LISBON SCHOOL OF ECONOMICS & MANAGEMENT
UNIVERSIDADE DE LISBOA

MESTRADO

CONTABILIDADE, FISCALIDADE E FINANÇAS EMPRESARIAIS

TRABALHO FINAL DE MESTRADO

DISSERTAÇÃO

THE RELATIONSHIP BETWEEN DEBT FINANCING AND EARNINGS MANAGEMENT: EUROPEAN EVIDENCE

TÂNIA ALEXANDRA SANTOS PINTO

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Abstract

This study has the purpose of analyzing the relationship between debt financing and earnings management on European listed companies, since previous literature report mixed results about the influence of debt financing on earnings management. The sample is composed by 1278 listed companies from 13 European countries, between 2007 and 2016. Through this research it is tried to discover if the influence of debt financing on earnings management is negative, positive or both, suggesting a non-linear relationship. The results suggest that the influence of debt on earnings management is positive and that, the relationship between debt financing and earnings management is linear. Results also propose that earnings quality is negatively influenced by firm's low profitability and positively influenced by firm's return on assets.

Key words: earnings quality; earnings management; accruals quality; debt financing; listed companies.

Resumo

O propósito deste estudo é analisar a relação entre o endividamento e a qualidade dos resultados nas empresas cotadas Europeias, visto que, estudos anteriores apresentam opiniões díspares relativamente à influência do endividamento na gestão de resultados. A amostra é composta por 1278 empresas cotadas de 13 países Europeus, sendo o período de análise de 2007 a 2016. Através desta análise, pretende-se descobrir se a influência do endividamento na gestão de resultados é negativa, positiva ou ambas, sugerindo uma relação não linear. Os resultados sugerem que a influência é positiva e, consequentemente, que a relação existente entre estas duas variáveis é linear. Os resultados propõem também que a gestão dos resultados é influenciada negativamente pela baixa rentabilidade e positivamente pela rendibilidade do ativo.

Palavras-chave: qualidade dos resultados; gestão de resultados; qualidades dos *accruals*; endividamento; empresas cotadas.

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Acronyms

IAS – International Accounting Standards

ROA – Return on assets

USA – United States of America

1. Introduction

The challenges of a twenty-one-century company are focused on economic development and especially in the financial globalization. Firms are in the presence of a global market, as they are interconnected with the global system, which is open to all the companies and encourages the flow of goods, capital and services. Since they have the need to adapt to this reality, companies became more competitive and aware to the market to be able to survive and grow. This necessity becomes stronger with the available access to financial information, since the external stakeholders demand higher quality to the process of decision making (Ball & Shivakumar, 2005), being the earnings quality a major factor of choice.

During the financial reporting process, managers have the opportunity to manage earnings, due to the flexibility and subjectivity of accounting standards. They can make the financial report look different from the reality, using the estimations and measurements in their behalf and make it appear appellative to the market. Therefore, earnings management is considered an intentional practice that mislead the external user of the information with the drive to obtain some private gain (Schipper, 1998). As such, firms are motivated to incur in this kind of practices.

However, firms can not only use the flexibility that the standards provide, they can also violate them and incur in fraud. There are multiple examples of cases like this in the last few years, which increases the uncertainty related to financial reporting.

The company's capital structure and consequently the amount of debt financing and debt equity, is a factor that influences the need of financial report. As well, the

differences between the reality and what was actually reported can be explained by the demand to fulfil the expectations of the market (Pope, 2003).

The aims of this research are focus on the study of the relationship between debt financing and earnings management and the analysis of the influence of debt on earnings management, since it was only a considered focus of research by Ghosh & Moon (2010), that studied it in USA listed companies. Therefore, this research focus in European listed companies and it proposes to find if this relationship exists and how it behaves.

The sample used is composed by 1278 listed companies from 13 European countries, and the observations are referred to the period between 2007 and 2016. As a proxy for earnings management, it was defined the amount of discretionary accruals obtained through the Jones model (Jones, 1991) modified by Dechow et al. (1995).

The results of this study indicate that the level of debt is positively associated with earnings management, suggesting that companies with more debt financing incur in more earnings management practices. The hypothesis of a nonlinear relationship between the debt financing and earnings managemnt isn't supported. The results also suggest that companies with higher cost of debt, more losses and lower return on assets have more earnings management practices.

This study is helpful to the users of the financial reports, especially on the process of making financial decisions, as they can perceive that the amount of debt financial of a company can affect their financial reports. Also, it is hoped that it contributes to the literature about earnings management and, mainly, about the association between debt financing and earnings management.

The remaining of this study is divided in 4 chapters. The subsequent chapter (chapter 2) gives some fundamental concepts to the study and summarize the previous literature that support this research and consider the relationship between debt financing and earnings management. Chapter 3 reveals the main hypothesis of the investigation, the selected data and its characterization and, finally, the methodology used. The following chapter (chapter 4) contemplates the discussion and analysis of the results. To finish, the last chapter is the 5th and holds the final conclusions, the limitations of the study and the suggestions for future research.

2. Literature Review

2.1. Earnings Quality

As IAS 1 defines, the role of the financial report is to give information that helps users to make economic decisions. The financial report information reduces the agency conflicts between the company and the external stakeholders (Healy & Palepu, 2001). Additionally, Francis et al. (2003) consider earnings as the principal performance metric used by investors and analysts and Corina & Miculescu (2012) argue that earnings influence the process of decision making. Subsequently, capital market participants only make good judgments and decisions based on high quality financial reports. This makes the earnings quality a summary indicator of a decision made (Francis et al., 2008). Also, Dechow & Schrand (2004, p.5) deliberate that "high quality earnings reflect the company's current operating performance, is a good indicator of future operating performance and is a useful summary measure for assessing firm value". Indeed, poor earnings quality can mislead investors resulting in information asymmetries

(Bhattacharya et al., 2013), which prove the importance of high quality financial statements in the process of economic decisions (Ball & Shivakumar, 2005).

Healy & Wahlen (1999, p. 368) define that "earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers". In this context, Schipper (1998) suggested that, when incurring in earnings management, managers have "the intent of obtaining some private gain".

Beneish (2001) propose the existence of two perspectives of earnings management: the opportunistic perspective that focus on the use of the accounting information with the intent to mislead the investors and the information perspective that aims to give the knowledge about the managers' expectations of the future firm's cash flows.

However, the opportunistic perspective domains the literature, since this practice reduces the earnings quality and, consequently, mislead the stakeholders about the firm. Several authors point that earnings quality is affected by managers incurring in earnings management (Leuz et al., 2003; Healy & Wahlen, 1999).

2.2. Relationship Between Debt Financing and Earnings Management

2.2.1. Negative Influence of Debt on Earnings Management

Jensen & Meckling (1976) propose that managers may act in their own interest and not in the shareholder's interest. In that way, shareholders can mitigate the agency conflicts by stablishing incentives for the managers. Yet, they do not monitor the behavior of management because the costs are higher than the benefits that it brings. On the contrary, private debt lenders, especially banks, are specialized in monitoring borrowers and mitigating agency conflicts (Diamond, 1984). Diamond (1984) consider that banks act like a delegated monitor, since they evaluate whom they lend to and have the ability to control the opportunistic behavior of managers.

According to Jensen (1986), debt works like a monitoring device as it reduces the agency costs of Free Cash Flow by decreasing the Cash Flow that is available for managers to control. In other words, managers won't invest in bad projects and waste resources as debt cuts the cash flow available for non-profitable investments. Similarly, Grossman & Hart (1982) see debt as a disciplinary instrument. By issuing debt, firms create the possibility of bankruptcy which makes managers act in shareholders' interest, the market recognize this possibility and firm's market value increases. Managers are willing to take the risk of bankruptcy because they benefit with the increase of market value of the firm, since their salaries depend on it, the probability of a takeover bid would be smaller, and it would be easier to raise capital.

In addition, firms have the incentive to provide high earnings quality since it can reduce the costs of borrowing (Diamond, 1991). Francis et al. (2005) found empirical

evidence that firms with low accounting quality experience higher costs of debt and García-teruel et al. (2010) suggest that firms with poor earnings quality face shorter debt maturities.

Finally, Feltham et al. (2007) suggest that debt incentives firms to provide accounting information with higher quality and argue that accounting precision is positively related to debt.

In sum, lenders demand higher quality accounting information, since it reduces the credit risk and managers can reduce the costs of borrowing if they act in the interest of debtholders and shareholders. Therefore, all these arguments suggest that there is a positive influence of debt on earnings quality.

2.2.2. Positive Influence of Debt on Earnings Management

Debt and earnings quality can also be related negatively. As suggest by An et al. (2016), firms that frequently manage earnings have higher financial leverage.

Regarding the agency problem, managers may not act in the interest of debtholders, thus contractual arrangements are made, usually based on accounting numbers, "to reduce expropriation of wealth by managers" (Watts & Zimmerman, 1990) and so to protect the lender. According with Beneish (2001) and Iatridis & Kadorinis (2009), when firms are close to violate debt covenants (contractual arrangements) they tend to manipulate the accounting information as a way to avoid financial distress. This occurs because the consequences of violating a debt covenant are heavy. Lenders could demand the immediate repayment, increase the interest rate, impose additional covenants and put an end to the contract (Gopalakrishnan & Parkash, 1995).

Moreover, when managers face a high level of debt they have incentives to use the financial statements as a way to reduce the prospect of violating debt covenants (Dechow & Dichev, 2002; Beatty et al., 2010). Therefore, firms are willing to reduce the quality of accounting information to avoid debt covenant violations (Feltham et al., 2007).

Besides that, earnings quality is important to make decisions about the firm's capital structure. This happens because, if a company has high quality information, it uses more equity financing, instead of debt financing (Chen et al., 2016). In that context, companies that present high earnings quality choose to be financed with equity and companies with poor earnings quality have to resort to debt financing. Although, in order to better access to capital debt markets, managers tend to use earnings management to make the firm look more attractive and healthy (Iatridis & Kadorinis, 2009).

In sum, firms may practice earnings management to avoid debt covenants violation and to access to access capital markets. In this sense, it is expected high debt levels to be associated with low earnings quality.

2.3.Research Question

Prior research on the relationship between debt financing and earnings management has found mixed opinions. Some authors find a negative relation, in which the presence of debt can damage the financial reports quality, and others support a positive relation, in which the debt can influence positively the quality of the reporting. Also, it is proved that the relationship may be non-linear, in which, lower debt levels have a positive influence on earnings management and high debt levels have a negative influence (Ghosh & Moon, 2010).

Thus, the main goal of this study is to analyze the relationship between debt financing and earnings management and answer to the following research question: Is the relationship between debt financing and earnings management linear?

3. Methodology and Data

3.1. The Earnings Management Measure

Several measures are used in the literature to evaluate earnings quality (Schipper & Vincent, 2003). Francis et al. (2004) considers that the accrual quality is the most valued between the earnings attributes. Besides that, this attribute provides measure about the firm's performance that can, more precisely, reflect the expected cash flows, making it a good indicator of the earnings (Dechow, 1994).

Hence, the amount of discretionary accruals is used as a proxy of earnings quality and consequently earnings management and it were obtained through the Jones's model (1991) modified by Dechow et al. (1995).

Jones (1991) created a model that consider the total accruals, more specifically, the discretionary accruals as a measure of earnings management. The author considered that nondiscretionary accruals are constant and the change in the discretionary accruals is reflected essentially by the change in total accruals. Besides that, the model is a function of the change in revenue and the level of property, plant and equipment, since these variables control the change in nondiscretionary accruals, as they are an effect of the changes on the firm's economic conditions.

Dechow et al. (1995) claimed that if earnings can be managed through the discretionary part of revenues, then Jones's model didn't consider these discretionary

accruals. Therefore, Dechow et al. (1995) assume that the practice of earnings management is responsible for the changes in credit sales and suggested the following modified model (scaled by lagged assets as a way of reducing the heteroscedasticity):

$$Dacc_{it} = \frac{TA_{it}}{A_{it}} - (\alpha_i[\frac{1}{A_{it}}] + \beta_{1i}\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it}} + \beta_{2i}\frac{PPE_{it}}{A_{it}}) \quad (1)$$

where,

$Dacc_{it}$ = Discretionary accruals in year t for firm i;

$TA_{i,t}$= Total accruals in year t for firm i;

$A_{i,t}$= Total assets in year t from firm i;

ΔREV_{it}= Revenues in year t less revenue in year t -1 for firm i;

PPE_{it}= Gross property, plant and equipment in year t for firm i;

ΔREC_{it} = Net receivables in year t less net receivables in year t-1 from firm i.

To obtain the estimates of α_i, β_{1i} and β_{2i} (a_i, b_{1i} and b_{2i}), to each sector, it was used the ordinary least squares method. Total accruals where calculated through the traditional method used by Dechow et al. (1995):

$$TA_{it} = \Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} + \Delta STD_{it} - Dep_{it} \quad (2)$$

where,

TA_{it}= Total accruals in year t for firm i;

ΔCA_{it}= Change in current assets in year t for firm i;

ΔCL_{it}=Change in current liabilities in year t for firm i;

$\Delta Cash_{it}$= Change in cash equivalents in year t for firm i;

ΔSTD_{it}= Change in debt included in current liabilities in year t for firm i;

Dep_{it}= Depreciation and amortization expense in year t for firm i.

The discretionary accruals obtained through the described model (1) are presented in absolute value, since earnings management increases with both positive and negative discretionary accruals. Therefore, the quality of the report decreases as this value gets higher, since they are proportional.

3.2. Model and Variables

The following model was used to answer the research question.

$$DACC = \beta_0 + \beta_1 DEBT_{it} + \beta_2 DEBT2_{it} + \beta_3 COSTDEBT_{it} + \beta_4 GROWTH_{it} + \beta_5 LOSSES_{it} + \beta_6 ROA_{it} + \sum COUNTRY_i + \sum INDUSTRY_i + \varepsilon_{it} \quad (3)$$

The discretionary accruals represent the dependent variable (*DACC*) and are used as a proxy of the earnings management.

To obtain the best model it was used three methods, the pooled OLS, the fixed effects (FE) and the random effects (RE). The importance of considering them is related with the fact that they are suitable to panel data, since it is expected to exist non-observable effects. Besides that, the random effects model assumes that the not observable effect isn't correlated with the independent variables (Wooldridge, 2009). Thought the Hausman test it is possible to choose between the FE and the RE. Then, when the p-value is lower than 10% we accept that the FE is more suitable to the model. To prevent the existence of heteroscedasticity and autocorrelation of standard errors, the *robust* and *cluster* (by country) options were selected.

The first independent variable is *DEBT* and it was defined as the ratio of total debt to total assets. The $DEBT^2$ is the second independent variable, it represents the square of

DEBT and it is used as a way of perceiving if the relationship between the debt and the discretionary accruals is linear or not, following Ghosh & Moon (2010) among others.

According to Francis et al. (2005), the *COSTDEBT* focus on the relation between debt financing and financial distress, that could influence positively the earnings management, Ghosh & Moon (2010) also used it to study the same relation. This variable was obtained through the interest expense divided by the average total debt and it is expected to have a negative coefficient.

The variable *GROWTH* is used as a way to perceived the firm's growth perspectives. Tendeloo & Vanstraelen (2008) and Boone et al. (2010) consider that firms with higher growth are positively associated with higher levels of earnings management. This suggests, that firms with higher performances have tendency to present poor earnings quality, as such it is expected a positive coefficient for this variable. The proxy used was calculated through the changes in sales from the prior year to the current year deflated by the prior year sales.

The variable *ROA* (Return on Assets) is used to measure the financial performance of the company as define by Kothari et al. (2005), being this variable able to evaluate the differences of the firm's performance. Tendeloo & Vanstraelen (2008) argue that ROA has a negative effect on earnings management suggesting that companies with high levels of ROA have financial reports with higher quality. Therefore, the coeficient of this variable is expected to be negative. This variable is the ratio between net profit and total assets.

The independent variable *LOSSES*, was defined as the portion of firm-years that exhibit negative earnings from years analyzed. The importance of this variable focus on

the relation of firm's characteristics with earnings quality, as they are influenced by the business models and operating environments. Consequently, it is expected to have a positive coefficient, since it has positive influence on earnings management.

Finally, the variables *COUNTRY* and *INDUSTRY* where used to control the effects on earnings quality produced by the country' characteristics and the type of industry as Tendeloo & Vanstraelen (2008) and Boone et al. (2010) detected. Besides that, the variable YEAR was also added as a control variable.

3.3. Data and Sample

The data used to obtain the sample of this study, was collected from the database Amadeus in July of 2017. The sample was composed by 7477 companies listed from the 28-member states of European Union[1], from 2007 to 2016. Accordingly with previous studies, it was necessary to exclude companies that practice financial and insurance activities and had public administration, since in these cases the accounting reports and regulation are different what makes the formation of accruals diverse too (Leuz et al., 2003; Osma & Noguer, 2005). Additionally, to eliminate all the outliers the data is insert between the 1th and 99th percentile. The final sample is composed by 1278 companies, 7484 observations, 17 industry sectors and 13 countries.

Table I provides the composition of the sample by industry. The sample is mainly composed by 4 industries. The most represented industries are C (manufacturing) and M (professional, scientific and technical activities) with a percentage of 29,98% and 27,30% respectively.

[1] The sample contains only countries that belong to the European Monetary Union.

Table I - Sample composition by industry

Industry Classification	*Industry Sector*	*Number of companies*	*Number of observations*	*Percentage %*
A	Agriculture, forestry and fishing	10	61	0,82%
B	Mining and quarrying	5	21	0,28%
C	Manufacturing	372	2244	29,98%
D	Electricity, gas, steam and air conditioning supply	26	134	1,79%
E	Water supply, sewerage, waste management and remediation activities	8	51	0,68%
F	Construction	46	249	3,33%
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	128	756	10,10%
H	Transportation and storage	33	190	2,54%
I	Accommodation and food service activities	21	121	1,62%
J	Information and communication	169	892	11,92%
L	Real estate activities	58	308	4,12%
M	Professional, scientific and technical activities	334	2043	27,30%
N	Administrative and support service activities	35	216	2,88%
P	Education	4	27	0,36%
Q	Human health and social work activities	11	76	1,02%
R	Arts, entertainment and recreation	10	57	0,76%
S	Other services activities	8	38	0,51%
Total		*1278*	*7484*	*100,00%*

Note: The industry sectors were classified through the code of NAICS 2007 (AMADEUS)

Table II, presents the composition of the sample by country, where the more represented country is by France (36,01%), followed by Germany (23,70%) and Italy (14,85%).

Table II - Sample composition by country

Country	***Number of Companies***	***Number of Observations***	***Percentage %***
Germany	294	1774	23,70%
France	442	2700	36,01%
Italy	184	1112	14,85%
Spain	75	485	6,48%
Portugal	6	6	0,08%
Finland	74	389	5,20%
Greece	113	691	9,23%
Luxembourg	8	21	0,28%
Austria	22	68	0,91%
Slovenia	11	39	0,52%
Netherland	11	11	0,15%
Belgium	16	72	0,96%
Slovakia	22	116	1,55%
Total	*1278*	*7484*	*100,00%*

4. Results

4.1. Descriptive Statistics

Table III provides the descriptive statistics of each variable of the model. The mean of the absolute value of discretionary accruals is 0,90257, which is a considerable value since it is in the range of 6,13e-06 and 3,6. The average company shows a debt ratio of 27,9%, a cost of debt of 5,6%, an annual growth around 5%, a percentage of years with negative profit of 12,5% and a ROA of 1,6%.

Table III - Variables descriptive statistics

Variables	*N*	*Mean*	*Median*	*Standard Deviation*	*Minimum*	*Maximum*
DACC	7484	0,902572	0,0617837	0,107662	6,13e-06	3,608315
DEBT	7518	0,278505	0,2596315	0,160360	0,003406	0,751052
$DEBT^2$	7518	0,103245	0,0674085	0,107169	0,000012	0,564080
COSTDEBT	7518	0,05775	0,0520469	0,028821	0,007956	0,149776
GROWTH	7518	0,050640	0,0357451	0,182147	-0,444147	0,943013
LOSSES	7518	0,244516	0,1250000	0,276000	0	1
ROA	7518	0,015519	0,0249734	0,062017	-0,291733	0,158378

Notes: DACC – Discretionary accruals in absolute value;
DEBT– Ratio of total Debt (long-term + short-term) to total assets in year t from firm i;
$DEBT^2$ – The square of the ratio of total Debt (long-term + short-term) to total assets in year t from firm i;
COSTDEBT – Interest expense deflated by total debt (long-term + short-term) in year t from firm i;
GROWTH – Change in sales from year t to year t-1 deflated by the year t-1 sales;
LOSSES – Portion of years with negative earnings from firm i;
ROA – Return on assets obtain through the net income deflated by total assets in year t from firm i.

In addition, the sample was divided in five portfolios of *Debt* and it was used the discretionary accruals (*DACC*) as a proxy for earnings management. Like Table IV shows, *Debt 1* represents the observations with the lowest debt levels where the mean was 0,077 and *Debt 5* contains the observations with highest debt levels where the mean was 0,524.

Also, it was tested if the differences between the means of Debt 1 and Debt 2, Debt 2 and Debt 3, Debt 3 and Debt 4 and, finally, Debt 4 and Debt5 were statistically significant, which was confirmed by the outputs described in Table IV.

However, the results shown on Table IV do not prove the nonlinear relationship that was expected since the mean and median of the discretionary accruals always increase across the growing debt levels.

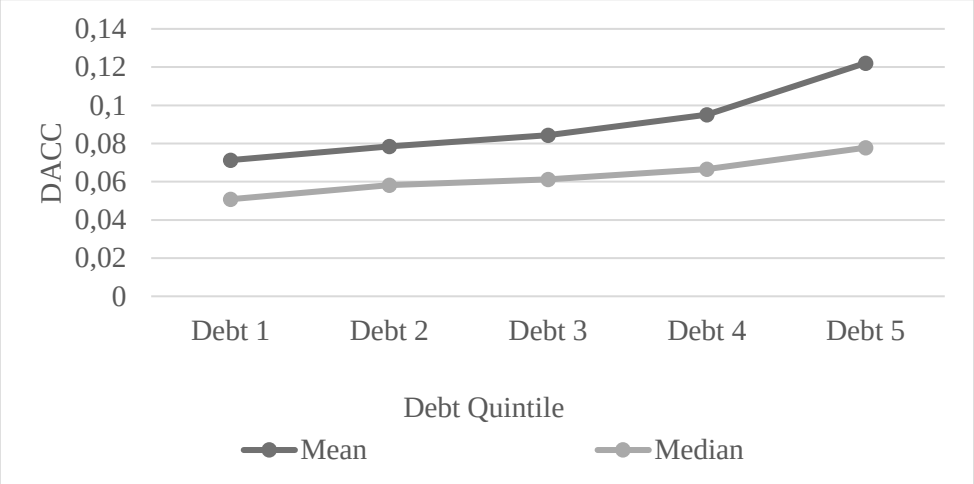
Table IV - Residuals Across Debt Quintiles

Debt Quintiles	*Debt*	*DACC*	
	Mean	*Mean*	*Median*
Debt 1	0,0773503	0,0712961	0,0508202
Debt 2	0,1750676	0,0785242	0,0581832
Debt 3	0,2594989	0,0843496	0,0612006
Debt 4	0,3566431	0,0950821	0,06632
Debt 5	0,5241134	0,1220906	0,077817
Differences in Mean (t-statistic)			
Debt 1 – Debt 2	-2,631**		
Debt 2 – Debt 3	-2,0676*		
Debt 3 – Debt 4	-3,1928**		
Debt 4 – Debt 5	-5,4650***		

*Notes: *, **, **** indicate the existence of statistical significance at the level of 5%, 1% and 0,01% respectively.
DACC – Discretionary accruals in absolute value;
DEBT– Ratio of total Debt (long-term + short-term) to total assets in year t from firm i.

Figure 1 shows the relationship between the discretionary accruals (mean and median) and the debt quintiles. As one can see, the mean and the median discretionary accruals grows with the increase of debt. Moreover, comparing the increase percentage of the discretionary accruals between two consecutive debt quintiles, it is clear that the growth of discretionary accruals along the debt quintiles is not constant. The increase percentage between the last two consecutive debt quintiles is higher than in the other cases, which shows that the growth is not linear.

Figure 1 - Debt Financing and Discretionary Accruals



Notes: DACC – Discretionary accruals in absolute value;
DEBT– Ratio of total Debt (long-term + short-term) to total assets in year t from firm i.

4.2. Correlation Matrix

Table V presents the Pearson correlations between the variables of the model. The correlation between Debt and Debt^2 is the higher, since this second variable is the square of the first. Besides that, the other correlation values are lower than 0,22 suggesting that almost all the variables have a weak correlation with the others.

The dependent variable (DACC) is positively correlated with the variables *DEBT*, *DEBT*^{2}, *COSTDEBT* and *LOSSES* and these correlations are statistically significant. On the other hand, it is negatively correlated with the variable *GROWTH* and *ROA*, but only the correlation with *ROA* is statistically significant. These results suggest that companies with higher levels of debt and cost of debt, with more periods of losses and lower growth have higher discretionary accruals.

Table V - Variables Correlation Matrix

	DACC	*DEBT*	*DEBT*	*COSTDEBT*	*GROWTH*	*LOSSES*	*ROA*
DACC	1						
DEBT	0,1302 ***	1					
DEBT2	0,1236 ***	0,9585 ***	1				
COSTDEBT	0,0294 *	-0,1195 ***	-0,0892 ***	1			
GROWTH	-0,0072	-0,0493 ***	-0,0458 ***	-0,0191	1		
LOSSES	0,13332 ***	0,1801 ***	0,2023 ***	0,1350 ***	-0,0858 ***	1	
ROA	-0,1304 ***	-0,2099 ***	-0,2152 ***	-0,1211 ***	0,1942 **	-0,619 ***	1

Notes: *, **, *** indicate the existence of statistical significance at the level of 5%, 1% and 0,01% respectively.
DACC – Discretionary accruals in absolute value;
DEBT– Ratio of total Debt (long-term + short-term) to total assets in year t from firm i;
DEBT^2 – The square of the ratio of total Debt (long-term + short-term) to total assets in year t from firm i;
COSTDEBT – Interest expense deflated by total debt (long-term + short-term) in year t from firm i;
GROWTH – Change in sales from year t to year t-1 deflated by the year t-1 sales;
LOSSES – Portion of years with negative earnings from firm i;
ROA – Return on assets obtain through the net income deflated by total assets in year t from firm i.

4.3. Regression Results

The results from the regressions (executed in STATA 13) are presented in Table VI and Table VII. Table VI presents the results of regressions that comprehend only *DEBT* and *DEBT*^{2}. The first column, (a), represents a univariate model using only debt as an independent variable. Debt serves as a point of reference for the relationship between earnings management and debt financing. In this model, it was obtained a statistically significant and positive coefficient for *DEBT*, which supports the idea that earnings management increases in the presence of debt. Therefore, the results of this univariate model suggest a positive relation between debt financing and earnings management.

In column (b), it was included *DEBT*^{2} in the model, to study if the non-linear relationship exists. The R^2 maintains the same value which reveals that the explanatory power of the model doesn't change. The coefficient of *DEBT* is still positive and

statistically significant, although the coefficient of $DEBT^2$ is not statistically significant. These results do not confirm the hypothesis of non-linear relationship between debt financing and earnings management which is consistent with the conclusions taken after analyzing Table IV and Figure I. When debt increases the financial report's quality decreases, which propose a dominating positive influence of debt on earnings management. Thus, when managers face high debt levels, they are more likely to practice earnings management.

Table VI - Debt Financing and Earnings Management: Multivariate Results

	Dependent variable: Discretionary Accruals	
Variables	(a)	(b)
Intercept	-2,595(-14,10)	-3,271 (-70,75)
DEBT	1,355 (10,68)***	1,127 (3,74)***
$DEBT^2$	-	-0,216 (-0,40)
Country Dummy	Yes	Yes
Industry Dummy	Yes	Yes
Year Dummy	Yes	Yes
N	7484	7484
Prob > χ^2	0,000	0,000
R^2	3,78%	3,78%

Notes: *, **, *** indicate the existence of statistical significance at the level of 5%, 1% and 0,01% respectively.
Table reports the coefficients and the t-statistics in parenthesis.
DACC – Discretionary accruals in absolute value;
DEBT– Ratio of total Debt (long-term + short-term) to total assets in year t from firm i;
$DEBT^2$ – The square of the ratio of total Debt (long-term + short-term) to total assets in year t from firm i;

Table VII represents the three different methods that could be used in the regression to obtain the most consistent results. As explained in Section 3.3., the Hausman test was used to perceive which is the best method between Fixed Effects and Random

Effects. The results of this test conclude that the Fixed Effects is the model that gives the results with more assurance. Subsequently, to choose between the Pooled OLS and the Fixed Effects model it was used the F test. This test elected the Pooled OLS as the model that is more adaptable to this sample. Thus, this method is the one used to obtain the main results of this study.

Table VII - Debt Financing and Earnings Management: Regression Methods

	Dependent variable: Discretionary Accruals		
Variables	Pooled OLS	FE	RE
Intercept	-2,705962 (-14,64)	-3,692474 (-10,87)	-2,687551 (-9,26)
DEBT	1,386505 (4,04)***	2,753231 (4,54)***	1,033033 (4,53)***
DEBT²	-0,7213613 (-1,33)	-2,430202 (-2,9)***	-0,9645339 (-1,81)
COSTDEBT	0,4780903 (0,91)	0,9824499 (1,28)***	0,5151939 (0,91)
GROWTH	0,1421352 (1,60)	0,0577232 (-0,62)	0,075987 (0,93)
LOSSES	0,3668534 (5,43)***	0,4271646 (0,33)	0,3285808 (4,20)***
ROA	-1,267199 (-4,17)***	-1,649437 (-4,61)***	-1,314729 (-4,61)***
Country Dummy	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes
N	7484	7484	7484
R^2	5,32%	3,39	5,28
F Test	9,80	7,71	-
P-value	0,0000	0,0000	-

Notes: *, **, *** indicate the existence of statistical significance at the level of 5%, 1% and 0,01% respectively.
Table reports the coefficients and the t-statistics (Pooled OLS and FE) or the z-statistics (RE) in parenthesis.
DACC – Discretionary accruals in absolute value;
DEBT– Ratio of total Debt (long-term + short-term) to total assets in year t from firm i;
$DEBT^2$ – The square of the ratio of total Debt (long-term + short-term) to total assets in year t from firm i;
COSTDEBT – Interest expense deflated by total debt (long-term + short-term) in year t from firm i;
GROWTH – Change in sales from year t to year t-1 deflated by the year t-1 sales;
LOSSES – Portion of years with negative earnings from firm i;
ROA – Return on assets obtain through the net income deflated by total assets in year t from firm i.

In comparison with model (a) and model (b) from Table VI, the coefficient of *DEBT* becomes higher and persist statistically significant. This suggest that companies with higher debt practice more earnings management, which is consistent with Beatty & Weber (2003) and Dechow et al. (1995). Also, the $DEBT^2$'s coefficient gets bigger but isn't statistically significant which doesn't support the hypothesis of the non-linear relationship between debt financing and earnings management, since the previous results contradict it. Therefore, in contrast with the expected, this results are not consistent with Ghosh & Moon (2010) findings about the USA companies.

Besides that, the *LOSSES* variable comprehends a positive coefficient too, which reinforce the idea that companies with negative results practice more earnings management than companies with positive earnings. This variable is also statistically significant to the model. Additionally, *ROA*, that represents the return on assets, has a statistically significant negative coefficient, which suggests a negative influence on earnings management. This proposes that, when the return on assets is higher, the earnings management practices are less frequent, which was expectable from the previous literature (Tendeloo & Vanstraelen, 2008).

Finally, only 5,32% of the change in the discretionary accruals (absolute value) is explained by the model variables. It is common in regressions like these, that use accruals as independent variable, to obtain lower values of R^2 (Arun et al., 2015). Through the p-value of the F test (p-value = 0,00) it is possible to reject the null hypothesis and confirm that the model is valid to explain the change in the discretionary accruals.

In sum, the results suggest that the relationship between debt financing and earnings management is linear, and assume that debt has a positive influence on earnings management.

4.4. Robustness Analysis

As a robustness analysis, were made some changes on the main regression. The first change was to remove the variable that presented a coefficient that wasn't statistically significant, *GROWTH*. This alteration is important since, not only, this variable may be declining the model's explanatory power, but also, it is the only variable that presented values in the Person Correlation Matrix that had no statistical significance with *DACC* and *COSTDEBT*. The results of this regression, presented in Table VIII, are identical with the ones obtained before. The R^2 turns out to be smaller but this decrease is not significant.

Table VIII - Robustness Analysis

	Excluding GROWTH (1)			***Excluding France (2)***		
Variables	**Coefficient**	**t**	**P-value**	**Coefficient**	**t**	**P-value**
Intercept	-2,708	-14,67	0,000	-2,549	-12,67	0,0000
DEBT	1,3845	4,04	0,000	0,9922	2,25	0,025
DEBT²	-0,7152	-1,32	0,188	-0,3309	-0,48	0,629
COSTDEBT	0,4713	0,89	0,372	07335	1,1	0,270
GROWTH	-	-	-	0,1464	1,34	0,181
LOSSES	0,3733	5,54	0,0000	0,2087	2,43	0,015
ROA	-1,17784	3,99	0,0000	-1,7886	-4,49	0,000
Country Dummy		Yes			Yes	
Industry Dummy		Yes			Yes	
Year Dummy		Yes			Yes	
N		7484			7484	
Prob > F		0,0000			0,0000	
R-squared		5,28%			5,02%	

Notes: DACC – Discretionary accruals in absolute value;
DEBT– Ratio of total Debt (long-term + short-term) to total assets in year t from firm i;
DEBT² – The Square of the ratio of total Debt (long-term + short-term) to total assets in year t from firm i;
COSTDEBT – Interest expense deflated by total debt (long-term + short-term) in year t from firm i;
GROWTH – Change in sales from year t to year t-1 deflated by the year t-1 sales;
LOSSES – Portion of years with negative earnings from firm i;
ROA – Return on assets obtain through the net income deflated by total assets in year t from firm i.

The second change in the multivariate model is the exclusion of the most representative country in the sample. France represents 36% of the sample and this large

representation could change the results obtained before. Through the results presented in Table VIII, it's observable that they didn't diverge from the previous models. The R^2 becomes even smaller, although the general conclusions remain, and this part of the sample didn't mislead the results.

5. Conclusions

5.1.General overview of the study

The quality of the financial report is a factor of the utmost importance, as long as it influences the decisions of the company's stakeholders. The lack of earnings quality can mislead the market, as it gives the wrong perception of the company and make the investors incurring in wrong decisions. This quality can be affected by several factors, being one of them the Debt Financing.

The aim of this study was to perceive the impact of debt financing on earnings management and analyze this relationship, in European listed companies. The previous literature suggests different approaches for this relationship. Some authors support a positive negative of debt on earnings management, proposing that the quality of the financial report gets higher in the presence of debt financing. On the other hand, other authors affirm that the influence is positive, suggesting that debt financing has a negative impact on the financial report quality. Ghosh & Moon (2010) studied this relationship and found it nonlinear in the USA, as they discover that the influence of debt on earnings quality is negative only when debt is high, as in the remaining cases the influence is positive. In this sense, this study pretends to observe if the relationship found in the listed companies of USA is replicable in Europe.

The results of this study suggest that European listed companies, in the presence of debt, practice more earnings management, which is consistent with the previous literature (An et al. ,2016) . Besides that, the hypothesis of the non-linear relationship between debt financing and earnings management is rejected, proposing that this behavior doesn't happen in European listed companies.

Additionally, it is conclusive that companies with more losses by year and with lower returns on assets have more discretionary accruals and consequently incur more in practices that denigrate the earnings quality.

The results of this study contribute to the literature about the earnings management and their relationship with the debt financing, specifically, in European listed companies.

5.2. Limitations

This study has several limitations that could misleading the conclusions.

The first limitation deals with the difficulty of measuring the earnings management. Leuz et al. (2003) describe this process as problematic and hard, since it could manifest itself in diverse forms, something that is found in several studies of this nature.

The fact that, there was an economic crisis, that begun in the end of 2007, could make the behavior of companies, and their managers, change, as the comportment of banks on conceiving debt to companies. Consequently, this study conclusions can be misleading by this singularity.

Lastly, this study doesn't make a distinction between the public and private debt, which could make an impact in the results, as prior research affirms that loan covenants are more stringent in private debt (Smith, 1993).

5.3. Further Research

To further research it is proposed to study these realities using different measures for earnings managent, since, as it was referred before, it is difficult to measure it with the precision needed. It could also be interesting to study the European non-listed companies, as banks and creditors could have different actions and behaviors with them. As Ghosh & Moon (2010) did, further research could analyze this relationship using only private debt or by distinguish the type of debt. Finally, it is suggested to make the same study, focused on the relationship between debt financing and earnings management, in a period after crisis, since the results obtained could be influenced by the existing economic crisis in the period analyzed.

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