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## THE DETERMINANTS OF CAPITAL STRUCTURE IN THE HOTEL SECTOR IN PORTUGAL

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## **The determinants of capital structure in the hotel sector in Portugal.**

### **ABSTRACT**

This research aims to analyze the determinants of the capital structure of companies in the hotel sector in Portugal during a period of economic crisis (2010 to 2014) and a period corresponding to the end of the economic crisis (2015 to 2017). The sample was obtained through the SABI database, selecting the companies belonging to the hotel industry sector. The results indicate that the profitability (as measured by return on assets) negatively influences the companies' indebtedness (or leverage). This behavior may indicate that the companies, under analysis, follow the pecking-order theory during this period. The increase in the coefficient of this determinant associated to the increase in the financial autonomy may indicate that the policy of capital structure of the companies changes with the macroeconomic changes.

Key words: indebtedness; capital structure; pecking order theory; return on assets; tourism

### **1. INTRODUCTION**

The capital structure is a theme studied by several authors whose main goal is to analyze the way companies finance themselves. This paper analyzes the determinants of the capital structure of Portuguese companies in the hotel sector during a period of economic crisis (2010 to 2014) and a period corresponding to the end of the economic crisis (2015 to 2017). The research question of this paper is: "What are the determinants of the capital structure of the hotel companies in Portugal?". Thus, the main objective of the paper is to analyze the determinants of the capital structure of Portuguese hotel companies. The specific objectives are (i) characterize Portuguese hotel companies, taking into account the following indicators: number of companies, distribution of companies by region, guests, sources of financing, employment and financial autonomy; (ii) to identify the specific determinants of the capital structure of hotel companies in Portugal based on theories of capital structure (Pecking Order and Trade off theory); (iii) to verify if there are changes in the capital structure policy due to macroeconomic changes; and (iv) analyze the differences in policies according to the size and characteristics of hotel companies.

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The paper is structured in 4 sections besides this introduction. In the following section there is a brief and succinct framework on the capital structure theories and the determinants on capital structure. Then, in the next section, it is presented the methodological procedures to be applied in the empirical analysis. In section 4, the data are analyzed and, finally, the section 5 presents the main conclusions, limitations and suggestions for future research.

## **2. THE CAPITAL STRUCTURE AND THEIR THEORIES**

The capital structure consists of the way a company finances its overall operations and how it applies the invested capita. That is, if it is financed through equity or debt, and applies in non current (durable goods of high maturities) or in current assets of greater liquidity. According to Teixeira (2012), there is only one optimal capital structure, with the combination of internal and external resources of the company, which maximizes its value and minimizes the occurrence of financial problems in the company. The author also says that, the capital structure is the medium and long-term financing required by the company. There are theories to explain the variation in indebtedness indices between companies. The theories suggest that firms select their capital structure based on the attributes that determine the various costs and benefits associated with their sources of financing either through debt or through equity (Titman & Wessels, 1988).

The traditional approach, developed by Durand (1952), assumes that the cost of capital remains stable up to a certain level of indebtedness from which it increases as a result of the increase in financial risk, thus allowing the possibility of minimizing the weighted average cost of capital in order to maximize the company's market value. In this sense, according to Durand (1952), there is an optimal capital structure for each company, which maximizes the total value of the enterprise. According to Durand (1952), the company will benefit from funding with debt, since the cost of equity is higher than the cost of debt. Thus, as more debt the firm uses, the lower the weighted average cost of capital, thereby maximizing firm value (Durand, 1952). However, he considers that if the level of debt is high, the company faces bankruptcy risk. The increased risk for shareholders and creditors implies an increase in the cost of funding sources. Any formal model does not support the traditional approach, that is, it does not meet the requirements to be considered a true theory (Rodrigues, 2017).

Later, in 1958, the approach of Modigliani and Miller appears being considered the great pioneers of the theories of the capital structure with the publication of the article "The Cost of Capital Corporate Finance and theory of Investment" of Modigliani and Miller (1958). These

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authors assert that the market value of a given company would be independent of its capital structure. They showed that identical companies had the same value, regardless of their sources of financing, that is, through equity or through the use of foreign capital. For Modigliani and Miller (1958) the capital structure has no relevance to the value of the company if it fulfills some assumptions. These assumptions are as follows (Mota, Barroso, Nunes, & Ferreira, 2006; Vieito & Maquieira, 2010): identical conditions of indebtedness for companies and investors; capital markets considered perfect (no taxes, no transaction costs, no agency costs, no default risk, no asymmetry of information); capacity is limited and the interest rate is constant. These assumptions are based on a perfect capital market scenario where there are conditions of indebtedness for companies and investors.

In 1963, a correction to Modigliani and Miller (1958)'s paper was made by themselves. The purpose of this correction was to increase the estimation of the tax advantages of debt financing and, consequently, to reduce the quantitative difference between the estimates of leverage effects and the traditional view. Thus, Modigliani and Miller (1963) introduced taxes as a fiscal cost. They developed the question regarding the tax benefit, generated by the use of debt, as a form of financing as a result of the interest being deductible in the determination of corporate income tax. According to Modigliani and Miller (1963) the company has a tax shield provided by the use of debt since interest is fiscally accepted as cost. Thus, they verified that the indebtedness increases the value of the company. Since interest is fiscally deductible, the company must not only rely on the capital of others, in order to preserve a degree of flexibility that allows it to choose the most appropriate source of financing. For Vieito and Maquieira (2010) this model describes that there is a positive relation between the value of the company and its level of indebtedness, since the financial charges associated with the debt are deductible in fiscal terms. Thus, the company will pay less income taxes. According to this theory, the optimum indebtedness would be the maximum amount of debt, free of risk that the company could obtain. According to Mota, Barroso, Nunes, and Ferreira (2006), with these conditions the value grows linearly with the indebtedness, that is, the optimal capital structure is in total debt. This result does not correspond to reality and is not applicable, since the creation of property rights over companies requires the existence of some equity in order to maintain an adequate level of financial autonomy. The increase in equity, resulting from a lower level of indebtedness, increases the financial autonomy due to the tax benefit provided by the debt, therefore, debt alters the value of the company (Modigliani & Miller, 1963).

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Associated with the capital structure, some theories were presented: agency theory, trade-off theory, pecking order theory, among others. These theories attempt to relate, and explain, the various decisions taken in corporate finance, highlighting stakeholder interests. The different theories on capital structure address the determinants that may influence the choice of capital structure: profitability, asset structure, company size, other non-debt tax benefits, and tangible assets.

There are several studies on capital structure in the hotel industry in Portugal [v.g. Abrantes, 2013; Correia, 2015; Mouro, 2014; Peixoto, 2017] and in none of them there is a clear use of one of these theories. In sum, capital structure may or may not be influenced by independent variables. In the present paper we will analyze the determinants of the capital structure, based on the several empirical studies analyzed previously.

### **3. RESEARCH METHODOLOGY**

#### **3.1 Characterization of the tourism sector in Portugal**

The national tourism sector is experiencing a moment of great growth, due to the excellent performance of the hotel units. The international community has recognized the value of Portugal as a tourist destination through numerous awards and distinctions (Cushman & Wakefield, 2017). According to the World Tourism Organization (WTO), this sector is the country's largest export activity, accounting for 50.1% of services exports and 18% of total exports, with tourism receipts accounting for a contribution of 7% , 8% in the Portuguese Gross Domestic Product (GDP) (World Tourism Organization, 2018). Tourism has reached record levels in Portugal, with a notable increase in tourism activity in less traditional months, an increase in tourism employment (+44 thousand workers) and a significant increase in the national economy, with all regions showing significant growth in 2017. Also increased the diversification of markets and growth rates of tourism revenues and hotel revenues faster than the increase in guests (WTO, 2018).

Since 2012, there has been an increase in the number of hotel establishments, from 3,330 in 2012 to 3,601 in 2017. Except in 2015, when there was a decrease in the number of micro and small businesses generating a decrease in that year, despite the increase of large and medium-sized enterprises (Banco de Portugal, 2018). In terms of regional distribution of large companies, the Lisbon region is the one with the largest concentration of big hotel establishments, in 2017, followed by Algarve and Autonomous Region of Madeira. It should

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be noted that there was a significant relative decrease from 2013 to 2017 in the metropolitan area of Lisbon, (from 57.9% to 46.44%). But in contrast, in the metropolitan area of Oporto there is a large increase from 5.26% in 2013 to 10.71% in 2017, as well as large projects in other regions such as Leiria and Viseu - Dão Lafões that previously had no such venture (Banco de Portugal, 2018).

With regard to the regional distribution of medium-sized companies, there is a greater dispersion across national territory than in large companies, with medium-sized companies in regions such as Alto Minho, Cávado, Ave, Tâmega and Sousa, Douro, Oeste, Aveiro, Coimbra, Leiria, Middle Tejo, Beiras and Serra da Estrela, Alentejo Litoral, Central Alentejo and Autonomous Region of the Azores. This may be related to the type of tourism, namely the predominance of rural tourism. In 2017, hotels accommodated 19.8 million guests, which provided 55.7 million overnight stays, which corresponded to an increase compared to the previous year. Overnight stays has increased significantly in all regions. Total revenues also increased compared to last year, amounted to 3.3 billion euros (INE, 2017). According to data provided by the Bank of Portugal, regarding hotel companies, it can be seen that revenues were higher than expenses during 2015 to 2017. In 2013 and 2014 generated a negative balance because expenses were higher than revenues. It can be said that the tourism sector is a strategic sector for the country not only because of its contribution to the GDP, but also because it is the sector that contributes most to exports and to the trade balance (INE, 2018).

As for the number of guests, there is an increase from year to year, and that most are foreigners. In 2017, the hotel industry has more than 1.68 million guests and 3.94 million more overnight stays, according to data from the National Institute of Statistics (INE, 2018). These figures are justified by the opening of new long-haul routes as well as by the increase in the number of flights operated by so-called low cost airlines.

In terms of funding sources, it is found that hotel companies choose to use external financing more frequently than equity. However, from 2013 we observed a successive reduction in the weight of external financing and consequent increase in the weight of equity. This behavior may be related to the improvement in the profitability of companies. Regarding the EBITDA ratio in terms of turnover, an increase was observed from 5.02 in 2013 to 23.36 in 2015. In 2016 there was a decrease of 1.12% and in 2017 there was an increase to 31.02% of turnover (Banco de Portugal, 2018). The net cash flow of hotel companies in 2015 was - € 1,511,961, rising to - € 976,035 in 2017, which represents a significant increase. In this way, the current ratio of the sector is less than one and the resources are higher than the

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requirements, but it shows an increase from year to year. In 2013 it presents 0.6077 units and in 2017 it increases to 0.83 (Banco de Portugal, 2018). Over the years, there has been an increase in the financial autonomy of hotel companies. This behavior could indicate that these companies are being financed more by equity and, consequently, less by external financing or debt, as previously mentioned.

### **3.2 Determinants and hypothesis of research**

Profitability aims, according to Jesus (2017), test to what extent the resources that the company can generate internally, through their activity, influence their level of debt. Bartholdy and Matthew (2011); Leland and Pyle (1977); Modigliani and Miller (1963) and Ross (1977) argue for a positive relationship between profitability and the level of indebtedness, sending signals to the market that firms have good profitability outlooks. According to the trade-off theory, a positive relationship between variables is also expected because companies have a tax shield as they have borrow, so there is more incentive to use more debt. Although suggested by agency theory, the debt is used as an instrument of control by shareholders, since the payment of debt service is a way to limit managers to appropriate the resources of the companies, that is, force managers pay more for the excess of corporate debt.

There are empirical studies with divergent arguments (v.g. Frank & Goyal, 2007; Serrasqueiro & Caetano, 2015; Serrasqueiro & Nunes, 2014; Serrasqueiro, Nunes, & da Silva, 2016; Serrasqueiro, Armada, & Nunes, 2011; Titman & Wessels, 1988), according to which profitability is negatively related to the level of indebtedness. Through the Pecking Order theory advocated by Myers and Majluf (1984), companies set up a financing hierarchy because when they need to use finance they prefer to use internal sources rather than external sources. They choose to use retained earnings first, then issue debt and then issue new shares. This is because information asymmetry costs. Thus this theory predicts a negative relationship between profitability and the level of indebtedness, with higher levels of profitability of organizations corresponding to lower levels of indebtedness. When companies have a positive return, they generate more self-financing (retained earnings) and need to use less external financing. In this way, the majority of the researches showed a negative relation between the profitability and the level of indebtedness, so the research hypothesis to be tested will be:

*H1: There is a negative relationship between profitability and total debt (or indebtedness) in companies.*

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Most theories of capital structure state that the type of company's assets affects, in any way, the choice of capital structure. According to Mota et al. (2006), companies with an asset structure based on tangible fixed assets, in the event of bankruptcy, have a higher settlement value. On the contrary, companies with an asset structure based on intangible assets, in the event of bankruptcy, have a lower settlement value. According to Serrasqueiro and Nunes (2012), for small firms, there is a negative relationship between asset structure and short-term debt and, consequently, asset structure and long-term debt presents a relation positive. The costs associated with this agency relationship may be greater for companies with greater investment in intangible assets, having lower taxation compared to tangible, since the monitoring of the capital costs of these companies is probably more difficult. On the other hand, for medium and large companies, Bartholdy and Mateus (2011) report a positive relationship between asset structure and debt. Firms with higher levels of fixed assets are more likely to obtain debt financing because they can support a higher level of debt. Given that, they can use these assets as collateral for loans and thus reduce expected bankruptcy costs by allowing lenders to make credit conditions more favorable to such firms (Jensen & Meckling 1976, Myers 1977, Serrasqueiro & Nunes, 2014). Thus, based on these arguments, the following hypothesis is formulated:

*H2: There is a positive relationship between asset structure and total debt in companies.*

The payment of interest on the debt, are deductible for tax purposes, thus there is a tax saving (tax shield) by the company (Miller, 1977). The leveraged companies take advantage of the tax shield, provided by the payment of the interest on debt, corresponding to the so-called tax deductions. However, with debt increases, the results tend to decline and companies end up not being able to enjoy other tax benefits other than those related to debt. According to the trade-off theory, the company has an incentive to use the debt in order to benefit from tax shield, that is, the companies when they resort to debt, when the rates are high, they present an increase of the tax benefits from the debt (Frank & Goyal, 2007). Bradley, Jarrel, and Kim (1984) and DeAngelo and Masulis (1980) argue for a negative relationship between non-debt tax shields and leverage, and also suggest that tax deductions allowed by depreciation and credit could fill the role of fiscal savings from debt. DeAngelo and Masulis (1980) argue that the tax benefit from debt is quite limited, stating that companies with a high level of tax benefits other than debt not associated with debt have a low level of indebtedness. In this sense, a negative relationship is expected between non-debt tax shield and total debt, therefore the research hypothesis is:

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*H3: Non-debt tax shield are negatively associated with total debt.*

Tangibility aims to test to what extent the ease to obtain debt, as measured by the value of tangible fixed assets, influences the level of indebtedness (Jesus, 2017). According to Titman and Wessels (1988), tangible assets play a very important role in indebtedness, as these assets serve as a guarantee for their own financing. A company is in a situation of financial equilibrium when the non-current assets are higher than current assets. As tangible non-current assets can be measured more easily than intangible assets, the costs of bankruptcy are lower (Frank & Goyal, 2007). In this way, they defend a positive relationship between tangibility and indebtedness. From the perspective of the pecking order theory, companies with less tangible current assets have more information asymmetry problems. Myers (1984) argues that the type of assets that the company possesses determines the level of indebtedness. Companies that have intangible assets, which are not used as collateral, have lower indebtedness to companies that have fixed assets. The trade-off theory states that the higher the value of tangible fixed assets, the greater the financing / guarantee if the company goes into insolvency. Thus, both theories also advocate a positive relationship between asset tangibility and indebtedness. Serrasqueiro and Nunes (2014) also argue for a positive relationship between variables (tangibility and indebtedness), since a company with a high level of collateral may find it easier to increase the use of debt, since creditors make credit conditions more favorable. However, Serrasqueiro et al. (2011) support a negative relationship between fixed assets and debt. Consequently, companies that have a large amount of tangible fixed assets can choose more long-term oriented strategies, in other words, more focused on increasing the value of the company, instead of using external financing only to cover short-term needs. Based on the previous discussion, the following research hypothesis is formulated:

*H4: The tangibility of the assets is positively related to the level of indebtedness.*

The larger the size of a company, the greater its ability to finance. Larger companies have greater access to external financing because they have fewer problems of information asymmetry and are less likely to default. Trade-off theory holds that there is a positive relationship between size and indebtedness. A larger company size allows for lower bankruptcy costs, easier access to capital markets, and therefore access to low-cost financing. According to Titman and Wessels (1988), the capacity of debt increases with the growth of the company. Costa, Laureano, and Laureano (2014) and Serrasqueiro and Nunes (2014) point out a positive relationship between the variables (size and indebtedness), noting

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that larger companies reduce the possibility of bankruptcy given the greater capacity of the company to have a diversification of activities, products or services. Consequently, lower bankruptcy costs allow larger companies to have higher levels of debt. Degryse et al. (2010) and Serrasqueiro and Nunes (2012) have identified a negative relationship between size and short-term debt and a positive relationship between size and long-term debt. The size increases the maturity of the credit lines, the business risk increases if the companies are small because they need to be financed more with short-term resources (Degryse et al., 2010). For Myers (1984) the larger size of organizations reduces the problems of information asymmetry between managers and creditors, which easily leads to medium- and long-term debt. The following research hypothesis is proposed, based on these arguments:

*H5: The size of the company is positively associated with total debt.*

Table 1 summarizes the independent variables with their impact (positive or negative) on the capital structure and the authors who defend them.

Table 1: Impact of determinants on capital structure.

Determinants	Impact on capital structure	Authors
Profitability	Positive	Bartholdy and Mateus (2011); Leland and Pyle (1977); Modigliani and Miller (1963); Ross (1977).
	Negative	Frank and Goyal (2007); Myers and Majluf (1984); Serrasqueiro and Caetano (2015); Serrasqueiro and Nunes (2014); Serrasqueiro et al. (2016); Serrasqueiro et al. (2011); Titman and Wessels (1988).
Asset structure	Positive	Bartholdy and Mateus (2011); Jensen and Meckling (1976); Myers (1977); Serrasqueiro and Nunes (2014).
	Negative	Costa et al. (2014); Serrasqueiro and Nunes (2012); Titman and Wessels (1988).
Size	Positive	Costa et al. (2014); Serrasqueiro and Nunes (2014); Titman and Wessels (1988).
	Negative	Degryse et al. (2010); Serrasqueiro and Nunes (2012).
Non-debt tax shield	Negative	Bradley et al. (1984); DeAngelo and Masulis (1980).
Tangible assets	Positive	Frank and Goyal (2007); Myers (1984); Serrasqueiro and Nunes (2014).
	Negative	Serrasqueiro et al. (2011).

Source: Own elaboration.

### 3.3 Variables description

The capital structure of companies is measured through dependent and independent variables, in relation to the choice of dependent variables we intend to analyze the total debt (Lev) corresponding to the total debt and liabilities divided by the total assets. As independent variables were considered: profitability, asset structure, size, Non-debt tax shield and tangible assets. Table 2 presents a summary on independent variable definitions, with calculus formula and authors that support it.

Table 2: Independent variables

	<b>Variable</b>	<b>Ratio</b>	<b>Authors</b>
ROA	Profitability	$\frac{\textit{Earnings before taxes}}{\textit{Total Assets}}$	Vieira and Novo (2010); Serrasqueiro and Caetano (2015); Serrasqueiro and Nunes (2012); Serrasqueiro et al. (2016); Degryse et al. (2010); Frank and Goyal (2007).
AE	Asset structure	$\frac{\textit{Non - Current Assets}}{\textit{Total Assets}}$	Serrasqueiro and Nunes (2014); Frank and Goyal (2007).
Size	Size	$\textit{Ln}(\textit{Total Assets})$	Vieira and Novo (2010); Serrasqueiro and Caetano (2015); Serrasqueiro and Nunes (2012); Serrasqueiro et al. (2016); Degryse et al. (2010).
NDTS	Non-debt tax shield	$\frac{\textit{Amortizations and depreciations}}{\textit{Total Assets}}$	Vieira and Novo (2010); Serrasqueiro and Nunes (2012); Degryse et al. (2010).
TANG	Tangible assets	$\frac{\textit{Tangible fixed Assets}}{\textit{Total Assets}}$	Vieira and Novo (2010); Serrasqueiro and Caetano (2015); Serrasqueiro and Nunes (2012); Serrasqueiro et al. (2016); Frank and Goyal (2007).

Source: Own elaboration.

### 3.4 Database, sample and data analysis methods

The data used in this paper were obtained through the database SABI (System of analysis of Iberian balances) RefA UID / GES / 4752/2019. The sample is composed by companies (private limited liabilities companies, sole proprietorships and joint-stock companies) belonging to the hotel industry sector, from all Portugal, with subsequent selection of companies with CAE-551 (hotel establishments), in accordance with paper's objective. The sample is made up of 2,719 companies of the Portuguese hotel industry for the period

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between 2010 to 2017, resulting in 21,752 observations. To analyse the data collected from SABI, it was applied the software SPSS Statistics version 24.

Once all the information has been gathered, it is necessary to codify it, in order to measure the concepts, to establish causality and to create associations among the variables. Therefore, the first step in the research design is to clean the dataset from outliers and carry out a descriptive statistical analysis (mean, standard deviation, skewness, kurtosis, maximum and minimum). Then, considering that several explanatory variables, or independent variables, are considered, multiple linear regression is used (Rodrigues, 2012).

The general model to be used is expressed in equation 1:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + \epsilon_i, (i=1, 2, \dots, n) \quad (1)$$

At where,

Y<sub>i</sub>: Dependent variable (total indebtedness)

X<sub>1</sub>, X<sub>2</sub>, ..., X<sub>k</sub> are the independent variables presented in Table 6 above;

β<sub>0</sub>: is the coefficient of interception;

β<sub>k</sub>: is the partial slope of the independent variables (k = 1, ..., n);

ε<sub>i</sub>: random error.

**4. ANALYSIS AND DISCUSSION OF RESULTS**

At this point, we try to verify the relationship between the variables under study, through the least squares regression technique. Table 3 summarizes the results of applying this technique to the set of all the companies in the sample and for each year.

Table 3: General model with all hotel companies, for the period 2010 and 2017.

Model (Dependent Variable: Lev)	Non-standardized coefficients			Standardized coefficients
	B	t	Sig.	Beta
(Constant)	0,412	11,936	<0,001	
Tangible assets	0,108	7,333	<0,001	0,126
Non-debt tax shield	-0,571	-3,451	0,001	-0,061
Size	0,006	2,782	0,005	0,048
Profitability	-0,806	-7,488	<0,001	-0,127
adjusted R squared	0,049		F	47,445
Durbin-Watson	0,738		p-value	<0,0001
n	3624			

As can be seen in Table 3, the model has an adjusted determination coefficient (R<sub>a</sub><sup>2</sup>) of 0.049. That is, 4.9% of the leverage (lev) as measured by total debt to total assets can be explained by the independent variables present in the model, through the "Enter" method,

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and the remaining variability is explained by factors not included in the model. The ANOVA for the model allows to conclude that the model is significant ( $F= 47,445$ ;  $p\text{-value} < 0.001$ ), for a significance level of 5%, that is, indicate the rejection of  $H_0$  (that the model with no independent variables fits the data as well as our model). It is observed, analysing the  $p$ -value of variable coefficients, that all variables are statistically significant with 5% significance level. However, this model shows positive autocorrelation between the variables since the Durbin-Watson test has a value of 0.738. This behavior is probably because the sample is longitudinal.

From the analysis of the model for each year (from 2010 to 2017), presented in table 4, it is observed that the model does not present autocorrelation between the variables since the Durbin-Watson test presents values, in all the years, close to 2. It is also verified that the independent variables do not present problems of multicollinearity in any of the years under analysis, since all of them have variance inflation factor (VIF) – VIF below 10 in all years.

Table 4: Models for hotel companies for the years 2010 to 2017

Model for all companies in 2010				
Model (Dependent Variable: Lev)	Non-standardized coefficients			Standardized coefficients
	B	t	Sig.	Beta
(Constant)	0,551	5,593	<0,001	
Tangible assets	0,075	1,782	0,075	0,088
Non-debt tax shield	-0,522	-1,083	0,279	-0,054
Size	-0,002	-0,292	0,770	-0,015
Profitability	-0,874	-2,659	0,008	-0,133
adjusted R squared	0,025		F	3,958
Durbin-Watson	2,075		p-value	0,004
n	454			
Model for all companies in 2011				
Model (Dependent Variable: Lev)	Non-standardized coefficients			Standardized coefficients
	B	t	Sig.	Beta
(Constant)	0,303	3,023	0,003	
Tangible assets	0,050	1,209	0,227	0,060
Non-debt tax shield	0,036	0,080	0,936	0,004
Size	0,014	2,151	0,032	0,109
Profitability	-0,552	-1,605	0,109	-0,081
adjusted R squared	0,022		F	3,545
Durbin-Watson	2,312		p-value	0,007
n	451			

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Table 4: Models for hotel companies for the years 2010 to 2017 (continuation)

Model for all companies in 2012				
Model (Dependent Variable: Lev)	Non-standardized coefficients			Standardized coefficients
	B	t	Sig.	Beta
(Constant)	0,428	4,174	<0,001	
Tangible assets	0,082	1,894	0,059	0,098
Non-debt tax shield	-0,549	-1,104	0,270	-0,057
Size	0,005	0,689	0,491	0,036
Profitability	-0,513	-1,656	0,098	-0,083
adjusted R squared	0,017		F	2,867
Durbin-Watson	2,058		p-value	0,023
n	423			
Model for all companies in 2013				
Model (Dependent Variable: Lev)	Non-standardized coefficients			Standardized coefficients
	B	t	Sig.	Beta
(Constant)	0,483	4,657	<0,001	
Tangible assets	0,150	3,347	0,001	0,172
Non-debt tax shield	-1,196	-2,472	0,014	-0,131
Size	0,001	0,130	0,897	0,007
Profitability	-0,690	-2,064	0,040	-0,103
adjusted R squared	0,057		F	7,439
Durbin-Watson	2,094		p-value	<0,001
n	423			
Model for all companies in 2014				
Model (Dependent Variable: Lev)	Non-standardized coefficients			Standardized coefficients
	B	t	Sig.	Beta
(Constant)	0,291	2,894	0,004	
Tangible assets	0,171	3,904	<0,001	0,193
Non-debt tax shield	-0,460	-0,911	0,363	-0,047
Size	0,010	1,612	0,108	0,080
Profitability	-1,092	-3,321	0,001	-0,162
adjusted R squared	0,090		F	11,747
Durbin-Watson	2,017		p-value	<0,001
n	434			

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Table 4: Models for hotel companies for the years 2010 to 2017 (continuation)

Model for all companies in 2015				
Model (Dependent Variable: Lev)	Non-standardized coefficients			Standardized coefficients
	B	t	Sig.	Beta
(Constant)	0,301	3,153	0,002	
Tangible assets	0,115	2,800	0,005	0,131
Non-debt tax shield	0,031	0,067	0,946	0,003
Size	0,012	2,023	0,044	0,096
Profitability	-1,300	-4,121	<0,001	-0,192
adjusted R squared	0,072		F	10,231
Durbin-Watson	1,941		p-value	<0,001
n	479			
Model for all companies in 2016				
Model (Dependent Variable: Lev)	Non-standardized coefficients			Standardized coefficients
	B	t	Sig.	Beta
(Constant)	0,474	5,136	<0,001	
Tangible assets	0,121	3,082	0,002	0,138
Non-debt tax shield	-0,728	-1,662	0,097	-0,078
Size	0,004	0,671	0,503	0,030
Profitability	-1,255	-4,156	<0,001	-0,192
adjusted R squared	0,075		F	11,114
Durbin-Watson	1,944		p-value	<0,001
n	502			
Model for all companies in 2017				
Model (Dependent Variable: Lev)	Non-standardized coefficients			Standardized coefficients
	B	t	Sig.	Beta
(Constant)	0,476	5,095	<0,001	
Tangible assets	0,079	1,981	0,048	0,097
Non-debt tax shield	-0,721	-1,556	0,120	-0,077
Size	0,005	0,813	0,416	0,039
Profitability	-0,883	-3,144	0,002	-0,148
adjusted R squared	0,035		F	5,109
Durbin-Watson	1,937		p-value	<0,001
n	451			

The independent variable tangibility presents a positive and statistically significant coefficient in each year, for a significance level of at least 10%, except in 2011, thus H4 is validated for the remaining years. Non-debt tax shield only have a statistical significance in 2013 and 2016 for a significance level of 10%, the coefficient in both years being negative, validating H3 in those years. Size has only a statistical significance in the years 2011 and 2015 for a

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significance level of 5%, validating in these years the H5, that is, the size is positively correlated with total debt (leverage). The variable profitability is not statistically significant only in 2011, although the sign is as expected (negative). In the remaining years, the coefficient is negative and statistically significant at least 10% level, validating H1. As a result this indicate that the profitability increases with the decrease of the indebtedness.

## **5. CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH LINES**

The purpose of this paper is to identify some determinants of the capital structure of companies in the hotel sector in Portugal, as well as to verify if there are changes in the policy of capital structure along the years.

A brief characterization of the sector was made at national level. There was an increase in the number of companies starting in 2014, with the Lisbon metropolitan area having the highest concentration of companies. The sector has shown growth in its net results since 2013. However, it is only in 2015 that it starts to show positive net results. It is also noted that companies are increasing their financial autonomy since 2013, therefore, are using less debt to finance.

Through multiple linear regression, it is verified that the determinant "return on assets" (profitability) is statistically significant, with a degree of significance of 10%, in all years, except for 2011. This determinant has a negative coefficient, which shows a decrease in debt as there is an increase in profitability, as mentioned above. This behavior may indicate that the analysed companies follow the peking order theory as it has been identified in other researches, such as Frank and Goyal (2007); Myers and Majluf (1984); Serrasqueiro and Caetano (2015); Serrasqueiro and Nunes (2014); Serrasqueiro et al. (2016); Serrasqueiro et al. (2011); and Titman and Wessels (1988). The standardized coefficient of this determinant shows a slight increase over the years, from -0.133 in 2010 to -0.148 in 2017. This behavior, associated to the increase in financial autonomy, may indicate that the policy of capital structure of companies changes with the changes macroeconomic indicators.

Since the sample data is longitudinal, one of the limitations of the present paper is the fact that panel data analysis or analysis of structural equations was not used. As a suggestion for future research, is to use these techniques to analyze this relationship.

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