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# Profitability determinants of hotel companies in selected Mediterranean countries

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## ABSTRACT

Tourism is one of the most important industries in the Mediterranean countries, which strongly contributes to the economic activity, capital investment and job creation. Therefore, the purpose of this paper is to examine the determinants influencing profitability of hotel companies in selected Mediterranean countries. Thereby, dynamic panel data models are estimated on an extensive dataset for the period from 2007 to 2015. The paper provides evidence on differences among internal profitability determinants of hotel companies operating in tourism competitive countries. The results indicate that the cash flow to operating revenue has a statistically significant and positive impact on profitability in all observed countries. The total asset turnover ratio is significant for all countries except Portugal, while labour productivity is significant only for Spain, which is also the country with the highest turnover per employee. The solvency ratio is positively related to profitability, except for Greece as the most indebted country. Size proved to be significant for hotels in Spain and Portugal, while age is the variable by which the countries mostly differ, as findings show a different impact of underlying variable on hotel profitability. Findings provide information to shareholders that would ensure profitability of hotel companies operating in different countries.

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## 1. Introduction

Tourism industry is among the worlds fastest growing industries which generates substantial economic benefits, contributes to employment and encourages investments and innovation in the host country. Since the mid-1980s, there have been significant changes affecting tourism demand and, consequently, the emergence of tourism production. The dynamics of the global tourism environment is influenced by external factors (globalisation, new technology, modernisation in transport and communications systems) as well as internal factors (new tourist demands and more flexible management) (Ramón Rodríguez, 2012). Tourists' spending can have significant

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multiplier effects on the host country through direct revenues from tourists (direct-multiplier effect), expenditure of direct income by their recipients to purchase the necessary goods (indirect-multiplier effect), and spending of direct and indirect revenues on unrelated goods and services (induced-multiplier effect) (Khan, Phang, & Toh, 1995).

According to the World Travel and Tourism Council (WTTC) (2017a,b,c,d), the total contribution of travel and tourism to GDP in 2016, including wider effects of investment, the supply chain and induced income impacts was 24.7% in Croatia, 18.6% in Greece, 16.6% in Portugal, and 14.2% in Spain, with a tendency to grow. Share of direct contribution of travel and tourism to GDP in 2016, which includes the economic activity generated exclusively by industries that are supported by tourists directly (hotels, airlines, travel agencies, etc.), was 10.7% in Croatia, 7.5% in Greece, 6.4% in Portugal, and 5.1% in Spain. Furthermore, in these countries, more than 85% of tourism spending was in leisure travel, while business travel had a smaller share. In addition, foreign visitors' spending had dominant position when compared to domestic travel spending in observed countries (Croatian Chamber of Economy, 2017).

When it comes to the contribution of travel and tourism in generating employment, in 2016 the travel and tourism activities indirectly supported 23.4% of total employment in Croatia (10% directly), while 29.9% of indirect contribution to employment was recorded in Greece (11.5% directly). The same activities indirectly supported 19.6% of total employment in Portugal (8.1% directly), while in Spain indirect travel and tourism activities account for 14.5% of total employment (4.7% directly). In Mediterranean countries, tourism has a large impact in attracting capital investments. The share of investment in travel and tourism in total national investment in 2017 was 11% in Croatia, 15.1% in Greece, 9.8% in Portugal, and 6.9% in Spain (World Travel and Tourism Council (WTTC), 2017a,b,c,d).

Considering that hotels are the most important tourist facilities as they are the drivers of investment, employment and innovation in tourism, the aim of this paper is to analyse the profitability of hotel companies in four Mediterranean countries: Croatia, Greece, Spain, and Portugal over the period from 2007 to 2015. The results are obtained using panel data analysis and are presented for each country separately in order to detect similarities and differences in profitability determinants of hotel companies.

The paper consists of six parts. After the introduction, in [Section 2](#), importance and structure of hotels and similar accommodation in selected Mediterranean countries is discussed. [Section 3](#) provides literature review through main profitability determinants of hotel companies, while [Section 4](#) describes data and methodology. [Section 5](#) elaborates empirical results and provides economic interpretations and implications. Finally, [Section 6](#) concludes and outlines the recommendations for further research.

## **2. Importance and structure of hotels and similar accommodation in selected Mediterranean countries**

The impact of tourism, especially hotel companies, as an essential segment in the selected Mediterranean countries, is observed through the number of tourist

accommodation providers and share of hotels and similar accommodation in the total accommodation. Furthermore, hotel size and statistics for hotels and similar accommodation is observed in order to determine their impact on the national economy.

In 2016, 34,665 of tourist establishments were recorded in Greece, 48,701 in Spain and 4,171 in Portugal. In the same year, the largest number of tourist establishments was registered in Croatia (83,233) due to a large share of holiday and other short-stay accommodation (around 93%) that can host a relatively small number of guests. Nevertheless, the share of hotels was relatively lower in Croatia compared to other countries (Eurostat, 2018b).

The development of the hotel industry is important for new job opportunities and stimulation of the local economy. Existence of a hotel company can improve the quality of life as well as reduce unemployment in local communities (Bohdanowicz & Zientara, 2009). Hotels are, among other things, different from other tourist accommodations since they can accommodate a larger number of guests due to a large number of rooms.

Smaller and medium-sized hotels and similar accommodation are predominant in the observed countries. Larger hotels with over 250 rooms in 2016 ranged from 1.95% in Greece, 3.47% in Spain and 7.81% in Croatia, while data for Portugal were not available (Eurostat, 2018b). Although Croatia has the highest share of large hotels in the total hotel accommodation, according to Eurostat (2018c), the share of hotels and similar accommodation in the total accommodation in 2016 (number of establishments) is significantly lower in Croatia (1.21%) compared to other countries (Greece 28.81%, Spain 40.09% and Portugal 58.43%). This deviation arises from the fact that the hotel sector in Croatia is highly concentrated, as only three hotel chains own almost 50% of all hotel capacities. In addition, mergers and acquisitions within hotel sector in Croatia is ongoing process that derives from the inherited model of the early privatization in the hotel industry. Furthermore, legal requirements and administration in Croatia are more restrictive for small family hotels compared to holiday and other short-stay accommodation, which resulted with lower share of hotels due to their higher costs and longer investment turnover period. Statistics for hotels and similar accommodation in 2015 are presented in [Table 1](#).

As expected, the highest absolute values are recorded in Spain and the lowest are in Croatia, while the relative values are spread between the same two countries. Spain has the highest turnover per person employed, gross value added per employee and share of personnel costs in production, while Croatia has the highest wage-adjusted labour productivity, gross operating rate, share of gross operating surplus in value added and the highest investment rates. Although, Croatia is the smallest observed country, it achieves relatively good results compared to other three countries. Notably, Croatia has the highest investment rate with the rapid growth in the last three available years (28.6% in 2013, 44.8% in 2014 and 64.2% in 2015) due to the significant growth of investments in hotel companies. The highest gross operating rate in hotels and similar accommodation is again recorded in Croatia (28.6%), although in the last three available years it has been decreasing due to reduction in gross operating surplus. The turnover per person employed in the last three available years is constantly growing in all four countries, but it is by far the highest in Spain.

**Table 1.** Statistics for hotels and similar accommodation in 2015.

	Greece	Spain	Croatia	Portugal
Turnover or gross premiums written - million euro	4,540.5	17,647.3	1,483.0	2,876.9
Production value - million euro	4,656.8	17,522.1	1,545.9	2,881.8
Value added at factor cost - million euro	2,525.3	9,219.9	821.4	1,367.7
Gross operating surplus - million euro	1,241.7	3,242.8	423.8	568.6
Turnover per person employed - thousand euro	53.9	78.8	54.3	56.0
Wage adjusted labour productivity (apparent labour productivity by average personnel costs) – percentage	184.9	149.9	203.9	164.0
Gross value added per employee - thousand euro	31.9	42.4	30.5	27.8
Share of personnel costs in production - percentage	27.6	34.1	25.6	27.7
Gross operating surplus/turnover (gross operating rate) – percentage	27.3	18.4	28.6	19.8
Share of gross operating surplus in value added – percentage	49.2	35.2	51.6	41.6
Investment rate (investment/value added at factors cost) – percentage	23.8	15.1	64.2	53.3

Source: Eurostat (2018a). Annual detailed enterprise statistics for services (NACE Rev. 2 H-N and S95) Retrieved March 6th, 2018 from <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do#>

On the other hand, wage-adjusted labour productivity is highest in Croatia due to the lowest average cost per personnel.

Average earnings before interest and tax (EBIT) in 2016 is presented according to observed country and size for hotels and similar accommodation collected from Amadeus Bureau van Dijk database (Table 2).<sup>1</sup>

Hotel companies in Spain are the most successful when it comes to average EBIT. Croatia has the highest share of very large companies in the hotel industry, while Greece has the highest share of large and medium-sized companies. On the other hand, Portugal has the highest share of small companies, but with the lowest average EBIT.

### 3. Literature review on profitability determinants of hotel companies

Profitability determinants in hotel companies have been studied from different perspectives and in different economies. These studies examined external determinants, as well as internal determinants and characteristics associated with the management policy in the hotel industry.

Some studies confirmed that external factors such as economic crisis, government policies, economic growth, political situation, terrorist attacks and other economic and non-economic factors influence performance and profitability of hotel companies. Agiomirgianakis, Magoutas, and Sfakianakis (2013) and Menicucci (2018) confirmed that economic crisis strongly and negatively affects the tourism sector. Hotel business is highly sensitive on economic turbulences as it lowers demand and prices for their services. After the global financial crises, hotels experienced decreased revenue per room, room occupancy and average daily rate (ADR) (KapiKi, 2012). Same authors address the negative effects of political crises on hotel profitability in Greece due to a

**Table 2.** Average earnings before interest and tax (EBIT) according to country and size for hotels and similar accommodation in 2016 (in thousands EUR).

	Very large		Large		Medium-sized		Small	
	%	EBIT	%	EBIT	%	EBIT	%	EBIT
Greece	0.6	1,047.63	11.0	1,682.28	56.1	154.24	32.2	14.73
Spain	0.6	40,321.38	6.8	2,459.72	39.0	3,057.94	53.6	53.66
Croatia	3.3	1,763.36	4.7	1,738.52	29.0	93.90	63.0	10.39
Portugal	0.2	5,582.22	5.8	1,195.77	28.8	166.97	65.2	2.03

Source: Calculated by authors according to Amadeus Bureau van Dijk database.

combination of economic and political crisis consequences. Ben Aissa and Goaid (2014) found that terrorist attacks strongly and negatively affected the Tunisian tourism. On the other hand, gross domestic product (GDP) growth positively affects the profitability in the tourism sector. Growth in GDP encourages hotels to undertake new investments, which can consequently improve their future profitability (Arikan, 2017; Malec & Ahrám, 2016; Tan, 2017).

Other studies analysed the impact of internal factors on hotel profitability, such as, size, age, financial structure, innovation, managers' education, location, etc. Agiomirgianakis, Magoutas, and Sfakianakis (2012) found that age, size and leverage have positive and significant effect on profitability of firms in the tourism sector. Besides confirming that crisis affects hotel profitability, Ben Aissa and Goaid (2014) found that hotel profitability is negatively influenced by hotel size and indebtedness level. On the other hand, higher level of managers' education have positive impact on financial performance of hotels. Arikan (2017) analysed hospitality firms from the U.S. and confirmed negative impact of firm size and leverage on profitability, while firm age and liquidity shown positive effect. Alarcón and Maspera (2015) investigated the differences in financial structure, size and profitability of hotels located in three main Spanish coastal areas: Costa Brava, Costa Dorada and Costa del Sol. They found that hotels in Costa del Sol are largest and most indebted and, accordingly, have higher interest payments that negatively affects their profitability. Marco-Lajara, Claver-Cortés, and Úbeda-García (2014) analysed effect of business agglomeration in tourist districts on the performance of hotels located in Spanish Mediterranean and Canary coast. They found that, due to the higher competition, hotels situated at destinations with a higher degree of agglomeration are less profitable.

Beside aforementioned approaches, in the last few decades, a new approach that address cross-cultural related issues emerged. Globalization, technology innovation and culture heritage influence travel preferences, habits and tourist behaviour. However, culture is not easy to explain or analyse as it can be observed from different hierarchy levels, such as, national culture, industry culture, occupational culture, corporate culture as well as organizational structure, managerial practices and work attitudes (Pizam, 1993). Most of cross-cultural studies deal with comparison between national cultures. Cultural differences (legal, economic, religion, etc.) should be taken into account when making tourism strategies and offers. For example, laws of a certain country may affect ownership structure, means of operation or size of a hotel company. In addition, different financial systems and economic structure can affect availability of capital necessary for investments (Chan, Cheung, & Law, 2012). This results in challenges and opportunities for tourism sector, which at the same time has

to adapt to consumer behaviour and needs that differ considering their cultural background. Analysing cultural differences helps to distinguish and understand which of them have the strongest impact. Most attention in cross-cultural tourist behaviour is focused on service quality that became a necessity to make touristic offers tailored to specific customers (Li, 2012).

This paper follows resource-based approach based on the research of Jovanovic (1982) and Wernerfelt (1984). According to this approach, fundamental determinants of performance and success of a certain company relies on its internal resources and unique capabilities. These characteristics include financial resources (sources of funding), natural resources (capitalization and size) and intangible resources (intellectual capital and innovation) (Agiomirgianakis et al., 2012, 2013).

In order to survive, companies have to continuously adapt to a turbulent business environment by developing different internal knowledge and skills, which affect their profitability. Internal determinants of profitability depend on the activities and management quality, quality of the organisational structure and human resources. The most common internal determinants include company size, level of indebtedness, labour productivity, research and development expenditure, profitability in previous years, level of investments, liquidity, and solvency (Škuflić & Mlinarić, 2015). The main characteristics of the hotel companies are high share of fixed costs in total costs and high capital costs. High capital costs require management that will lead to cost-effective use of resources. To benefit from the economy of scale, hotels are built to an optimal size (approximately 500 rooms). To achieve high levels of profitability, they must take into account room occupancy and room average daily rates (ADR) (Cheng, 2013; Kim, Cho, & Brymer, 2013). Hotel companies follow heterogeneous historical development paths and, as a result, generate different sets of skills and competences, which are expected to affect their performance more than the characteristics of the environment within which they operate. Since the aim of this paper is to explain the determinants of hotel profitability in selected Mediterranean countries, main internal predictors determining the profitability of the hotel companies are discussed.

**Return on Assets (ROA)** is often used as a measure of profitability, as it is an indicator of the company's ability to generate profit. Investors prefer companies with high ROA (Kang & Stulz, 1997). ROA is a commonly used measure of companies' profitability (Ben Aissa & Goaid, 2014; Maças Nunes, Serrasqueiro, & Sequeira, 2009; Škuflić & Mlinarić, 2015) and, in this paper, the ROA will be used as a dependent variable, i.e. proxy for hotel profitability.

The potential factors (predictors) affecting the profitability of hotels in the selected Mediterranean countries refer to company size, age, lagged profitability, cash flow in relation to operating revenues, labour productivity, asset turnover and solvency ratio. Regarding the impact of hotel *size* on profitability, empirical studies ambiguously explain how hotel size affects its profitability. According to several empirical studies (Agiomirgianakis et al., 2012; Barbosa & Louri, 2005; Claver-Cortés, Molina-Azorín, & Pereira-Moliner, 2007; Maças Nunes et al., 2009; Tan, 2017), large companies, due to economies of scale, achieve higher profitability levels compared to smaller ones. Larger companies also have cheaper access to funding, which positively affects their profitability (Agiomirgianakis et al., 2013). Additionally, large firms can make



substantial investments that smaller firms cannot afford (Baumol, 1959). They provide more services, have enough revenues to set-off their expenses and reduce their risk by diversifying loans (Moaveni, 2014). Although in most research, the size of the company has found to have a positive effect on hotel profitability, for some specific type of hotels like resorts or airport hotels, this effect is negative (PricewaterhouseCoopers, 2000). In this research, total sales is used as a measure of the hotel size which is in line with Hirschey (2008) and Škuflić and Mlinarić (2015). As we consider hotel companies, a positive effect of economies of scale is expected (Dwyer, Forsyth, & Dwyer, 2010; Enz, 2011).

There are many studies investigating the impact of hotel *age* on their profitability. Same as for the hotel size variable, these findings are also mixed. Several research suggested that hotel profitability increases with its age due to the impact of accumulated 'learning by doing', reputation and loyalty (Agiomirgianakis et al., 2012; Assaf & Cvelbar, 2011). However, there are studies that found a negative effect of hotel age on its profitability (Baum & Mezias, 1992; Ben Aissa & Goaid, 2014, Ben Aissa & Goaid, 2016; Chen, 2009; 2010; Škuflić & Mlinarić, 2015). Younger hotels are usually more modern and prone to implementation of new technologies and services with which they can easily attract more guests, especially those of higher purchase power. Due to the mixed impact of hotel age on hotel profitability, we do not have *a priori* expectation regarding this effect.

Relevant literature highlights the *return on assets from the previous period (lagged ROA)* as a necessary determinant, as it is expected that the profitability from the previous period affects the profitability in the current period (Maçãs Nunes et al., 2009; Schmidt, 2014; Stierwald, 2010; Škuflić & Mlinarić, 2015; Tan, 2017). According to the previous research, a positive relation is expected.

*Cash flow* is another factor for which a positive effect on hotel profitability is expected. Dimitrić, Tomas Žiković, and Matejčić (2018) and Muthusi (2014) found a positive and significant effect of cash flow on hotel profitability. Hotel companies with higher cash flow reserves have a higher level of security. This is particularly important in the recession period when a large number of companies have problems with claims collection. Cash flow is also related to the firms' profitability through its impact on the systematic risk. Logue and Merville (1972) and Scherrer and Mathison (1996) argue that there is a negative relationship between profitability and systematic risk and that the stability of the cash flow from operations reduces systematic risk.

The *solvency ratio* indicates the proportion of the assets financed by shareholders. Hotels with higher equity ratio have higher flexibility in accessing financing and better negotiating position in arranging credit terms due to a higher creditworthiness. This gives them greater security in times of crisis and lower risk of distress. Highly indebted firms bear higher financial risks compared to those with less borrowed capital as they have to compensate shareholders with higher profits (Tang & Jang, 2007). Increase in the debt level will increase the costs of borrowing (i.e. interest expenses) and will consequently lead to a decline in hotel profitability (Tan, 2017). Therefore, it is expected that hotels with higher solvency ratio will achieve higher return on asset.

Most research investigating the relationship between firm profitability and its productivity found a strong positive relationship between these determinants. Firms

that achieve higher levels of total productivity are more likely to earn higher profits. Studies like Jovanovic (1982) and Stierwald (2010) support this hypothesis by showing that more productive firms tend to be more profitable as they manage their costs better. In this paper, productivity is observed through **labour productivity** (operating revenue/number of employees) and **net asset turnover** that measures the productivity of assets (operating revenue/total assets). Labour productivity represents a basic indicator of the productive efficiency and the economic strength of any firm. It has a great economic importance in the hotel industry since tourism is one of the strategic branches in economic development in the Mediterranean countries (Avelini Holjevac, 2001). On the other hand, net asset turnover provides an information about the firms' ability to use its assets to generate revenues. It is expected that profitability will rise with asset utilisation growth (Pervan & Višić, 2012). In line with previous research that found productivity to be one of the key determinants that positively affects profitability, a positive impact of productivity is expected.

#### 4. Econometric analysis

The determinants of profitability based on the findings of the relevant literature are tested on hotel companies from four Mediterranean countries by using panel data analysis in the period from 2007 to 2015. In order to detect differences in profitability determinants, the analysis is carried out separately for hotel companies (public limited companies and private limited companies) operating in Croatia, Greece, Spain, and Portugal.

##### 4.1. Methodology

Given the fact that most economic variables exhibit dynamic behaviour, i.e. the current value of a variable depends on the previous values of the same variable, the analysis is performed by using dynamic panel models. Dynamic panel data models account for the dynamic nature of the relationships between economic variables by including lags of the dependent variable as explanatory variables. Thus, we employ the Generalized Method of Moments (GMM) developed by Arellano and Bond (1991), which is one of the most widely used methods in empirical research using firm-level data. GMM estimator solves the endogeneity problems that arise due to interrelations between dependent and explanatory variables by using lags of endogenous variables as instruments. In this manner, GMM estimator achieves unbiased and consistent parameter estimates. Linear dynamic panel data model, containing explanatory variables  $x_{it}$  as well as the lagged endogenous variable  $y_{i,t-1}$  can be shown by the following equation:

$$y_{it} = \mu + \gamma y_{i,t-1} + \beta_1 x_{it1} + \beta_2 x_{it2} + \dots + \beta_K x_{itK} + \alpha_i + \varepsilon_{it} ; i = 1, \dots, N, t = 1, \dots, T \quad (1)$$

where  $i = 1, \dots, N$  represents the index for individuals (hotel companies), and  $t = 1, \dots, T$  is the index for periods (years).  $y_{i,t}$  is dependent variable (return on asset – ROA of firm  $i$  in period  $t$ ), the parameter  $\mu$  is the constant,  $y_{i,t-1}$  is one-year lagged dependent variable with parameter  $\gamma$ , while  $x_{it1}, \dots, x_{itk}$  are the independent

variables (ratio between cash flow and operating revenue – *CFOR*, net asset turnover – *NAT*, productivity of employees – *PROD*, solvency ratio – *SOLV*, firm size – *Size*, and firm age – *Age*).  $K$  is the number of independent variables and  $\beta_1, \dots, \beta_K$  are the parameters of the exogenous variables. Furthermore,  $\alpha_i$  is the individual effect or specific error for each firm and the remaining part of the error term  $\varepsilon_{it} \sim N(0, \sigma_\varepsilon^2)$  is normally distributed. The model assumes that the error term is orthogonal to the exogenous variables  $E(x_{it}, \varepsilon_{it}) = 0$ , and uncorrelated with the lagged dependent variable  $E(x_{it}, \varepsilon_{it}) = 0$ . However, the introduction of the lagged dependent variable as one of the explanatory variables results in the correlation between the individual effects (part of the error term  $\alpha_i$  and  $y_{i,t-1}$ ). To prevent this bias resulting from the correlation between one of the regressors (lagged dependent variable) and the error term, Arellano and Bond proposed taking the first difference of the Equation (1):

$$y_{it} - y_{i,t-1} = \gamma(y_{it-1} - y_{i,t-2}) + \beta_1(x_{it1} - x_{it1-1}) + \beta_2(x_{it2} - x_{it1-1,2}) + \dots + \beta_K(x_{itK} - x_{it1-1,K}) + (\varepsilon_{it} - \varepsilon_{i,t-1}); \quad i = 1, \dots, N, \quad t = 1, \dots, T \quad (2)$$

The difference form of the above equation cancels the individual effects, but there is still correlation between the difference lagged dependent variable and the difference error term  $\varepsilon_{it} - \varepsilon_{i,t-1}$  through the presence of  $\varepsilon_{i,t-1}$ . This problem is solved by using instrumental variables that are expected to be highly correlated with the difference lagged dependent variable, while at the same time, they are expected to be uncorrelated with the difference error term. Therefore, valid instruments for the difference lagged dependent variable ( $y_{it-1} - y_{i,t-2}$ ) are lagged values of dependent variable in level ( $y_{it-2}, \dots, y_{i2}, y_{i1}$ ).

Furthermore, the two-step Arellano and Bond GMM estimator is used in estimating models. Although the two-step GMM estimator is asymptotically efficient and robust to heteroscedasticity and cross-correlation, there is a problem when dealing with small samples. Hence, in line with Windmeijer (2005), we estimate the two-step GMM models with corrected standard errors and t-tests that are as reliable as the ones based on the one-step procedure.

#### 4.2. Data and variables

This research provides empirical evidence on profitability determinants for a sample of hotel firms operating in four European countries. The financial ratios for all firms were obtained from the Amadeus Bureau van Dijk database that contains basic data, financial ratios and items from financial statements of firms operating in Europe. Data were collected for NACE 5510: Hotels and similar accommodation companies operating in Croatia, Greece, Spain, and Portugal for the period from 2007 to 2015. Beside data availability, the choice of countries is based on the importance of the tourism sector for the economy. Given that all countries are located in the Mediterranean area, there is a strong tourism competition between them, which makes them suitable for analysis and comparison.

**Table 3.** Sample structure for each country by firm size.

Firm size	Croatia	Greece	Spain	Portugal
Small	141	386	2,349	888
Medium	138	774	2,193	579
Large	56	154	439	107
Sum	335	1,314	4,981	1,574

Source: Authors' calculations based on data from Amadeus BvD database.

For each country, firms with no information on total assets, revenue and number of employees were excluded from the sample. As an additional requirement, firms with data available for at least five consecutive years are selected. This is due to the fact that at least four consecutive years are required in order to compute the second-order serial correlation test derived by Arellano and Bond (1991) and one year is lost due to the estimation of the model in first differences. Table 3 shows the structure of the sample for each country based on the firm size.

Among the potential impacts on the company's profitability, this paper focus is on internal determinants of profitability that primarily depend on the firm's capital structure, earning capacity, asset turnover, productivity of human resources size and age. Since we are interested in profitability determinants of firms operating in different countries, which fall under different tax jurisdictions, we consider return on asset before tax (ROA) as a measure of profitability. Cash flow to operating revenue (CFOR), net asset turnover (NAT), productivity of employees (PROD), solvency ratio (SOLR), firm size (Size) and company age (Age) are taken as explanatory variables. It is expected that profitable companies will have a higher share of cash flow in relation to revenues, as well as a higher turnover of total assets. Likewise, higher profitability is expected in companies with higher productivity of employees and a higher share of equity in total assets. Size is another variable for which a positive impact on the firm's profitability is assumed given the fact that larger companies have easier access to capital and can rely on economics of scale. In this manner, the natural logarithm of sales is used as a proxy for firm size. Finally, we consider the impact of the firm's age measured as the number of years since incorporation. Based on previous research, it is unclear what to expect considering the impact of age on the firm's profitability. On the one hand, profitability can decay as firms get older since they become inefficient as time goes by (Loderer & Waelchli, 2010). On the other hand, it is expected that older companies will be more profitable due to their reputation, long-term relationship with stakeholders and learning effects within the firm. Definitions of the variables considered in the model estimation are presented in Table 4.

## 5. Empirical results

Table 5 shows results of profitability determinants on a sample of hotel companies operating in Croatia, Greece, Spain, and Portugal. The two-step Arellano and Bond GMM estimator is used in all model specifications.

The results show that lagged dependent variable in each of the four presented specifications is statistically significant and positive. This implies that the previous

**Table 4.** Description of variables.

Variable	Definition
ROA	(EBIT/Total Asset) * 100
CFOR	(Cash flow/Operating revenue) * 100
NAT	Operating revenue/Total Asset
PROD	Operating revenue/Number of employees
SOLR	(Equity/Total Asset )*100
Size	Natural logarithm of sales
Age	Number of years since incorporation

Source: Amadeus BvD database.

**Table 5.** Profitability determinants of hotel companies (dependent variables ROA).

Country	Croatia	Greece	Spain	Portugal
ROA (dep.var)				
L.ROA	0.161 <sup>b</sup> (0.082)	0.584 <sup>a</sup> (0.154)	0.230 <sup>a</sup> (0.061)	0.131 <sup>a</sup> (0.025)
CFOR	0.236 <sup>a</sup> (0.053)	0.152 <sup>a</sup> (0.013)	0.372 <sup>a</sup> (0.015)	0.337 <sup>a</sup> (0.019)
NAT	11.289 <sup>a</sup> (3.352)	12.430 <sup>a</sup> (3.461)	1.076 <sup>b</sup> (0.524)	0.640 (0.911)
PROD	-0.004 (0.008)	0.0001 (0.001)	0.0005 <sup>c</sup> (0.0003)	-0.0001 (0.001)
SOLR	0.184 <sup>c</sup> (0.107)	0.013 (0.014)	0.164 <sup>a</sup> (0.015)	0.214 <sup>a</sup> (0.026)
Age	1.080 (1.339)	0.198 <sup>a</sup> (0.069)	-1.196 <sup>a</sup> (0.126)	-1.300 <sup>a</sup> (0.216)
Size	0.387 (2.751)	0.819 (0.761)	2.481 <sup>a</sup> (0.413)	3.540 <sup>a</sup> (0.879)
Nb. of firms	321	1,094	4,834	1,526
Nb. of observations	1,626	5,453	29,886	9,796
Hansen test ( <i>p</i> -value)	0.149	0.646	0.137	0.239
AR1 test ( <i>p</i> -value)	0.000	0.000	0.000	0.000
AR2 test ( <i>p</i> -value)	0.923	0.08	0.324	0.299

Note: a, b, c denote significance at the 1%, 5%, and 10% significance level. Numbers in parenthesis are robust standard errors. In all model specifications, dependent variables with maximum two lags are used for valid instruments. Models also include temporal dummy variables.

Source: Authors' calculations.

value of profitability positively affects the present value of profitability of hotel companies in all examined countries, which is in line with research of Maças Nunes et al. (2009) who concluded that the profitability of firms in Portugal is persistent. Stierwald (2010) also found that high earnings in the past provide an opportunity to earn high profits in the future. Finally, Tan (2017) and Škuflić and Mlinarić (2015) confirmed positive relationship between profitability in the previous and current periods in United Kingdom and Croatian hotels respectively. The cash flow to operating revenue has a statistically significant and positive impact on profitability at the significance level of 1%. This result is in line with findings of Dimitrić et al. (2018) and Muthusi (2014). Hence, it is possible to conclude that hotel companies with higher cash flow to operating revenue ratio have a higher level of cash reserves, which is of particular importance in the recession period when a large number of companies have a problem with collecting receivables. Furthermore, the net asset turnover ratio is significant for all countries except Portugal. This confirms that companies with higher asset turnover are more capable in using their asset to generate revenues and

consequently gain higher profits. This result corroborates the argument of Pervan and Višić (2012) that the firm profitability will increase parallel with the growth of asset utilization. However, labour productivity has not shown a significant impact on profitability, except in the case of hotel companies operating in Spain. This is not surprising considering the fact that Spain has the highest turnover per employee, as well as the highest gross value added per person.

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. This is in accordance with the findings of Tan (2017) and Maças Nunes et al. (2009), by which higher debt levels increase the cost of borrowing and consequently reduce firm profitability.

The size of the company measured by the volume of sales has a significant and positive impact on the profitability of hotels in Portugal, which implies that larger companies achieve higher profitability levels. Positive impact of size on hotel profitability in Portuguese service industries is confirmed by Maças Nunes et al. (2009). This is probably due to economics of scale and easier and cheaper access to funding, which positively affects profitability of larger companies. However, this variable did not prove significant considering hotel companies operating in Greece and Croatia.

When assessing the relationship between age and firm profitability, the results show that there are differences between 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. The result is in line with Agiomirgianakis et al. (2012) who confirm that impact of accumulated 'learning by doing' or 'incumbent' effect is present in Greek hotels. On the other hand, there is a negative impact of age on profitability regarding hotel companies operating in Spain and Portugal. Possible explanations for this result could be that younger hotels in these countries are usually more modern, prone to new technologies and services and can easily adapt to customers. Finally, the age variable did not prove to be significant for hotel companies providing accommodation services in Croatia, which is opposite to findings of Škuflić and Mlinarić (2015) who found a negative impact of age on hotel profitability. It can be concluded that age is the variable by which the countries mostly differ, as findings show a different impact of underlying variable on hotel profitability.

Each of the presented model specifications across countries has satisfactory diagnostic statistics. Validity of the chosen instruments is carried out using Hansen test for testing over-identification of the restrictions. The null hypothesis assumes that all chosen instrument variables are valid. According to model diagnostics, the Hansen test does not reject over-identification restrictions in any of the observed models. Furthermore, diagnostic tests AR(1) and AR(2) are used to test the existence of autocorrelation in the differenced residuals. The null hypothesis for AR(1) assumes the absence of the first-order autocorrelation in the differenced residuals, while the null hypothesis for AR(2) assumes the absence of second-order autocorrelation. Then, existence of the first-order autocorrelation is expected, while the existence of the second or higher order autocorrelation would imply that model estimates are

inconsistent. The last two rows in Table 5 show that the absence of the first-order serial correlation AR(1) is rejected at 1% significance level, while the null hypothesis on the absence of the second-order serial correlation AR(2) is not rejected.

Therefore, based on diagnostic tests, it is possible to confirm the reliability of the estimated models. The Hansen test confirms the validity of the instruments for all model specifications, while the AR(2) test confirms the absence of second-order autocorrelation in differenced residuals.

## 6. Concluding remarks

The research of profitability determinants in hotel companies is very important given the role the hotel industry has in the field of tourism, especially for predominantly tourism oriented Mediterranean countries. It sheds light on the specifics and differences among them, which may be interesting with regard to their development strategies and policies. Investments in the hotel industry, as well as revenues and profits that hotel companies generate, have been growing in the recent years, which imposes the need for their continuous monitoring and evaluation.

The contribution of this research arises from the comparative analysis of determinants influencing hotel profitability in four tourism competitive Mediterranean countries. For that purpose, extensive datasets of hotels and similar accommodation were collected across different countries. They contain the same set of explanatory variables, in order to examine similarities and differences in achieving profitability. Research findings indicate that there are differences in profitability determinants among hotel companies operating in different countries. Specifically, results show that the cash flow to operating revenue has a statistically significant and positive impact on profitability in all countries indicating that hotels with higher liquidity reserves and effective working capital management realize higher profitability levels. The total asset turnover ratio is significant for all countries except for Portugal, while labour productivity is significant only for Spain. This is in line with *a priori* expectations as Spain is the country with the highest gross value added per employee. It also has the highest average wage in the hotel and similar accommodation sector, which could have positive effects on motivation and job satisfaction. The solvency ratio is significant and positively related to hotel profitability, for all countries except for Greece, which is the most indebted country. Less indebted hotel companies have lower interest costs and lower risk of debt payment default. Such hotels have greater financial flexibility and better negotiation position when it comes to terms of financing, which consequently affects their profitability. Furthermore, results show that larger hotels achieve higher levels of profitability in Spain and Portugal. This might be due to their economics of scale, better organization and lower costs of financing. Finally, results reveal mixed impact of age depending on the observed country. Younger hotels in Spain and Portugal accomplish higher levels of profitability. This is possibly due to tourists who are prone to new technologies and modern design of hotels. However, there is an opposite situation in Greece where higher profitability is achieved in older hotels. As Greece suffered from sovereign and financial crises

during the observed period, it is likely that hotels with built reputation and liquidity reserves recorded earlier recovery of their profitability.

The research limitation arise from the lack of data for hotels and similar accommodation located in Turkey and North African countries that are competing for the same tourism market as observed countries. Additionally, due to a large sample of hotels and similar accommodation, some of explanatory variables could not be included in the model specification, e.g. management education, marketing expenditures, research and development costs, affiliation to hotel chains, social responsibility as well as quality and satisfaction variables. Therefore, future research should address variables such as managerial characteristics, investment in human capital, social responsibility, customer satisfaction and service quality. In addition, future research could consider the external variables related to macroeconomic conditions, monetary policies and effects of financial and political crisis.

Finally, this research provides valuable information for academics, investors, hotel managers, government and other stakeholders in designing tourism strategy that is of notable importance for countries whose economic growth is substantially supported with the income from tourism sector.

## Note

1. Classification of firm size according to Amadeus Bureau van Dijk database:

	Very large	Large	Medium-sized
Operating revenue	>= 100 million EUR	>= 10 million EUR	>= 1 million EUR
Total assets	>= 200 million EUR	>= 20 million EUR	>= 2 million EUR
Number of employees	>= 1,000	>= 150	>= 15

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