tax shields		+	1									
Return of Assets	-	+		1								
Size of Firm	+	+	-	+	1							
Growth rate of sales		-	-	+		1						
Age of Firm	-	-			+	+	1					
Collateral Value	-	+		-	+	-	-	1				
Economic risk	+	-				-		+	1			
Rating	+	-	+		+	+	+	+	-	1		
Macro Economic Characteristics		+	+		+	+	+	+	+	+	1	
Sectors						+		+	+	+	+	1

Table 5 – Description of sectors

The table identifies the sectors and their representation (number and percentage) in the framework of this study. The most representative sector is the one that includes activities of manufacturing (C), followed by the sector that develops technical, professional and scientific activities (M).

SIC codes	Sample	
	Number	%
A Agriculture, hunting and related activities	7	0,93%
B Extractive Industries	12	1,59%
C Manufacturing	214	28,42%
D Electricity, gas, steam, hot and cold water and cold air	21	2,79%
E Collection, purification and distribution of water, sanitation, waste management and remediation	4	0,53%
F Construction	19	2,52%
G Wholesale and retail trade, repair of motor vehicles and motorcycles	31	4,12%
H Transport and storage	15	1,99%
I Accommodation, catering and similar	3	0,40%
J Information and communication activities	81	10,76%
K Financial intermediation and insurance	28	3,72%
L Real State	39	5,18%
M Professional, scientific and technical activities	158	20,98%
N Administrative and support services	34	4,52%
O Public administration and defense, compulsory social security	2	0,27%
P Education	0	0,00%
Q Human health activities	41	5,44%
R Artistic activities, entertainment, sport and recreation	3	0,40%
S Other service activities	41	5,44%
Total	753	100%

Table 6 – Means and standard deviations of dependent variables

The following table shows the means and standard deviations of control variables, stock market development and sectors, for all years, and based on analysis of Djankov (2008)

Means and standard deviation of dependent and independent variables	
Variables	Total
Reputation	0,91 (0,63)
INDUSTRY-SCALE	9,20 (5,23)
Stock market capitalization to GDP	62,40 (23,49)
Listed firms per million population	12,32 (10,96)
Ln GDP/POP	9,89 (0,36)
Time to collect on a bounced check	4,87 (0,57)
Tax evasion	3,96 (0,72)
Newspaper circulation	4,92 (0,27)
Proportional representation	2,11 (0,36)
Rating	5,61 (4,24)
Age of firm	42,91 (53,65)
A - Agriculture, hunting and related activities	0,01 (0,10)
B - Extractive Industries	0,02 (0,13)
C - Manufacturing	0,28 (0,45)
D - Electricity, gas, steam, hot and cold water and cold air	0,03 (0,16)
E - Collection, purification and distribution of water, sanitation, waste management and remediation	0,01 (0,07)
F - Construction	0,03 (0,16)
G - Wholesale and retail trade, repair of motor vehicles and motorcycles	0,04 (0,20)
H - Transport and storage	0,02 (0,14)
I - Accommodation, catering	0,00 (0,06)
J - Information and communication activities	0,11 (0,31)
K - Financial intermediation and insurance	0,04 (0,19)
L - Real State	0,05 (0,22)
M - Professional, scientific and technical activities	0,21 (0,41)
N - Administrative and support services	0,05 (0,21)
O - Public administration and defense, compulsory social security	0,00 (0,05)
P - Education	0,00 (0,00)
Q - Human health activities	0,05 (0,23)
R - Artistic activities, entertainment, sport and recreation	0,00 (0,06)
S - Other service activities	0,05 (0,23)

Table 7 – Means and standard deviations of dependent variables

The following table shows the means and standard deviations of dependent and independent variables on this study, allowing to observe their progress throughout the years in analysis and to draw some conclusions that support the economic context of the period.

Variables	Year										
	Total	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Size	1,30 (1,36)	1,12 (1,42)	1,34 (1,41)	1,42 (1,40)	1,43 (1,39)	1,44 (1,40)	1,58 (1,35)	1,59 (1,32)	1,75 (1,26)	1,81 (1,26)	1,81 (1,26)
Collateral	1,21 (2,36)	0,75 (1,97)	1,00 (2,24)	1,00 (2,30)	1,06 (2,32)	1,16 (2,37)	1,15 (2,32)	1,37 (2,61)	1,67 (2,60)	1,58 (2,49)	1,58 (2,49)
MUP	1,80 (15,85)	2,21 (13,32)	1,49 (13,11)	1,01 (3,46)	1,88 (83,65)	1,75 (16,95)	0,47 (28,45)	2,03 (16,74)	2,25 (7,86)	5,08 (9,78)	5,08 (9,78)
Non debt tax shields	47,54 (231,29)	49,96 (316,97)	61,08 (374,41)	32,99 (266,99)	19,97 (84,40)	34,88 (233,09)	45,84 (276,93)	53,35 (314,75)	59,22 (332,08)	70,71 (401,63)	70,71 (401,63)
ROA	2,30 (83,65)	1,00 (20,23)	-0,55 (20,48)	-5,59 (24,50)	-4,16 (24,67)	-1,86 (20,15)	-20,87 (49,42)	3,34 (18,45)	1,87 (23,27)	1,71 (27,39)	1,71 (27,39)
Growth rate of sales	69,96 (951,59)	208,78 (1189,85)	121,50 (1109,81)	12,57 (880,02)	-9,88 (1084,15)	60,37 (599,94)	52,29 (74,77)	184,95 (1063,40)	8,76 (2168,37)	0,09 (0,00)	0,09 (0,00)
Asset Maturity	0,28 (1,27)	0,27 (1,26)	0,26 (1,24)	0,19 (1,14)	0,22 (1,19)	0,28 (1,29)	0,25 (1,20)	0,20 (1,20)	0,31 (1,26)	0,29 (1,25)	0,29 (1,25)
Fund Debt	1078,99 (10247,90)	555,90 (3778,94)	868,16 (3764,69)	1432,27 (13462,67)	1230,81 (10920,37)	1131,50 (11275,59)	1047,75 (11105,02)	1000,20 (9793,09)	1335,72 (16884,59)	1083,28 (2426,14)	1083,28 (2426,14)
EBIT	145,89 (880,56)	162,29 (790,23)	181,77 (891,18)	119,29 (629,27)	66,36 (1193,37)	110,35 (694,50)	138,49 (733,50)	155,22 (685,94)	171,37 (906,45)	206,99 (1096,85)	206,99 (1096,85)
Volatility	1598,46 (410490,27)	127,71 (768,42)	164,29 (899,54)	278,44 (1745,01)	252,03 (1726,77)	279,14 (2737,30)	134419,52 (688305,79)	204,39 (1877,68)	180,45 (848,94)	0,00 (0,00)	0,00 (0,00)

Table 8 – Correlation matrix between the Total Debt and (current) Asset Maturity

The following table shows the correlation between the total debt and (current) asset maturity for all forecasted years . This ratio shows the effect that a short-term asset has on the total liabilities. Analysis shows that the relationship between variables is not significant.

Variables	TotDeb99	TotDeb00	TotDeb01	TotDeb02	TotDeb03	TotDeb04	TotDeb05	TotDeb06	TotDeb07	A.Maturity99	A.Maturity00	A.Maturity01	A.Maturity02	A.Maturity03	A.Maturity04	A.Maturity05	A.Maturity06	A.Maturity07	
TotDeb99	1																		
TotDeb00	,871**	1																	
TotDeb01	,573**	,386**	1																
TotDeb02	,598**	,618**	,995**	1															
TotDeb03	,558**	,546**	,995**	,995**	1														
TotDeb04	,535**	,501**	,988**	,997**	,997**	1													
TotDeb05	,577**	,501**	,988**	,994**	,991**	,991**	1												
TotDeb06	,419**	,415**	,985**	,980**	,985**	,985**	,974**	1											
TotDeb07	,533**	,583**	,959**	,969**	,966**	,958**	,966**	,943**	1										
A.Maturity99	0,016	0,007	-0,007	-0,002	-0,002	-0,003	-0,005	-0,008	0,004	1									
A.Maturity00	-0,001	0,021	0,002	0,006	0,001	-0,001	0,003	0,000	0,010	,521**	1								
A.Maturity01	0,037	0,064	0,018	0,025	0,015	0,009	0,015	0,007	0,030	,698**	,379**	1							
A.Maturity02	0,013	0,014	-0,007	-0,005	-0,006	-0,007	-0,008	-0,010	-0,002	,579**	,654**	,654**	1						
A.Maturity03	-0,007	-0,009	-0,013	-0,006	-0,005	-0,005	-0,005	-0,004	-0,008	0,039	0,016	0,038	,219**	1					
A.Maturity04	-0,006	-0,008	-0,009	-0,009	-0,008	-0,008	-0,008	-0,007	-0,005	,302**	,302**	,302**	,364**	,364**	1				
A.Maturity05	0,002	0,000	-0,013	-0,009	-0,008	-0,008	-0,008	-0,008	-0,009	,143**	,143**	,143**	,175**	,175**	,407**	1			
A.Maturity06	-0,001	-0,001	-0,008	-0,010	-0,010	-0,009	-0,011	-0,010	-0,009	,160**	,160**	,160**	,245**	,245**	,402**	,402**	1		
A.Maturity07	-0,006	-0,008	-0,007	-0,007	-0,006	-0,006	-0,005	-0,005	-0,007	,152**	,152**	,152**	,082**	,082**	,098**	,098**	,109**	1	

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 9 – Correlation matrix between the Total Debt and Growth rate of sales.

This interface allows visualizing the impact of sales growth in total debt. The matrix shows that the correlation between variables is positive for all years studied, except for the period between 2002-03 and 2006-07.

Variables	Growth rate of sales 99-00	Growth rate of sales 00-01	Growth rate of sales 01-02	Growth rate of sales 02-03	Growth rate of sales 03-04	Growth rate of sales 04-05	Growth rate of sales 05-06	Growth rate of sales 06-07	TotDeb99	TotDeb00	TotDeb01	TotDeb02	TotDeb03	TotDeb04	TotDeb05	TotDeb06	TotDeb07
Growth rate of sales 99-00	1																
Growth rate of sales 00-01	,477**	1															
Growth rate of sales 01-02	-0,030	-0,090*	1														
Growth rate of sales 02-03	-0,610**	-1,773**	-0,039	1													
Growth rate of sales 03-04	,432**	-1,811**	,165**	-2,877**	1												
Growth rate of sales 04-05	,429**	-2,366**	-1,141**	-2,219**	,467**	1											
Growth rate of sales 05-06	,626**	,276**	0,024	0,004	,408**	,352**	1										
Growth rate of sales 06-07	-3,511**	,131**	,105**	,576**	-1,165**	-2,209**	0,004	1									
TotDeb99	,564**	0,062	0,045	-2,922**	,425**	,468**	,312**	-6,636**	1								
TotDeb00	,654**	,095*	,144**	-2,611**	,415**	,404**	,502**	-5,504**	,871**	1							
TotDeb01	,494**	,347**	,278**	-2,077**	,324**	,282**	,349**	-1,144**	,573**	,386**	1						
TotDeb02	,538**	,387**	,225**	-2,044**	,332**	,295**	,393**	-1,151**	,598**	,618**	,995**	1					
TotDeb03	,505**	,394**	,212**	-1,977**	,314**	,289**	,362**	-1,123**	,558**	,546**	,993**	,995**	1				
TotDeb04	,480**	,375**	,207**	-1,966**	,285**	,291**	,334**	-1,120**	,535**	,501**	,988**	,985**	,997**	1			
TotDeb05	,527**	,362**	,197**	-2,088**	,303**	,342**	,390**	-1,158**	,577**	,571**	,986**	,990**	,994**	,991**	1		
TotDeb06	,400**	,339**	,263**	-1,522**	,259**	,237**	,306**	-0,037	,419**	,415**	,976**	,983**	,980**	,985**	,974**	1	
TotDeb07	,539**	,364**	,260**	-1,511**	,374**	,289**	,494**	-0,056	,533**	,583**	,959**	,969**	,966**	,958**	,966**	,943**	1

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

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

Table 10 – Average age of company by country

The following table shows what the average age of the companies operating is in that country. The average age of the 753 companies in this study is of 43 years. Assessing the following table, it seems that the average age of Dutch companies is of 68 years, followed by Portuguese companies on 49 years and 44 years on German companies.

Countrys	Average Age of Firm
Cyprus	18
France	29
Germany	44
Greece	30
Ireland	11
Italy	35
Lithuania	4
Luxembourg	23
Netherlands	68
Poland	31
Portugal	49
United Kingdom	10
Total Geral	43

Table 11 - Correlation matrix between the Total Debt and Return on Assets.

The following table shows the relationship between the return on invested assets and total debt for all years of study. The matrix provided shows that the correlation between variables is not relevant, ie, the variables are not correlated.

Variables	TotDeb99	TotDeb00	TotDeb01	TotDeb02	TotDeb03	TotDeb04	TotDeb05	TotDeb06	TotDeb07	RetOAs99	RetOAs00	RetOAs01	RetOAs02	RetOAs03	RetOAs04	RetOAs05	RetOAs06	RetOAs07	
TotDeb99	1																		
TotDeb00	,871**	1																	
TotDeb01	,573**	,586**	1																
TotDeb02	,598**	,618**	,995**	1															
TotDeb03	,558**	,546**	,993**	,995**	1														
TotDeb04	,535**	,501**	,988**	,985**	,997**	1													
TotDeb05	,577**	,571**	,986**	,990**	,994**	,991**	1												
TotDeb06	,419**	,415**	,976**	,965**	,980**	,985**	,974**	1											
TotDeb07	,533**	,583**	,959**	,969**	,966**	,958**	,966**	,943**	1										
RetOAs99	0,019	0,024	0,010	0,013	0,010	0,009	0,009	0,005	0,011	1									
RetOAs00	0,043	0,040	0,022	0,025	0,023	0,021	0,022	0,015	0,026	,494**	1								
RetOAs01	0,047	0,044	0,031	0,036	0,034	0,032	0,035	0,027	0,046	,391**	,543**	1							
RetOAs02	0,021	0,015	0,016	0,018	0,020	0,020	0,021	0,018	0,026	,238**	,343**	,288**	1						
RetOAs03	0,031	0,036	0,021	0,019	0,017	0,016	0,018	0,013	0,024	,287**	,424**	,357**	,348**	1					
RetOAs04	0,013	0,015	0,005	0,002	0,004	0,004	0,004	0,003	0,005	,148**	,140**	,232**	,095*	,187**	1				
RetOAs05	0,009	0,013	0,001	-0,002	-0,004	-0,006	-0,007	-0,008	-0,004	,174**	,201**	,163**	,134**	,267**	0,026	1			
RetOAs06	0,009	0,012	0,003	0,003	0,002	0,000	0,004	0,002	0,006	,155**	0,066	0,082	,087**	,197**	-0,002	,372**	1		
RetOAs07	0,020	0,019	0,005	0,006	0,005	0,004	0,005	0,003	0,008	,228**	,277**	,248**	,197**	,213**	-0,005	,438**	,780**	1	

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

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

Table 12 – Economic ranking of ease of doing business

This table shows the economic ranking of the various economies in the present study, according to their ease of doing business. The index is presented by doingbusiness.com, and is the result of the analysis of nine themes, which in turn consist of various indicators. The table shows only the ranking of economies in this present study.

By analyzing this index we see that the UK is the country where it is easier to acquire credit and obtaining building permits, and presents itself in second place in this ranking. Ireland has the best ranking position on the issues of starting a business, better investor protection legislation and better tax payment system. Luxembourg presents itself in the ranks first regarding enforcing contracts. Poland and Lithuania are the countries where it is easier to close a business. However Lithuania is presented as one of the countries where it is easier to register a property and conduct trade across borders.

Economy	Ease of Doing Business Rank	Starting a Business	Dealing with Construction Permits	Registering Property	Getting Credit	Protecting Investors	Paying Taxes	Trading Across Borders	Enforcing Contracts	Closing a Business
United Kingdom	2	6	3	8	1	6	5	9	15	6
Lithuania	3	18	5	4	12	15	7	4	3	3
Ireland	7	5	12	22	6	2	1	11	20	8
Germany	14	24	4	20	6	21	23	8	5	22
France	16	7	5	27	19	18	14	14	6	26
Netherlands	19	21	27	16	19	24	9	7	18	9
Portugal	20	17	28	11	26	13	19	15	16	18
Luxembourg	24	22	14	26	29	26	4	18	1	27
República Checa	27	28	24	17	19	21	29	26	27	20
Poland	28	26	30	23	6	13	27	22	26	3
Italy	29	19	26	24	26	15	29	25	30	19
Greece	30	30	17	29	26	29	20	29	28	28

Source: <http://www.doingbusiness.org/rankings>

Table 13 - Correlation matrix between the Total Debt and Size (of firm).

The correlation between two variables which identifies the importance of firm size for the total debt evidenced. This analysis is done for each year under consideration and shows that relationship between these variables is positive and has great significance, so the size of the company is a strong argument to justify the amount shown by the company.

Variables	TotDeb99	TotDeb00	TotDeb01	TotDeb02	TotDeb03	TotDeb04	TotDeb05	TotDeb06	TotDeb07	Size99	Size00	Size01	Size02	Size03	Size04	Size05	Size06	Size07	
TotDeb99	1																		
TotDeb00	,871**	1																	
TotDeb01	,573**	,586**	1																
TotDeb02	,598**	,618**	,995**	1															
TotDeb03	,538**	,546**	,993**	,995**	1														
TotDeb04	,535**	,546**	,993**	,995**	1														
TotDeb05	,577**	,571**	,988**	,990**	,997**	1													
TotDeb06	,419**	,415**	,976**	,983**	,994**	,991**	1												
TotDeb07	,533**	,546**	,993**	,995**	,997**	,991**	,985**	1											
Size00	,259**	,256**	,218**	,228**	,223**	,229**	,229**	,182**	,249**	1									
Size01	,255**	,252**	,211**	,225**	,210**	,207**	,207**	,167**	,205**	,808**	1								
Size02	,235**	,240**	,203**	,214**	,201**	,190**	,207**	,167**	,205**	,808**	,904**	1							
Size03	,253**	,252**	,211**	,225**	,211**	,198**	,210**	,169**	,228**	,753**	,805**	,842**	1						
Size04	,272**	,268**	,217**	,228**	,212**	,198**	,210**	,169**	,228**	,753**	,805**	,842**	,877**	1					
Size05	,253**	,254**	,208**	,217**	,202**	,190**	,207**	,168**	,204**	,699**	,768**	,799**	,797**	,876**	1				
Size06	,248**	,251**	,206**	,216**	,202**	,190**	,207**	,168**	,204**	,699**	,768**	,799**	,797**	,876**	,820**	1			
Size07	,264**	,260**	,212**	,224**	,209**	,199**	,212**	,171**	,232**	,596**	,612**	,630**	,643**	,692**	,841**	,820**	1		

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

Table 14 - Correlation matrix between the Firm Size and Market to book Value (MBV).

The variable market to book value is an approximation of market risk, as evidenced by the company. The following list refers to the idea presented to the market risk that the company stands may be related to the size of the business, yet this fact has relevance only for the years of 2000 and 2001.

Variables	Size99	Size00	Size01	Size02	Size03	Size04	Size05	Size06	Size07	MBV99	MBV00	MBV01	MBV02	MBV03	MBV04	MBV05	MBV06	MBV07	
Size99	1																		
Size00	,868**	1																	
Size01	,833**	,919**	1																
Size02	,808**	,872**	,904**	1															
Size03	,767**	,825**	,842**	,892**	1														
Size04	,733**	,793**	,768**	,843**	,797**	1													
Size05	,699**	,744**	,709**	,798**	,698**	,876**	1												
Size06	,643**	,675**	,675**	,691**	,643**	,760**	,820**	1											
Size07	,596**	,623**	,612**	,650**	,643**	,692**	,709**	,841**	1										
MBV99	0,005	0,051	0,055	0,057	0,049	0,049	0,039	,077*	0,071	1									
MBV00	,078*	,102**	,106**	,108**	,090**	,098**	,093*	,065	0,062	,114**	1								
MBV01	,129**	,147**	,173**	,170**	,152**	,178**	,181**	,157**	,118**	,179**	,670**	1							
MBV02	-0,023	-0,028	-0,028	-0,032	0,018	0,018	0,045	0,040	0,038	-0,003	0,013	0,013	1						
MBV03	-0,020	-0,023	0,004	0,003	0,040	0,044	0,043	0,032	0,025	0,027	,104**	,104**	0,010	1					
MBV04	0,049	0,056	0,062	0,063	0,057	0,064	0,036	0,039	0,039	0,023	0,021	0,030	0,007	0,021	1				
MBV05	-0,005	0,015	0,016	-0,009	0,014	0,021	0,016	0,009	-0,008	0,013	0,021	-0,040	-0,003	-0,007	-0,003	1			
MBV06	-0,026	-0,015	-0,020	-0,007	-0,008	0,006	0,004	0,021	-0,002	-0,001	-0,015	0,005	-0,002	0,005	0,039	,202**	1		
MBV07	-0,078*	-0,068	-0,066	-0,062*	-0,053*	-0,073*	-0,071	-0,018	-0,008	0,009	-0,004	0,013	0,001	0,018	0,025	,158**	,594**	1	

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

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

Table 15 - Correlation matrix between the Collateral and Market to book Value (MBV).

The variable represents the level of collateral securities required at time of financing a business. The following table shows the relation between the collateral variable and MBV (proxy economic risk). The Correlation analysis between these variables helps evaluating whether the level of financing guarantees is related to the economic risk the company presents. We can observe that only for 2001 and 2005 this relationship is of great relevance, so that in these years, the collateral required will strongly evidence the economic risk.

Variables	Collateral99	Collateral00	Collateral01	Collateral02	Collateral03	Collateral04	Collateral05	Collateral06	Collateral07	MBV99	MBV00	MBV01	MBV02	MBV03	MBV04	MBV05	MBV06	MBV07	
Collateral99	1																		
Collateral00	,581**	1																	
Collateral01	,451**	,626**	1																
Collateral02	,400**	,545**	,624**	1															
Collateral03	,351**	,453**	,499**	,644**	1														
Collateral04	,273**	,339**	,394**	,474**	,578**	1													
Collateral05	,234**	,286**	,294**	,365**	,468**	,516**	1												
Collateral06	,189**	,261**	,195**	,260**	,314**	,435**	,598**	1											
Collateral07	,197**	,200**	,157**	,184**	,295**	,343**	,457**	,558**	1										
MBV99	0,064	0,070	0,059	,115**	,090*	0,063	0,039	0,034	0,038	1									
MBV00	0,057	0,068	0,066	0,061	0,062	0,022	0,004	-0,052	-0,067	,114**	1								
MBV01	,106**	,092*	,074*	,077*	,075*	0,029	0,027	-0,040	-0,049	,179**	,670**	1							
MBV02	-0,013	-0,017	-0,015	-0,014	-0,016	-0,019	-0,023	-0,029	-0,024	-0,003	0,013	0,013	1						
MBV03	-0,009	-0,012	-0,013	-0,016	-0,018	-0,027	,076*	0,027	0,042	0,027	,104**	,104**	0,010	1					
MBV04	0,012	0,011	0,013	0,015	0,016	0,021	-0,059	0,010	0,007	0,023	0,021	0,030	0,007	0,021	1				
MBV05	-0,004	-0,002	-0,009	-0,010	,111**	-0,003	,107**	0,036	0,046	0,013	0,021	-0,040	-0,003	-0,007	-0,003	1			
MBV06	-0,007	-0,014	-0,031	-0,028	-0,009	-0,010	0,025	0,026	-0,019	-0,001	-0,015	0,005	-0,002	0,005	0,039	,202**	1		
MBV07	0,005	-0,016	-0,046	-0,023	-0,004	0,013	0,041	0,016	0,015	0,009	-0,004	0,013	0,001	0,018	0,025	,158**	,594**	1	

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

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

Table 16 - Correlation matrix between the Return on Assets and Firm Size.

This relationship aims to study if the return on invested assets influences the size of the enterprise, or conversely, if a firm's size may be influenced by the return of the assets invested by the company. By analyzing the data obtained in the following table it can be argued that relationship between these variables is positive, so the return on assets as a positive impact on the company size.

Variables	RetOAs99	RetOAs00	RetOAs01	RetOAs02	RetOAs03	RetOAs04	RetOAs05	RetOAs06	RetOAs07	Size99	Size00	Size01	Size02	Size03	Size04	Size05	Size06	Size07	
RetOAs99	1																		
RetOAs00	,494**	1																	
RetOAs01	,391**	,543**	1																
RetOAs02	,238**	,288**	,343**	1															
RetOAs03	,287**	,357**	,424**	,348**	1														
RetOAs04	,148**	,140**	,232**	,095*	,187**	1													
RetOAs05	,174**	,201**	,163**	,134**	,267**	,187**	1												
RetOAs06	,155**	,066	,082	,087*	,197**	-0,002	,372**	1											
RetOAs07	,228**	,277**	,248**	,197**	,213**	-0,005	,438**	,780**	1										
Size99	,146**	,210**	,217**	,129**	,109**	,037	,002	,087*	,077*	1									
Size00	,075	,140**	,140**	,076	,039	,043	-0,048	,060	,057	,868**	1								
Size01	,082	,195**	,208**	,083	,051	,047	-0,051	,065	,070	,833**	,919**	1							
Size02	,144**	,255**	,224**	,097*	,056	,048	-0,053	,058	,069	,808**	,872**	,904**	1						
Size03	,137**	,219**	,266**	,111**	,064	,048	-0,041	,063	,091*	,767**	,825**	,842**	,892**	1					
Size04	,170**	,255**	,276**	,155**	,135**	,056	-0,018	,079*	,089*	,733**	,793**	,843**	,877**	,877**	1				
Size05	,120**	,210**	,265**	,149**	,133**	,056	-0,012	,070	,094*	,699**	,744**	,799**	,797**	,797**	,876**	1			
Size06	,119*	,185**	,239**	,156**	,131**	,063	,040	,120**	,127**	,643**	,675**	,691**	,698**	,760**	,820**	,820**	1		
Size07	,133**	,185**	,241**	,159**	,131**	,065	,062	,131**	,145**	,596**	,623**	,630**	,692**	,643**	,709**	,841**	,841**	1	

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

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

Table 17 - Correlation matrix between the Total Debt and Firm Age.

This relationship aims to study whether age has an impact on the company's total debt in all the analyzed years. By analyzing the data obtained in the following table it can be argued that the relationship between these variables is not significant. To conclude, the firm age is not an argument to justify the amount owed.

Variables	TotDeb99	TotDeb00	TotDeb01	TotDeb02	TotDeb03	TotDeb04	TotDeb05	TotDeb06	TotDeb07	Age of firm
TotDeb99	1									
TotDeb00	,871**	1								
TotDeb01	,573**	,586**	1							
TotDeb02	,598**	,618**	,995**	1						
TotDeb03	,558**	,546**	,993**	,995**	1					
TotDeb04	,535**	,501**	,988**	,985**	,997**	1				
TotDeb05	,577**	,571**	,986**	,990**	,994**	,991**	1			
TotDeb06	,419**	,415**	,976**	,965**	,985**	,974**	,966**	1		
TotDeb07	,533**	,583**	,959**	,969**	,966**	,943**	,966**	,943**	1	
Age of firm	-0,005	-0,010	0,039	0,046	0,051	0,054	0,054	0,056	0,063	1

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

Table 18 - Correlation matrix between the Firm Size and Firm Age.

This relationship aims to study whether age has an impact on the company of the same dimension. By analyzing the data obtained in the following table it can be argued that the relationship between these variables is positive and significant, so it can be stated that the firm age may be an explanatory factor for the size it has.

Variables	Age of firm	Size99	Size00	Size01	Size02	Size03	Size04	Size05	Size06	Size07
Age of firm	1									
Size99	,361**	1								
Size00	,309**	,868**	1							
Size01	,288**	,833**	,919**	1						
Size02	,307**	,808**	,872**	,904**	1					
Size03	,299**	,767**	,825**	,842**	,892**	1				
Size04	,310**	,733**	,793**	,805**	,843**	,877**	1			
Size05	,297**	,699**	,744**	,768**	,799**	,797**	,876**	1		
Size06	,290**	,643**	,675**	,675**	,691**	,698**	,760**	,820**	1	
Size07	,252**	,596**	,623**	,612**	,630**	,643**	,692**	,709**	,841**	1

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

Table 19 - Correlation matrix between the Reputation and Firm Age.

This relationship aims to study whether age has an impact on the company's reputation. By analyzing the data obtained in the following table we can refer that the relationship between these variables is positive and significant, and so, the company's reputation is very connected to its experience and seniority in the markets where it operates.

Variables	Age of firm	Reputation
Age_of_firm	1	,737**
Reputation	,737**	1

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

Table 20 – Correlation matrix between the Collateral and Firm Age.

This relationship aims to study whether age has an impact on the company's level of financing guarantees. By analyzing the data obtained in the following table it can be argued that the relationship between these variables is negative and very significant, and in conclusion that the age of the company, showing its vast experience can lead to a lower level of assurance required. This negative trend is visible for all years of analyzed.

Variables	Age_of_firm	Collateral99	Collateral100	Collateral101	Collateral102	Collateral103	Collateral104	Collateral105	Collateral106	Collateral107
Age_of_firm	1									
Collateral99	-,092*	1								
Collateral100	-,081*	,581**	1							
Collateral101	-0,068	,451**	,626**	1						
Collateral102	-,072*	,400**	,545**	,624**	1					
Collateral103	-,075*	,351**	,453**	,499**	,644**	1				
Collateral104	-0,060	,273**	,339**	,394**	,474**	,578**	1			
Collateral105	-,080*	,234**	,286**	,294**	,365**	,468**	,516**	1		
Collateral106	-,135**	,189**	,261**	,195**	,260**	,314**	,435**	,598**	1	
Collateral107	-,125**	,197**	,200**	,157**	,184**	,295**	,343**	,457**	,558**	1

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

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

Table 21 – Correlation matrix between the Sectors, Number of recorded shareholders and newspaper circulation.

The table shows the correlation between the various sectors of activity and the number of registered shareholders. The relationship which it aims to study is the relationship between the business sector and the number of shareholders of the same sectors, however the results are not significant. Moreover, this table also presents the relationship between the various sectors with the number of circulating newspapers, which can result in the publication quantities by sector. However, given the absence of this information for all companies in the sector, we are not able to get a reliable result.

Variables	A	B	C	D	E	F	G	H	I	J	K	L	M	n	O	P	Q	R	S	No. of recor ded_shareho lders	Newspaper_ circulation
A	1																				
B	-0.012	1																			
C	-0.061	-0.080*	1																		
D	-0.022	-0.107**	1																		
E	-0.016	-0.022	-0.107**	1																	
F	-0.007	-0.009	-0.046	-0.012	1																
G	-0.016	-0.020	-0.101**	-0.027	-0.012	1															
H	-0.020	-0.026	-0.131**	-0.035	-0.015	-0.033	1														
I	-0.014	-0.018	-0.090*	-0.024	-0.010	-0.023	-0.030	1													
J	-0.006	-0.008	-0.040	-0.011	-0.005	-0.010	-0.013	-0.009	1												
K	-0.034	-0.044	-0.219**	-0.059	-0.025	-0.056	-0.072*	-0.049	-0.022	1											
L	-0.019	-0.025	-0.124**	-0.033	-0.014	-0.032	-0.041	-0.028	-0.012	-0.068	1										
M	-0.023	-0.030	-0.147**	-0.040	-0.017	-0.038	-0.048	-0.033	-0.015	-0.081*	-0.046	1									
n	-0.050	-0.066	-0.325**	-0.087*	-0.038	-0.083*	-0.107**	-0.073*	-0.033	-0.179**	-0.101**	-0.046	1								
O	0.015	0.178**	-0.179**	-0.029	-0.031	-0.111**	-0.093*	-0.049	0.014	-0.015	0.064	0.070	0.156**	1							
P	-0.005	-0.007	-0.033	-0.009	-0.004	-0.008	-0.011	-0.007	-0.003	-0.018	-0.010	-0.012	-0.027	-0.011	1						
Q	-0.023	-0.031	-0.151**	-0.041	-0.018	-0.039	-0.050	-0.034	-0.015	-0.083*	-0.047	-0.056	-0.124**	0.009	-0.012	1					
R	-0.006	-0.008	-0.040	-0.011	-0.005	-0.010	-0.013	-0.009	-0.004	-0.022	-0.012	-0.015	-0.033	0.023	-0.003	-0.015	1				
S	-0.023	-0.031	-0.151**	-0.041	-0.018	-0.039	-0.050	-0.034	-0.015	-0.083*	-0.047	-0.056	-0.124**	0.054	-0.012	-0.015	-0.058	1			
No. of recorded shareholders	-0.031	0.017	0.068	0.027	-0.015	-0.007	0.011	0.044	0.005	-0.019	-0.005	-0.025	-0.102**	-0.478**	-0.008	0.053	-0.032	-0.006	1		
Newspaper_ circulation	-0.074*	-0.291**	0.070	-0.071	-0.046	-0.017	0.034	0.006	-0.060	0.020	-0.022	0.066	0.063	0.012	0.015	-0.018	0.018	-0.040	-0.040	1	

a. Cannot be computed because at least one of the variables is constant.

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

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

Table 22 – Correlation matrix between the Sectors and Collateral.

The table shows the correlation between the various sectors of activity and the collateral, ie, funding guarantees. The aim of this analysis is to study which sectors are required to guarantee higher levels of funding. Analyzing the table, it shows that manufacturing (C) sectors, the information and communication activities (J) and professional, scientific and technical activities (M) are require higher levels of collateral. There are no businesses of sector P in this study, so this item displays no values in the table.

Variables	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	Collateral99	Collateral00	Collateral01	Collateral02	Collateral03	Collateral04	Collateral05	Collateral06	Collateral07		
A	1																													
B	-0.012	1																												
C	-0.061	-0.089*	1																											
D	-0.016	-0.022	-0.077**	1																										
E	-0.007	-0.009	-0.046	-0.012	1																									
F	-0.016	-0.020	-0.101**	-0.027	-0.012	1																								
G	-0.020	-0.026	-0.131**	-0.035	-0.015	-0.033	1																							
H	-0.014	-0.018	-0.090*	-0.024	-0.010	-0.023	-0.030	1																						
I	-0.006	-0.008	-0.040	-0.011	-0.005	-0.010	-0.013	-0.009	1																					
J	-0.034	-0.044	-0.194**	-0.059	-0.025	-0.056	-0.072*	-0.049	-0.022	1																				
K	-0.019	-0.025	-0.124**	-0.033	-0.014	-0.032	-0.041	-0.028	-0.012	-0.068	1																			
L	-0.023	-0.030	-0.147**	-0.040	-0.017	-0.038	-0.048	-0.033	-0.015	-0.081*	-0.046	1																		
M	-0.050	-0.066	-0.325**	-0.087*	-0.038	-0.083*	-0.107**	-0.073*	-0.033	-0.179**	-0.101**	-0.120**	1																	
n	0.015	0.015	0.178**	-0.029	-0.031	-0.111**	-0.093*	-0.049	0.014	-0.015	0.064	0.070	0.156**	1																
O	-0.005	-0.007	-0.023	-0.009	-0.004	-0.008	-0.011	-0.007	-0.003	-0.018	-0.010	-0.012	-0.027	-0.011	1															
P	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	1														
Q	-0.023	-0.031	-0.151**	-0.041	-0.018	-0.039	-0.030	-0.034	-0.015	-0.083*	-0.047	-0.056	-0.124**	0.009	-0.012	a	1													
R	-0.006	-0.008	-0.040	-0.011	-0.005	-0.010	-0.013	-0.009	-0.004	-0.022	-0.012	-0.015	-0.033	0.023	-0.003	a	-0.015	1												
S	-0.037	0.000	-0.165**	-0.032	-0.028	-0.018	-0.039	-0.034	-0.015	-0.083*	-0.047	-0.056	-0.124**	0.054	-0.012	a	-0.038	-0.01518	1											
Collateral99	0.037	0.010	-0.152**	-0.018	-0.033	0.012	0.029	-0.055	-0.024	0.068	0.010	-0.041	0.090*	0.024	-0.020	a	0.126**	0.094*	-0.0175	1										
Collateral00	-0.012	0.018	-0.162**	0.000	-0.032	-0.037	0.000	-0.037	-0.028	0.089*	0.009	-0.016	0.089*	0.047	-0.023	a	-0.011	0.009	0.002	-0.037	1									
Collateral01	0.009	-0.017	-0.139**	-0.008	-0.033	-0.019	-0.017	-0.033	-0.029	0.071*	-0.002	-0.019	0.109**	0.022	-0.024	a	0.034	-0.011	-0.007	0.400**	1									
Collateral02	-0.048	-0.004	-0.170**	-0.039	-0.056	-0.022	0.034	-0.034	0.040	0.039	0.007	-0.031	0.139**	0.004	-0.025	a	-0.006	-0.013	-0.021	0.624**	0.624**	1								
Collateral03	-0.012	0.014	-0.187**	-0.067	-0.056	0.044	-0.002	-0.071	-0.032	0.088*	0.023	-0.034	0.131**	-0.001	-0.026	a	0.032	0.014	-0.021	0.578**	0.578**	0.578**	1							
Collateral04	-0.024	-0.005	-0.115**	-0.012	-0.042	0.010	0.036	-0.050	-0.037	0.051	0.028	0.018	0.128**	0.053	-0.030	a	0.090*	0.060	-0.059	0.468**	0.468**	0.468**	0.468**	1						
Collateral05	-0.030	0.032	-0.179**	-0.004	-0.047	0.001	-0.005	-0.070	-0.041	0.050	-0.013	0.059	0.113**	0.126**	-0.033	a	0.022*	0.057	-0.062	0.314**	0.314**	0.314**	0.314**	0.314**	1					
Collateral06	-0.033	-0.017	-0.199**	-0.013	-0.046	0.021	-0.013	-0.067	0.036	0.102**	-0.014	0.100**	0.089*	0.099**	-0.033	a	0.053**	0.061	-0.048	0.295**	0.295**	0.295**	0.295**	0.295**	0.295**	1				
Collateral07																														

a. Cannot be computed because at least one of the variables is constant.
 *. Correlation is significant at the 0.05 level (2-tailed).
 **. Correlation is significant at the 0.01 level (2-tailed).

Table 23 – Correlation matrix between the Sectors and Economic risk (MBV)

This table shows the correlation between the various sectors of economic activity and the risk that they may be associated with. The aim of this analysis is to study which sectors are most vulnerable to financial risks, and in turn represent the greatest economic risks that affect their own financing. The sector with the highest economic risk between 2000-2001 was the real state sector (L) while in 2003 it was the manufacturing sector (C). In the period of 2005-2006 it was the information and communication activities (J) with higher economic risk. There are no businesses of sector P in this study, so this item displays no values in the table.

Variables	MBV99	MBV00	MBV01	MBV02	MBV03	MBV04	MBV05	MBV06	MBV07	A	B	C	D	E	F	G	H	I	J	K	L	M	n	O	P	Q	R	S	
MBV99	1	.114**	.179**	-.003	0.027	0.023	0.013	-.001	0.009	0.005	-.016	-.042	-.006	-.005	-.013	-.009	-.007	-.011	0.045	-.014	-.034	0.043	-.033	-.009	a	-.008	-.004	0.019	
MBV00	.114**	1	.670**	0.013	.104**	0.021	-.015	-.004	-.007	-.003	0.025	0.025	0.003	0.011	-.012	0.010	-.005	-.007	0.006	-.007	-.175**	0.029	-.033	-.004	a	0.024	-.004	0.017	
MBV01	.179**	.670**	1	0.013	.104**	0.030	-.040	0.005	0.013	-.020	-.025	0.051	-.014	0.021	-.030	0.000	0.002	-.018	0.012	-.021	-.160**	0.022	-.123**	-.008	a	0.021	-.012	0.016	
MBV02	-.003	0.013	0.013	1	0.010	0.007	-.003	-.002	0.001	-.004	-.006	-.020	-.007	-.002	-.008	-.008	-.004	0.000	-.018	-.010	-.010	0.071	-.049	-.003	a	-.007	0.007	-.009	
MBV03	0.027	.104**	.104**	0.010	1	0.021	-.007	0.005	0.018	-.008	-.011	.091*	-.011	-.002	-.013	-.009	-.005	0.000	-.020	-.008	-.029	-.031	-.055	-.005	a	-.006	-.007	-.011	
MBV04	0.023	0.021	0.030	0.007	0.021	1	-.003	0.039	0.025	-.001	0.016	0.040	0.001	0.005	0.000	0.004	0.003	0.003	0.004	0.003	0.002	0.010	-.006	-.001	a	0.010	0.003	-.144**	
MBV05	0.013	0.021	-.040	-.003	-.007	-.003	1	.202**	.158**	-.011	-.001	-.013	-.012	0.005	-.009	-.010	-.004	-.004	.108**	-.003	-.012	-.017	0.015	-.006	a	0.005	-.003	0.000	
MBV06	-.001	-.015	0.005	-.002	0.005	0.039	.202**	1	.594**	-.021	-.009	-.014	-.009	0.007	-.017	-.004	-.008	0.001	.083*	0.003	-.011	-.055	0.034	-.005	a	.121**	-.005	0.020	
MBV07	0.009	-.004	0.013	0.001	0.018	0.025	.158**	.594**	1	-.024	-.001	0.015	-.015	0.005	-.035	-.015	-.018	-.003	0.042	-.015	-.030	0.009	0.007	-.014	a	0.036	-.011	-.012	
A	0.005	-.007	-.020	-.004	-.008	-.001	-.011	-.021	-.024	1	-.012	-.061	-.016	-.007	-.016	-.020	-.014	-.006	-.034	-.019	-.019	-.033	-.030	0.015	-.005	a	-.023	-.006	-.023
B	-.016	-.003	-.025	-.006	-.011	0.016	-.001	-.009	-.001	-.012	1	-.080*	-.022	-.009	-.020	-.026	-.018	-.008	-.044	-.025	-.050	-.066	.178**	-.007	a	-.031	-.008	-.031	
C	-.042	0.025	0.051	-.020	.091*	0.040	-.013	-.014	0.015	-.061	-.080*	1	-.107**	-.046	-.101**	-.131**	-.090*	-.040	-.219**	-.124**	-.147**	-.325**	-.033	-.033	a	-.151**	-.040	-.151**	
D	-.006	0.003	-.014	-.007	-.011	0.001	-.012	-.009	-.015	-.016	-.022	.107**	1	-.012	-.027	-.035	-.024	-.011	-.025	-.033	-.040	-.087*	-.029	-.009	a	-.041	-.011	-.041	
E	-.005	0.011	0.021	-.002	-.002	0.005	0.005	0.007	0.005	-.007	-.009	-.046	-.012	1	-.012	-.015	-.010	-.005	-.025	-.014	-.017	-.038	-.031	-.004	a	-.018	-.005	-.018	
F	-.013	-.012	-.030	-.008	-.013	0.000	-.009	-.017	-.065	-.016	-.020	.101**	-.027	-.012	1	-.033	-.023	-.010	-.056	-.032	-.038	-.083*	-.111**	-.008	a	-.039	-.010	-.039	
G	-.009	0.010	0.000	-.008	-.009	0.004	-.010	-.004	-.015	-.020	-.026	-.131**	-.035	-.015	-.033	1	-.030	-.013	-.072*	-.041	-.048	-.107**	-.093*	-.011	a	-.050	-.013	-.050	
H	-.007	-.005	0.002	-.004	-.005	0.003	-.004	-.008	-.018	-.018	-.018	-.090*	-.024	-.010	-.023	-.030	1	-.009	-.049	-.028	-.033	-.073*	-.049	-.007	a	-.034	-.009	-.034	
I	-.011	-.007	-.018	0.000	0.000	0.003	0.005	0.001	-.003	-.006	-.008	-.040	-.011	-.005	-.010	-.013	-.009	1	-.022	-.012	-.012	-.033	0.014	-.003	a	-.015	-.004	-.015	
J	0.045	0.006	0.012	-.018	-.020	0.004	.108**	.083*	0.042	-.034	-.044	-.219**	-.059	-.025	-.056	-.072*	-.049	-.022	1	-.068	-.081*	-.179**	-.015	-.018	a	-.083*	-.012	-.083*	
K	-.014	-.007	-.021	-.010	-.008	0.003	-.003	0.003	-.015	-.019	-.025	-.124**	-.033	-.014	-.032	-.041	-.028	-.012	-.068	1	-.046	-.101**	0.064	-.010	a	-.047	-.012	-.047	
L	-.034	-.175**	-.160**	-.010	-.029	0.002	-.012	-.011	-.030	-.023	-.030	-.147**	-.040	-.017	-.038	-.048	-.033	-.015	-.081*	-.046	1	-.120**	0.070	-.012	a	-.056	-.015	-.056	
M	0.045	0.029	0.022	0.071	-.051	0.010	-.017	-.055	0.009	-.030	-.066	-.325**	-.087*	-.038	-.033*	-.107**	-.073*	-.033	-.179**	-.101**	-.120**	1	.156**	-.027	a	-.124**	-.033	-.124**	
n	-.033	-.033	-.123**	-.049	-.055	-.006	0.015	0.034	0.007	0.015	.178**	-.179**	-.029	-.031	-.111**	-.093*	-.049	0.014	-.015	0.064	0.070	.156**	1	-.011	a	0.009	0.023	0.054	
O	-.009	-.004	-.008	-.003	-.005	-.001	-.006	-.005	-.014	-.005	-.007	-.033	-.009	-.004	-.008	-.011	-.007	-.003	-.018	-.010	-.012	-.027	-.011	1	a	-.012	-.003	-.012	
P	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	
Q	-.008	0.024	0.021	-.007	-.006	0.010	0.005	.121**	0.036	-.023	-.031	-.151**	-.041	-.018	-.039	-.050	-.034	-.015	-.083*	-.047	-.056	-.124**	0.009	-.012	a	1	-.015	-.058	
R	-.004	-.004	0.012	0.007	-.007	0.003	-.003	-.005	-.011	-.006	-.008	-.040	-.011	-.005	-.010	-.013	-.009	-.004	-.022	-.012	-.022	-.033	0.023	-.003	a	-.015	753	-.015	
S	0.019	0.017	0.016	-.009	-.011	-.144**	0.000	-.020	-.012	-.023	-.031	-.151**	-.041	-.018	-.039	-.050	-.034	-.015	-.083*	0	-.056	-.124**	0.054	0	a	-.058	-.013	1	

** Correlation is significant at the 0.01 level (2-tailed).
 a. Cannot be computed because at least one of the variables is constant.

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

Table 24 – Correlation matrix between the Sectors and Firm Size

This table shows the correlation between the various sectors of economic activity and the firm size that they may be associated with. The aim of this analysis is to study which sectors reached larger size in different years under study. The sectors represented in this larger study are the sectors of manufacturing (C), construction (F), wholesale and repair trade, repairs motor vehicles and motorcycles (G), real state (L), professional, scientific and technical activities (M) and administrative and support services (N). There are no businesses of sector P in this study, so this item does shows no values in the table.

Variables	Size99	Size00	Size01	Size02	Size03	Size04	Size05	Size06	Size07	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
Size99	1	.368**	.333**	.308**	.277**	.253**	.231**	.211**	.193**	.178**	.165**	.154**	.144**	.135**	.127**	.120**	.114**	.109**	.104**	.099**	.094**	.089**	.084**	.079**	.074**	.069**	.064**	.059**	
Size00	.368**	1	.519**	.472**	.425**	.378**	.331**	.284**	.237**	.190**	.143**	.096**	.049**	.002**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
Size01	.333**	.519**	1	.594**	.547**	.500**	.453**	.406**	.359**	.312**	.265**	.218**	.171**	.124**	.077**	.030**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Size02	.472**	.547**	.594**	1	.669**	.622**	.575**	.528**	.481**	.434**	.387**	.340**	.293**	.246**	.199**	.152**	.105**	.058**	.011**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Size03	.425**	.500**	.547**	.669**	1	.744**	.697**	.650**	.603**	.556**	.509**	.462**	.415**	.368**	.321**	.274**	.227**	.180**	.133**	.086**	.039**	.000	.000	.000	.000	.000	.000	.000	.000
Size04	.277**	.359**	.406**	.575**	.622**	1	.697**	.650**	.603**	.556**	.509**	.462**	.415**	.368**	.321**	.274**	.227**	.180**	.133**	.086**	.039**	.000	.000	.000	.000	.000	.000	.000	.000
Size05	.231**	.312**	.359**	.453**	.500**	.575**	1	.622**	.575**	.528**	.481**	.434**	.387**	.340**	.293**	.246**	.199**	.152**	.105**	.058**	.011**	.000	.000	.000	.000	.000	.000	.000	.000
Size06	.211**	.284**	.321**	.406**	.453**	.500**	.575**	1	.622**	.575**	.528**	.481**	.434**	.387**	.340**	.293**	.246**	.199**	.152**	.105**	.058**	.011**	.000	.000	.000	.000	.000	.000	.000
Size07	.193**	.265**	.302**	.387**	.434**	.481**	.528**	.575**	1	.622**	.575**	.528**	.481**	.434**	.387**	.340**	.293**	.246**	.199**	.152**	.105**	.058**	.011**	.000	.000	.000	.000	.000	.000
A	.178**	.249**	.286**	.371**	.418**	.465**	.512**	.559**	.606**	1	.080**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
B	.165**	.236**	.273**	.358**	.405**	.452**	.499**	.546**	.593**	.080**	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
C	.154**	.225**	.262**	.347**	.394**	.441**	.488**	.535**	.582**	.000	.000	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
D	.144**	.215**	.252**	.337**	.384**	.431**	.478**	.525**	.572**	.000	.000	.000	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
E	.135**	.206**	.243**	.328**	.375**	.422**	.469**	.516**	.563**	.000	.000	.000	.000	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
F	.127**	.198**	.235**	.320**	.367**	.414**	.461**	.508**	.555**	.000	.000	.000	.000	.000	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
G	.120**	.191**	.228**	.313**	.360**	.407**	.454**	.501**	.548**	.000	.000	.000	.000	.000	.000	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
H	.114**	.185**	.222**	.307**	.354**	.401**	.448**	.495**	.542**	.000	.000	.000	.000	.000	.000	.000	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
I	.109**	.180**	.217**	.302**	.349**	.396**	.443**	.490**	.537**	.000	.000	.000	.000	.000	.000	.000	.000	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
J	.104**	.175**	.212**	.297**	.344**	.391**	.438**	.485**	.532**	.000	.000	.000	.000	.000	.000	.000	.000	.000	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
K	.099**	.170**	.207**	.292**	.339**	.386**	.433**	.480**	.527**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1	.000	.000	.000	.000	.000	.000	.000	.000	.000
L	.094**	.165**	.202**	.287**	.334**	.381**	.428**	.475**	.522**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1	.000	.000	.000	.000	.000	.000	.000	.000
M	.089**	.160**	.197**	.282**	.329**	.376**	.423**	.470**	.517**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1	.000	.000	.000	.000	.000	.000	.000
N	.084**	.155**	.192**	.277**	.324**	.371**	.418**	.465**	.512**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1	.000	.000	.000	.000	.000	.000
O	.079**	.150**	.187**	.272**	.319**	.366**	.413**	.460**	.507**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1	.000	.000	.000	.000	
P	.074**	.145**	.182**	.267**	.314**	.361**	.408**	.455**	.502**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1	.000	.000	.000	
Q	.069**	.140**	.177**	.262**	.309**	.356**	.403**	.450**	.497**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1	.000	.000	
R	.064**	.135**	.172**	.257**	.304**	.351**	.398**	.445**	.492**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1	.000	
S	.059**	.130**	.167**	.252**	.299**	.346**	.393**	.440**	.487**	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1	

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because at least one of the variables is constant.

Table 25 – Correlation matrix between the Sectors and Total Debt

This table shows the correlation between the different sectors of economic activity and total debt, which they may be associated with. The purpose of this analysis is to assess the relationship between sectors and the level of debt involved in order to understand which sectors of activity show higher levels of debt. The sectors that show the most outstanding levels are the transports and storage (H), financial intermediation and insurance (K). There are no businesses of sector P in this study, so this item has no values in the table.

Variables	TotDeb99	TotDeb00	TotDeb01	TotDeb02	TotDeb03	TotDeb04	TotDeb05	TotDeb06	TotDeb07	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
TotDeb99	1																											
TotDeb00	.371**	1																										
TotDeb01	.586**	.371**	1																									
TotDeb02	.598**	.618**	.935**	1																								
TotDeb03	.558**	.546**	.993**	.995**	1																							
TotDeb04	.533**	.501**	.983**	.985**	.997**	1																						
TotDeb05	.577**	.571**	.986**	.990**	.994**	.997**	1																					
TotDeb06	.419**	.415**	.976**	.965**	.980**	.985**	.991**	1																				
TotDeb07	.533**	.533**	.959**	.969**	.966**	.985**	.974**	.943**	1																			
A	-0.010	-0.011	-0.009	-0.009	-0.008	-0.007	-0.009	-0.007	-0.010	1																		
B	-0.015	-0.016	-0.011	-0.011	-0.009	-0.009	-0.011	-0.009	-0.013	-0.012	1																	
C	-0.031	-0.030	-0.036	-0.033	-0.027	-0.023	-0.017	-0.018	-0.013	-0.061	-0.080*	1																
D	0.032	0.018	0.017	0.038	0.040	0.035	0.024	0.006	0.052	-0.016	-0.022	-0.077**	1															
E	-0.010	-0.010	-0.007	-0.006	-0.006	-0.005	-0.004	-0.004	-0.004	-0.007	-0.009	-0.046	-0.012	1														
F	-0.019	-0.020	-0.016	-0.015	-0.014	-0.012	-0.012	-0.014	-0.012	-0.018	-0.020	-0.016	-0.020	-0.016	1													
G	-0.013	-0.010	-0.013	-0.013	-0.012	-0.012	-0.012	-0.012	-0.012	-0.018	-0.026	-0.014	-0.018	-0.024	-0.010	1												
H	.238**	.190**	.083	.086*	.068	.066	.075*	.039	.050	-0.014	-0.018	-0.090*	-0.024	-0.010	-0.023	-0.030	1											
I	.051	.053	0.011	0.011	0.003	-0.004	-0.003	-0.005	-0.007	-0.034	-0.044	-0.199**	-0.040	-0.013	-0.009	-0.022	-0.068	1										
J	.073	.051	.236**	.199**	.190**	.185**	.161**	.179**	.159**	-0.019	-0.025	-0.124**	-0.033	-0.014	-0.028	-0.012	-0.068	-0.046	1									
K	-0.019	-0.024	-0.018	-0.019	-0.018	-0.016	-0.018	-0.016	-0.018	-0.023	-0.030	-0.147**	-0.040	-0.017	-0.038	-0.048	-0.033	-0.015	-0.081*	1								
L	-0.060	-0.067	-0.049	-0.053	-0.047	-0.043	-0.046	-0.037	-0.052	-0.050	-0.066	-0.325**	-0.087*	-0.038	-0.083*	-0.107**	-0.073*	-0.033	-0.033	-0.015	1							
M	.018	.067	.021	.038	0.014	0.007	0.019	0.014	0.038	-0.021	-0.038	-0.137**	-0.037	0.016	-0.035	-0.045	-0.031	-0.014	-0.075*	-0.043	-0.051	1						
N	-0.007	-0.006	-0.005	-0.006	-0.006	-0.005	-0.005	-0.004	-0.006	-0.005	-0.007	-0.033	-0.009	-0.004	-0.008	-0.011	-0.007	-0.003	-0.018	-0.010	-0.012	-0.027	-0.011	1				
O	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	1		
P	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	
Q	-0.019	-0.028	-0.023	-0.023	-0.021	-0.020	-0.019	-0.015	-0.021	-0.023	-0.031	-0.151**	-0.041	-0.018	-0.039	-0.050	-0.034	-0.015	-0.083*	-0.047	-0.056	-0.124**	-0.052	-0.012	.a	1		
R	-0.009	-0.009	-0.006	-0.008	-0.007	-0.006	-0.007	-0.005	-0.006	-0.006	-0.008	-0.040	-0.011	-0.005	-0.010	-0.015	-0.009	-0.004	-0.022	-0.012	-0.015	-0.033	-0.014	-0.003	.a	-0.015	1	
S	-0.021	-0.019	-0.019	-0.022	-0.021	-0.020	-0.021	-0.017	-0.022	-0.023	-0.031	-0.151**	-0.041	-0.018	-0.039	-0.050	-0.034	-0.015	-0.083*	-0.047	-0.056	-0.124**	-0.052	-0.012	.a	-0.058	-0.015	1

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

.a. Cannot be computed because at least one of the variables is constant.

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

Table 26 – Correlation matrix between the Total Assets and Tangible Fixed Assets

This table shows the correlation between the total assets and its component of tangible assets. This aims to assess the relationship between variables, and generally the assets that the company owns are tangible assets. Note that, in general, these assets are also building and determine the level of assurances at the time of financing.

Variables	TotAssr99	TotAssr00	TotAssr01	TotAssr02	TotAssr03	TotAssr04	TotAssr05	TotAssr06	TotAssr07	TanFAss99	TanFAss00	TanFAss01	TanFAss02	TanFAss03	TanFAss04	TanFAss05	TanFAss06	TanFAss07	
TotAssr99	1																		
TotAssr00	,988**	1																	
TotAssr01	,954**	,947**	1																
TotAssr02	,955**	,948**	,999**	1															
TotAssr03	,940**	,950**	,997**	,998**	1														
TotAssr04	,953**	,922**	,996**	,997**	,999**	1													
TotAssr05	,949**	,938**	,997**	,998**	,999**	,998**	1												
TotAssr06	,940**	,953**	,995**	,997**	,998**	,994**	,994**	1											
TotAssr07	,929**	,923**	,990**	,993**	,994**	,994**	,994**	,997**	1										
TanFAss99	,842**	,811**	,854**	,818**	,809**	,796**	,772**	,738**	,737**	1									
TanFAss00	,871**	,838**	,871**	,838**	,829**	,819**	,797**	,760**	,753**	,990**	1								
TanFAss01	,870**	,833**	,877**	,850**	,846**	,834**	,815**	,770**	,755**	,983**	,980**	1							
TanFAss02	,847**	,809**	,859**	,841**	,840**	,829**	,807**	,763**	,761**	,976**	,971**	,995**	1						
TanFAss03	,837**	,797**	,849**	,839**	,842**	,831**	,808**	,763**	,768**	,956**	,955**	,985**	,995**	1					
TanFAss04	,844**	,801**	,852**	,841**	,844**	,834**	,812**	,765**	,768**	,956**	,958**	,983**	,993**	,999**	1				
TanFAss05	,868**	,826**	,875**	,862**	,864**	,853**	,838**	,790**	,775**	,952**	,956**	,986**	,991**	,994**	,995**	1			
TanFAss06	,854**	,819**	,863**	,847**	,847**	,837**	,814**	,775**	,779**	,970**	,973**	,986**	,990**	,990**	,992**	,989**	1		
TanFAss07	,682**	,663**	,712**	,707**	,710**	,700**	,659**	,640**	,722**	,912**	,903**	,899**	,922**	,929**	,928**	,897**	,940**	1	

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

Table 27 - Correlation matrix between the Non Debt tax shields and Total Debt

This table shows the correlation between non-debt tax shields variable, which is an approximation to the depreciation of profits, before taxes and total debt variable. This analysis aims to understand whether the depreciation of profits, before taxes, have an impact on the level of debt.

Variables	Non-Debt Tax shields 1999	Non-Debt Tax shields 2000	Non-Debt Tax shields 2001	Non-Debt Tax shields 2002	Non-Debt Tax shields 2003	Non-Debt Tax shields 2004	Non-Debt Tax shields 2005	Non-Debt Tax shields 2006	Non-Debt Tax shields 2007	TotDeb99	TotDeb00	TotDeb01	TotDeb02	TotDeb03	TotDeb04	TotDeb05	TotDeb06	TotDeb07	
Non-Debt Tax shields 1999	1																		
Non-Debt Tax shields 2000	,866**	1																	
Non-Debt Tax shields 2001	,637**	,638**	1																
Non-Debt Tax shields 2002	,243**	0,035	,455**	1															
Non-Debt Tax shields 2003	,755**	,809**	,741**	,163**	1														
Non-Debt Tax shields 2004	,848**	,881**	,711**	0,067	,938**	1													
Non-Debt Tax shields 2005	,847**	,855**	,779**	,195**	,938**	,978**	1												
Non-Debt Tax shields 2006	,814**	,794**	,801**	,350**	,903**	,926**	,973**	1											
Non-Debt Tax shields 2007	,869**	,802**	,784**	,410**	,856**	,885**	,929**	,635**	1										
TotDeb99	,897**	,729**	,339**	-0,033	,545**	,674**	,624**	,535**	,871**	1									
TotDeb00	,807**	,692**	,336**	-0,025	,595**	,670**	,635**	,538**	,589**	,573**	1								
TotDeb01	,699**	,623**	,596**	,280**	,758**	,816**	,821**	,813**	,598**	,618**	,995**	1							
TotDeb02	,732**	,657**	,626**	,280**	,778**	,786**	,840**	,841**	,836**	,618**	,993**	,995**	1						
TotDeb03	,707**	,633**	,637**	,316**	,763**	,765**	,826**	,837**	,538**	,546**	,993**	,995**	,995**	1					
TotDeb04	,690**	,605**	,632**	,352**	,739**	,734**	,803**	,823**	,831**	,501**	,988**	,985**	,985**	,997**	1				
TotDeb05	,717**	,631**	,627**	,345**	,743**	,746**	,808**	,823**	,837**	,571**	,986**	,990**	,991**	,991**	,991**	1			
TotDeb06	,585**	,527**	,597**	,356**	,688**	,675**	,757**	,789**	,774**	,419**	,976**	,965**	,980**	,985**	,985**	,974**	1		
TotDeb07	,697**	,646**	,675**	,344**	,774**	,767**	,827**	,841**	,847**	,533**	,959**	,969**	,966**	,958**	,966**	,966**	,966**	,943**	1

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

Table 28 – Regression coefficients for the leverage model

Regression performed on the Leverage model defined in this study. The dependent variable is Total Debt n , where n represents the year under review. For each year, this regression shows which independent variables justify most the amount of debt that year.

Independent Variables	Dependent Variable									
	Total Debt 1999	Total Debt 2000	Total Debt 2001	Total Debt 2002	Total Debt 2003	Total Debt 2004	Total Debt 2005	Total Debt 2006	Total Debt 2007	
Size n	-0,011	0,078	0,050	0,203	-0,034	-0,039	-0,011	-0,056	-0,039	
σ	62,561	161,045	373,700	383,899	238,479	276,658	201,098	359,872	172,419	
T-Statistic	-0,465	2,176**	1,416	4,589**	-1,217	-1,250	-0,436	-2,161*	-1,707	
Reputation	0,003	-0,064	-0,030	0,006	0,001	0,017	-0,024	-0,007	-0,007	
σ	148,202	161,045	866,369	915,625	536,702	581,538	403,441	692,073	319,593	
T-Statistic	-3,023**	-1,942**	-0,890	0,138	0,025	0,592	-1,007	-0,286	-0,343	
Collateral n	-0,002	-0,010	-0,018	-0,040	0,008	0,001	0,013	0,013	0,009	
σ	36,861	79,686	182,485	189,448	118,285	133,902	88,167	152,505	76,941	
T-Statistic	-0,079	-0,305	-0,539	-0,960	0,306	0,042	0,564	0,541	0,446	
MBV n	-0,007	-0,015	-0,002	0,010	-0,001	-0,003	-0,001	-0,014	-0,006	
σ	4,541	28,227	109,872	163,578	14,924	31,355	12,661	49,400	19,584	
T-Statistic	-0,379	-0,480	-0,057	0,250	-0,032	-0,102	-0,031	-0,620	-0,308	
Non-Debt Tax shields n	2,074	-0,497	5,508	1,118	5,875	4,948	3,771	3,066	1,741	
σ	1,688	3,910	30,747	35,020	23,810	37,537	12,029	16,331	5,311	
T-Statistic	11,912**	-1,666	7,809**	0,813	11,501**	5,024**	9,481**	9,351**	7,381**	
INDUSTRY-SCALE	0,003	0,015	0,035	0,036	0,010	0,021	0,016	0,041	0,042	
σ	15,743	37,725	87,512	91,272	57,076	62,694	44,742	77,017	37,073	
T-Statistic	0,138	0,460	1,044	0,849	0,400	0,730	0,702	1,742	2,055	
Return On Assets n	-0,011	-0,011	-0,037	-0,022	-0,029	-0,021	-0,019	-0,014	-0,017	
σ	3,929	9,553	19,316	19,508	14,310	14,913	12,214	13,859	6,841	
T-Statistic	-0,278	-0,345	-1,074	-0,520	-1,178	-0,791	-0,877	-0,628	-0,848	
Growth rate of sales n	-0,186	-0,289	0,268	-0,120	0,026	0,073	-0,101	0,017	0,100	
σ	0,076	0,154	0,437	0,382	0,563	0,533	0,248	0,173	0,083	
T-Statistic	-6,356**	-8,271*	8,463**	-2,832**	0,926	2,511*	-3,734**	0,767	5,008**	
Assets Maturity n	-0,002	0,091	0,015	0,067	-0,004	0,002	-0,005	0,002	0,004	
σ	61,315	136,072	354,171	353,663	226,549	264,140	174,416	304,459	150,899	
T-Statistic	-0,120	2,841*	0,453	1,637	-0,155	0,073	-0,227	0,098	0,181	
Listed firms per million population	-0,002	0,010	0,046	-0,009	0,038	0,022	0,048	0,056	0,002	
σ	15,944	34,635	79,688	82,388	49,720	52,826	36,731	62,171	29,745	
T-Statistic	-0,058	0,196	0,874	-0,132	0,851	0,454	1,222	1,372	0,062	
Stock market capitalization to GDP	0,027	-0,037	-0,100	-0,003	-0,067	-0,041	-0,087	-0,093	0,001	
σ	12,894	27,496	66,307	67,755	41,316	43,391	29,224	49,111	23,294	
T-Statistic	0,325	-0,326	-0,845	-0,022	-0,785	-0,460	-1,266	-1,365	0,017	
Ln GDP/POP	-0,007	0,013	0,014	-0,027	-0,019	-0,035	-0,022	-0,026	-0,025	
σ	431,527	999,415	2262,285	2337,621	1419,330	1610,848	1154,784	2028,537	962,454	
T-Statistic	-0,190	0,230	0,225	-0,342	-0,408	-0,663	-0,526	-0,617	-0,681	
Time to collect on a bounced check	-0,010	-0,035	-0,137	-0,001	-0,091	-0,058	-0,107	-0,118	-0,021	
σ	516,860	1087,516	2625,911	2679,071	1619,237	1697,673	1159,193	1948,181	924,832	
T-Statistic	-0,123	-0,306	-1,143	-0,005	-1,079	-0,666	-1,587	-1,797	-0,357	
Tax evasion	0,000	-0,019	-0,062	-0,016	-0,004	0,011	-0,016	-0,016	0,008	
σ	273,991	593,794	1326,178	1372,469	834,282	903,305	640,363	1116,457	533,893	
T-Statistic	-0,004**	-0,277	-0,899	-0,185	-0,072	0,195	-0,337	-0,343	0,188	
EBIT n	-1,048	1,310	-4,914	-0,876	-5,113	-4,223	-2,902	-2,258	-0,861	
σ	0,816	1,942	11,542	13,318	9,115	14,227	4,518	6,138	1,998	
T-Statistic	-6,190	4,396*	-6,979**	-0,638	-10,069**	-4,293**	-7,305**	-6,879**	-3,649**	
Constant	0,794	0,966	0,575	0,833	0,369	0,425	0,199	0,160	0,516	
σ	5278,083	12065,849	28720,428	29530,813	17746,124	19866,616	13679,132	23746,453	11119,523	
T-Statistic	0,260	0,043	0,562	0,211	0,900	0,798	1,286	1,408	0,650	
Adj. Coeff. (R²)	83%	56%	48%	12%	66%	55%	68%	65%	73%	
F-Statistic	147,67**	41,228**	33,562**	5,85**	75,18**	51,942**	95,676**	86,52**	127,101**	

Notes: n = year, *Statistically at a 5% level of significance; **Statistically at a 1% level of significance.

Table 29 – Regression coefficients for the maturity model

Regression performed on the Maturity model, defined in this study. The Asset Maturity n is the dependent variable, where n represents the year under review. For each year, this regression shows which independent variables that warrant further the assets maturity in debt that year. It is visible that the evolution and relevance have assumed that the independent variables over the period under study.

Independent Variables	Dependent Variable									
	Asset Maturity 1999	Asset Maturity 2000	Asset Maturity 2001	Asset Maturity 2002	Asset Maturity 2003	Asset Maturity 2004	Asset Maturity 2005	Asset Maturity 2006	Asset Maturity 2007	
Collateral n	0,365	0,245	0,244	0,221	0,252	0,244	0,170	0,093	0,172	
σ	0,021	0,021	0,018	0,018	0,019	0,019	0,018	0,019	0,019	
T-Statistic	10,995**	6,85**	6,82**	6,137**	7,077**	6,861**	4,705**	2,545**	4,747**	
Size n	-0,049	-0,002	0,027	-0,014	-0,051	-0,062	-0,060	-0,107	-0,048	
σ	0,030	0,035	0,029	0,031	0,033	0,032	0,035	0,040	0,039	
T-Statistic	-1,450	-0,051	0,751	-0,384	-1,415	-1,750	-1,646	-2,911**	-1,312	
VOLATILITY n	0,205	0,012	-0,040	-0,024	0,004	-0,002	-0,017	-0,034	-0,026	
σ	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	
T-Statistic	6,16**	0,329	-1,100	-0,680	0,112	-0,066	-0,477	-0,944	-0,716	
Tax evasion	-0,046	-0,015	-0,003	-0,015	0,011	0,009	0,015	-0,022	-0,031	
σ	0,059	0,067	0,057	0,060	0,064	0,060	0,065	0,070	0,067	
T-Statistic	-1,376	-0,410	-0,086	-0,426	0,306	0,262	0,410	-0,597	-0,847	
Constant	0,076	0,403	0,777	0,346	0,675	0,605	0,540	0,031	0,088	
σ	0,234	0,269	0,229	0,239	0,258	0,242	0,265	0,280	0,273	
T-Statistic	-1,376	-0,410	-0,086	-0,426	0,306	0,262	0,410	-0,597*	-0,847	
Adj. Coeff. (R^2)	17,666%	5,545%	5,655%	4,361%	5,865%	5,643%	2,841%	1,847%	3,046%	
F-Statistic	41,177**	11,993**	12,225**	9,538**	12,667**	12,197**	6,475**	4,524**	6,883**	

Notes: n = year; *Statistically at a 5% level of significance; **Statistically at a 1% level of significance.