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Determinants of SME´s Financing and Capital Structure: New Evidence of the Portuguese Market

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Abstract

This paper studies the financial practices of SMEs in Portugal, their preferences in financing and capital structure´sdecisions. It analysesrelations between debt levels and the determinants that explain it, using indicators based on book values. The methodology consists in the estimation of the multiple linear regression model using the least squares method for fixed effects and the generalized moment estimator (GMM). The sample consists of annual data from two panels - "PME Líder" and "PME Excelência" - representative of the various sectors of activity, in a four-year time observation (2013 to 2016).
Our study shows that SMEs tend to use short-term debt. Moreover, the evidence confirmsthat debt patterns can be explained by specific corporate characteristics. Profitability, liquidity and tangibility are relevant determinants of SME's capital structure. Other factors that have shown significant statistical associations with debt options are company´s size and growth. Age was weakly associated with the total indebtedness of the SMEs studied. Cross-date with the main sectors of economic activity do not identify significant statistically differences in debt levels across sectors. Similarly, no significant differences between SMEs wereobserved in the three main Portuguese regions.

Keywords: *Indebtedness, capital structure, SMEs, Portugal*

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1. Introduction

The importance of the economic contribution of small and medium enterprises (SMEs) [1] for the growth of countries justifies the concern about understanding of its financial practices. Also, in Portugal SMEs are especially important. Together with the micro enterprises constitute more than 99 percent of the existing companies in Portugal (INE, 2015), and numbers show that they play a

[1] [1]In Portugal medium-sized company's setting requires a turnover of less than EUR 50 million, a number of effective less than 250 and total assets not exceeding EUR 43 million; small company's thresholds 10 million EURof turnover, 10 million EUR of balance and a number of employees less than 50; micro company must have a number of effective less than 10 and not exceed 2 million EUR of turnover or balance (IAPMEI, 2018).

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

dynamic role in the evolution of the economy. And are the main employers in labor market.

In the results reported by several studies related to the challenges and restrictions faced by SMEs, lack of access to finance is one of those widely cited challenges. Financial institutions assess SMEs as being inherently high-risk borrowers due to its low capitalization and limited assets, vulnerability to market cycles and high mortality rates. In turn, limited access to financingand capital affects their competitiveness, efficiency and resilience. Thus, financingis seen as a critical element in its development.

Given the existence of these challenges related to financing of the Portuguese SMEs, it justifies the need for further research into its financial practices in order to better understand the behaviors. Therefore, the objective of this study are the different forms of financing and its use by SMEs. It focuses in particular on SMEs with the status of PME Lider(SME Leader) and "PME Excelência"[2], assigned by his superior profile, and whose financial practices are still poorly known.

In research on the determinants of capital structure, both the theoretical literature and empirical studies have produced many results that reflect the diversity found in practice, as companies are heterogeneous in their policies about capital structure. As regards Myers(2001), there is no consensus and universal theory as to the choice between equity and debt, however there are several theories of value.

Increased understanding of financial practices among SMEs can facilitate greater access to financing and can also help to ensure that public policies taken to strengthen support for SMEs are the most accurate, allowing the most efficient channeling of funds that are subsidized from European Union.

The remaining paper is organized as follows. Section 2 is a review of the literature on the subject, including the main discussions about issues related to business financing preferences. Section 3 presents and justifies the research methodology. Section 4 focuses on the presentation and analysis of results and the final section presents the conclusions.

2. Literature Review and Research Hypotheses

The literature on capital structure attempts to explain the way companies finance their assets by analyzing the factors that affect the decisions of managers. The theories tend to assume that companies get capital in efficient capital and debt markets and have easy access to financial institutions.

Without a universal theory of capital structure, literature often discusses four main theories:

(i) irrelevance of capital structure, (ii) theory of trade-off, (iii) the pecking order theory, and

(iv) agency theory. Myers (2001) describes these theories as overlapping theories, each one emphasizing specific factors that explain the capital structure, including taxes, asymmetric information, agency costs and effects of institutional and regulatory constraints or market imperfections. Theories do not have precise limits and empirical studies are not conclusive on the dominant thesis. Modigliani and Miller (1958) gave rise to this discussion after developing its capital structure model for a perfect and efficient market. They theorize that the capital structure of the company is not related to a company´s value when the market is perfect and does not include the impact of taxes in the first version; however,

[2] [2]"PME Líder" (leader SME)statute was established in 2008 by IAPMEI to distinguish Portuguese's SMEs with superior performanceand is assigned based on the best credit ratings and financial indicators. The SME Leader´s group presenting best profile is also annually awarded the status of "PME Excelência"(excellence SME).

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

his opponents find that some of their assumptions are unrealistic. When the fundamental assumptions are removed, the choice of the capital structure becomes an important determinant of the company's value. Thus, its creation resulted in a growing number of theoretical and empirical studies to investigate the effects of capital structure choices on company´s value.

Trade-off theory attempts to explain the capital structure as a trade-off between benefits and costs of loans (Myers, 2003). Companies often benefit from a tax effect for loans, reducing the taxable income for the financial expenditures and consequently the tax paid. This tax advantage is an incentive to use debt preferably to equity. However, the possibility of insolvency risk places restrictions on the excessive use of loans. Thus, companies should be financed by debt until the marginal cost of debt is equal to the marginal cost of equity. This point corresponds to the optimal capital structure of a company. Based on this theoretical support, Myers and Majluf (1984) say that companies must permanently adjust the capital structure for the great debt, that maximizes the company´s value. The pecking order theory emerged from the study of Myers and Majluf (1984), defining the capital structure on two fundamental assumptions. First, managers are able to have a better understanding about the company's prospects than shareholders, and secondly act in accordance with the interests of shareholders. In addition, managers establish a hierarchy of preferred sources of financing. The information asymmetry between managers and investors (or between lenders and investors) is an important theoretical basis for such preferences. As the asymmetry increases, the cost of capital from external sources increases with the increasing risk of the investor. Thus, companies prefer internal financing in relation to the external financing and debt before equity when it comes to external sources. This hierarchy reallocates the relation between companies and financiers in terms of agency, information asymmetry and signaling concerns (Hall et al., 2004). In this context, companies do not have an optimal capital structure and focus of the theory are the internal and external sources of capital.

Empirical research offers a comprehensive analysis of the theory of pecking order which allowed test their empirical viability (eg. Dittmar and Thakor, 2007 or Leary and Roberts, 2010). However, some contradictory results cast doubt on its ability to explain the capital structure (for example, Frank and Goyal, 2009).

Ross (1977) gave rise to the signaling theory, which is a further development of the theory of pecking order. This explains the company's financing decisions incorporating manager’s private information. Managers (insiders) usually know more than the common external investors, and thus are able to send signals to the market to mislead the investor decisions (outsiders). The agency theory developed by Jensen and Meckling (1976), considers that the appropriate mix of debt and equity is still an important issue in corporate governance, even if markets are perfect and without fiscal impact. Analyzes the agency problem based on two conflicts: between stockholders (principal) and managers (agent) and between shareholders and creditors, to discuss how the agency costs affect financing decisions.

The decision of capital structure has been widely investigated not only from the theoretical perspective, but also empirical. Most studies have examined the determinants of capital structure decision from specific perspectives of the companies, sectors and countries. The

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

literature on SMEs capital structure tends to emphasize the theories of trade-off and pecking-order. On SMEs concerns about agency costs generally have little relevance since the managers and owners are often the same or in most cases overlap. Agency theory is best applied to larger companies, which generally have investors and external managers who may have little or no ownership interests.

Finance of SMEs is generally different from large enterprises and listed companies. Without access to the capital market, companies often finance itself with retained earnings, loans or savings of its owner (s). In addition, SMEs have more information asymmetry than larger or listed companies, in quantity and quality of financial information between managers and investors. Such asymmetry can make external financing more expensive compared to internal sources (Majluf and Myers, 1984). Hall et al. (2004) state that SMEs have more difficult to obtain long-term debt. Research on the relation between SMEs leverage and their features include, among others, Van der Wijst and Thurik (1993) Ang et al. (2010), Cole (2013). Studies on SMEs in the EU include Chittenden et al. (1996), Jordan et al. (1998), Hall et al. (2004), Sogorb-Mira (2005), and Psillaki Daskalakis (2009). Studies of SMEs in Portugal include Serrasqueiro and Caetano (2015), P (2016) or Camfield et al. (2018).

The literature concerning capital structure identifies a set of factors to explain the debt of SMEs. The results of empirical studies suggest that high profitability companies are less likely to borrow, as it will use the funds generated internally before opting for debt. Thus, most empirical studies find evidence of a negative association between profitability and debt, which, in turn, provides strong support to the hypothesis of pecking order theory (Sogorb- Mira, 2005; Degryse et al, 2012.).

Based on the above, have formulated the following hypotheses:

H1: The profitability of Portuguese SMEs is negatively related to the total debt.

H1a: The profitability of Portuguese SMEs is negatively related to the medium- and long- term debt.

H1b: The profitability of Portuguese SMEs is negatively related to the short-term debt.

In general, the size of the company has been identified in the literature as affecting the financing decision (eg, Titman and Wessels, 1988; Cole, 2013). Larger companies tend to have lower risk, better credit rating and less financial difficulties. Thus, it is assumed that there is a positive relation between firm size and its level of indebtedness. Consequently, the hypotheses made are:

H2: The size of the Portuguese SMEs is positively related to total debt.

H2a: The size of the Portuguese SMEs is positively related to the medium- and long-term debt.

H2b: The size of the Portuguese SMEs is positively related to the short-term debt.

When the business grows and the amount of capital required is higher, companies seek external financing, particularly in the form of debt. This can be explained by pecking order and trade-off theories which suggest a connection between the growth of the company and its capital structure (Majluf and Myers, 1984). As the company grows, you must use more debt, not necessarily because they wanted to, but because they often do not have enough accumulated reserves to finance its growth. Thus, are proposedthe following hypotheses:

H3: The growth in assets of Portuguese SMEs is positively related to total debt.

H3a: The growth in assets of Portuguese SMEs is positively related to the medium- and long- term

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July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

debt.

H3b: The growth in assets of Portuguese SMEs is positively related to the short-term debt.

Liquidity allows to evaluate the amount of assets that companies can quickly turn into liquid financial resources. To prevent financial difficulties, companies need to ensure a liquidity position by investing in liquid assets, as suggested by the theory of trade-off. However, the pecking order suggests a negative relation between liquidity and short-term debt. Therefore, the liquidity indicator is an explanatory factor of debt ratios. Thus, are made the following hypotheses:

H4: The liquidity of Portuguese SMEs is positively related to its total debt.

H4a: The liquidity of Portuguese SMEs is positively related to medium- and long-term debt. H4B: The liquidity of Portuguese SMEs is negatively related to the short-term debt.
Previous studies have also highlighted the importance of asset structure in influencing the capital structure of companies. The empirical literature supports positive and negative associations of asset structure with long-term and short-termdebt, respectively (eg, Hall et al.,

2004; Sogorb-Mira., 2005; Örtqvist et al, 2006; Frank and Goyal, 2009). Based on these results, are set up the following hypotheses:

H5: The tangibility of assets of Portuguese SMEs is positively related to total debt.
H5a: The tangibility of assets of Portuguese SMEs is positively related to the medium-and long-term debt.

H5b: The tangibility of assets of Portuguese SMEs is negatively related to the short-term debt.

Empirical studies of SMEs on the influence of age in the capital structure have been produced conflicting results. For example, Klapper (2006) reported an inverse association between age and debt both the short and long term, while Hall et al. (2000) report negative and positive associations between age of the company and the short- and long-term debt, respectively. Thus, the advanced hypotheses are:

H6: The age of the Portuguese SMEs is negatively related to the total debt.
H6a: The age of Portuguese SMEs is negatively related to the medium- and long-term debt. H6b: The age of Portuguese SMEs is negatively related to the short-term debt.
Among the sectors of economic activity can be significant differences in terms of business risk, tangible assets, operating costs or growth prospects. From the point of view of trade-off theory it has been empirically understood that the need for external financing varies among different sectors. In this study, the equated hypothesis is that the business sector has an impact on financingdecisions. The companies are classified according to the main pattern of sectoral level of Classification of Economic Activities (CAE): primary, secondary and tertiary. The hypothesis is:

H7: The determinants of capital structure of Portuguese SMEs differ between sectors of economic activity

The analysis of regionsinfluences where companies are located is used by several authors. For example, Matthias and Serrasqueiro (2017)identify in the study of Portugal, significant statistically differences in the levels of debt in all Portuguese regions. Thus, to realize if the regional economic heterogeneity affects the determinants of SME capital structure, the sample was divided according to regions of NUTTS II and the following hypothesis was formulated:

H8: The determinants of the Portuguese SME capital structure differ between regions.

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

3. METHODOLOGY

3.1 Sample and data collection

Company data were collected from the database SABI used for the annual financial statements. The observed period goes from 2013 to 2016. The sample included companies “PME Líder” and “PME Excelência”, excluding financial companies whose capital structure differs from non-financial companies, because of their greater liquidity. It consists of twounbalanced data panels, involving a total of 1159 “PME Líder”companies and 257 “PME Excelência” companies. Information on the assignment of classification “PME Líder” and “PME Excelência” was obtained from IAPMEI database - Agency for Competitiveness and Innovation, IP and it refers to the year 2017.

Table 1: Sample - Regional distribution of companies

Region	Absolute frequency	Relative frequency (%)
NORTH	531	45.8
CENTER	290	25.0
VALE DO TEJO	269	23.2
ALENTEJO	24	2.0
ALGARVE	16	1.38
AZORES	14	1.2
MADEIRA	15	1.29
TOTAL	1159	100

3.2 Variables

As variables to explain, are included three debt measures based on book values, the ratios of total debt, medium- and-long- term debt and short-term debt. Although theories of capital structure consider the long-term debt as a good proxy for the financial indebtedness,in study arealso used measures of total debt and short-term financing. As in the case of SMEs there is a greater difficulty to access to long-term debt. Several studies have used debt measures based on book value (eg. Fama and French, 2002), justified by the argument that the main benefit of debt, the savings generated by the tax effect, is not changed by their market value.

The study has a set of company´s specificvariables related to theories about the capital structure (Table 2).

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

Table 2: Variables

Dependent variables			
Variable	**Mensuration**	**Expected signal**	**Source**
Total Debt Ratio (TD)	Total debt in relation to total assets		Demirgüç-Kunt (1996); Drobetz and Fix (2005)
M / LTerm Debt Ratio (MLTD)	m debt in relation to total assets		Demirgüç-Kunt (1996); Chen (2004)
Short Term Debt Ratio (STD)	Short-term debt in relation to total assets		Demirgüç-Kunt (1996); Chen (2004)
Independent variables			
Variable	**Description**	**Expected signal**	**Source**
ofitability (PROF)	fore tax in relation to assets (PBT)	Negative (Pecking Order)	Mateev et al, (2013); Degryse et al., 2012
Size (SIZE)	Natural logarithm of assets	Positive (*Trade-off*: + *pecking order*+/-)	Vessels (1988); Cole (2013)
Growth (GROWTH)	Annual growth of total assets	Positive (Pecking order: +)	Myres and Majluf, 1984; Rajan and Zingales (1995); De Jong, Kabir and Nguyen (2008)
iquidity (LIQ)	rent assets relative to current liabilities	Positive with MLTD and TD (Trade-off) Negative with STD (Pecking order)	le (2013); Shepherd and Range (2013); Mateev et al, (2013)
angibility (TANG)	assets in relation to total assets	Positive with TD and MLTD / Negative with STD	Myres and Majluf, 1984; Titman and Wessels (1988);Rajan and Zingales (1995); Örtqvist et al. (2006); Frank and Goyal (2008) *Trade-off*: + *Pecking order*+/-
Age (AGE)	r of years of the company	Negative	per (2006); Mathias and Serrasqueiro (2017)
Activity sector	Classification of sectors based on CAE	Positive/Negative	*Peckimg order, trade-off and agency costs*

3.3 Model econometric

To test the different hypotheses, there were several regressions, one for each debt variable (TD, MLTD and STD). Econometric model is expressed by:

$$Y_{i,t} = \beta_0 + \beta_1 PROF_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 GROWTH_{i,t} + \beta_4 LIQ_{i,t} + \beta_5 TANG_{i,t} + \beta_6 AGE_{i,t} + \mu_{i,t}$$

On what, $Y_{i,t}$ is the dependent variable, where i =company t = year; $X_{k,it}$ are the determinants of the capital structure; β_K is the coefficient of the explanatory variables; $\mu i,t$ *is the error term of the company i at time t.*

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

This is a regression model for panel data that can be estimated by ordinary least squares (Panel Least Squares - PLS). The PLSestimator is unbiased for small samples, however to a larger number of companies estimated PLS may not be the most efficient. Thus, is used estimates of fixed effects (FE) which remove the effect of the characteristics that do not vary in time of the independent variables.

Many empirical studies on the determinants of capital structure suggest that the decisions of the company's capital structure are dynamic by nature. In this situation, neither the PLS with fixed effects work, because it ignores the correlation between the lagged dependent variable and the regression error term. Thus, the data is also used method of dynamic panel, GMM (Panel Generalized Method of Moments), in circumstances where the dependent variable is dynamic and depends on their past results.

Empirical results

Descriptive statistics for the samples appear in Tables 3 and 4, with the various ratios of indebtedness and the variables with the characteristics of the companies.

Table 3: Descriptive statistics - SME Leader - Total Sample (2013-2016)

	TD	MLTD	STD	PROF	SIZE	GROWTH	TANG	AGE	LIQ
AVERAGE	0.4818	0.1348	0.3469	0.0847	9.1975	0.1895	0.3725	29.9421	2.2370
MEDIAN	0.5037	0.1111	0.3402	0.0673	9.1927	0.0411	0.3526	28.0000	1.7870
MAXIMUM	1.1624	0.5788	1.1624	0.6076	13.0279	32,293	0.9664	95.0000	13.8870
MINIMUM	0.0615	0.0000	0.0502	-0.2827	5.8742	-0.9826	4.42E-05	0.0000	0.0930
STANDARD DEVIATION	0.1820	0.1191	0.1482	0.0751	0.7967	1.2798	0.2036	16.9839	1.5922
No. COMMENTS	1159	1159	1159	1159	1159	1159	1159	1159	1159

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

Table 3 shows that the average levels of indebtedness of companies "PME Líder" ranging from 13.48 percent to the debt of medium- and long-term and 48.18 percent for total debt. The average ratios of short-term debt are higher than long-term debt levels and, moreover, the medians are not very different from these values. This suggests that SMEs Excellence prefer to finance assets with short-term liabilities or have access difficulties to medium and long- term debt markets.

Table 4 shows that "PME Excelência" compared to "PME Líder", have a total debt level slightly lower, but not differ in size neither in most of the explanatory variables. Nevertheless, it is an "PME Líder" subsample extracted with a considerably lower number of observations.

Table 4: Descriptive statistics - "PME Excelência" - Total Sample (2013-2016)

	TD	MLTD	STD	PROF	SIZE	GROWTH	TANG	AGE	LIQ
Average	0.4395	0.1232	0.3162	0.1334	9.1938	0.1764	0.3820	29.9610	2.3499
Median	0.4448	0.1041	0.3066	0.1215	9.1541	0.0935	0.3752	27.0000	1.9340
Maximum	0.7701	0.5272	0.7523	0.4673	13.0279	5.1446	0.9039	95.0000	8.9800
Minimum	0.0957	0.0000	0.0687	-0.2827	6.4115	-0.8490	0.0002	2.0000	0.2790
Standard deviation	0.1487	0.1116	0.1286	0.0898	0.9055	0.5371	0.1893	17.1441	1.4869
No.Comments	257	257	257	257	257	257	257	257	257

Table 5 shows the correlation matrix between the variables included in the study.

Table 5: Correlation matrix - "PME Líder"

	TD	MLTD	STD	PROF	SIZE	GROWTH	TANG	AGE	LIQ
TD	1.0000								
MLTD	0.5846	1.0000							
STD	0.7582	-0.0856	1.0000						
PROF	-0.3019	-0.2962	-0.1327	1.0000					
SIZE	-0.0350	0.1987	-0.2027	-0.1667	1.0000				
GROWTH	0.0460	0.0595	0.0086	-0.0253	0.2532	1.0000			
TANG	0.1726	0.4994	-0.1894	-0.2609	0.1496	0.0558	1.0000		
AGE	-0.1996	-0.0078	-0.2388	-0.0950	0.1574	-0.0236	0.0009	1.0000	

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

LIQ	-0.7229	-0.3198	-0.6308	0.2460	0.0394	-0.0400	-0.4340	0.1617	1.0000

Correlations between independent variables of "PME Líder" are low or moderate, standing at values that multicollinearity is not a major problem (Gujarati, 2011).

"PME Líder"

The regressions performed for the sample of "PME Líder" companies are summarized in Table 6.

Table 6: "PME Líder" - Estimated regression coefficients (2013-2016)

Independent variables	Dependent variables					
	PLS - Fixed Effects			GMM		
	TD	MLTD	STD	TD	MLTD	STD
C	0.1073 (0.6092)	-0.1250 (-1.1692)	0.6300 *** (4.0726)	-0.5049 *** (3.6458)	-0.0902 (-1.1282)	0.6256 *** (4.0533)
PROF	-0.4526 *** (-6.0864)	-0.1973 *** (-8.6722)	-0.3042 *** (-4.9549)	-0.5015 *** (-6.9058)	-0.1900 *** (-4.9901)	-0.3357 *** (-4.0823)
SIZE	0.0617 *** (3.5278)	0.0235 *** (2.8684)	0.0124 (0.7053)	0.0359 *** (2.2598)	0.0189 ** (2.1348)	0.0124 (0.7151)
GROWTH	0.0003 (0.2143)	0.0021 * (1.7059)	-0.0009 (-0.6555)	0.0012 (0.7896)	0.0032 ** (2.1171)	-0.0013 (-0.8350)
LIQ	-0.0381 *** (-7.5813)	0.0236 *** (7.7997)	-0.0658 *** (-12.1893)	-0.0422 *** (-8.2651)	0.0223 *** (8.3977)	-0.0644 *** (-9.1396)
TANG	-0.1472 *** (-3.9431)	0.2460 *** (7.1057)	-0.4277 *** (-9.3297)	-0.1816 *** (-5.0956)	0.2499 *** (9.9164)	-0.4190 *** (-8.2220)
AGE	-0.0004 (-0.4378)	-0.0028 -1.3079)	-0.0021 *** (-2.7585)	-0.0049 ** (-2.2459)	-0.0025 *** (-2.9733)	-0.0021 * (-1.8807)
R^2 *Ajust*	0.9178	0.8253	0.8680	0.9125	0.8264	0.8710
F	44.1058	19.4236	26.6451			
Prob (F-statistic)	(0.0000)	(0.0000)	(0.0000)			
No. Comments	1159	1159	1159	1159	1159	1159

The statistcs are T-brackets. Robust standard errors were obtained using White standard errors & covariance (df corrected) for heterocedasticity. The ***, ** and * indicate the significance levels of 1%, 5% and 10% respectively.

The estimated models have a high adjustment - the R^2 adjusted ranges from 0.82 to 0.91 - while the F-statistics are significant (p <0.0001), suggesting that the explanatory power of the models is suitable. In line with the proposed hypothesis, results show a significant negative association between profitability and debt, consistent in the several estimates. This inverse relation is compatible with the results of previous empirical studies.

The total debt and MLTdebt ratios present itself with significant and positive signal with respect to size. This result indicates that larger companies are more likely to increase the long-term debt in its operations and similarly with respect to the total debt, which seems consistent with trade-off and pecking ordertheories. This suggests that relatively largerSMEs Leader rely more on external sources possibly due to the easier access to loans (Klapper, 2006).

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

The debt ratios have a moderate statistical relation with the growth of the companyvariable. The sign is negative and statistically no significant for short-term debt and positive and significant for the medium- and long-term. Theoretically, based on pecking orderthesis, the internal capital is insufficient, requiring external financing for the company's growth, this should be positively related to debt. In addition, companies with the highest growth potential tend to find it easier to obtain external financing. However, high debt results inburdento the growth of the company and would likely reduce its value (Flannery, 2006).

Therelation between the measure of liquidity and TD andSTD indicators are negative, being positive with the MLT debt ratio. The notion associated with the negative sign is that companies use domestic liquidity and therefore do not issue debt. The result of the STD is consistent with Cole (2013), for whom companies with lower liquidity levels have on average a lower short-term debt.

It is observed a positive association between tangible assetand medium- and long-term debt ratio. This positive effect of tangibility supports itself in the *trade-off* model in which companies with more tangible assets are more prone to financial needs and have easier access to financing (providing guarantees for debt). The regression results for the short-term debt (STD) show that Portuguese SMEs, that have more fixed assets, prefer internal funds.

Finally, capital structure is associated with the age of the company, however, and the negative sign of this relation shows that the more mature companies are, less likely use the debt. Previous studies confirm this finding, justifying it by the preference of the more mature companies to use the internal sources available (eg, Hall et al., 2004).

"PME Excelência"

The regressions for the sample of "PME Excelência" (Table 7) show similarly high explanatory power.

Table 7: "PME Excelência" - Estimated regression coefficients (2013-2016)

Variables	PLS - Fixed Effects		
	TD	MLTD	STD
C	1.2559 *** (3.9536)	0.0102 (0.0537)	1.1830 *** (2.7793)
PROF	-0.4183 *** (-2.9531)	-0.2077 *** (-2.9691)	-0.2061 ** (-2.2486)
SIZE	-0.0705 * (-1.6959)	0.0100 (0.4059)	-0.0770 * (-1.6790)
GROWTH	0.0652 *** (3.4806)	0.0028 (0.2340)	0.0615 *** (2.9026)
LIQ	-0.0311 ** (-2.5975)	0.0246 *** (4.5060)	-0.0555 *** (-5.3804)
TANG	0.0017 (0.0228)	0.3546 *** (6.7031)	-0.3542 *** (-4.1796)
AGE	-0.0016 (-0.3487)	-0.0048 (-1.2876)	0.0041 *** (2.7663)
R^2 *Ajust*	0.8660	0.8462	0.8883
F	19.1838	16.4889	22.6587
Prob (F-statistic)	(0.0000)	(0.0000)	(0.0000)
No. Comments	257	257	257

The statistcs are T-brackets. Robust standard errors were obtained using White standard errors & covariance (df corrected) for heterocedasticity. The ***, ** and * indicate the significance levels of 1%, 5% and 10% respectively.

TEST Engineering & Management

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

Despite the high values recorded for their global significance, regressions differ instatistical magnitude in explanatory variables. Thus, profitability and growth rate are the factors that best explain the total debt. Are also observed evidences of significant impacts associated with liquidity and size.

The profitabilityeffect in decisionabout capital structure is clear, there isconsistently a negative relation between debt and profitability. This relation is statistically significant for the three debt indices. This shows, as in most of the empirical literature (Jordan, 1998; Klapper, 2006), that the most profitable companies tend to have lower levels of total debt, opting to use internal capital. Besides, it might want to indicate that foreign capital is expensive and companies make financial decisions based on the assessment of cost and risk.

The second significant regressor is business growth, which is accompanied by the increase in total debt. This confirms the perspective of pecking order, which calls for a positive correlation between growth and debt.

The second regression shows that tangibility, liquidity and profitability are explanatory determinants of the capital structure of"PME Excelência". These variables are significantly related with medium- and -long term debt. The model shows that if tangibility of a company increases, the use of financing for long-term debt also increases, proving that the availability of tangible assets affects the company's debt level.

Older companies turn out to be more likely to be financed in the short term. This meets studies by Du et al. (2010), which states that lenders consider that older firms are less risky since they won good reputation over time and this condition increases the possibilities to appeal more easily to short-term external financing. In parallel, the results associated to total debt and medium- and -long term debt suggest an inverse behavior. Older SMEs seem to prefer to use first domestic financing for the needs or to reduce the debt level (Hall, 2004).

As expected, revealed a positive association with growth and negatively to the liquidity in the use of short-term debt. The ratio between tangibility and short-term leverage is reverse, which supports the favored perspective of SMEs in finance fixed assets with medium- and long-term debt. The results also show that size is negatively related to the short-term debt. Larger SMEs tend to rely less on short-term loans, which could mean that suffer supply constraints and benefit more from long-term operations, perhaps supported in other types of guarantees and public policies of investment incentives (for example, programs like SME Invest or Portugal 2020).

Sectoral and regional disparities

In the regressions performed on subsamples[3] by sectors of economic activity and regions, the results of the characteristics of companies on debt ratios are not particularly distinctive. Tables 8 e 9 summarize the results of the PLS estimator.

[3] The estimates were made on the sample of companies SME Leader, which includes the universe of companies "PME Excelência". For lack of an adequate number of observations it was excluded the primary sector. For the same reason - lack of data - analysis by regions did not consider the regions of Alentejo, Algarve, Madeira and Azores.

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

Table 8: Leading SME - Estimated regression coefficients by sector (2013-2016)

ıdependent variables	Dependent variables					
	Secondary sector			Service sector		
	TD	MLTD	STD	TD	MLTD	STD
C	0.6065 *** (3.0267)	-0.3483 *** (-2.8015)	0.9548 *** (4.3547)	0.5361 *** (2.7036)	-0.0686 (-0.4683)	0.6047 *** (2.6566)
PROF	-0.5819 *** (-8.0405)	-0.3366 *** (-5.8122)	-0.2452 *** (-3.4771)	-0.3796 *** (-2.9123)	-0.0988 ** (-2.0036)	-0.2808 ** (-2.1793)
SIZE	0.0193 (0.8446)	0.0500 *** (3.4525)	-0.0306 (-1.2310)	0.0527 ** (2.4315)	0.0258 (1.5529)	0.0268 (1.0544)
GROWTH	0.0037 (1.0104)	-0.0008 (-0.2401)	0.0045 (1.5659)	0.0013 (0.6696)	0.0029 ** (2.3881)	-0.0015 (-0.7773)
LIQ	-0.1774 *** (-7.0449)	0.2083 *** (4.5302)	-0.3857 *** (-7.7391)	-0.2022 *** (-4.9118)	0.3285 *** (4.3613)	-0.5307 *** (-6.6010)
TANG	-0.0379 *** (-3.2308)	0.0137 *** (4.3212)	-0.0517 *** (-6.5510)	-0.0570 *** (-3.9870)	0.0447 *** (5.8566)	-0.1018 *** (-7.2881)
AGE	-0.0034 * (-1.7762)	-0.0017 (-1.2400)	-0.0017 * (-1.7313)	-0.0115 *** (-3.3422)	-0.0098 *** (-3.2652)	-0.0016 (-0.5255)
R^2 *Ajust*	0.928975	0.8235	0.8939	0.8841	0.8488	0.8434
F	51,422	18.996	33,497	29,791	22,174	21,320
Prob (F-statistic)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
No. Comments	772	772	772	363	363	363

The statistcs are T-brackets. Robust standard errors were obtained using White standard errors & covariance (df corrected) for heterocedasticity. The ***, ** and * indicate the significance levels of 1%, 5% and 10% respectively.

In terms of specific factors effects of the company, results show that the decision of capital structure for both sectors is explained essentially by the same determinants (Profitability, Liquidity and Tangibility) with the following differences. In the secondary sector the capital structure of SMEs Leader is also associated to size to explain MLTD and age (in the case of TD and STD). With regard to the third sector, the results show that age is statistically explanatory for TD and MLTD. In addition, the covariates for growth and size are explanatory of TD and MLTDvariables, respectively. However, they showed a negligible or no correlation in most estimations.

The explanatory factors of the capital structure do not vary significantly between the three main regions of Portugal (Table 9).

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

Table 9: Leading SME - Estimated regression coefficients for the Regions (2013-2016)

Independent variables	Dependent variables								
	North			Center			Lisboa and Vale do Tejo		
	TD	MLTD	STD	TD	MLTD	STD	TD	MLTD	STD
C	0.5206 *** (2.6526)	-0.3512 ** (-2.2326)	0.8719 *** (3.9080)	0.5339 ** (2.0963)	0.3128 (1.2944)	0.2211 (1.0821)	0.8206 *** (3.8677)	-0.2018 (-1.0473)	1.0225 *** (4.8812)
PROF	-0.4433 *** (-5.1254)	-0.2742 *** (-4.7420)	-0.1691 ** (-2.0701)	-0.3266 ** (-2.4916)	-0.2166 * (-1.6841)	-0.1099 (-1.2328)	-0.5054 *** (-3.0012)	-0.2594 *** (-2.6096)	-0.2459 * (-1.8954)
SIZE	0.0288 (1.2453)	0.0487 *** (2.6831)	-0.0199 (-0.7698)	0.0337 (1.0228)	-0.0044 (-0.1571)	0.0382 (1.4540)	0.0088 (0.3843)	0.0320 (1.5228)	-0.0232 (-0.9637)
GROWTH	-0.0017 (-0.6350)	-0.0012 (-0.5290)	-0.0004 (-0.2122)	0.0146 * (1.8040)	0.0077 (0.9737)	0.0068 (1.0370)	-0.0013 (-0.2141)	0.0013 (0.2673)	-0.0027 (-0.4924)
LIQ	-0.1860 *** (-6.5337)	0.1855 *** (3.2412)	-0.3715 *** (-6.9037)	-0.0413 *** (-2.9020)	0.0303 ** (2.4884)	-0.0626 *** (-3.3967)	-0.2555 *** (-4.3364)	0.3803 *** (4.5521)	-0.6358 *** (-6.8674)
TANG	-0.0435 *** -3.3320)	0.0107 *** (3.6769)	-0.0543 *** (-5.4110)	-0.0322 (-0.5361)	0.1840 ** (2.3213)	-0.2253 ** (-2.1582)	-0.0475 *** (-4.1298)	0.0340 *** (5.7020)	-0.0816 *** (-7.3344)
AGE	-0.0035 * (-1.7637)	-0.0012 (-1.0358)	-0.0022 * (-1.8118)	-0.0082 * (-1.7893)	-0.0079 *** (-3.0545)	-0.0002 (-0.1017)	-0.0057 * (-1.8576)	-0.0054 ** (-2.2584)	-0.0002 (-0.0844)
R^2 *Ajust*	0.9210	0.8256	0.8872	0.9123	0.7598	0.8504	0.9071	0.8645	0.8702
F	45,827	19,191	31,224	39.583	12,720	22,069	36,856	24,426	25,633
No. Comments	531	531	531	290	290	290	269	269	269

The statistcs are T-brackets. Robust standard errors were obtained using White standard errors & covariance (df corrected) for heterocedasticity. The ***, ** and * indicate the significance levels of 1%, 5% and 10% respectively.

Overall, the most significant specific factors of the companies to explain the decision of capital structure are the common denominator between regions. The signs of the relations between determinants and debt ratios remain consistent with the exception of size and growthvariables of companies. Nevertheless, be notedsome explanatory difference between regions, in essence the most significant determinants are common to the three regions considered. Profitability, liquidity and leverage variables are important factors to explain the different indicators of debt without relevant inter-regional variations. The company's age is thedeterminant with statistical significancewhich observes that major differences between regions. Based on these results, is concluded that regional disparity is poorly explanatory of the SME´s capital structures.

4. Conclusions

Using a sample of "PME Líder" and "PME Excelência"companies between 2014 and 2016, this article analyzed the capital structure of Portuguese SMEs from debt indicators based on accounting data. These companies benefit from this status because they have a higher performance profile, being the reputation seal assigned based on rating indicators.

The study concludes that the short-term debt levels in the Portuguese SMEs are two and half times higher than the average ratios of debt in the medium- and long-term, the difference between the medians is even more extreme. The results indicate that the total debt levels are negatively related to profitability and liquidity. Moreover,significant statistic relation of tangibility in the case of "PME Lider", and the growth and size of the "PME Excelência". In addition, the age of the company was not statistically associated with total debt of SMEs,

July-August 2020
ISSN: 0193-4120 Page No. 4231 - 4246

with the exception of income for the GMM estimator.

Regarding MLTD, evidence shows a positive association with liquidity, tangibility, age, growth and size, although in the latter two cases with statistical power only for SMEs Leader. Profitability with a negative coefficient is another significant predictor and that affects the capital structure of companies.

Results for the short-term debt show strongly meaningful relations with profitability, liquidity, asset tangibility and age, with a negative sign as provided for inpecking order theory. The remaining variables show mixed results.

In the regressions made by economic activity sector, the characteristics of the companies do not explain in a particularly distinctive way the debt ratios of SMEs. Similarly, the explanatory factors of capital structure do not seem to vary considerably between the three main regions of Portugal.

These results are, in general, consistent with literature, providing support for both the trade- off as to the pecking-order theories. By observance of the financial practices related to capital structure, it is concluded that the SME financing patterns can be explained byspecific factors of the companies. However, the results are representative of the stratum of SMEs with better performances not being necessarily generalizable to the universe of all Portuguese SMEs.

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