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The Influence of Firm Characteristics and Macroeconomic Factors on Financial Performance: Evidence from the Portuguese Hotel Industry

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Abstract: This study examines the determinants of the financial performance of the Portuguese hotel industry. Despite the economic relevance of the hotel industry and financial performance as an indicator of business survival, academic research on the factors that influence it in the context of this industry, particularly in Portugal, is not extensive. This study encompassed a sample of 738 hotel companies from 2016 to 2021, using data from the Orbis database. This research was based on the assumption that a company's size, liquidity, the tangibility of its assets, and debt level influence financial performance in the hotel industry, as well as the assumption that gross domestic product and consumer sentiment also affect the business success of hotel companies. By applying a panel data methodology, the findings indicate that all variables showed significant influence on financial performance, except liquidity. The analysis also reveals that smaller companies were more negatively affected by the demand decline induced by the COVID-19 pandemic. To improve the financial performance of the Portuguese hotel industry, the findings suggest that policymakers must work towards ensuring diversified sources of financing for the hotel business, such as investment subsidies, so that companies can minimize debt, especially during periods of slow economic growth. Additionally, companies must promote management strategies that enhance self-financing. Both measures could help companies increase their size, taking advantage of good business opportunities to explore economies of scale.

Keywords: financial performance; performance determinants; hotel industry; panel regression; Portugal

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1. Introduction

Firm performance is a crucial factor in determining sustainable growth and the overall health of any economy, making it a popular research subject (Tsai et al. 2011). Financial performance is a fundamental indicator of a business's survival and is essential for assessing firm performance.

This study area is important for various stakeholders, including owners, managers, creditors, employees, the local community, and the state. Although research has been conducted on this topic, significant gaps remain, highlighting the need for further studies to provide organizations with more effective strategies for managing their performance (Sainaghi et al. 2013). On the other hand, measuring performance is challenging. For instance, a meta-analysis of tourism performance measurement conducted by Sainaghi et al. (2017) highlights the complexity, multilevel nature, and interdisciplinary aspects of performance measurement. Their findings reveal that although hotel performance is a well-researched area among hospitality scholars, significant gaps still exist. Therefore,

understanding the factors that influence financial performance is essential for improving decision-making by managers and policymakers.

This study is particularly relevant as it analyses a crucial component of the tourism industry: hotels. Hotels play an important role in tourism by driving the sector's investment, employment, and innovation (Dimitrić et al. 2019). Moreover, Singal (2015) highlights that the hospitality industry (including lodging and restaurants, as defined by Pizam 2009) and the tourism industry (e.g., travel trade and attractions, according to Pizam 2009) exhibit higher leverage, increased risk, greater capital intensity, and a more intense competitive rivalry compared to other industries. Therefore, using this industry as a context for testing business theories is well justified, as it can highlight substantial differences in decision-making and firm outcomes, such as financial and social performance. According to the World Travel & Tourism Council (WTTC 2023b), in 2022, the tourism sector represented approximately 7.6% of global GDP, amounting to over USD 7.7 trillion, and accounted for 9% of total global employment, with a contribution of 295 million jobs. In Portugal, the significance of this sector is even greater, contributing 15.8% to GDP (INE 2023) and providing 921,000 jobs, which is 18.9% of national employment (WTTC 2023a) in 2022.

The literature identifies a range of factors that influence hotel performance, including internal factors related to hotel characteristics and external factors such as economic conditions, location, and the competitive environment (e.g., Chen 2010; Sainaghi 2010; Issah and Antwi 2017; Lado-Sestayo et al. 2017; Karanovic 2023; Pimić et al. 2024). This paper aims to analyze the determinants of financial performance in the hotel industry, focusing on the Portuguese context. The determinants encompass variables related to hotel characteristics and external factors, particularly economic conditions, given that the hotel industry is highly sensitive to economic fluctuations (Chen 2010, 2015).

This study examined hotel data collected from the ORBIS database, spanning 2016 to 2021. This six-year period is particularly significant as it captures two distinct economic scenarios that affected the hotel industry, illustrating its sensitivity to economic cycles (Chen 2010, 2015; Sainaghi et al. 2013). The findings reveal a positive relationship between hotel size and performance, with smaller companies experiencing a more pronounced negative impact during periods of significant demand decline, such as the global economic downturn triggered by the COVID-19 pandemic. The analysis also reveals that debt and tangible assets negatively affect performance, while gross domestic product (GDP) and the consumer confidence index have a positive influence. Interestingly, liquidity does not appear to be a significant factor in explaining the performance of Portuguese hotel companies.

Due to the lack of literature on Portuguese hotel performance determinants, this research offers several contributions to the existing literature. First, it demonstrates that intrinsic management factors and macroeconomic conditions can significantly impact hotel company performance, providing valuable insights for managers and policymakers. Specifically, to improve the financial performance of the Portuguese hotel industry, the findings suggest that policymakers must work towards ensuring diversified sources of financing for the hotel business, such as investment subsidies, so that companies can minimize debt, especially during periods of slow economic growth. Additionally, companies must promote management strategies that enhance self-financing. Both measures could help companies increase their size, taking advantage of good business opportunities to explore economies of scale. Second, by considering the analysis period from 2016 to 2021, it considers two distinct scenarios: the pre-pandemic period and the pandemic period, whose analysis contributes to enriching the literature on the impact of the COVID crisis on the performance of the hospitality sector. To the best of the authors' knowledge, this is the first study conducted on Portugal's hotel industry that examines the impact of consumer sentiment on companies' financial performance. Previous studies focused on listed companies. This study also differs from previous studies as it investigates the effects of the COVID-19 pandemic on Portuguese hotel businesses, a factor that has not been explored in earlier studies.

This study is organized as follows. After this introduction, the second section reviews the existing literature on financial performance in the hotel industry and formulates the research hypotheses. The third section details the data, variables, and estimation methods used in the study. The fourth section presents the results and their discussion, and finally, the fifth section presents the conclusions.

2. Literature Review and Hypotheses

In recent decades, the concept of social responsibility, which views a company as a social organization that should benefit all stakeholders, has gained significance. However, maximizing owners' wealth and creating value for the company remain central motivations for its leaders. While companies may pursue various goals, profit is undoubtedly a fundamental objective for ensuring survival. Therefore, it is crucial to understand the characteristics that can enhance firm performance for all stakeholders.

Firm performance can be assessed through various variables. Siddiqui (2015), in his meta-analysis, identifies two primary streams of performance metrics: one based on accounting measures, such as return on assets (ROA), return on equity (ROE), and return on sales (ROS), which focus on profitability, and the other based on market measures, such as Tobin's Q and market-to-book value (MBV). Our study focuses on non-listed firms for which market price data are unavailable. Therefore, we opted to use an accounting measure. Some studies suggest that accounting measures can be easily manipulated at a management's discretion (Rhoades et al. 2002). Despite the lack of consensus on the value of various measures, return on assets (ROA) remains the most reliable tool for assessing financial performance in unlisted companies (Madan 2007), and ROA serves as a more effective proxy for the performance of lodging firms than ROE due to its stronger correlation with risk measures (Lee 2008).

Next, we present a literature review on the relationship between financial performance and its potential explanatory variables. Considering that the theoretical and/or empirical research on the effect of the dependent variables on financial performance remains inconclusive, the corresponding hypothesis will be formulated without specifying the expected direction of their relationship (positive or negative).

2.1. Firm's Specific Characteristics

2.1.1. Firm Size

Sainaghi (2010), in his study on the state of the art of hotel performance, argues that size is a trait that appears to have an important link with performance. Some authors argue that firm size negatively affects financial performance, suggesting that increased size can exacerbate corporate red tape and lead to resource management dysfunction (Mao and Gu 2008). Conversely, others believe that larger firms benefit from positive performance outcomes due to various factors, namely, economies of scale, more promotional opportunities, and improvements in asset efficiency and company management (Mao and Gu 2008). Additionally, larger companies are often thought to possess greater market power, enabling them to perform better in competitive environments and adapt more effectively to economic and social changes (Chen 2010). Using a sample of Belgian firms from various sectors, Deloof (2003) finds that size positively impacts profitability, as measured by ROA. Similarly, Serrasqueiro and Nunes (2008) demonstrate a positive relationship between ROA and firm size in a sample of small and medium-sized Portuguese companies, including hotels and restaurants, with size measured by total assets, sales, and the number of employees. Also, Pimić et al. (2024) found that size positively influenced business success in a sample of 115 small, family-operated hotels.

In their study of manufacturing and service sector firms from European Union (EU) member countries—Belgium, France, Italy, Spain, and the UK—Goddard et al. (2005) found that all the estimated coefficients showed a negative and statistically significant relationship between firm size and profitability. Using financial data from hotel companies in Tunisia, Ben Aissa and Goaied (2016) also find that hotel size negatively impacts profitability.

Similarly, in the macroeconomic context of the Iberian Peninsula, Neves et al. (2022) show that firm size negatively influences financial performance, as measured by ROA.

The reviewed literature leads to the formulation of the first hypothesis:

Hypothesis 1. *Firm size has a significant impact on financial performance in the hotel industry.*

2.1.2. Liquidity

Liquidity management is essential for all companies, regardless of their size or type of business, as it influences their performance and should be a key component of financial planning (Enqvist et al. 2014). High liquidity reduces a firm's exposure to the risk of being unable to meet short-term financial commitments. While most empirical studies on working capital management and profitability support the idea that aggressive working capital policies enhance profitability (Garcia-Teruel and Martinez-Solano 2007), the observed relationship between this variable and financial performance remains inconclusive.

Some empirical studies conclude a positive relationship between liquidity and profitability. For example, Deloof (2003) suggests that managers can enhance firm profitability by reducing the number of days that accounts receivable and inventories are outstanding. Similarly, Goddard et al. (2005) found that firms with higher liquidity tend to be more profitable in a sample of manufacturing and service sector firms from European Union (EU) member countries. They argue that companies with greater liquidity have the flexibility to adapt to changes in a volatile competitive environment, which likely benefits profitability. Garcia-Teruel and Martinez-Solano (2007) also confirm the significant role of working capital management in generating value for small and medium-sized firms. Also, Pimić et al. (2024) found that liquidity positively influences the hotel's business success. However, other studies suggest that liquidity can negatively impact firm performance. According to agency theory, Jensen (1986) argues that high liquidity may increase agency costs for owners by incentivising managers to misuse excess cash. Additionally, some researchers conclude that liquidity is not a significant factor in financial performance (e.g., Mao and Gu 2008; Serrasqueiro and Nunes 2008; Neves et al. 2022).

Based on the previous findings, we formulate the second hypothesis:

Hypothesis 2. *The firm's liquidity has a significant impact on financial performance in the hotel industry.*

2.1.3. Tangible Assets

Tangible assets are a collateral source that facilitates access to credit and helps mitigate agency conflicts between managers and creditors, thereby reducing agency costs of debt (Jensen and Meckling 1976). Therefore, tangible assets facilitate borrowing, which requires the assumption of obligations such as principal repayment and interest payments. This compels managers to adopt a management approach more aligned with the owners' objectives, promoting greater efficiency and value creation. Consequently, agency theory indirectly predicts a positive association between performance and asset tangibility. However, for Belgian firms, Deloof (2003) confirmed a negative relationship between the level of tangible assets and performance. On the other hand, some authors argue that a company with a higher level of intangible assets has greater management flexibility, which is crucial for creating value (e.g., Andonova and Ruíz-Pava 2016). Thus, it can be indirectly inferred that a negative association exists between performance and asset tangibility. Empirical studies demonstrate a positive impact of intangible assets on organizational performance (e.g., Chun and Nadiri 2016). Serrasqueiro and Nunes (2008) identify a negative and statistically significant relationship between the level of tangible assets and performance, as measured by ROA, in small and medium-sized Portuguese companies. They propose that a lower level of tangible assets, combined with a stronger tendency toward innovation, enhances performance. However, other studies conclude that tangible assets are irrelevant to explaining ROI (e.g., Botta 2019).

Based on the literature, the following hypothesis is proposed:

Hypothesis 3. *Tangible assets have a significant impact on financial performance within the hotel industry.*

2.1.4. Leverage

The literature examining the impact of indebtedness on firm performance can be summarized into two main theories: the trade-off theory and the pecking order theory. The trade-off theory, which developed from Modigliani and Miller's (1958) initial proposition regarding the irrelevance of capital structure, posits that a firm's optimal debt level balances the associated benefits and costs.

The gains from using debt lie in the tax deductibility of interest, and the reduction in equity agency costs, as debt plays a disciplining role in the relationship between managers and owners (Jensen 1986). The costs of debt are associated with several factors that may lead companies to adopt more moderate debt levels. These factors include expected bankruptcy costs, reduced financial flexibility to respond to strategic contingencies (e.g., growth opportunities) or operational contingencies (e.g., increased working capital needs), agency costs arising from conflicts of interest between owners and creditors (Jensen and Meckling 1976), personal income taxes, and substitute forms of tax gains from interest, such as depreciation and amortization (DeAngelo and Masulis 1980). Therefore, depending on various factors, debt can impact firm performance positively or negatively. Similarly, Sainaghi et al. (2017) argue that, in the tourism industry, financial leverage affects firm performance according to the risk–reward principle. They suggest that while higher risk can lead to higher rewards, excessive risk may ultimately result in firm failure. On the other hand, in the hotel industry, Wang et al. (2018) suggest that leverage is expected to have a negative impact on financial performance. They argue that higher leverage increases the burden of principal and interest payments, which could create solvency problems for the company. In the restaurant industry, Mao and Gu (2008) show that debt has a negative effect on performance. Serrasqueiro and Nunes (2008), using small and medium-sized Portuguese companies' samples from various industries, including hotels and restaurants, and Pimić et al. (2024) found that liquidity has a negative impact on business success for hotels, justified by the negative effect of debt on capital costs.

According to the pecking order theory, self-financing is the preferred source of company financing, with debt being used only when retained earnings are insufficient. Consequently, companies with higher profitability will generate more internal resources and have a lower level of indebtedness (Myers 1984), anticipating a negative relationship with debt. In the hotel industry, Botta (2019) concludes that hotel SMEs exhibit typical pecking order behaviour and are not particularly concerned with optimizing their capital structure. Conversely, other studies suggest that leverage is not relevant to financial performance (e.g., Neves et al. 2022).

Based on the reviewed literature, the following hypothesis can be formulated:

Hypothesis 4. *Leverage has a significant impact on financial performance in the hotel industry.*

2.2. Macroeconomic Factors

2.2.1. Gross Domestic Product

Companies' financial decisions consider their specific characteristics and various other factors, including economic conditions. The hotel industry, with its higher fixed costs compared to variable costs, is particularly sensitive to the economy and changes in economic conditions (Chen 2010). During the study period (2016–2021), business activity was heavily affected by the crisis brought about by the COVID-19 pandemic. According to the National Statistics Institute, in 2016, the annual GDP change rate was 3.85%, which dropped to −6.5% in 2020. After this, in 2021, the economy started recovering, and in 2021, the annual GDP change rate was 7.7% (INE 2024a).

Good economic conditions tend to be reflected in a firm's profitability (Garcia-Teruel and Martinez-Solano 2007), but there is no consensus regarding the nature of the impact. Most empirical studies support the idea that economic expansion can strengthen the financial performance of hotels (e.g., Tang and Jang 2009). However, Issah and Antwi (2017), for example, investigating various sectors of activity, including "hotels, restaurants, real estate activities, and telecommunications", suggest that real GDP negatively affects firm performance, as measured by ROA. Chen (2010) explores the effects of changes in the state of the economy (GDP) and tourism growth on the corporate performance of hotels in Taiwan and finds that only tourism growth could strongly explain the return on assets (ROA) and return on equity (ROE).

We formulate the fifth hypothesis based on the above arguments:

Hypothesis 5. *GDP influences financial performance in the hotel industry.*

2.2.2. Consumer Sentiment

The consumer confidence index measures the degree of optimism that consumers have regarding the economy in general, providing a picture of the current economic situation of households. Consumption includes household spending on goods and services, which catalyzes the country's economic growth. More positive consumer sentiment will affect their willingness to spend (Singal 2012; Chen 2015), which could favourably impact the financial profitability of companies. Lemmon and Portniaguina (2006) find that the consumer confidence index (CCI) strongly predicts GDP and consumption growth and can be used as a proxy to capture consumer behaviour. Vieira et al. (2019), in their study on the determinants of the financial performance of listed companies, used the CCI to measure investor sentiment. They found that this variable does not affect return on assets (ROA).

Several authors associate the CCI with hotel performance (e.g., Singal 2012; Chen 2015; Tang et al. 2017; Ozdemir et al. 2022). Considering the hotel industry in the U. S., Singal (2012) concludes that CCI partly predicts changes in future consumption expenditures. By analyzing the consumer confidence index among other indexes developed by the Organization for Economic Cooperation and Development (OECD) and the occupancy rate of Hong Kong hotels, Tang et al. (2017) concluded that the consumer confidence index was the best predictor of hotel occupancy rates. Through mediation analysis, Ozdemir et al. (2022) provide evidence that economic policy uncertainty affects hotel occupancy through its impact on consumer sentiment in the U. S. economy. In this context, the authors suggest that during periods of greater uncertainty, hotel practitioners should rely on honest and transparent communication with their customers and implement selling strategies to alleviate consumer conservatism. Additionally, government policies should focus on boosting consumer confidence.

We present our final hypothesis:

Hypothesis 6. *Consumer sentiment influences financial performance in the hotel industry.*

3. Methodology

3.1. Data and Variables

This study is based on data collected from the ORBIS database on 1372 hotel companies between 2016 and 2021. Developed by Bureau van Dijk, this database includes financial and economic data on European companies. Of the 1372 active hotel companies classified under NACE Rev.2 code 55.10—Hotels and similar accommodation, 634 companies were excluded due to incongruous or missing data. This resulted in a sample of 738 hotel companies. The six-year time frame is significant as it encompasses two distinct economic scenarios impacting the hotel industry. Thus, the period includes a phase of growing demand (2016–2019), followed by a significant decline related to the global economic crisis triggered by the COVID-19 pandemic. We eliminate the effect of inflation on all monetary

values by deflating them using the Portuguese Consumer Price Index for restaurants and hotels (base year: 2016), obtained from the National Statistics Institute (INE 2024b).

Based on the literature review, we considered the following variables, summarized in Table 1.

Table 1. Variables.

Variables	Proxy	Authors
Dependent variable		
Return on assets ($ROA_{i,t}$)	$\frac{\text{EBIT}}{\text{Total assets}}$	Goddard et al. (2005); Garcia-Teruel and Martinez-Solano (2007); Serrasqueiro and Nunes (2008); Chen (2010); Sandvik et al. (2014); Issah and Antwi (2017); Wang et al. (2018); Botta (2019); Neves et al. (2022); Karanovic (2023).
Specific characteristics		
Size ($SIZE_{i,t}$)	ln (Total assets)	Goddard et al. (2005); Mao and Gu (2008); Serrasqueiro and Nunes (2008); Chen (2010); Ben Aissa and Goaied (2016); Lado-Sestayo et al. (2017); Neves et al. (2022).
Liquidity ($Cr_{i,t}$)	$\frac{\text{Current assets}}{\text{Current liabilities}}$	Mao and Gu (2008); Serrasqueiro and Nunes (2008); Wang et al. (2018); Neves et al. (2022).
Tangible assets ($TAN_{i,t}$)	$\frac{\text{Tangible assets}}{\text{Total assets}}$	Serrasqueiro and Nunes (2008); Botta (2019).
Leverage ($LEV_{i,t}$)	$\frac{\text{Total debt}}{\text{Total assets}}$	Garcia-Teruel and Martinez-Solano (2007); Serrasqueiro and Nunes (2008); Mao and Gu (2008); Neves et al. (2022); Karanovic (2023); Pimić et al. (2024).
Macroeconomic factors		
Gross domestic product (GDP)	ln ((GDPt − GDPt−1)/(GDPt−1))	Garcia-Teruel and Martinez-Solano (2007); Chen (2010); Issah and Antwi (2017); Neves et al. (2022).
Consumer sentiment (CCI)	Represent the consumer confidence index	Chen (2015).

Dependent variable: There is no consensus on which variables best explain financial performance. However, some classic accounting ratios are often used in the hospitality management literature (e.g., Sainaghi et al. 2017; Botta 2019). This study uses return on assets (ROA) as a proxy to measure financial performance. ROA is the most used accounting measure for analyzing financial performance, defined as the ratio between the earnings before interest and taxes (EBIT) and total assets. It is an investment-based measure that allows for the assessment of overall management effectiveness, but it also has disadvantages. According to Sandvik et al. (2014), ROA is positively affected by the depreciation of investments, such as hotel facilities, while new investments contribute to a lower value of this indicator.

Independent variables: Our focus is the impact of two different groups on company performance measures: firm-specific characteristics and another group comprising economic condition measures. The latter group includes the economy´s total production and services (growth rate of real GDP) and the degree of consumer optimism regarding the economy in general (consumer confidence index (CCI)). To capture the overall effects of the business cycle on firms' financial performance, we also incorporate a dummy variable, Crisis. This variable is set to 0 for the years when Portugal experienced a period of demand growth (2016–2019) and 1 for all other years, which correspond to a significant decline associated with the global economic crisis induced by the COVID-19 pandemic. Other studies, such as Chen (2010) and Menicucci (2018), have explored the potential impact of unexpected crises on the hotel industry.

Table 1 presents all the variables used in our empirical model based on the literature reviewed.

3.2. Model Estimation

Panel data, by combining inter-individual differences with intra-individual dynamics, presents several advantages over cross-sectional or chronological data that make it possible to increase the efficiency of estimates. Several authors (e.g., Baltagi 2008) point to the advantages of using panel data as being that (i) the heterogeneity present in each individual can be controlled for, i.e., can be controlled for unobservable fixed effects, which can bias the coefficient estimates; (ii) a greater number of observations can be used, thus there is more information and greater variability in the data, increasing the number of degrees of freedom and reducing any multicollinearity between the variables, which in turn increases the efficiency of the estimates; (iii) the study of the dynamics of adjustment to changes is facilitated, by allowing the characterization of the responses of different individuals to certain events at different times; (iv) effects that cannot be detected by analyzing purely cross-sectional or chronological data can be identified and measured; and (v) it allows for the construction and testing of more sophisticated models than those possible with purely cross-sectional or chronological data.

The panel data multiple linear regression model used in the analysis is as follows:

$$ROA_{it} = \alpha + \beta_1 SIZE_{it} + \beta_2 SIZE\_dCrisis_{it} + \beta_3 Cr_{it} + \beta_4 TAN_{it} + \beta_5 LEV_{it} + \beta_6 GDP_{it} + \beta_7 CCI_{it} + \mu_i + \varepsilon_{it}$$

The chosen estimation method for testing the hypotheses is validated using several diagnostic tests: the White and Breusch–Pagan/Cook–Weisberg tests to assess heteroscedasticity, the variance inflation factor (VIF) to identify multicollinearity, Breusch and Pagan's Lagrange Multiplier (LM) test for evaluating individual company effects, the Robust Hausman test to differentiate between fixed effects and random effects, and the Wooldridge test to detect autocorrelation.

4. Empirical Results and Discussion

4.1. Descriptive Statistics and Correlation Matrix

Table 2 displays the descriptive statistics for all the variables (ROA, SIZE, Cr, TAN, LEV, GDP, CCI, dCrisis) and the correlation between the variables. The descriptive statistics show that, on average, Portuguese hotel companies present a 4.3% return on assets, 51.3% of debt, 58.1% of tangible assets, and a high current ratio. Among all variables, the current ratio is the most volatile, representative of the different forms of management present in the hotel industry.

The correlation coefficients show that all independent variables significantly correlated with ROA except the current ratio. The correlations between the independent variables are low, except for the correlation between the GDP and CCI variables, which has an association level of 54.11%, and between the CCI and dCrisis variables, with an association level of 88.89%. To avoid relevant multicollinearity problems, the dCrisis variable will be used in an interactive variable combined with SIZE—SIZE_dCrisis.

Table 2. Descriptive statistics and correlation matrix.

Descriptive Statistics	ROA	SIZE	Cr	TAN	LEV	GDP	CCI	dCrisis
Mean	0.043	8.647	6.654	0.581	0.513	3.301	−11.682	0.333
Maximum	1.089	13.84	6474.5	0.999	0.998	12.9	−4.553	1
Minimum	−1.015	4.311	0.004	0	0.001	−16.7	−22.359	0
SD	0.116	1.292	106.163	0.323	0.251	6.116	6.447	0.471
Correlation								
ROA	1							
SIZE	*** −0.1198	1						
Cr	0.0003	−0.0011	1					
TAN	*** −0.2176	*** 0.0551	*** −0.0639	1				

Table 2. *Cont.*

Descriptive Statistics	ROA	SIZE	Cr	TAN	LEV	GDP	CCI	dCrisis
LEV	*** −0.2170	*** 0.1005	0.0040	*** 0.0773	1			
GDP	*** 0.2957	−0.0040	0.0044	−0.0116	−0.0096	1		
CCI	*** 0.3888	−0.0188	0.0001	0.0105	*** −0.0480	*** 0.5411	1	
dCrisis	*** −0.3722	** 0.0353	−0.0032	−0.0232	** 0.0328	*** −0.3744	*** −0.8889	1

Note: ROA = return on assets; Cr = current ratio; TAN—tangible assets; LEV—leverage; CCI—consumer confidence index; dCrisis—crisis dummy. ** Significance at the 5% level. *** Significance at the 1% level.

4.2. Model Results and Discussion

When performing panel regression tests based on the linear panel data model presented in Section 3.2, we considered three estimation methods: pooled ordinary least squares (OLS), fixed effects, and random effects. The test results in Table 3 indicate that the autoregressive panel data model provides the best fit for the analyzed data.

Table 3. Autoregressive panel-data model results.

ROA	Coef.	Std. Error	t	$p > \|t\|$
SIZE	0.0592	0.00726	8.16	0.000
SIZE_dCrisis	0.0059	0.00131	4.52	0.000
Cr	−0.000006	0.00001	−0.44	0.662
TAN	−0.1184	0.01614	−7.34	0.000
LEV	−0.3308	0.01643	−20.13	0.000
GDP	0.0009	0.00032	2.85	0.004
CCI	0.0097	0.00089	10.92	0.000
_cons	−0.1521	0.05631	−2.70	0.007
R^2			0.3731	
F-statistics (7, 2943)			250.27 ***	
Breusch–Pagan/Cook–Weisberg (x_2)			494.73 ***	
White (x_2)			447.03 ***	
VIF				
Mean			2.33	
Max.			5.81	
LM (x_2)			474.43 ***	
Robust Hausman (x_2)			168.32 ***	
Wooldridge (F)			5.979 **	

Note: ROA = return on assets; Cr = current ratio; TAN—tangible assets; LEV—leverage; CCI—consumer confidence index; dCrisis—crisis dummy. ** Significance at the 5% level. *** Significance at the 1% level.

The Breusch–Pagan/Cook–Weisberg and White tests in Table 3 reveal the existence of heteroscedasticity in the residuals, which requires robust estimators. The results of the VIF test, as suggested by the Pearson correlation coefficients between the pairs of independent variables presented in Section 4.1, indicate no multicollinearity problems. In the test of the individual effects of companies (LM), the rejection of the null hypothesis of the absence of relevant individual effects in explaining financial performance leads to the conclusion that, in this study, the ordinary least squares method is not the most appropriate. The Hausman test results in rejecting the random effects model, meaning that the unobservable individual effects are correlated with the independent variables. The results of the autocorrelation test (Wooldridge) suggest the rejection of the null hypothesis of there being no first-order autocorrelation and justify the presentation of the fixed-effects model assuming autocorrelation, as follows.

The results presented in Table 3 show that the model is statistically significant, according to the F-statistics. Additionally, 37.31% (R^2) of the return on the assets of Portuguese hotel companies is explained by the set of variables contained in the model under analysis.

The empirical results reveal that all independent variables, except the current ratio, have a statistically significant impact on the return on assets, at least at a 5% significance level, as suggested in hypotheses 1, 3, 4, 5, and 6. The estimated coefficients indicate that the return on assets of Portuguese hotel companies is positively affected by SIZE, SIZE_dCrisis, GDP, and CCI, while it is negatively affected by TAN and LEV.

Our results show that the coefficient of the size variable is positive and statistically significant with ROA ($p < 0.01$), which supports hypothesis 1. Size is an important explanatory variable for financial performance, and larger companies seem to generate higher returns on assets. The results obtained in this study corroborate those of previous empirical studies, such as those of Deloof (2003) in the Belgian context, of Serrasqueiro and Nunes (2008) in the Portuguese context of small and medium-sized companies, including hotels and restaurants, and Pimić et al. (2024) in a sample of 115 small, family-operated hotels.

The positive impact of size on the performance of Portuguese hotel companies may result from several factors, namely, scale effects, the possibility of better resource utilization, or the greater diversification of products and activities. The variable size_dCrisis positively influences ROA ($p < 0.01$), suggesting that during the period of a significant decline in demand related to the global economic crisis caused by the COVID-19 pandemic, larger companies were less affected in terms of their return on assets. In other words, the financial performance of smaller companies was more negatively impacted during this period.

In line with Serrasqueiro and Nunes (2008) and Andonova and Ruíz-Pava (2016), we find that tangible assets are negatively and significantly related to financial performance ($p < 0.01$), corroborating our hypothesis 3. The result suggests that companies with a lower proportion of tangible assets likely have a structure that allows for more flexible management and greater capacity for innovation.

Regarding leverage, it is important to note that it negatively influences ROA ($p < 0.01$), corroborating our hypothesis 4 and supporting the findings of Serrasqueiro and Nunes (2008) and Karanovic (2023). The result suggests that companies with higher levels of debt, due to the obligations it entails, have less capacity to finance profitable projects that would contribute to improving performance, corroborating the arguments of Jensen and Meckling (1976).

As for the macroeconomic variable GDP, there is positive statistical evidence of its relationship with ROA ($p < 0.01$), confirming, for example, the findings of Garcia-Teruel and Martinez-Solano (2007) and Tang and Jang (2009) and thus corroborating hypothesis 5. Additionally, for the consumer sentiment (CCI), the results show a positive and statistically significant relation with ROA ($p < 0.01$), which allows us to corroborate hypothesis 6. This finding contrasts with those of Vieira et al. (2019), who found no relationship between CCI and ROA, but aligns with the conclusions of Singal (2012) and Chen (2015), despite their analyses focusing on hotel performance through sales growth. The results imply that hotel companies can achieve a better return on their assets when the economy expands and the consumers are more optimistic about economic developments. In contrast, asset profitability will be negatively affected when the economy is in recession, and consumers in Portugal are more pessimistic.

Finally, the relationship between the companies' liquidity and their performance is not statistically significant ($p > 0.01$), so our result does not corroborate hypothesis 2, following the results of other studies, such as Mao and Gu (2008) and Serrasqueiro and Nunes (2008).

5. Conclusions

This study investigated the impact of firm characteristics and macroeconomic factors on the financial performance of the hotel industry in Portugal. The macroeconomic factors considered are changes in the economy (real GDP growth rate) and consumer sentiment (consumer confidence index). The financial performance indicator under analysis is the return on assets (ROA), which measures the profitability of hotel firms. After excluding

companies with incongruent data or missing data, the final sample comprised 738 hotel companies, with data spanning from 2016 to 2021.

This research assumed that the company's size, liquidity, the level of tangibility of its assets, and its debt level influence financial performance in the hotel industry, as well as gross domestic product and consumer sentiment, which also affect the business success of hotel companies. By applying a panel data methodology, the findings indicate that all variables showed significant influence on financial performance, except liquidity. The analysis also revealed that smaller companies were more negatively affected by the demand decline induced by the COVID-19 pandemic.

To improve the financial performance of the Portuguese hotel industry, the findings suggest that policymakers must work towards ensuring diversified sources of financing for the hotel business, such as investment subsidies, so that companies can minimize debt, especially during periods of slow economic growth. Additionally, companies must promote management strategies that enhance self-financing. Both measures could help companies increase their size, taking advantage of good business opportunities to explore economies of scale.

Like any study, this research has its limitations. This study does not consider variables related to the business model, ownership structure, management education, competitive environment, tourism growth, and location, which may contribute to a deeper understanding of the factors that affect financial performance and, consequently, the companies' decisions in the hotel industry. Therefore, it is suggested that future research includes additional performance variables. Methodologically, it would also be interesting to use hybrid methodologies, such as the GMM estimator (Arellano and Bond 1991) and data envelopment analysis to calculate efficiency indices.

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