

# TAX AND COVID-19 PANDEMIC EFFECTS ON THE FINANCIAL PERFORMANCE AND RISK OF THE HOTEL INDUSTRY

Andreas G. Koutoupis<sup>\*</sup>, Nicholas D. Belesis<sup>\*\*</sup>,  
Christos G. Kampouris<sup>\*\*\*</sup>

<sup>\*</sup> Department of Accounting and Finance, University of Thessaly, Larisa, Greece

<sup>\*\*</sup> Department of Business Administration, University of Piraeus, Piraeus, Greece

<sup>\*\*\*</sup> Corresponding author, Department of Tourism Studies, University of Piraeus, Piraeus, Greece

Contact details: Department of Tourism Studies, University of Piraeus, 80 Karaoli and Dimitriou Street, 18534 Piraeus, Greece



## Abstract

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The paper examines the hotel sector of Portugal, Spain, Italy, Greece, and Turkey from 2010 to 2021 in terms of financial performance (Arif, Noor-E-Jannat, & Anwar, 2016), based on key financial ratios risk levels as measured by the Beta coefficient and the taxation framework as defined by the difference (gap) between effective tax rate and statutory tax rate (Belesis, Karali, & Heliotis, 2021). All of the aforementioned are computed using data from Thomson Reuters Datastream (accounting variables and market prices), the KPMG website (statutory tax rates), and the World Bank Database (country-specific stock market returns). According to the findings, it is evident that the COVID-19 pandemic had a severe impact on the financial performance of the sector. Furthermore, the systematic risk of the sample firms increased during the pandemic. Regarding taxation, we detected significant differences in taxation levels, as expressed by statutory tax rates, and tax uncertainty as expressed by the gap. It appears that the hotel industry is significantly impacted by the pandemic; therefore, local governments or the European Union must assist them to prepare for this. The practical implication of this article is the portrayal of the blow to the hotel industry, and it can serve as a guide for the creation of support measures by the government.

**Keywords:** Corporate Taxes, Systematic Risk, Financial Performance, Hotel Industry, Mediterranean Stock Markets

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## 1. INTRODUCTION

This paper focuses on the hotel industry of the European Mediterranean countries and, more specifically, on listed hotel companies on the stock

exchanges of France, Greece, Italy, Portugal, Spain, and Turkey for the period 2010–2021, examining the financial performance, the systematic risk, and corporate taxation in the sector.

We examine the financial performance of each country's companies through the period based on specific financial ratios calculated per year. These ratios are ROE, ROA, EBITDA, Leverage, and Book-to-market ratio. We focus on changes throughout the period for each country's companies and compare them among countries.

We also measure the systematic risk of each country's companies based on the Beta coefficient calculated per year and focus on changes throughout the period and compare across countries. Also, we check how the systematic risk is affected by the key financial ratios above, based on regressions between Betas and financial ratios.

Finally, we focus on the taxation of the above countries, and more specifically, we focus on the effective (actual) tax rate and the difference between the effective and statutory tax rates. We compare the differences in taxation between the countries and the changes in the above period.

We are focusing on the specific period as it was quite a difficult period for Mediterranean economies. First, the financial crisis hit Portugal, Italy, Greece, and Spain, and then, when recovery seems to be coming; COVID-19 hit the entire world and affected the global economy. As a dominant industrial sector for these economies is no doubt tourism, this paper focuses on this sector and more specifically on the hotel sector and examines the financial performance of each country's sector during this decade. The purpose of this paper is to describe the impact of the pandemic on the tourism industry and to emphasize the need for local governments or the European Union to support the sector. Tourism is a key pillar for many countries and regions. It has a significant contribution to the national gross domestic product (GDP) as well as to the creation of new jobs.

Europe maintains its leading position in the global tourism market, even though it has lost significant market share in recent decades. According to *"European Union Tourism Trends"* (World Tourism Organization [WTO], 2018), in the European Union (EU), tourism contributes 10% to EU GDP and creates jobs for 26 million people through its direct, indirect, and induced effects on the economy.

Also, according to Eurostat (n.d.), in 2018, more than 10% of businesses in the European non-financial business economy belonged to the tourism industry. Businesses in tourism-related industries accounted for 9.5% of those employed non-financial business economy as a whole and 22.4% of those employed in the services sector. The tourism industries' shares in total turnover and value added at factor cost were relatively lower, with tourism industries accounting for 3.9% of the turnover and 5.8% of the value added of the non-financial business economy.

Recent events have not prevented tourism from maintaining its position and becoming one of the fastest-growing sectors in the European economy, thereby demonstrating its remarkable resilience and flexibility. Sustained growth in tourism has been crucial in supporting the economic recovery of many European countries, contributing greatly to job creation, GDP, and the balance of payments.

Unfortunately, the pandemic dealt this industry a severe blow, maybe the most severe compared to

other sectors. Recent research focuses extensively on this topic and its implications (Krishnan, Mann, Seitzman, & Wittkamp, 2020; Garcia-Gomez, Demir, Diez-Esteban, & Bilan, 2021).

The paper mainly focuses on the financial position of companies, at the country level, and studies their financial performance as expressed by relevant accounting variables and ratios. The key financial ratios used in our analysis are ROE, ROA, EBITDA ratio, leverage, and book-to-market ratio. We study the financial positions and performance of the countries' hotel sectors in due time and how the financial position of hotel companies has changed over the period. We also compare the financial positions of the countries' sectors for this period in order to detect similarities and differences between the countries.

Finally, the paper explores the systematic risk, as expressed by the Beta coefficient, for the securities of hotel companies in each country's industry. More specifically, the paper compares the systematic risk between the sectors of each country and how they changed during the period.

Additionally, based on the paper of Belesis Karali, and Heliotis (2021) we study and compare corporate taxation of the hotel industry among these countries for a specific period. We focus on statutory tax rates and effective tax rates.

The statutory tax rate imposed by a country's legislation and defined as a percentage of a taxable income often differs from the actual tax that investors need to pay, i.e., the effective tax rate. The gap between the statutory and the effective tax rates results from the different calculation methods applied. Therefore, although most countries have adopted similar accounting standards (i.e., IFRS) and net income calculation methods, taxable income remains significantly different.

In short, although the statutory tax rate is country-specific, the effective tax rate depends on a combination of factors, and mostly on how the national legal framework affects each firm. Thus, it is nearly impossible for a firm to make accurate, effective tax rate predictions, which may disincentivize investment decisions.

This study examines the gap between the statutory and effective tax rates in the hotel industry for the above six countries.

The remainder of this article is organized as follows. Section 2 examines the pertinent literature concerning the financial performance of the hotel business and the disparity between actual and nominal tax rates. Section 3 examines the methods utilized to undertake empirical research on the questions of the study. Section 4 discusses the empirical findings. Section 5 concludes with a discussion of the study's findings, limitations, and suggestions for further research.

## 2. LITERATURE REVIEW

There are numerous types of papers on tourism, with many of them focusing on the Mediterranean region. These papers mainly focus on the profitability of tourism companies, examine their financial performance, check the factors, internal or external, that affect their profitability, and how tourism affects economic development.

## 2.1. Profitability factors of the tourism sector

Regarding the factors that affect profitability, Dimitric, Zikovic, and Blecich (2019) examined the profitability determinant of hotel companies in the Mediterranean area for the period 2007–2015. They found that the solvency ratio is positively related to the profitability of hotel companies in all countries except Greece. The results indicate that companies with a higher share of equity in total sources of funding are more profitable. Also, the total asset turnover ratio is significant for all countries except for Portugal, while labor productivity is significant only for Spain. When assessing the relationship between age and firm profitability, the results show that there are differences between the observed countries. On the one hand, hotel profitability in Greece increases with age. This could be attributed to their built reputation and accumulated knowledge and experience. On the other hand, there is a negative impact of age on the profitability of hotel companies operating in Spain and Portugal. Possible explanations for this result could be that newer hotels in these countries are usually more modern, prone to new technologies and services, and can easily be adapted to customers. Agiomirgianakis, Magoutas, and Sfakianakis (2012) focusing on Greek hotels for the period 2006–2010 concluded that the age of a firm (credibility effect), a firm's size, and the low-cost access to bank financing are, indeed, factors that may have a positive and substantial impact on the profitability of a firm operating in the tourism sector.

## 2.2. Financial performance of the tourism sector

Arif et al. (2016) analyze the financial statements of hotels in Bangladesh. A ratio analysis and trend analysis were performed to analyze the financial position and feasibility of the hotel industry. The core objective of this paper is to upgrade the feasibility of the hotel industry in Cox's Bazar of Bangladesh. Considering profitability among the Mediterranean hotel companies Doğanalp and Arslan (2021) found that, Spain, Italy, and Greece managed to use their natural and cultural resources efficiently. In contrast to these countries, inefficiency level scores were measured for Turkey, Portugal, and France. In the model based on the number of visitors, all other countries apart from Turkey and Portugal achieved the most efficient score.

Also, regarding the performance of Mediterranean hotel companies, Niavis and Tsiotas (2019) concluded that the Western regions performed better than the Adriatic-Ionian, Eastern Mediterranean, and Central Mediterranean destinations.

Finally, no evidence of performance differences was observed between the Central Mediterranean and the Adriatic-Ionian, and the Eastern Mediterranean. Bacik, Fedorko, Gavurova, Ivankova, and Rigelsky (2020) tested discrepancies in financial variables (CF, EVA, ROE, ROCE, ROA, ROS, and others) between hotel categories in Visegrad Group countries for various hotel categories (two- to five-star hotels). Higher-category hotels have better financial results. Lower-category hotels should focus on higher-category hotel activities to improve their financial performance.

## 2.3. Tourism and economic development

As tourism is a key sector for some economies, especially for the Mediterranean countries there is literature that examines the relationship between tourism and economic development, but it is quite inconclusive. Cortes-Jimenez (2008) found a unidirectional causality between tourism to economic development in Italy, but Massidda and Mattana (2013) verified the bidirectional causality between tourism and economic growth in the same country. Dritsakis (2004) focusing on Greece found that there is a long-term two-way causality between tourism expansion and economic development. On the contrary, Eeckels, Filis, and Leon (2012) found a one-way causality running from tourism to economic growth during the period 1976–2004 using spectral analysis.

Gao, Xu, and Zhang (2021) studied CO<sub>2</sub> emissions, energy consumption, economic growth, and tourism development in 18 Mediterranean nations between 1995–2010. Given the potential relationship between tourism development, GDP, and CO<sub>2</sub> emissions, empirical results suggest that Mediterranean countries should prioritize sustainable tourism.

Furthermore, there is a number of empirical studies that examine the systematic risk of the tourism industry and more specifically of the hotel industry.

## 2.4. The effect of the COVID-19 pandemic on the tourism industry

Also, there are studies focusing on the effect of the COVID-19 pandemic on the hotel industry. According to Krishnan et al. (2020), COVID-19 has affected every sector across the globe, and the hotel industry is among the hardest hit. It is estimated that recovery to pre-COVID-19 levels could take until 2023 or later. Economy hotels may have the fastest return to pre-pandemic levels, and luxury and upper upscale hotels to have the slowest. Also, Garcia-Gomez et al. (2021) show that the COVID-19 outbreak has had more harmful effects on hotels' stock prices than previous recent epidemics, namely the salmonella outbreaks that occurred in 2012, 2013, and 2014, which also affected the hospitality business.

Anguera-Torrell, Aznar-Alarcon, and Vives-Perez (2020) used regression techniques to assess how the 20 largest publicly listed hotel corporations' stock market returns reacted to pandemic evolution and public sector economic measures in the countries they operate. From February 24 to April 24, 2020, the industrial response is assessed. The COVID-19 evolution has hurt the hotel industry, he observed. Hotel stock prices are positively associated with economic policies with a direct influence on the public budget, but liquidity provisions or financial aid do not boost the business.

## 2.5. Systematic risk of hotel companies

Kim, Gu, and Mattila (2002) examine the risk characteristics of hotel real estate investment trust (REIT) firms. The study investigates the systematic and non-systematic risk of hotel REIT stocks and the determinants of their systematic risk, or Beta,

using the financial data of 19 US hotel REIT firms. Findings suggest that growth through mergers and acquisitions and less reliance on debt financing may help reduce systematic risk and enhance the value of hotel REITs.

Jeon, Kim, and Lee (2006) examine the relationship between the persistence of abnormal earnings and systematic risk in hotel companies. The results of this study indicate that there was a statistically significant relationship between the persistence of abnormal earnings and systematic risk in hotel companies.

The study of Kim, Kim, and Gu (2012) examined the risk features of hotel companies and the determinants of their systematic risk and the findings suggest that conservative growth through mergers and acquisitions, and less reliance on debt financing are advisable for hotel companies seeking to reduce systematic risk and enhance firm value.

Chen (2013) examines the risk determinants of China's hotel industry. The risks considered are systematic risk (Beta), non-systematic risk, and total risk. Panel regression test results show that debt leverage, size, and state ownership are three critical risk determinants of China's hotel industry. Specifically, high debt leverage and state ownership significantly increase all three types of risk for Chinese hotels, whereas large hotels substantially reduce their systematic and total risks.

Hang et al. (2020) evaluated the volatility of market risk in Vietnam's hotel, entertainment, airline, and tourism industries after the low inflation environment (2015–2017). They sought to determine how much the market risk of these firms increased or decreased after the low inflation climate. They discovered that hotel, entertainment, airline, and tourism businesses have appropriate equity Beta mean values (lower than 1). Their findings reveal the entertainment industry has the most market risk among the 3 groups, while airline and tourism risk is highest.

Lee, Moon, Lee, and Kerstetter (2015) identify financial/operating determinants that influence systematic risk for online travel agencies (OTAs) and the results indicate that advertising expenditures, liquidity, and firm size are important determinants of systematic OTA risk.

Boz, Menendez-Plans, and Orgaz-Guerrero (2014) analyzing the factors that affect the discount rates and stock risk of European tourism firms during the period 2003–2011 find that macroeconomic variables have the greatest impact. Using the capital asset pricing model (CAPM), the study tests 7 macroeconomic variables and 7 accounting variables to better understand what most affects a stock price Beta. According to the findings the size of European tourism companies (measured by assets) is the only accounting factor that affects stock risk, while 3 macroeconomic factors, namely, the European gross domestic product growth, the exchange rate variation (between euro and US dollar), and the profitability of the Dow Jones industrial average, have a high explanatory power to predict the variation of European companies' stock risk.

Angel, Menendez-Plans, and Orgaz-Guerrero (2018) study the connection between the systematic equity risk of US tourism industry companies and

a set of information from within these firms and the market and the results reveal that equity risk is explained by the size and growth of companies, along with three indicators of business efficiency, consumer price, and Stoxx Europe 50 indices.

## 2.6. Taxation of the hotel industry

Finally, as for taxation, there is important academic literature regarding the factors that determine effective tax rates, how the tax rate changes over time and the gaps between effective and statutory tax rates.

US market studies show that effective tax rates have fallen over time, even in cases in which the statutory tax rates have remained unchanged. This phenomenon is the product of companies' ability to manipulate their accounting results and take advantage of specific provisions of the tax law (Dyrenge, Hoopes, & Wilde, 2016; Gravelle, 2013).

Gooroochurn and Sinclair (2005) discuss the types, objectives, principles, and implications of tourism taxation. A computable general equilibrium analysis for Mauritius finds that tourism taxation is relatively more efficient and equitable than levying other sectors and that a narrow policy, which taxes high-intensive tourism sectors, draws significantly more revenue from tourists than a broader policy where all tourism-related sectors are taxed.

Sheng and Tsui (2009) use a modified simple general equilibrium model of international trade and show that tourism taxation may increase or decrease economic benefit depending on the market power of the destination.

Schubert (2010) studies optimal taxation (subvention) when tourism is associated with "multiple externalities", using a simple dynamic model of a small open economy that is fully specialized in the production of tourism services and inhabited by a large number of intertemporally optimizing factors. The results show that the first optimal, achieved by a central planner who recognizes the externality, can be replicated in a decentralized economy by using a time-varying tax rate.

Belesis et al. (2021) focused on the difference between effective and statutory tax rates in 7 OECD countries (Austria, Canada, France, Germany, Italy, the UK, and the USA) and Brazil for the period 2016–2019. Their findings proved that these gaps are volatile and may differ between companies of the same country and between countries. In addition, the gaps between specific companies may change over time.

Yang, Lin, Huang, and Cheng (2021) propose a dynamic model for identifying the optimal amount of tourism taxes at different stages of a destination's lifecycle. Based on the Ramsey-Cass-Koopmans economic growth model, they reformulate the Cobb-Douglas function and the results suggest that the proposed model is well-adjusted, and the estimated tax amount is in line with the trends of tourism development in the destinations.

A deficiency in the current literature on the hotel industry is the absence of studies focusing on the financial position of enterprises based on widely dispersed and well-known financial indicators that portray the financial position over time. In addition, there is a paucity of articles that compare the hotel sectors of other countries in

terms of their financial position and performance throughout time. In addition, the literature on the taxation of the hotel business and the differences among countries is extremely limited. Through this paper, we hope to contribute to the body of knowledge on these topics.

### 3. RESEARCH METHODOLOGY

Our sample covered the period 2010-2021 and included all the listed hotel companies, from European Mediterranean countries and Turkey. More specifically, our sample included all hotel companies from, France, Greece, Italy, Portugal, Spain, and Turkey.

Using the Thomson Reuters Datastream we extracted the following accounting variables for each company for each year on December 31: *net sales*, *total assets*, *pretax income*, *tax expense*, *total equity*, *EBITDA*, and *total debt*.

Based on these accounting variables we calculated the following financial ratios as presented in Table 1. As indicators of the sector's financial performance, we focus on profitability, debt load, and market capitalization. In particular, ROE, ROA, and EBITDA are the most commonly utilized profitability ratios, while the leverage ratio is the greatest indicator of loan burden. Also, the book-to-market ratio is an excellent indicator of market expectations for the company. Of course, financial performance can also be expressed with another accounting variable and ratios different from those we used. Profitability can be expressed through return on invested capital, cash flows, operating profit, etc. Based on these variables, a researcher may try to answer our questions too.

**Table 1.** Financial ratios

Asset turnover ratio	Sales/Assets
ROE	(Pretax income - taxes)/Equity
ROA	(Pretax income - taxes)/Assets
EBITDA ratio	EBITDA/Assets
Leverage ratio	Debt/Assets
Book-to-market ratio	Equity/Market value

Next, to determine the actual tax burden of the company, we calculated each firm's effective tax rate (ETR) for each year based on the following formula:

$$ETR = \frac{\text{Income tax expense}}{\text{Pretax income}} \quad (1)$$

For our calculations, we excluded all negative values because these values are related to extraordinary circumstances and we excluded extreme ETR values for each firm. We agreed that a value was rated as extreme if it was greater than 300% or lower than 33% of the ETR average. After calculating ETR for each company for each year, we calculated the ETR average for each country per year. We calculated the simple average and not a weighted average, based on the characteristics of any company (e.g., total assets, sales, etc.), as we see each company as a separate case equally weighted.

Thereinafter, for each country, we extracted the statutory tax rate (STR) for public companies for each year, based on data from the KPMG web page (<https://home.kpmg/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online.html>). Table 2 presents the STR.

**Table 2.** Statutory tax rates

Year	France	Greece	Italy	Portugal	Spain	Turkey
2010	33.33%	24.00%	31.40%	25.00%	30.00%	20.00%
2011	33.33%	20.00%	31.40%	25.00%	30.00%	20.00%
2012	33.33%	20.00%	31.40%	25.00%	30.00%	20.00%
2013	33.33%	26.00%	31.40%	25.00%	30.00%	20.00%
2014	33.33%	26.00%	31.40%	23.00%	30.00%	20.00%
2015	33.33%	29.00%	31.40%	21.00%	28.00%	20.00%
2016	33.30%	29.00%	31.40%	21.00%	25.00%	20.00%
2017	33.33%	29.00%	24.00%	21.00%	25.00%	20.00%
2018	33.00%	29.00%	24.00%	21.00%	25.00%	22.00%
2019	31.00%	28.00%	24.00%	21.00%	25.00%	22.00%
2020	28.00%	24.00%	24.00%	21.00%	25.00%	22.00%
2021	26.50%	24.00%	24.00%	21.00%	25.00%	20.00%

Based on the ETR and STR we calculated the gap of each country for each year. The gap was defined as the ETR-STR value.

Next, we choose to measure the systematic risk (market risk) of the stocks of the sector's companies through the Beta coefficient ( $\beta$ ).

So, we extracted the share prices ( $R_i$ ) from Thomson Reuters Datastream on December 31 of each year for each company and each country, and for each year, we extracted the stock market returns ( $R_m$ ) from the Global Financial Development Database of The World Bank.

Having calculated the covariance between share prices returns, and stock market returns, we calculate stock Betas based on the following formula:

$$\beta = \frac{\text{Variance}(R_m)}{\text{Covariance}(R_i, R_m)} \quad (2)$$

Finally, we examine how systematic risk is affected by the companies' financial performance. To examine this we check the effect of each of the above mention financial ratios on the Beta coefficient using analysis. More specifically we run the following regressions following the least squares method:

$$\beta = \alpha_0 + \alpha_1(\text{Asset turnover ratio}) + \varepsilon \quad (3)$$

$$\beta = \alpha_0 + \alpha_1(\text{ROE}) + \varepsilon \quad (4)$$

$$\beta = \alpha_0 + \alpha_1(\text{ROA}) + \varepsilon \quad (5)$$

$$\beta = \alpha_0 + \alpha_1(\text{EBITDA}) + \varepsilon \quad (6)$$

$$\beta = \alpha_0 + \alpha_1(\text{Leverage}) + \varepsilon \quad (7)$$

$$\beta = \alpha_0 + \alpha_1(\text{Book\_to\_market ratio}) + \varepsilon \quad (8)$$

Based on the aforementioned regressions, we investigate if the specific ratio influences the Beta coefficient, which is the case if the  $\alpha_1$  coefficient is statistically significant, as well as the magnitude of the effect if any.  $R^2$  and  $\alpha_1$  coefficient ratios with high values indicate a strong association.

Additionally, one can investigate the combined impact of two or more financial ratios on systematic risk by applying regression with multiple financial ratios as independent variables. Calculating correlation coefficients is an alternative method to regression analysis for determining the relationship between financial ratios and systemic risk.

#### 4. RESULTS AND DISCUSSION

The analysis of the results starts from the financial ratios of the sample firms. In Table 3 below, we can see the average financial ratios of all firms of the sample on an annual basis along with the total average values. As it can be seen from Table 3, the *Sales/Assets* ratio decreases on average values from 2010 to 2021 showing the lower total asset turnover of the sample companies. The second ratio of *(Pretax income - taxes)/Equity* has small variations in its value, except for 2020 where we had the most severe problems from the COVID-19 pandemic.

The third ratio of *(Pretax income - taxes)/Assets* had for some years positive values whereas for other years it had negative value, without showing any trend. The fourth ratio of *EBITDA/Assets* had also small variations in its value from 2010 to 2021 with the exception once again in 2020 where it had a negative value due to negative on average values for the EBITDA of the sample companies. The fifth ratio revealing the *Leverage* of the sample companies shows once again the problem that arises in the hotel industry in 2020 due to the COVID-19 pandemic, with the leverage of the sample companies taking its largest value of 47.15% against of 20.04% average value. Finally, the last ratio of *Equity/Market value* that shows whether a company is overvalued or undervalued as compared to its book value shows on average a decreasing trend over the years of the research, indicating that hotel companies over the years have become on average overvalued companies.

In Table 4 below, we can see the empirical results of the analysis concerning the financial ratios analysis for the sample companies coming from Spain. The results in terms of signs, trends, and magnitude are similar to the ones from the all-sample analysis.

Table 3. Financial ratios of all samples

Year	Asset turnover ratio (Sales/Assets)	ROE (Pretax income - taxes)/Equity	ROA (Pretax income - taxes)/Assets	EBITDA ratio (EBITDA/Assets)	Leverage (Debt/Assets)	Book-to-market ratio (Equity/Market value)
2010	58.32%	-4.98%	-1.98%	6.00%	17.96%	63.82%
2011	63.56%	0.92%	0.38%	7.48%	16.10%	59.14%
2012	63.43%	-3.57%	-1.29%	5.11%	18.33%	66.64%
2013	62.55%	0.50%	0.18%	6.86%	18.08%	64.30%
2014	58.16%	2.44%	0.89%	7.13%	17.74%	51.31%
2015	56.15%	3.41%	1.30%	7.59%	15.93%	41.51%
2016	31.19%	2.04%	0.87%	6.06%	20.48%	65.44%
2017	33.55%	6.02%	2.52%	6.14%	21.39%	49.58%
2018	39.33%	2.84%	1.25%	6.00%	15.89%	46.49%
2019	36.55%	5.73%	2.09%	7.90%	28.04%	55.43%
2020	16.65%	-82.62%	-16.00%	-9.66%	47.15%	27.37%
2021	35.60%	-0.04%	0.01%	1.04%	3.36%	-6.23%
Average	46.25%	-5.61%	-0.82%	4.80%	20.04%	48.73%

Table 4. Spain financial ratios

Year	Asset turnover ratio (Sales/Assets)	ROE (Pretax income - taxes)/Equity	ROA (Pretax income - taxes)/Assets	EBITDA ratio (EBITDA/Assets)	Leverage (Debt/Assets)	Book-to-market ratio (Equity/Market value)
2010	39.18%	0.21%	0.07%	5.56%	32.44%	119.45%
2011	43.32%	2.39%	0.85%	6.41%	34.03%	84.57%
2012	44.64%	-15.16%	-4.96%	0.59%	35.74%	115.45%
2013	45.76%	-2.34%	-0.86%	6.25%	32.54%	112.06%
2014	48.71%	0.04%	0.01%	7.00%	27.93%	75.32%
2015	55.78%	1.80%	0.76%	7.76%	27.83%	63.12%
2016	57.43%	5.24%	2.43%	9.37%	21.47%	84.26%
2017	63.20%	5.77%	2.77%	9.78%	22.78%	59.25%
2018	60.90%	9.50%	4.68%	12.17%	13.43%	59.12%
2019	40.68%	8.47%	2.42%	10.30%	49.35%	65.58%
2020	13.63%	-82.78%	-12.98%	-5.06%	68.33%	33.18%
Average	46.66%	-6.08%	-0.44%	6.38%	33.26%	79.21%

In Table 5 below, we can see the empirical results of the analysis concerning the financial ratios analysis for the sample companies coming from France. The results in terms of signs, trends, and

magnitude are like the ones from the all-sample analysis. The main problem with the financial performance of the sample companies arises from 2020.

Table 5. France financial ratios

Year	Asset turnover ratio (Sales/Assets)	ROE (Pretax income - taxes)/Equity	ROA (Pretax income - taxes)/Assets	EBITDA ratio (EBITDA/Assets)	Leverage (Debt/Assets)	Book-to-market ratio (Equity/Market value)
2010	76.25%	-0.19%	-0.08%	6.70%	9.88%	50.12%
2011	83.23%	1.56%	0.66%	9.27%	5.52%	49.68%
2012	82.78%	2.38%	0.86%	8.36%	7.90%	54.55%
2013	83.95%	2.61%	0.92%	8.11%	7.57%	48.94%
2014	70.79%	6.17%	1.95%	8.24%	12.18%	38.75%
2015	67.75%	6.92%	2.23%	8.63%	9.76%	27.40%
2016	23.45%	2.63%	1.04%	5.51%	21.13%	53.85%
2017	25.66%	7.02%	2.59%	4.65%	21.50%	40.19%
2018	35.71%	-0.48%	-0.19%	3.43%	15.98%	37.82%
2019	37.21%	6.37%	2.49%	7.20%	17.46%	48.83%
2020	19.51%	-105.18%	-18.74%	-13.06%	38.33%	21.51%
<b>Average</b>	<b>55.12%</b>	<b>-6.38%</b>	<b>-0.57%</b>	<b>5.19%</b>	<b>15.20%</b>	<b>39.30%</b>

In Table 6 below, we can see the empirical results of the analysis concerning the financial ratios analysis for the sample companies coming from Greece. As it can be seen from Table 6 for Greek firms the *Sales/Assets*, *EBITDA/Assets*, and *Equity/Market value* ratio is significantly different from the average values of all sample firms.

More specifically, the sales/assets ratio presents immaterial variation from 2010 to 2019, but in 2020 there is a huge decrease, obviously due to the pandemic. The second ratio of *(Pretax income - taxes)/Equity*, shows medium variation from 2010 to 2019 and has negative values in all years except 2018. In 2020, there is a huge decrease as the most severe problems from the COVID-19 pandemic arise. The third ratio of *(Pretax income - taxes)/Assets* moves in the same direction as

the second ratio. The fourth ratio of *EBITDA/Assets* is positive for all years except 2012 and has shown a small variation in value from 2010 to 2019, except for 2020, when it was negative with a material decrease from 2019 due to the pandemic. The fifth ratio revealing the leverage of the sample companies shows that from 2018 to 2020 there is an upward trend, with the *Leverage* of the sample companies taking its largest value of 18.63% against a 14.21% average value. Finally, the last ratio of *Equity/Market value* that shows whether a company is overvalued or undervalued as compared to its book value shows on average a decreasing trend over the years of the research, indicating that Greek hotel companies over the years have become on average overvalued companies.

Table 6. Greece financial ratios

Year	Asset turnover ratio (Sales/Assets)	ROE (Pretax income - taxes)/Equity	ROA (Pretax income - taxes)/Assets	EBITDA ratio (EBITDA/Assets)	Leverage (Debt/Assets)	Book-to-market ratio (Equity/Market value)
2010	13.72%	-2.31%	-1.44%	1.99%	11.91%	88.77%
2011	13.72%	-4.41%	-2.73%	1.12%	12.75%	84.66%
2012	10.59%	-6.52%	-3.86%	-0.99%	15.62%	84.03%
2013	13.13%	-4.17%	-2.43%	0.61%	16.24%	69.70%
2014	17.37%	-2.98%	-1.77%	1.97%	14.21%	75.45%
2015	15.00%	-1.52%	-0.96%	2.44%	13.33%	92.40%
2016	13.38%	-2.65%	-1.73%	1.39%	12.76%	105.15%
2017	11.60%	-1.04%	-0.59%	1.98%	10.07%	46.46%
2018	13.03%	1.94%	1.07%	4.12%	14.78%	39.98%
2019	13.25%	-1.81%	-0.86%	3.60%	16.02%	29.83%
2020	4.37%	-11.31%	-5.83%	-2.58%	18.63%	21.37%
<b>Average</b>	<b>12.65%</b>	<b>-3.34%</b>	<b>-1.92%</b>	<b>1.42%</b>	<b>14.21%</b>	<b>67.07%</b>

In Table 7 below, we can see the empirical results of the analysis concerning the financial ratios analysis for the sample companies coming from Italy. As it can be seen from Table 7 for Italian firms the *EBITDA/Assets*, *Leverage* and *Equity/Market value* ratio is significantly different from the average values of all sample firms.

As it can be seen from Table 7, the *Sales/Assets* ratio presents immaterial variation from 2010 to 2019, but in 2020 and 2021 there is a huge decrease, obviously due to the pandemic. The second ratio of *(Pretax income - taxes)/Equity*, shows significant variation over the entire period, with a significant drop in values in 2019 due to the COVID-19

pandemic. As for the third ratio of *(Pretax income - taxes)/Equity* this ratio moves in the same direction as the second ratio. In 2020, the profitability of the Italian companies significantly decreased. The fourth ratio of *EBITDA/Assets* is positive for most of the years of the period. In 2020, there was a significant decrease, but in 2021 there was a recovery. Finally, the last ratio of *Equity/Market value* shows that Italian companies for the period 2010 to 2017 were undervalued maybe due to the financial crisis. In 2018 and 2019, this reversed and the companies were overvalued, but this did not last as, after the pandemic, the companies were undervalued again.

Table 7. Italy financial ratios

Year	Asset turnover ratio (Sales/Assets)	ROE (Pretax income - taxes)/Equity	ROA (Pretax income - taxes)/Assets	EBITDA ratio (EBITDA/Assets)	Leverage (Debt/Assets)	Book-to-market ratio (Equity/Market value)
2010	48.81%	-0.74%	-0.33%	4.52%	2.12%	177.94%
2011	45.92%	-6.37%	-2.93%	1.39%	2.60%	167.99%
2012	45.36%	-11.61%	-5.05%	-1.98%	12.18%	211.71%
2013	45.41%	-12.59%	-5.51%	-1.63%	11.07%	373.24%
2014	54.95%	-18.21%	-8.17%	-3.17%	17.45%	166.21%
2015	48.00%	-3.63%	-2.13%	2.07%	-	306.33%
2016	47.76%	1.44%	0.88%	5.08%	-	177.69%
2017	50.51%	0.68%	0.46%	4.77%	-	154.46%
2018	55.65%	1.86%	1.26%	5.40%	-	69.23%
2019	59.68%	-1.42%	-0.94%	3.02%	-	84.30%
2020	30.16%	-9.72%	-6.39%	-2.41%	-	113.96%
2021	30.83%	-2.27%	-1.51%	2.81%	-	121.90%
<b>Average</b>	<b>46.92%</b>	<b>-5.22%</b>	<b>-2.53%</b>	<b>1.66%</b>	<b>9.08%</b>	<b>177.08%</b>

In Table 8 below, we can see the empirical results of the analysis concerning the financial ratios analysis for the sample companies coming from Portugal. The most important finding is the very large *Equity/Market value* ratio as compared to the average of all sample firms and each country separately. The high *Equity/Market value* reveals that companies from this country are significantly overvalued.

As it can be seen from Table 8, the *Sales/Assets* ratio from 2015 and after has low values of about 0.50%, but in 2019 and 2020 the values were almost zero. The second ratio of *(Pretax income - taxes)/Equity*, began with deep negative values at the beginning of

the decade and has an increasing trend. This trend stopped in 2020 when the value decreased. A similar trend can be observed for the third ratio of *(Pretax income - taxes)/Assets*. The fourth ratio of *EBITDA/assets* is negative for all years. After 2014, the values are better than before, and the deviation is quite small. In 2020, there was a material decrease in its value. The fifth ratio revealing the *Leverage* of the sample companies shows that from 2012 and after, leverage levels are steady with insignificant changes. Finally, according to *Equity/Market value*, Portuguese hotel companies were deeply undervalued for the entire period.

Table 8. Portugal financial ratios

Year	Asset turnover ratio (Sales/Assets)	ROE (Pretax income - taxes)/Equity	ROA (Pretax income - taxes)/Assets	EBITDA ratio (EBITDA/Assets)	Leverage (Debt/Assets)	Book-to-market ratio (Equity/Market value)
2010	1.76%	-19.57%	-6.06%	-3.94%	54.42%	275.54%
2011	2.08%	-23.04%	-5.90%	-3.66%	59.87%	252.99%
2012	3.91%	-21.12%	-9.62%	-4.75%	23.74%	282.22%
2013	1.38%	-19.09%	-7.13%	-5.69%	27.75%	408.30%
2014	2.40%	-6.82%	-2.56%	-1.21%	27.82%	591.96%
2015	0.81%	-4.17%	-1.54%	-0.20%	29.79%	1671.79%
2016	0.27%	-4.66%	-1.68%	-0.28%	29.87%	3435.11%
2017	0.42%	-3.97%	-1.41%	-0.05%	28.99%	21552.86%
2018	0.59%	-4.67%	-1.66%	-0.38%	28.69%	4748.39%
2019	0.03%	-4.49%	-1.55%	-0.33%	28.67%	3876.49%
2020	0.02%	-6.14%	-2.03%	-0.80%	28.55%	2810.00%
<b>Average</b>	<b>1.24%</b>	<b>-10.70%</b>	<b>-3.74%</b>	<b>-1.94%</b>	<b>33.47%</b>	<b>3627.79%</b>

In Table 9 below, we can see the empirical results of the analysis concerning the financial ratios analysis for the sample companies coming from Turkey. The *(Pretax income - taxes)/Equity* ratio and the *(Pretax income - taxes)/Assets* ratio have on average negative values revealing that companies from Turkey had on average losses over the research period.

As it can be seen from Table 9, the *Sales/Assets* ratio presents a decrease for the entire decade, but in 2020 its value heavily dropped. The second ratio of *(Pretax income - taxes)/Equity*, shows significant variation from 2010 to 2019. In 2020, there is a huge decrease as the most severe problems from the COVID-19 pandemic arise. The third ratio of *(Pretax income - taxes)/Assets* moves in the same

direction as the second ratio. The profitability of companies has been significantly hit by COVID-19. The fourth ratio of *EBITDA/Assets* is positive for all years except 2020 and has shown a medium variation in value from 2010 to 2019. In 2020, due to the COVID-19 pandemic, there was a huge decrease and the value became negative. The fifth ratio revealing the *Leverage* of the sample companies shows that with some exceptions, the *Leverage* of the companies was about 20%-22%. In 2020, there was an increase of over 60%, probably due to liquidity problems arising from the pandemic. Lastly, *Equity/Market value* says that Turkish hotel companies were overvalued before 2013 and undervalued after 2013.



Table 9. Turkey financial ratios

Year	Asset turnover ratio (Sales/Assets)	ROE (Pretax income - taxes)/Equity	ROA (Pretax income - taxes)/Assets	EBITDA ratio (EBITDA/Assets)	Leverage (Debt/Assets)	Book-to-market ratio (Equity/Market value)
2010	20.78%	11.45%	4.91%	8.77%	20.33%	70.08%
2011	22.96%	5.22%	2.14%	5.66%	18.11%	58.56%
2012	21.91%	10.40%	3.93%	7.90%	23.33%	45.70%
2013	17.99%	6.27%	2.48%	6.75%	32.20%	94.19%
2014	18.56%	-4.32%	-1.76%	2.94%	21.99%	116.75%
2015	15.51%	-1.32%	-0.65%	4.56%	13.59%	117.20%
2016	13.98%	-12.78%	-4.38%	2.29%	18.16%	111.90%
2017	13.08%	4.96%	2.61%	8.39%	23.01%	240.41%
2018	12.49%	4.17%	2.14%	8.02%	24.10%	242.20%
2019	13.61%	-3.48%	-1.70%	4.37%	23.71%	330.26%
2020	6.77%	-25.34%	-9.92%	-4.20%	36.05%	146.71%
Average	16.15%	-0.44%	-0.02%	5.04%	23.14%	143.09%

In Table 10 below, we can see the empirical results of the analysis concerning the financial ratio analysis for the sample companies by country. As you can see, all countries except Turkey have a Sales/Assets ratio of more than 40%. All countries have negative (Pretax income - taxes)/Equity ratios

and (Pretax income - taxes)/Assets ratios, which shows that they had losses during the years of the research. All countries had almost the same EBITDA/Assets ratio. Companies from France and Turkey had the lowest Leverage, and companies from the UK had the highest Equity/Market value.

Table 10. Financial ratios by country

Country	Asset turnover ratio (Sales/Assets)	ROE (Pretax income - taxes)/Equity	ROA (Pretax income - taxes)/Assets	EBITDA ratio (EBITDA/Assets)	Leverage (Debt/Assets)	Book-to-market ratio (Equity/Market value)
Spain	47.08%	-9.98%	-0.19%	7.16%	34.77%	63.43%
France	55.12%	-638%	-0.57%	5.19%	15.20%	39.30%
Greece	44.01%	-14.54%	-1.18%	6.02%	35.72%	56.64%
Italy	44.01%	-14.54%	-1.18%	6.02%	35.72%	56.64%
Portugal	41.75%	-22.38%	-2.76%	4.28%	37.17%	54.73%
Turkey	16.15%	-0.44%	-0.02%	5.04%	23.14%	143.09%

Table 11 below shows the average Beta coefficient of sample firms by country over the years of the research. The trend for all countries as far as their systematic risk is concerned shows a reduction in the Beta coefficient as we move from 2010 to the middle years of the researched time period, and then we witness an increase in their Beta coefficients as we move towards 2022. This reveals the increase in terms of systematic risk arising from the COVID-19 pandemic.

The financial position of the hotel companies is concerned according to our empirical analysis it is evident that the sample firms suffer from decreasing total asset turnover of the sample companies. The (Pretax income - taxes)/Equity ratio, the (Pretax

income - taxes)/Assets ratio, and the EBITDA/Assets take their lowest values in 2020 as expected showing the effect of the COVID-19 pandemic on the financial position of the hotel companies. The third ratio of (Pretax income - taxes)/Assets had for some years positive values whereas for other years it had negative values, without showing any trend. The leverage ratio of the sample companies shows once again the problem that arises in the hotel industry in 2020 due to the COVID-19 pandemic, with the leverage of the sample companies taking its largest value of 47.15% against of 20.04% average value. Finally, it is evident from the analysis that hotel companies for the sample countries are on average overvalued companies.

Table 11. The average Beta coefficient by country

Year	Spain	France	Greece	Italy	Portugal	Turkey
	Avg. Beta	Avg. Beta	Avg. Beta	Avg. Beta	Avg. Beta	Avg. Beta
2010	1.7610	0.5986	0.3043	0.7035	0.1481	0.2248
2011	1.7942	0.5968	0.2190	0.5488	0.1783	0.1165
2012	1.7696	0.5801	0.1933	0.4487	0.9370	0.1269
2013	1.7435	0.5312	0.1797	0.2988	1.2419	0.2053
2014	1.4504	0.4581	0.0886	0.4672	1.6239	0.1392
2015	1.3158	0.4237	0.0500	0.5282	1.5503	0.1686
2016	1.1817	0.3317	0.0433	0.5389	1.5892	0.3005
2017	1.0270	0.2150	0.0600	0.6794	1.0135	0.2126
2018	0.8583	0.2488	0.1476	0.8338	1.1178	0.3117
2019	0.8447	0.3247	0.1588	0.5757	0.7020	0.2475
2020	1.1638	0.5188	0.2577	0.8346	0.9747	0.2917
2021	1.7119	0.6699	0.2640	1.1494	0.3349	0.4812
2022	1.7241	0.7016	0.1838	1.1346	-0.0520	0.5235

Table 12 below shows the average Beta coefficient for all countries and all years of the research.

The results from the empirical analysis of the systematic risk of the sample firms show that

hotels from Spain carry the highest systematic risk as compared to hotels from all other sample countries. The other interesting finding is that the Beta coefficient shows a reduction as we move from 2010 to the middle years of the researched

time period, and then it increases as we move towards 2022. This can be attributed to the revealed increase in terms of systematic risk arising from the COVID-19 pandemic.

The pattern is the same U-shape movement of the Beta coefficients from the first years of the empirical research towards the last years of the research, revealing the situation in the hotel industry after the effect of the pandemic on the systematic risk of sample companies.

**Table 12.** The average Beta coefficient of all samples

Year	All companies
	Avg. Beta
2010	0.5373
2011	0.4629
2012	0.4840
2013	0.4955
2014	0.4331
2015	0.4116
2016	0.4229
2017	0.3172
2018	0.3856
2019	0.3510
2020	0.4932
2021	0.6462
2022	0.6419

Statistical significance indicates the existence of an effect in a study, whereas practical significance indicates that the effect is large enough to be important in the actual world.

Statistical significance is denoted by p-values whereas practical significance is represented by effect sizes. There are dozens of effect size measurements. Pearson's  $r$  is one of the two most prevalent effect sizes.

Tables 13 to 18 also include Pearson's  $r$  for each accounting variable and Beta.

Table 13 below presents the results from the regression analysis between the Beta coefficient and the Sales/Assets ratio on a country level and an all-sample firm level.

The relationship between the two variables is negative both on a country level and on an all-sample firm level. However, the results are statistically significant only for France and Turkey. Also, according to Pearson's  $r$ , the Sales/Assets ratio has a significant impact on Beta variability in the majority of nations, particularly France and Turkey.

**Table 13.** Regression analysis: Beta, Sales/Assets

Country	$a_0$ coefficient (constant)	$a_1$ coefficient	$a_1$ t-statistic	$a_1$ t-statistic	$R^2$	Pearson's $r$
Spain	1.5563**	-0.3597 <sup>ns</sup>	3.6849	-0.4199	0.0173	-0.1316
France	0.2256*	0.3868*	3.1145	3.2395	0.5383	0.7337
Greece	0.1138*	-1.2242 <sup>ns</sup>	3.2596	-1.6340	0.2288	-0.4357
Italy	1.2298**	-1.2700 <sup>ns</sup>	3.7133	-1.8285	0.2506	-0.5005
Portugal	1.0956**	-7.1279 <sup>ns</sup>	4.6609	-0.5144	0.0286	-0.1689
Turkey	0.4669***	-1.5281***	10.3080	-5.4383	0.7473	-0.7801
All	0.4800***	-0.0601 <sup>ns</sup>	6.7255	-0.4018	0.0159	-0.1260

Table 14 below presents the results from the regression analysis between the Beta coefficient and the (Pretax income - taxes)/Equity ratio on a country level and an all-sample firm level. The relationship between the two variables is mixed since for some countries we have a positive

relationship whereas for other countries we have a negative relationship. However, the results are statistically significant only in the case of Portugal. Also, according to Pearson's  $r$ , the Sales/Assets ratio has a significant impact on beta variability in all countries except Spain.

**Table 14.** Regression analysis: Beta, (Pretax income-taxes)/Equity

Country	$a_0$ coefficient (constant)	$a_1$ coefficient	$a_1$ t-statistic	$a_1$ t-statistic	$R^2$	Pearson's $r$
Spain	1.3832***	-0.0318 <sup>ns</sup>	12.0377	-0.0685	0.0005	-0.0216
France	0.4329***	-0.0933 <sup>ns</sup>	9.7545	-0.6727	0.0479	-0.2187
Greece	0.1138***	-1.2242 <sup>ns</sup>	3.2596	-1.6340	0.2288	-0.4783
Italy	0.7189***	1.6299 <sup>ns</sup>	9.1259	1.6754	0.2192	0.4681
Portugal	1.4174***	3.8341*	6.3737	2.2692	0.3639	0.6032
Turkey	0.2118***	-0.3173 <sup>ns</sup>	10.9193	-1.6983	0.2427	-0.4926
All	0.4529***	-0.0144 <sup>ns</sup>	16.8444	-0.1329	0.0018	-0.0419

Table 15 below presents the results from the regression analysis between the Beta coefficient and the (Pretax income - taxes)/Assets ratio on a country level and an all-sample firm level. The relationship between the two variables is mixed since for some countries we have a positive

relationship whereas for other countries we have a negative relationship. However, the results are not statistically significant for all cases. Also, according to Pearson's  $r$ , the sales-to-assets ratio has a significant impact on beta variability in all countries.

**Table 15.** Regression analysis: Beta, (Pretax income-taxes)/Assets

Country	$a_0$ coefficient (constant)	$a_1$ coefficient	$a_1$ t-statistic	$a_1$ t-statistic	$R^2$	Pearson's $r$
Spain	1.3696***	-2.2347 <sup>ns</sup>	12.6783	-0.9426	0.0816	-0.2856
France	0.4356***	-0.5735 <sup>ns</sup>	10.0447	-0.7731	0.0623	-0.2495
Greece	0.1114*	-2.2561 <sup>ns</sup>	3.0539	-1.5990	0.2212	-0.4703
Italy	0.7005***	2.6336 <sup>ns</sup>	8.3855	1.2292	0.1313	0.3622
Portugal	1.2760***	7.1931 <sup>ns</sup>	5.1213	1.3424	0.1668	0.4084
Turkey	0.2131***	-0.7322 <sup>ns</sup>	10.7145	-1.5129	0.2028	-0.4502
All	0.4530***	-0.1614 <sup>ns</sup>	17.0473	-0.3021	0.0090	-0.0950

Table 16 below presents the results from the regression analysis between the beta coefficient and the *EBITDA/Assets* ratio on a country level and an all-sample firm level. The relationship between the two variables is mixed since for some countries we have a positive relationship whereas for other

countries we have a negative relationship. However, the results are not statistically significant for all cases. Also, according to Pearson's *r*, the *Sales/Assets* ratio has a significant impact on beta variability in all countries except France.

**Table 16.** Regression analysis: Beta, EBITDA/Assets

Country	$a_0$ coefficient (constant)	$a_1$ coefficient	$a_0$ t-statistic	$a_1$ t-statistic	R <sup>2</sup>	Pearson's <i>r</i>
Spain	1.5691***	-3.2497 <sup>ns</sup>	10.5743	-1.6593	0.2159	-0.4646
France	0.4344***	0.0852 <sup>ns</sup>	7.3931	0.1152	0.0015	0.0383
Greece	0.1805***	-1.8103 <sup>ns</sup>	5.5934	-1.2970	0.1575	-0.3968
Italy	0.5887***	2.7279 <sup>ns</sup>	8.2103	1.3172	0.1478	0.3845
Portugal	1.1991***	9.9259 <sup>ns</sup>	5.8669	1.3606	0.1706	0.4130
Turkey	0.2412***	-0.5554 <sup>ns</sup>	6.6112	-0.9439	0.0901	-0.3001
All	0.4611***	-0.1422 <sup>ns</sup>	11.2737	-0.2496	0.0062	-0.0786

Table 17 below presents the results from the regression analysis between the beta coefficient and the *Leverage* on a country level and an all-sample firm level. The relationship between the two variables is mixed since for some countries we have

a positive relationship whereas for other countries we have a negative relationship. However, the results are statistically significant only for Portugal. Also, according to Pearson's *r*, the sales-to-assets ratio has a significant impact on beta variability in all countries.

**Table 17.** Regression analysis: Beta, Leverage

Country	$a_0$ coefficient (constant)	$a_1$ coefficient	$a_0$ t-statistic	$a_1$ t-statistic	R <sup>2</sup>	Pearson's <i>r</i>
Spain	1.4530***	-0.2750 <sup>ns</sup>	10.5969	-0.8029	0.0606	-0.2460
France	0.5192***	-0.5286 <sup>ns</sup>	6.3405	-1.1398	0.1261	-0.3551
Greece	-0.0383 <sup>ns</sup>	1.3584 <sup>ns</sup>	-0.2348	1.1986	0.1377	0.3710
Italy	0.5695***	-1.0690*	10.5169	-2.9783	0.4701	-0.6856
Portugal	2.1225***	-3.3329**	6.6467	-3.6879	0.6018	-0.7757
Turkey	0.1225 <sup>ns</sup>	0.3920 <sup>ns</sup>	1.4834	1.1355	0.1253	0.3540
All	0.3933***	0.2693 <sup>ns</sup>	5.7915	0.9536	0.0834	0.2887

Table 18 below presents the results from the regression analysis between the beta coefficient and the *Equity/Market value* ratio on a country level and an all-sample firm level. The relationship between the two variables is mixed since for some countries we have a positive relationship whereas

for other countries we have a negative relationship. However, the results are not statistically significant for all cases. Also, according to Pearson's *r*, the *Sales/Assets* ratio has a significant impact on Beta variability in all countries except Portugal.

**Table 18.** Regression analysis: Beta, Equity/Market value

Country	$a_0$ coefficient (constant)	$a_1$ coefficient	$a_0$ t-statistic	$a_1$ t-statistic	R <sup>2</sup>	Pearson's <i>r</i>
Spain	1.0974**	0.3962 <sup>ns</sup>	4.4103	1.2710	0.1391	0.3729
France	0.3441 <sup>ns</sup>	0.2211 <sup>ns</sup>	1.8350	0.5201	0.0292	0.1708
Greece	0.1979*	-0.0644 <sup>ns</sup>	2.7050	-0.6352	0.0429	-0.2071
Italy	0.9310***	-0.1678*	7.7068	-2.7210	0.4254	-0.6522
Portugal	0.9851***	0.0006 <sup>ns</sup>	5.1819	0.2194	0.0053	0.0729
Turkey	0.1551**	0.0406 <sup>ns</sup>	4.1985	1.8334	0.2719	0.5214
All	0.5544***	-0.2037 <sup>ns</sup>	8.1619	-1.5881	0.2014	-0.4487

The degrees of freedom for each country's six regressions are displayed in Table 19. Each country's regressions have the same degrees of freedom.

**Table 19.** Regressions' degrees of freedom: Beta, Equity/Market value

Country	Regression	Residual	Total
Spain	1	10	11
France	1	9	10
Greece	1	9	10
Italy	1	10	11
Portugal	1	9	10
Turkey	1	9	10
All	1	10	11

Regarding ETR, Tables 20 and 21 present the average ETR and the average gap for each country per year over the period 2010-2021.

**Table 20.** The average ETR

Year	France	Greece	Italy	Spain	Turkey
2010	71.62%	20.79%	18.86%	14.20%	23.13%
2011	51.00%	20.79%	19.26%	17.83%	18.18%
2012	49.71%	20.18%	21.05%	21.43%	14.01%
2013	39.96%	62.67%	25.83%	30.09%	13.61%
2014	30.71%	37.12%	-	34.95%	10.54%
2015	29.86%	25.79%	-	43.48%	15.91%
2016	61.97%	26.08%	28.58%	24.13%	15.93%
2017	32.86%	22.41%	50.91%	32.87%	18.67%
2018	59.96%	25.40%	27.63%	29.42%	15.20%
2019	28.04%	22.15%	-	26.00%	31.11%
2020	-	21.43%	-	14.79%	14.69%
2021	-	-	14.22%	-	7.61%
Average	45.57%	27.71%	25.79%	26.29%	16.55%
STDEV	14.04%	11.45%	9.94%	8.25%	5.55%

Table 21. The average gap

Year	France	Greece	Italy	Spain	Turkey
2010	38.29%	-3.21%	-12.54%	-15.80%	3.13%
2011	17.67%	0.79%	-12.14%	-12.17%	-1.82%
2012	16.38%	0.18%	-10.35%	-8.57%	-5.99%
2013	6.63%	36.67%	-5.57%	0.09%	-6.39%
2014	-2.62%	11.12%	-	4.95%	-9.46%
2015	-3.47%	-3.21%	-	15.48%	-4.09%
2016	28.67%	-2.92%	-2.82%	-0.87%	-4.07%
2017	-0.47%	-6.59%	26.91%	7.87%	-1.33%
2018	26.96%	-3.60%	3.63%	4.42%	-6.80%
2019	-2.96%	-5.85%	-	1.00%	9.11%
2020	-	-2.57%	-	-10.21%	-7.31%
2021	-	-	-9.78%	-	-12.39%
Average	12.51%	1.89%	-2.83%	-1.25%	-3.95%
STDEV	13.83%	11.39%	11.64%	8.69%	5.29%

As we observe, hotel companies in France seem to be the most actually heavily taxed (46%), while on the other hand, companies in Turkey enjoy the most favorable taxation (17%). Companies in Greece, Spain, and Italy seem to have almost the same actual tax rate of around 26%. Also, deviations for each country over the years seem to be essential for France, Greece, and Italy and insignificant for Spain and Turkey. Firms in France, Greece, and Italy anticipate higher levels of uncertainty regarding their actual tax rates compared to companies in Spain and Turkey.

These results are in accordance with nominal tax rates as France has the higher tax rate (33%) while Turkey has the lowest (20%). It seems that the ETR is somehow positively correlated with GDP per capita. France with the highest GDP per capita has the highest ETR, and Turkey with the lowest GDP per capita has the lowest ETR. This makes sense as high-income countries target more high-income visitors and offer more cost-effective hotel services. As a result, the contribution margins for these companies are higher, and can afford higher expenses and taxes.

Regarding the gap, we see that the average gap for France is much higher compared to other countries. According to our findings, French companies tend to pay about 14% higher rates than the settled statutory rate. On the other hand, Turkish companies tend to avoid taxes and pay about 5% lower tax rates than statutory rates. Finally, Greece, Spain, and Italy seem to have eliminated this problem because companies pay almost the STR. The above results indicate that there is a gap between the nominal tax rate and the actual tax rate, which determines the firms' tax.

Regardless of whether the companies' gap is negative or positive, there is a variation between the years (represented by STDEV), which means that companies expected uncertainty regarding the tax rates. Companies must deal with actual tax rate

instability and fluctuations from one year to another. Companies can achieve a positive gap by making a significant effort. A positive gap can be achieved when companies hire tax experts who advise navigating the complex tax legal framework to achieve favorable tax rates. This effort requires a substantial financial investment and does not provide any guarantee of success.

## 5. CONCLUSION

Based on the result above, we can conclude that there is a significant deviation in the actual tax rates of the Mediterranean tax industry. The French hotel industry seems to be heavily taxed, while on the other hand, the Turkish hotel industry enjoys the most favorable taxation. As all hotel companies are competitors in the same region, offering about the same services, maybe local governments should keep this in mind and adjust their countries' taxation in order to eliminate the disadvantage of their local hotel industry. Also, we observe that there is a material deviation on gap that causes uncertainty about tax expenses. As this is a significant problem for hotel industry businessmen and investors and a barrier to attracting new investments in the hotel industry, maybe local governments should try to eliminate this phenomenon by passing relevant legislation (see Belesis et al., 2021, for a proposal).

We also see that the financial position of the hotel Mediterranean industry deteriorated in the last decade and was significantly hit by the COVID-19 pandemic. This led the industry to increase borrowing levels to anticipate these conditions. As the hotel industry is a key sector for all the companies in our sample, maybe local governments should try to support the sector through various measures such as low interest or interest-free loans, tax deductions, holiday allowances to citizens, etc.

Finally, we observe that systematic risk of the industry even though had a downturn at the beginning of the decade the effect of the COVID-19 pandemic led to the reversal of this trend making this sector a risky choice for investors.

There are two significant limitations to this study. First, this study focuses only on the Mediterranean hotel industry. Second, this study focuses only on listed companies in the industry, which are a minority in the sector.

However, these limitations also provide opportunities for further research in this area. Further research can be done for hotel sectors in other regions and also on research that focuses on private companies, which are the majority of the hotel sector.

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