





## ASSOCIAÇÃO DE POLITÉCNICOS DO NORTE (APNOR)

## INSTITUTO POLITÉCNICO DE BRAGANÇA

## Factors of Investment in Fixed Assets: The Case of the Hotel Sector in Portugal

**Thiago Fortes** 

Dissertação apresentada ao Instituto Politécnico de Bragança

Para obtenção do grau de mestre em Contabilidade e Finanças

Orientação:

Prof. Doutor Nuno Filipe Lopes Moutinho

Prof. Doutor Jorge Manuel Afonso Alves

Bragança, Outubro, 2022







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### Resumo

A indústria do turismo tem sido um dos principais dinamizadores do desenvolvimento da economia portuguesa nos últimos anos. Neste âmbito, nomeadamente no setor hoteleiro, os investimentos nos ativos de suporte à sua atividade, ou seja, na construção do edifício base e nos equipamentos associados ao desenvolvimento da sua atividade operacional tenderão a ser significativos e com recuperação do valor do investimento a muito longo prazo. Dado que os investimentos em ativos reais são potenciais geradores de riqueza nas empresas, procura-se perceber o comportamento das empresas nesta indústria. O objetivo principal do estudo consiste em verificar que fatores influenciam o investimento nas empresas do setor hoteleiro. Assim, no estudo empírico e no sentido de aferir os fatores que influenciam o investimento nas empresas do setor hoteleiro em Portugal, serão utilizadas informações recolhidas da base de dados Sistema de Análise de Balanços Ibérico (SABI), do Instituto Nacional de Estatística e do Registo Nacional de Turismo (RNT) e serão desenvolvidos modelos de regressão linear. Os resultados deste estudo permitem concluir que o investimento nas empresas do setor hoteleiro português é afetado negativamente pelos fluxos de caixa, idade, dimensão, variedade de serviços, propriedade e crises económicas, e positivamente pela dívida, risco de negócio e crescimento de vendas.

Palavras - Chave: Investimento, Hotéis, Dívida, Rentabilidade.

## Abstract

The tourism industry has been one of the main players in the development of the Portuguese economy in recent years. In this context, particularly in the hotel sector, investments in assets to support its activity, i.e. in the construction of the base building and in the equipment associated with the development of its operational activity will tend to be significant and with recovery of the value of the investment in the very long term. Given that investments in real assets are potential generators of wealth in companies, we seek to understand the behavior of companies in this industry. The main objective of the study is to verify which factors influence investment in Portuguese companies in the hotel sector. Thus, in the empirical study and in the sense of assessing the factors that influence investment in companies in the hotel sector in Portugal, information collected from the Iberian Balance Sheet Analysis System (SABI) database of the National Institute of Statistics and the National Tourism Registry (RNT) will be used and linear regression models will be developed. The results of this study allow us to conclude that investment in companies in the hotel sector Portuguese is negatively affected by cash flows, age, size, variety of services, property and economic crises, and positively by debt, business risk and sales growth.

Keywords: Investment, Hotels, Debt, Profitability.

### Resumen

La industria del turismo ha sido uno de los principales actores en el desarrollo de la economía portuguesa en los últimos años. En este contexto, particularmente en el sector hotelero, las inversiones en activos para apoyar su actividad, es decir, en la construcción del edificio base y en el equipamiento asociado al desarrollo de su actividad operativa tenderán a ser significativas y con recuperación del valor de la inversión a muy largo plazo. Dado que las inversiones en activos reales son potenciales generadores de riqueza en las empresas, buscamos entender el comportamiento de las empresas de esta industria. El objetivo principal del estudio es verificar qué factores influyen en la inversión en empresas portuguesas del sector hotelero. Así, en el estudio empírico y en el sentido de evaluar los factores que influyen en la inversión en empresas del sector hotelero en Portugal, se utilizará información recogida de la base de datos Iberian Balance Sheet Analysis System (SABI) del Instituto Nacional de Estadística y del Registro Nacional de Turismo (RNT) y se desarrollarán modelos de regresión lineal. Los resultados de este estudio nos permiten concluir que la inversión en empresas del sector hotelero portugués se ve afectada negativamente por los flujos de caja, la edad, el tamaño, la variedad de servicios, las crisis inmobiliarias y económicas, y positivamente debido a la deuda, el riesgo empresarial y el crecimiento de las ventas.

Palabras clave: Inversión, Hoteles, Deuda, Rentabilidad.

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# Abbreviations and/or Acronyms

- CAE Código de Atividade Económica (Economic Activity Code).
- SABI Sistema de Análise de Balanços Ibérico.
- RNT Registo Nacional de Turismo.

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## Introduction

The objective of this work is to study the determinant factors that influence companies' investment in the Portuguese hotel sector, and ascertain how such factors most affect this particular business sector as well as provide some insight towards how they translate into the Portuguese hotel market. The hotel industry is the main topic. Given that the tourism sector has been one of the key forces behind the expansion of the Portuguese economy in recent years, choices about capital expenditures for assets, like the building of a hotel and the equipment needed to expand operational activity, are being considered. Note that capital expenditure om investments are potential generators of wealth in companies, and maybe are the value creation drivers in companies.

In a way to have empirical results it was used Ordinary least Squares (OLS) regression methodology. Based on data from the SABI (Sistema de Análise de Balanços Ibérico) and the RNT (Registo Nacional de Turismo) databases, data was gathered for the Portuguese companies in the hotel sector, from 2010 to 2020. The expectation for the study was to gather insight into the factors that influence investment for the Portuguese hotel sector.

This study makes important contributions for capital expenditure literature because it evidences the main factors that influence companies' investment decisions. In addition, it was not possible to find other works that apply this issue to hotel sectors.

The results of this study highlight that cash flow, age, size, debt, business risk, sales growth, service variety, propriety and economic crises are the most important factors that affect capital expenditure decisions.

This study is conducted in four steps. In the following section this work focus on the literature review about investment. In the second section is the research methodology. Here will be the thesis objective, the research hypotheses, the description of the data and samples are explained, as well as the definition of the variables of the study and the model for the analysis. Then, the presentation and analysis of the results of the study, where descriptive statistics, correlation matrix and multivariate analysis are conducted and analyzed. Finally, the conclusions and limitations of the study.

## **1. Literature Review**

In financial theory, investment is fundamental for the creation of additional value in companies and Peric & Radic (2011, pp. 266) states that investment is "the lifeblood of economic growth - sustainable or otherwise" for a business or sector to grow and expand investment is a necessity.

According to Batu (2016), investment is a definitive and crucial component for economic growth, and the promotion of investment is a key instrument and primary engine for the goal of economic growth, and such, a way of improving the living standards of nations. Note that that investment is the key determinant to economic growth (Batu, 2016). "In particular, investment capital plays a very important role and is the basis for the development of an enterprise; it is a condition for businesses to invest and develop, improve competitiveness, productivity and efficiency "(Xuan, 2020, pp. 1).

Samimi, Sadeghi and Sadeghi (2013) claim that tourism has contributed for about 3-10 per cent of the GDP in the developing world. Generally, there has been an increasing and widely accepted notion that tourism could play a lead role for developing countries in achieving economic growth and development. "Tourism has become one of the most significant export sectors in many developing countries. A general consensus has emerged that it not only increases foreign exchange income, but also creates employment opportunities, stimulates the growth of the tourism industry and by virtue of this, triggers overall economic growth" (Samimi, Sadeghi & Sadeghi, 2013, pp. 1).

Because Tourism is important for country economic growth and development with positive impact on local populations (Habibi, Rahmati & Karimi, 2018), investment in the hotel sector represents an added value to the local economy, and a way to increase the turnover and development of a region.

For example, the development of a hotel in a given region, which receives a certain number of tourists per month, has a positive impact on the sales of other industries in that region, due to the fact that the development attracts to that region, potential customers who, in normal situations, these other sectors would not have. "The quick development of tourism in the world led to a growth of household incomes and government revenues directly and indirectly by means of multiplier effects, improving balance of payments and provoking tourism promoted government policies" (Isik, 2015, pp. 1).

Pop (2009) states that one of the key sectors of the tourism sector is the hotel sector. It guarantees the available accommodations and other amenities. For people who occasionally or often travel for work, pleasure, meetings, or conferences, they are a must. Hotels also provide leisure and entertainment options for the surrounding towns, as well as locations for a variety of community gatherings.

Tourists are always requiring better accommodation and entertainment (Băneş, Raicov, Iosim, Orboi, 2018). Because customers are continuously changing, they have new demands and anticipate everhigher levels of satisfaction, which companies must provide as much as possible in order to keep them. Given the importance of tourism in the economy and since investment is the catalyst for value creation in companies, the factors that influence the investment decision of companies in the hotel sector are studied. Before analyzing the economic and financial factors it is analyzed the characteristics of this industry.

#### 1.1. Hotel sector characterization

Mariott (2016) claims that there are two types of assets: real assets, which are assets that generate income, and financial assets, which are assets that are defined by the allocation of wealth or income amidst investors and permit the separation of ownership and management for the firm, facilitating investment; and that hotels have the characteristics of both. When it comes to the hotel business, naturally there are inherent traits that are somewhat unique because hotels are specialized real estate investments (Marriott, 2016). With that into account, it was looked into the branding, if it is an independent endeavor or part of a franchise, into the rating or characterization, meaning the number of stars a hotel is graded with, into the service variety it provided, services like, restaurants, spas, meeting rooms, outdoor and indoor pools, tennis courts, gym rooms, golf fields, etc. as well into the hotel capacity, meaning the number of beds available at any given time.

#### 1.1.1 Brand

A brand is a concept used in business and marketing to help consumers recognize a certain organization, item, or person. As a result of their intangibility, brands cannot be physically touched or seen. They assist in influencing how others view organizations, their goods, or particular people. Brands frequently employ distinguishing characteristics to build their identities in the marketplace. They offer the business or person great value, providing them an advantage over rivals in the same industry. Marriott (2016) claims that a brand's name may significantly increase an asset's worth. Because a brand name is a complicated and complete, mass-marketed system of identification and operation, choosing the appropriate brand name is an important choice. Marriott (2016, pp. 21) states that branded hotels can be found all around the world and that they have an invaluable when compared to new and non-brand hotel, further stating that franchises are a tool for business growth and for helping franchisees become successful business owners. Along the benefits of adhering to an established franchise, is the opportunity of obtaining better and more favorable financial terms when seeking capital for investment, as opposed to starting as an independent and unrecognized brand. "Banks favor big brands because they have a proven track record and carry less risk than the independent owner does going it alone. Branded hotels have many attractive features; they can come equipped with a power house marketing system and a lucrative loyalty program" (Marriott, 2016, pp. 20).

In this regard it can be stated that the difference between independent and franchised brands can affect the decisions about the capital expenditure. It is expected that companies' franchise hotels with a brand to have higher capital expenditure than companies with independent hotels.

#### 1.1.2 Antiquity of trademark registry

Trademarks are priceless resources and serve as the main way by which the public recognizes and differentiates one firm from another, as well as the main means by which the majority of businesses identify themselves to the public. "A trademark is generally a word, phrase, symbol or design, or a combination of words, phrases, symbols or designs, that identifies the source of a product or service and distinguishes the source of that product or service from the source of other products or services" (Alter, 2010, pp. 1). So, alongside the factor of age of the firm, it was decided to look into the factor regarding to how long has the trademark or brand of the hotels, or chain of hotels, has been registered in the public patent and trademark offices. In order to prohibit third parties from using the same mark or one that is confusingly similar for same or related products and services to those of the trademark owner, it is crucial to establish legitimate trademark rights. "Although registering trademark rights can confer significant benefits, there are certain limitations that should be borne in mind when deciding whether or not to file a trademark application" (Alter, 2010, pp. 4), as it can be seen it is not a given fact every business uses trademark registry. Because it can be expected that companies with more antiquity need to follow with investment to maintain their quality, antiquity of trademark registry will be taken into account as a factor that positively influences investment.

#### 1.1.3 Categorization

Mao & Yang (2016) claim that companies' capital budgeting is affected differently based on their star ratings and find that in China the higher capital expenditure are done in the high-stars hotels. The categories of hotel's stars would be a significant and pertinent endeavor to ascertain whether or not the star rating system affects investment. So, the bigger and more diverse, or rather luxurious, a hotel is, the more complex and prone to increasing costs it will be, and naturally the star rating system takes into the account the quality and quantity of amenities a hotel has when rating it. Therefore, it can be stated that the hotel stars categorization is positively associated with investment.

#### 1.1.4 Service variety

Also, the variety of services can be an important aspect to analyze because it can require higher amount of capital expenditure. It refers to the hotel's genuine offering and not every hotel offers the same. A scale reveals the hotel's quality or the services it provides. Marriott (2016) claims that each class of hotel will have a distinct construction and operating cost as well as a different target market, therefore choosing the class to build or invest in should be a deliberate process, since they offer different services and add varying levels of luxury, hotels of all sizes are all unique. Furthermore, adding that more luxurious hotels include full service and amenities, like restaurant operations, sporting areas and perhaps even full-service spa, emphasizing that with such specialized amenities comes a requirement to hire qualified management to operate them, adding complexity and cost to the investment. "Instead of managing the financials for only a hotel, now the owner has worry about not losing too much money in the restaurant(s), lounge, or spa" (Marriott, 2016, pp. 19). That being said, it can be stated that the service variety of a hotel requires higher amount for the investment.

#### 1.1.5 Capacity

It was decided to look into how much would the capacity of hotel, meaning the number of permanently available beds in each establishment would translate into an investment factor, considering how beds are the de facto essential basic service hotels provide. The companies' hotels with a higher number of rooms requires a higher amount of money for the capital expenditure.

#### 1.2. Factors that influence investment

Dogru and Sirakaya-Turk (2017) claim that firms could finance investments through internal capital (such as cash-flow), debt, equity, or through a combination of these, and that the financing decision will not affect profitability of investments.

Phan and Nguyen (2020, pp. 1) refers that "for external capital sources, high sales growth, good cash flow management, and good financial status are essential factors to help economic corporations mobilize external capital sources". Nguyen and Dong (2013) documented that the impact of business size, cash flow, and investment possibilities on investment decisions are largely favorable. Ajide (2017, pp. 1) also states that "corporate investments can be affected by firm-specific or financial factors such as leverages (debt), cash flow (retained earnings), sales, and stock of Liquid assets".

Based on econometric estimations Ruiz-Porras, Lopez-Mateo (2011, pp. 6) show that "the effects of firms' size, cash flow and investment opportunities are mostly significant and positive. Furthermore, the statistical tests suggest that the regression models explain adequately investment decisions mainly for medium and large firms".

So, studying the factors and how they affect the amount of investment capital for a firm will thus serve as a crucial foundation for developing solutions and recommendations to assist firms in obtaining investment. Investment is influenced by certain factors that are analyzed below.

#### 1.2.1 Cash flow

To begin the assessment of the factors that influence investment it was started with Cash Flow. A crucial goal of financial reporting is to evaluate the size, time, and uncertainty of cash flows as well as their sources and destinations. It is crucial for determining a number of things, such as the feasibility study of an investment the liquidity, adaptability, general financial success of a firm and the measuring of a company's profitability.

Cash flow is one of the most prominent factors in the literature, as it acts as a possible measure of the performance and turnover of a given company, which has a positive effect on the investment decision in companies (Phan, Nguyen, 2020). In other words, this suggests that cash flow is a crucial factor in determining investment decisions made by economic groups and that it might encourage investment. "Cash flow is approximately positive and significant in statistics across regressions. This result implies that cash-flow (or internal funds) is the key determinant of investment decisions at the firm level" (Nguyen, Dong, 2013). Therefore, cash flow is expected to be of positive influence towards investment.

#### 1.2.2 Age

The age of the company can also be an important factor, with the longevity of a company being a determining factor from the point of view of investing in a given sector. The older the company is, the greater the recognition that this company receives within the sector of activity due to the ability to continue the exercise of the activity over time, such as the establishment of a customer base, reputation, development of products and services specially customized for the sector and clientele, experience in the sector and activity.

"The lack of know-how in young SMEs is understood as a lack of credibility and reputation by potential creditors. This may imply an increase in the cost of capital, and the need to provide collateral to creditors. Thus, young firms may face obstacles in getting credit, becoming more dependent on internal cash flow to fund the investment needs" (Serrasqueiro, 2016, pp. 6). Naturally, a company that stands out for its longevity will be able to acquire or attract financing, therefore suggesting that as companies get older, they offer indicators of life and trustworthiness to the market, and as a result, they get better financing conditions. Apart from the firm's development hypothesis, which claims that new enterprises expand quicker, meaning more investment and a bigger demand for debt, most research demonstrate that older firms experience less challenges in getting finance.

So, age is a factor that though of influence to investment, it depends heavily on increased longevity, as younger firms lack the credibility to obtain financing due to their lack proven record, and the older and more experienced firms will more easily and faster attract investment. Therefore, it can be expected that age is positively associated with investment.

#### 1.2.3 Size

The next factor is the size of the company. Opolska, Gawlik, Oleśniewicz and Wos (2017) report that large hotels are distinctly capital-intensive, thus the costs must be thoroughly examined within the decision-making process, especially because they shape very important indicators for the investors.

Muhammad & Shehzad (2017) claim that small and medium-sized businesses have evidence that they are more vulnerable to financial concerns, furthering that, financial variables play a crucial part in business investment decisions. However, their significance varies depending on the company's size and age. Also, Mills, Morling & Tease (1994) state that smaller businesses are typically thought to be more sensitive to changes in the financial environment. Because lenders know less about their creditworthiness, they tend to find that external funding is significantly more expensive.

Additionally, Nguyen & Dong (2013) assert that there is a definite negative relationship between business size and investment decision, furthering that "the larger the firm is, the less investment it will make" (Nguyen, Dong, 2013, pp. 15). Also, Serrasqueiro (2016) states that firm size has an adverse impact on investment in both low small and medium sized businesses. Given the fact that the Portuguese economy is comprised mostly of small and medium sized firms, size can be expected to negatively impact investment.

#### 1.2.4 Debt

Another factor to be introduced is debt, that is related with the payment obligations as a result of their economic activity. It is employed by several businesses and people to make significant purchases that they would not be able to do under regular circumstances.

To make an investment it is important for companies to have the capacity to obtain financing, particularly from creditors through other people's capital. "Debt is a factor that stimulates investment" (Serrasqueiro, 2016, pp. 13), with a furthering statement that companies tend to rely on debt to fund their inherent investment needs. Nguyen & Dong (2013) also state that there is a truly positive relation between leverage (debt) and investment decision.

It can be stated that debt is a factor of positive influence in the investment of a firm, the bigger and more concerning the debt of a firm, higher will be the capital expenditure.

#### 1.2.5 Risk

Risk is related with the possibility that a result or investment won't provide the desired results or return and involves the potential for losing all or a portion of the initial investment. Business risk is the potential for a firm or organization to have decreased earnings or failure. A business risk is anything that compromises a company's capacity to meet its financial objectives. Olsen (1997) states that a common understanding of investment risk is necessary for managers and their customers to effectively manage investments. Additionally, it appears that regular investors and professional portfolio managers have similar views on investment risk. "Specifically, investment risk, as well as risk in other decision domains, appears to be a function of four attributes: the potential for a large loss, the potential for a below-target return, the feeling of control, and the perceived level of knowledge" (Olsen, 1997, pp. 1).

"Risk is an inherent feature of all investment options. Even bank savings books can contain risks, as some discovered in the course of the financial crisis in 2008. Many investors who lost (parts of) their funds claimed that they had not been informed about these risks when making their investment decisions" (Sachse, Jungermann & Belting, 2012, pp. 1). This demonstrates that variables other than the financial components of the investment product may also be crucial when lay people evaluate risk and make financial decisions. Additionally, Phan & Nguyen (2020) state that risk has a positive impact on investment decisions.

These elements describe risk as a factor that our study found to be pertinent towards the study of investment. Therefore, risk can be expected to be a factor of positive influence towards investment.

#### 1.2.6 Sales growth

The company sales growth must also be studied. Nguyen & Dong (2013) claim that investment and sales growth are positively correlated across regressions. Also, Phan & Nguyen (2020) stated that sales growth favorably affects the investment choices of significant economic groups. To put it another way, research shows that sales growth is a crucial factor in economic group investment choices and can encourage investment. Sales growth has a positive impact on the investment decisions of economic groups, which means that it shows how essential sales growth is in determining economic group investment decisions and how it might encourage investment.

Brenner and Rushton (2016) also mentioned that most businesses with above average sales growth had preceding investments that were also above average. In the same way, businesses with below-average sales growth most typically had below-average earlier investments. Compared to above average organizations, the link is typically considerably higher for businesses with below average sales growth. High levels of investment appear to be quite rare for a low growth firm, even if being above average in investment is a given for high growth companies. "High growth companies invest much more consistently, with far fewer retrenchments, than companies with low growth" (Brenner, Rushton 2016, pp. 2). It can be stated that sales growth is a factor of positive influence in the investment of a firm.

#### 1.2.7 Investment opportunities

The investment opportunities can also be important. Phan & Nguyen (2020) state that investment opportunities is a significant factor that affects investment decisions, generally affecting the investment

rate with quite a large correlation, and that in the case of Vietnam it negatively impacted the investment decisions of economic groups.

Also, Nguyen & Dong (2013, pp. 5) evidences that "it can be stated that investment opportunities are involved in the investment decisions", further stating that in an environment where businesses try to increase the value of the company through net present value positive projects, there would be more investment opportunities, which would lead to more investment. Ruiz-Porras & Lopez-Mateo (2011) also estimated that the effect of investment opportunities to be mainly positive and significant on investment decisions. It can be stated that investment opportunities positively affect investment.

Therefore, investment opportunities can be expected to be a factor of positive influence towards investment.

### 1.3. Financial and economic crisis

From the year 2008 the world suffered the harshest global financial crisis in almost 70 years, since the second world war, with major declines in business output, employment and trade. With economies all over the world suffering major setbacks. Therefore, it was proposed that the effects of economic crises, should be taken into consideration as a factor when exploring the process of investment. "While the financial crisis of 2008 and the associated recession led to severe hardship, it also provided an opportunity to learn about the impact of financial constraints on corporate policies" (Campello, Graham, Harvey, 2010, pp. 17). That being said, the most recent crisis in our hands, the COVID-19 outbreak provides an opportunity to study and understand the effects a crisis has on investment in the hotel sector.

Serrasqueiro (2016) concludes that regarding the connection between investment and the financial crisis, companies adjusted the rate of investment as a consequence of the financial crisis. The 2008 crisis had a negative effect on investment (Serrasqueiro, 2016). So, it can be expected that the economic and financial crisis has a negative effect on capital expenditure.

## 2. Research Methodology

This session presents the methodology to assess the research hypotheses.

#### 2.1. Study objective and research hypotheses

The objective of this study was to ascertain the factors that influenced the investment in the companies in the Portuguese hotel sector. To follow with the analysis, it was defined some research hypotheses. A hotel brand and its recognition can make difference in the company return, but also require capital expenditure to maintain the level required. Because not only the difference between independent and franchised brands can affect the decisions about the capital expenditure, but also the antiquity of trademark registry affect investment. The research hypotheses are:

H<sub>1a</sub>: Companies with hotels that belong to a brand have higher capital expenditure.

H<sub>1b</sub>: Companies with more antiquity of trademark registry are positively associated with investment.

Hotel star ratings can have important impact on investment because, for example, high-stars hotels require more investment. Higher stars hotels have more diverse, luxurious and more complex. Hotels can also be very different about the services provide to clients and that can require different amount of investment. Additionally, the number of rooms/beds in a hotel have impact on the hotel size and because of it the room capacity also affects the capital expenditure.

H<sub>2a</sub>: High-stars hotels are positively associated with investment.

H<sub>2b</sub>: Hotel companies with more service variety are positively associated with investment.

H<sub>2c</sub>: Companies' hotels with higher room capacity are positively associated with investment.

It is also important to look into how the nationality of the owner of the hotel would translate into an investment factor, as a way of ascertaining whether or not foreign companies and individuals actively invest in the Portuguese hotel sector.

H<sub>3</sub>: Nationality of the owner of the hotel influences Investment.

Hotel industry are characterized by companies that take an important decision about the hotel buildings. Hotel management need to decide if their company is the owner of the hotel building or if their company lease that equipment. This decision has a great impact on capital expenditure and debt decisions.

H<sub>4</sub>: Companies that own the hotel building have higher Investments.

The 2008 financial crisis and 2020 economic pandemic crises had impact on the money available on economy for tourism activities. Because it was expected lower tourism activities companies have done less investments in this sector.

H<sub>5</sub>: Economic and financial crises negatively influence Investment.

#### 2.2. Description of the data collection instrument

The financial data about companies was collected from the SABI (Sistema de Análise de Balanços Ibérico) and the data about the hotel characteristics was collected from RNT (Registo Nacional de Turismo) databases, processed using the Microsoft Excel and Gretl software.

#### 2.3. Population vs. sample

The total population were the Portuguese companies listed in the Economic Activity Code (CAE) system classified by the codes 55 (Accommodation). It was comprised of 77287 companies. The timeframe of this study was 11 years, from 2010 through 2020. The initial number of observations was a total of 168740, and the final number of observations was 9073.

#### 2.4. Analysis model and description of variables

This study followed a multivariate linear regression analysis with the Ordinary Least Squares (OLS). The model has the specification below. It was introduced a control variable related with the number of hotels managed or controlled by each company:

Table 1 defines all the variables in the above model.

#### Table 1 - Variable Definition

Variable	Description	Source
	Ratio of the sum of yearly change in fixed assets with amortizations by total	SABI
	assets of the company, in period.	DNT
NHI	Number of hotels owned by of company <sub>i</sub> in period <sub>t</sub> .	RNI
CAS	Cash flow normalized by fixed assets of company <sub>i</sub> in period <sub>t</sub> .	SABI
AGE	Age of company, in period.	SABI
SIZ	Natural logarithm of total assets of company, in periodt.	SABI
DEB	Ratio of total liabilities by total assets of company <sub>i</sub> in period <sub>t</sub> .	SABI
RIS	Ratio of standard deviation of revenue and previous revenue year by average revenue of company <sub>i</sub> in period <sub>t</sub> .	SABI
SLG	Sales yearly variation of company, in periodt.	SABI
ROA	Ratio of operating income by total assets of companyi in periodt.	SABI
BRA	Dummy variable that assumes value 1 when the company, in period, has hotel that is associated with a brand, and 0 otherwise.	RNT
ANT	Seniority of the brand of the company <sub>i</sub> in period <sub>t</sub> calculated by the logarithm of the number of years since the corporate trademark was registered in the Portuguese Patent and Trademark Office.	SABI
CAT	Average star ranking (with a rating of 1 to 5 stars) of hotels associated with company <sub>i</sub> in period <sub>t</sub> .	RNT
VAR	Average of the variety of services offered (measured from 1 to 9 according to the following number of services: restaurants, spa, meeting room, outdoor pool, indoor pool, tennis, gym, golf and other services) by the hotels of company <sub>i</sub> in period <sub>t</sub> .	RNT
CAP	Logarithm of the average number of fixed beds available in hotels managed by company <sub>i</sub> in period <sub>t</sub> .	SABI
NAC	Dummy variable that assumes the value 1 when the nationality of the shareholder of the company <sub>i</sub> in period <sub>t</sub> owner of the hotel is Portuguese, and 0 otherwise.	RNT
PRO	Dummy variable that assumes the value 1 when the hotel building is owned by the company <sub>i</sub> itself in period <sub>t</sub> , and 0 otherwise.	RNT
CRI	Dummy variable that takes the value 1 in the years related to the financial crisis (years 2011 to 2014) and to the economic crisis (year 2020), and 0 otherwise.	Authors' calculation

## 3. Analysis of Empirical Results

### 3.1. Descriptive statistics

The analysis starts with descriptive statistics. Table 2 displays that on average each company operates 1.22 hotels, and with the maximum number of hotels operated by a firm at 26.

Variable	Average	Mean	Standard Deviation	Min.	Max.
CON	25,50	0,16	127,00	-91,70	1040,00
NHT	1,22	1,00	1,24	1,00	26,00
CAS	6,76	1,64	350,00	- 1990,00	1890,00
AGE	6,45	2,00	13,70	1,00	124,00
SIZ	12,10	12,30	2,48	-4,61	20,50
DEB	112,00	75,20	205,00	0,00	1610,00
RIS	0,61	0,18	1,75	0,00	16,10
SLG	-16,30	10,10	175,00	- 1210,00	100,00
ROA	0,01	0,01	0,39	-10,60	26,50
ANT	29,20	25,00	20,20	2,00	142,00
CAT	3,30	3,00	1,00	0,00	5,00
VAR	2,68	2,00	2,10	0,00	9,00
CAP	143,00	94,00	140,00	0,00	1150,00
Variable	Frequency				
BRA	33%	0%	47%	0%	100%
NAC	99%	100%	8%	0%	100%
PRO	75%	100%	43%	0%	100%
CRI	46%	0%	50%	0%	100%

Table 2 – Descriptive statistics

Source: Author's Elaboration

Cash flow displays a high standard deviation which indicates that there is great disparity in the cash flow between sampled companies. The age factor indicates that the average age among sampled companies is very low, at 6.4 years, with a 2-year mean. Size is average, with a very low standard deviation, indicating that companies tend to be in the same size range. Debt is high, with a significantly high standard deviation, indicating a high volume of debt among companies. Risk is very low. Sales indicates a negative average with a high standard deviation, meaning a possible disparity in market performance across the industry. Investment opportunities seems to be extremely low. Regarding the brands, only 33% of the companies are part of a franchise. There is a rather low variety of service. In regards to nationality 99% of the companies are owned by Portuguese owners, and 75% of the hotel buildings are owned by the companies. It is of special note that 46% of the observations refer to periods of economic or financial crisis.

### 3.2. Correlation matrix

Next, the correlation matrix is presented in Table 3. The correlation between the variables isn't very strong.

NHT CAS AGE SIZ DEB RIS SAL ROA BRA ANT CAT VAR CAP NAC PRO CRI

N	IHT	CAS	AGE	SIZ	DEB	RIS	SLG	ROA	BRA	ANT	CAT	VAR	CAP	NAC	PRO	CRI
1	,00	0,03	0,05	0,23	-0,03	-0,01	0,00	0,01	0,22	0,07	0,08	0,04	0,10	-0,01	0,02	0,00
		1,00	0,03	0,12	-0,30	-0,01	0,06	0,33	0,04	0,00	0,00	-0,05	0,02	-0,08	-0,13	-0,07
			1,00	0,34	-0,05	-0,07	-0,09	0,04	-0,01	0,53	-0,08	-0,04	0,09	-0,04	0,27	-0,11
				1,00	-0,32	0,00	-0,06	0,08	0,34	0,07	0,59	0,52	0,57	-0,05	0,31	0,05
					1,00	0,00	-0,03	-0,28	-0,03	-0,10	0,02	0,00	-0,04	0,01	-0,14	0,00
						1,00	-0,23	-0,02	0,03	-0,11	0,09	0,03	-0,01	0,01	-0,03	0,01
							1,00	0,10	-0,03	-0,03	-0,01	0,01	-0,02	0,01	-0,01	-0,20
								1,00	0,02	0,04	-0,02	-0,01	0,03	-0,03	0,02	-0,11
									1,00	0,14	0,24	0,17	0,30	-0,06	0,01	0,00
										1,00	-0,19	-0,08	0,15	-0,03	0,13	0,02
											1,00	0,59	0,43	-0,05	0,05	0,00
												1,00	0,54	-0,06	0,09	0,01
													1,00	-0,15	0,06	0,01
														1,00	0,04	0,00
															1,00	0,04
																1,00
-																

Table 3 – Correlation matrix

Source: Author's Elaboration

The strongest correlation across the board is 59% between the factors of Size (SIZ) and Category (CAT) and also 59% between Service Variety (VAR) and Category (CAT), and the third strongest correlation is 57% between the factors of Size (SIZ) and Capacity (CAP).

Factors with correlations of note include those of the size factor, with propriety at 31%, brand at 34%, service variety at 52%, capacity at 57% and category at 59%. These many high correlations indicate that size is significantly influenced by these factors. On the other hand, size has a -32% correlation with debt. Also of note is the correlations of the factor age, with size at 34% and propriety at 27%.

### 3.3. Multivariate analysis

Finally, based on a sample of 9073 observations, there were estimated Ordinary Least Squares (OLS) regressions, to which the heteroskedasticity-adjusted results are presented in Table 4.

Table 4 - Investment determination	ants
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	1	2	3	4	5	6	7	8	9	Exp
CON	13,659 ***	13,842 ***	13,029 ***	6,212 *	14,563 ***	13,858 ***	4,701	17,171 ***	9,335 *	
	(3,002)	(3,069)	(-3,340)	(3,639)	(4,472)	(3,328)	(5,145)	3,111	(5,284)	
BRA			-0,348				-0,502		-0,564	+
			(0,915)				(0,924)		(0,937)	
ANT			0,012				0,020		0,029	+
			(0,022)				(0,0241)		(0,025)	
CAT				-0,842			-0,604		-0,212	-
				(0,608)			(0,630)		(0,642)	
VAR				-0,667 **			-0,570 **		-0,553 **	-
				(0,263)			(0,275)		(0,279)	
CAP				0,622			0,535		0,894	
				(0,729)			(0,782)		(0,790)	
NAC					-0,710		1,700		1,189	
					(2,922)		(3,096)		(3,174)	
PRO						-2,952 *	-2,994 *		-2,604 *	
						(1,543)	(1,552)		(1,582)	
CRI								-3,375 ***	-2,794 ***	-
								(0,818)	(0,843)	
NHT		0,078	0,090	-0,125	0,083	0,030	-0,087	0,106	-0,012	
		(0,215)	(0,232)	(0,212)	(0,215)	(0,213)	(0,212)	(0,223)	(0,227)	
CAS	-0,006 ***	-0,006 ***	-0,006 ***	-0,006 ***	-0,006 ***	-0,007 ***	-0,006 ***	-0,006 ***	-0,006 ***	+
	(0,001)	(0,001)	(-0,001)	(0,001)	(0,001)	(0,001)	(0,001)	(0,001)	(0,001)	
AGE	-0,039 *	-0,040 *	-0,048 *	-0,079 ***	-0,041 *	-0,011	-0,058 **	-0,047 **	-0,075 **	+
	(0,023)	(0,023)	(0,028)	(0,024)	(0,023)	(0,024)	(0,030)	(0,023)	(0,030)	
SIZ	-0,333 *	-0,350 *	-0,308	0,387	-0,350 *	-0,228	0,431	-0,459 **	0,030	-
	(0,196)	(0,207)	(0,230)	(0,360)	(0,209)	(0,215)	(0,390)	(0,206)	(0,396)	
DEB	0,018 **	0,018 **	0,019 ***	0,0163 **	0,0184 **	0,015 **	0,012 *	0,020 ***	0,011	+
	(0,007)	(0,007)	(0,007)	(0,007)	(0,007)	(0,007)	(0,007)	(0,007)	(0,009)	
RIS	2,154 **	2,326 ***	2,502 ***	1,506 **	2,343 ***	1,782 **	2,173 ***	2,173 **	1,914 **	+
	(0,847)	(0,846)	(0,842)	(0,763)	(0,848)	(0,822)	(0,781)	(0,844)	(0,770)	
SAL	0,005 *	0,006 *	0,007 **	0,000	0,006 *	0,004	0,007 **	0,005	0,007 *	+
	(0,003)	(0,003)	(0,003)	(0,003)	(0,003)	(0,003)	(0,003)	(0,003)	(0,003)	
ROA	2,186	2,219	2,274	2,089	2,289	2,235	1,752	0,331	0,372	+
	(1,908)	(1,866)	(1,846)	(1,727)	(1,935)	(1,888)	(1,666)	(0,642)	(0,5670)	
Ν	9073	9073	9073	9039	9073	9073	9039	9073	9039	
R <sup>2</sup>	0,009	0,009	0,010	0,010	0,009	0,007	0,008	0,010	0,008	
R <sup>2</sup> Adj.	0,008	0,009	0,009	0,009	0,008	0,006	0,007	0,009	0,007	
F(n,k)	12,106	10,771	9,078	8,270	9,428	6,825	5,003	10,063	4,747	
P Val. (P)	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	

Note: This table presents the results of OLS estimation corrected by heteroskedasticity. The dependent variable is the investment of each company by year. All variables are defined in Table 1. The results for each variables include the estimation coefficient and standard error for the coefficient in brackets. \*\*\*, \*\* and \* refers that the variable is statistically significant at 1%, 5% e 10%, respectively.

While analyzing Table 4, comprised of the variables NHT (Number of Hotels), CAS (Cash Flow), AGE (Age), SIZ (Size), DEB (Debt), RIS (Risk), SLG (Sales Growth) and ROA (Investment Opportunity), across regression models, it can be observed that all variables, with the exception of ROA and NHT, tend to be statistically significant.

The CAS variable, though highly statistically significant across all models is, unexpectedly, negatively related across all regressions. This contradicts the literature, specifically Nguyen & Dong (2013) and Phan & Nguyen (2020) that claimed that cash flow has a positive and significant impact in statistics as key determinant for investment, which expected for cash flow to be positively related and with a significant coefficient. However, the results go in line with Jensen (1987)'s theory that an excess of free cash flow in companies leads to conflicts of interest between managers and shareholders, specially over payout policies, when investors consider managers to be inefficient in managing the free cash flow, which in turn leads to the situation where the money that should be used to fund firm's projects is instead used to payout dividends for the investors. "The tendency for managers to overinvest resources is limited by competition in the product and factor markets that tends to drive prices toward minimum average cost in an activity. Managers must therefore motivate their organizations to be more efficient in order to improve the probability of survival" (Jensen, 1987, pp. 15). Additionally, our previous Descriptive Statistics table indicated a high debt ratio for the companies and the previous Correlation Matrix indicated a significant negative correlation between cash flow and debt, which also goes in accordance to Jensen (1987), that debt lowers the agency costs of free cash flow by lowering the amount of cash available for managers to spend at their discretion. Therefore, the results of low cash flow effect on investment could be explained by the high debt.

The AGE variable is mostly negatively statistically significant across all models. So, younger companies have higher capital expenditure. This somewhat goes in line with the literature, specifically Serrasqueiro (2016), that claimed that younger firms have added obstacles in investment due to their lack of experience.

The SIZ variable is statistically negative significant, which means that the greater companies have lower year investments. This is in line with the literature, specifically Serrasqueiro (2016) that states that firm size has an adverse impact on investment in both low small and medium sized businesses, and since the Portuguese economy is comprised mostly of small and medium sized firms, these results would go in line with expectations.

The DEB variable is statistically positive significant across all regression, which means that companies with a higher amount of investment are the ones with higher debt. So, companies have external finance to invest in the year capital expenditure. This is in accordance with the literature, specifically Nguyen & Dong (2013) that stated that there is a positive relation between debt and investment decision. The results go in line with expectations.

The RIS variable is statistically positive significant. In this way, risky companies are the ones with higher capital expenditures. This is in line with the literature, specifically Phan & Nguyen (2020) that stated that risk has a positive impact on investment decisions.

The SLG variable is positively related to investment. This is in line with the literature, specifically Nguyen & Dong (2013) that claimed that investment and sales growth are positively correlated across regressions. The low coefficient might be explained by the low sales growth results in descriptive statistics.

The ROA and NHT variables are controlling variables that are not statistically significant which means than it seems not to be important.

Different combinations of factors across multivariate regression models were tested. First, in model (3) there were tested the variables BRA and ANT, and found them to be statistically insignificant. With this result, it seems that the hotel brand and the antiquity of trademark registry are note relevant for the management decision about capital expenditure.

In model (4) the control variables plus variables related with some of the important hotel characteristics were tested. It was found that only VAR is statistically negative, which is in line with the literature. Although the company's variety of services seems to have a negative impact on investment, the hotel stars and the number of rooms are not relevant to management define their yearly capital expenditure decisions. It can be related with the fact that neither all year's companies do higher amounts of investments.

In the following model the companies' owners nationality is analyzed and it seems not to be statistically significant. The capital expenditure is not related with the nationality of the shareholders. In model (6) it was studied the PRO variable and it was found to be statistically negative significant. So, the companies that already have hotel buildings seems to have lower capital expenditure year by year.

Then, in model (7), all variables were tested together and it was found that only VAR and PRO are statistically relevant, with both being negatively related.

Next, in model (8), the control variables were tested along with a new variable CRI (Economic Crisis). It was found that it is negatively related, which goes in line with the literature, specifically Serrasqueiro (2016) that concluded that the connection between investment and financial crisis is negatively related.

Finally, in the last model, all the previous variables were tested. It was found again that VAR, PROP and CRISIS are negatively related with capital expenditure.

### 3.4. Discussion of results

After the results in the previous subpoint, the hypothesis must be analyzed. So, we remember the hypothesis and then we try to conclude about it.

H<sub>1a</sub>: Companies with hotels that belong to a brand have higher capital expenditure.

H<sub>1b</sub>: Companies with more antiquity of trademark registry are positively associated with investment.

The results do not allow to evidence that a hotel brand and its recognition have impact on capital expenditure because the related variable is not statistically significant. Also, the antiquity of trademark registry does not affect the companies' investment.

H<sub>2a</sub>: High-stars hotels are positively associated with investment.

H<sub>2b</sub>: Hotel companies with more service variety are positively associated with investment.

H<sub>2c</sub>: Companies' hotels with higher room capacity are positively associated with investment.

About the hotel operational characteristics, we only find that hotel companies with more service variety are negatively associated with investment. The hotel star ratings and room capacity are not relevant to managers decide investments.

H<sub>3</sub>: Nationality of the owner of the hotel influences Investment.

Our results allow us to conclude that the nationality of the hotel owner is not an important factor to analyze in this context.

H<sub>4</sub>: Companies owners of the hotel building have higher Investments.

This study evidence that companies that have hotel building have lower year investments, which seems that this companies after the initial capital expenditure at the construction or acquisition do not have higher investments.

H<sub>5</sub>: Economic and financial crises negatively influence Investment.

The results show that in periods of financial and economic crises companies avoid to spend money in capital expenditure.

## **Conclusions, Limitations and Future Lines of Research**

The objective of this study is to understand the factors that influence the investment of companies in the Portuguese hotel sector. It was concluded that regarding the companies in the hotel sector based on a sample of 9073 observations, the number of hotels managed by a company is a rather low average of hotels operated per company, and alongside the factor of investment opportunities was observed to be low as well, with neither being statistically significant. Cash flow found to be statistically significant across all models, though against expectations, negatively related with investment. However, this could be explained by the free-cash-flow theory, and the fact that cash flow correlated negatively with debt, considering there is a very high debt among the companies. The age factor is negatively statistically significant, which is explained by the very low average age among companies. Regarding size, it is statistically negative significant, in line with expectations, since firm size has an adverse impact on investment in both low small and medium sized businesses, and most of the companies are small to medium sized, and there was a very strong correlation of this factor with category, capacity and service variety, as well as a strong correlation with brand and propriety. As, previously stated, a high volume of debt was observed among companies, with a strong negative correlation with size and cash flow, and it was found to be statistically positive significant across all regression. There was very low risk, but it is statistically positive significant. Indicating that the riskier companies are the ones with higher capital expenditures. When it comes to sales growth, it was mostly negative, though not without a possible disparity in market performance among companies across the industry, and it was observed to be a variable that is positively related to investment.

Towards the research hypothesis, it was noted that brand and antiquity do not statically influence Investment. About the second hypothesis (hotel category, service variety and room capacity), only Service Variety is negatively associated with investments. The other factors are not relevant. The nationality of the owner of the hotel influences Investment is not statistically significant and the propriety of the hotel building negatively influences Investment. The last research hypothesis is related with financial and economic crises and the results evidence that in these crisis period companies are less available do proceed with investments.

It was noted that a third of the companies were found to be part of a franchise, there is a rather low variety of service, almost all of the companies are owned by Portuguese owners, and 75% of the hotel buildings are owned by the companies, and it is of special note that 46% of the observations refer to periods of economic or financial crisis. It can be concluded that the factors of cash flow, age, size, debt, business risk and sales growth are all statistically significant factors towards influence in investment, as well as the factors of service variety, propriety and economic crisis. These factors should be taken into

account when conducting an investment. The factors of investment opportunity and number of hotels, as well as the factors of brand, antiquity of trademark registry, category, capacity and nationality are not statistically significant, and should not be regarded at all.

Our study limitations include, naturally, the timeframe of the study, the data was gathered for 11 years, from 2010 to 2020, although slightly more than a full decade, is still limited. For future studies, a wider timeframe, increasing the amount of data available, would allow a more comprehensive insight into these factors, by comparing how they behave and develop through time, for example, by comparing every 10 or 5 years, although the very low average age of the Portuguese companies, as previously observed, would certainly come into play, and also by using additional statistical models, besides the OLS Regression used in this study, and comparing the results, would allow for further insight. Additionally, there was a certain amount of missing data from some companies among the population, which naturally hinders the study to certain degree, a more reliable and dependable financial reporting from companies in general would be a welcome outcome for future study on this matter.

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