# Exploring the Intrinsic Factors Influencing Return on Assets: A Case Study of the Hotel Industry in Selected EU Countries

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| ARTICLE INFO | ABSTRACT |
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| | **Purpose**:<br>The main aim of this study was to determine the intrinsic factors (total equity, trade receivable turnover, working capital turnover, long term debt, current ratio, debt to total assets ratio, debt to equity ratio, net sales revenue trend, total operating revenue trend, shareholders' equity trend, cash to total assets, current liabilities to total liabilities) that influence the financial performance of the Hotel Industry in select Central and Eastern European Union countries. Return on Assets (ROA) was used in this study as measure of financial performance.<br>**Design/methodology/approach:**<br>The paper uses panel data fixed effects model to examine dependent variable ROA as measure of the financial performance of select Tourism and Leisure Industry companies from Central and Eastern EU member states. The intrinsic factors were applied as independent variables. The applied panel data fixed effects model in the study was utilised to determine the impact of the intrinsic factors on financial performance. The data were obtained from EMIS data base. Overall data encompassed 614 companies from select eight Central and Eastern EU member states for the period 2015-2022.<br>**Findings:**<br>The model performed in this study discovered that intrinsic factors including total equity, trade receivable turnover, current ratio, debt to total assets ratio, as well as cash to total assets had a significant impact on the ROA. Total equity, current ratio, cash to total assets have positive impact as opposed to the trade receivable turnover debt to total asset, while years 2020 and 2021 had negative impact on the ROA.<br>**Research limitations/implications:**<br>This study was limited just on the select eight central and eastern European Union countries; moreover, the database EMIS used for this study lacks certain variables that are frequently used in similar studies. Result confirmed the importance of intrinsic factors and their influence on the financial performance of the leisure industry.<br>**Originality/value:**<br>This study contributes to the existing body of theory on financial performance through research on the new practitioners' perception of the intrinsic factors relative to financial performance. There are very few empirical studies which examine financial performance variables in the Central and Eastern European leisure industry. Consequently, this study aims to bridge the gap between the available literature and body of research. |
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## 1. Introduction

The tourism and connected hotel industry stand widely acknowledged for their significant role in contributing to the economic prosperity of both developed and developing countries, asserting their prominence as some of the most financially rewarding sectors within the service industry. Robust academic studies emphasize the significant role of the tourism sector in driving economic growth and development. Positioned amongst the world's rapidly burgeoning industries, aside from the period during and post COVID-19, it stimulates notable economic advantages and facilitates job creation. In accordance with the World Trade and Tourism Council's (WTTC) economic report, the economic outcomes arising from the tourism and travel sector are evaluated through the lens of their contributions to global Gross Domestic Product (GDP) and workforce engagement. WTTC specified that in 2020, this sector accounted for

approximately 10.3% of the global GDP and supported 10.4% of the global labour force. Notably, during the 2016-2020 timeframe, this sector played a pivotal role in generating a substantial 25% of all employment opportunities worldwide (*World Travel and Tourism Council: Economic Impact 2020*, 2020). Nevertheless, it is essential to underscore the profound impact of the COVID-19 pandemic on this sector. Currently, WTTC statistics have witnessed a noticeable decline, with the industry's GDP contribution reduced to approximately 7.6% and the creation of 22 million new jobs (World Travel and Tourism Council: Economic Impact Report 2023 Global Trends, 2023).

Consequently, the tourism and travel sector, underscored by its core constituent, the hotel industry, assume a fundamental role in fostering the progression of tourism. In alignment with the body of academic research (Balaguer & Cantavella-Jordá, 2002; Brida et al., 2016; Perles-Ribes et al., 2017; Comerio & Strozzi, 2019) there exists a widely held perception of a bidirectional relationship between the growth of tourism demand and economic growth. This phenomenon is evident through the reduction in unemployment rates, the augmentation of capital within the economy, and the expansion of export activities.

Even though an extensive body of scholarly studies investigated hotel financial performance in developed countries, there exists a research gap concerning intrinsic variables affecting financial performance of hotel industry of Central and Eastern EU countries, with the available literature being limited to (Skuflic & Mlinaric, 2015; Dimitric et al., 2019; Karanovic et al., 2020; Doncheva & Stoyancheva, 2021). The author in this study empirically tests for the first time the influence of intrinsic variables total equity, trade receivable turnover, working capital turnover, long term debt, current ratio, debt to total ratio, debt to equity ratio, net sales revenue trend, total operating revenue trend, shareholders' equity trend, cash to total assets, current liabilities to total liabilities. Based on prior literature research diverse variables were used in similar studies. The EMIS database for select eight central and eastern EU countries was used, with additional limitations to the search imposed in the form of the a) minimum total assets being more than 1 million €, and b) the number of employers being more than 5, thus obtaining an overall sample of 614 hotel companies fulfilling the above criteria.

The study findings showed that the total equity, trade receivables turnover, liquidity, leverage, cash to total assets and years 2020 and 2021 influence hotel profitability.

The following structure is employed in the study. The study commences with an introductory section (1) and proceeds to section 2, which comprises a comprehensive literature review relating to financial performance within the hospitality industry, accompanied by the formulation of research hypotheses. Section 3 methodically presents the data sample and the application of the econometric model employed. In section 4 an extensive analysis of the empirical results unfolds. Finally, the study concludes with section 5, wherein concluding remarks are provided along with recommendations for potential avenues of future research.

## 2. Review of Literature

The financial performance of the hotel industry has been subject to in-depth examination in various studies (Sami & Mohamed, 2014; Ben Aissa & Goaied, 2016; Lucha et al., 2016; Menicucci, 2018; Prakash & Nauriyal, 2021; Soni et al., 2022). Scholarly discourse has accorded significant attention to the financial performance in various industries (Spanos et al., 2004; Mahajan et al., 2018; Lesáková et al., 2019; Tadic et al., 2019; Bhayani & Butalal, 2021; Mighty & Granco, 2021; Cardil et al., 2023) investigating extensively into its theoretical groundworks and diverse empirical dimensions. Within the sphere of hospitality industry performance studies, exhaustive investigations have been conducted to explore a variety of company intrinsic and extrinsic variables, that are recognized as principal drivers of profitability. These studies can be categorized into two primary approaches: the first primarily integrates financial data, while the second approach incorporates various intrinsic and other extrinsic variables. As an instance, these latter studies (Sami & Mohamed, 2014; Bresciani et al., 2015; Lado-Sestayo et al., 2017; Lado-Sestayo & Vivel-Búa, 2018, 2020; Menicucci, 2018; Lima Santos et al., 2020; Karhunen & Ledyaeva, 2021) include size, location, ownership structure, hotel affiliation, internationalization, first activity of the hotel, education (of the general manager and/or financial manager), population density, proximity to the airport, seasonality, number of stars, chain branding, occupancy rate etc. In their research Sami & Mohamed (2014) conclude that hotels affiliated within international chains or franchises, and this is in line with the study carried by (Karhunen & Ledyaeva, 2021). In addition, Sami & Mohamed (2014) state that hotels strategically located in coastal or attractive area, demonstrate superior financial performance compared to standalone hotels. They employed Return on Assets as measure of profitability. Furthermore, their study confirmed that higher education level of education among general and financial experts have significant and positive impact to the hotel profitability. In the empirical analysis of determinants of performance in the Italian hotel industry Bresciani et al. (2015) verified only category (stars) as significant to the hotel performance. In their analysis as measure performance was used revenue per available room (RevPAR). Similar measure of financial performance and total net revenue per available room (TRevPAR) was employed in the study of Spanish hotels performed by (Lado-Sestayo et al., 2017). The study affirmed that several factors significantly influence hotel performance. These factors encompass hotel location, including its proximity to the central business district – CBD and transport nodes as well its positioning relative to the competitors. Moreover, the hotel size was identified as an important factor impacting profitability, with noteworthy findings revealing a U-shaped relationship. Furthermore, effective management practice, particularly in terms of good asset management were found to exert a positive influence on a hotel performance. The same measure total – net revenue per available room (TRevPAR) – for hotel

performance at Portugal hotel was used by (Lima Santos et al., 2020). Their results reveal that number of stars, location (districts Lisbon, Funchal and Braganca) as well and room size matter. On the other hand in other study of authors Lado-Sestayo & Vivel-Búa (2018) employed return on assets (ROA) and return on equity (ROE) as a measure of the profitability with application of least squares path modelling (PLS). Independent variables used to measure hotel profitability were number of rooms, liquidity, leverage, distance from central business district and nearest airports, density of the location, market share, occupancy rate, seasonality. The findings of this study pointed out that both characteristic of the hotel and the attributed of the tourist destination concurrently influence hotel performance. Similar results were obtain by same authors (Lado-Sestayo & Vivel-Búa, 2020) but in this study they applied multi-layered neural network method that included a lag of profitability as the input and other input variables are related to hotel and tourist destinations like size, efficiency, market and demand share, seasonality, distance to transport nodes, competition, agglomeration or urbanization. The original finding of this study was linked to the conclusion that ICT capabilities and competencies can help a hotel create a competitive advantage. Menicucci (2018) conducted an extensive examination of the factors affecting the Italian hospitality industry. Her research encompassed a wide array of profitability metrics, including return on equity (ROE), return on assets (ROA), occupancy rate and gross operating profit per available room. Study conclusion is in the line with previous studies results, proving that financial crises, the business model and ownership structure affect the profitability of hotel firms. Specifically, findings suggest that factors such as size, international presence, strategic location, accommodation as first activity and chain hotels have positive influence on profitability.

On the other side studies exist that were performed only with financial and performance ratios. Chambers & Cifter (2022) used ROA and ROE as profitability measures, while sales, debt, size, GDP, cash, and working capital were applied for other independent variables. In the study (Dimitric et al., 2019) authors used the same indicator as profitability measure ROA, while cash flow to operating revenue (CFOR), net asset turnover (NAT), productivity of employees (PROD), solvency ratio (SOLR), firm size (Size) and company age (Age) were taken as exploratory variables. In study (Soni et al., 2022) was investing liquidity, net asset turnover (NAT), foreign earnings intensity (FXINT), proprietary ratio (PROP), firm size (SIZE), and firm age (AGE) and their impact on firms' return on assets (ROA). They obtained liquidity and size to be significant and had positive impact to ROA. Similarly, well-accepted financial variables such as current liability debt, financial stability, size, growth, sale growth, EBIT and their impact on the ROA and ROE were tested in study (Kalas et al., 2019). These authors utilised multivariate analysis of variance along with multiple regression models, both of which validated that current liquidity and debt have significant impact on profitability measured by ROA, in contrast to the result for ROE, which were not statistically significant. This study is established on existing research disclosing just financial ratios, incorporating and expanding prior variables. The main hypothesis, built upon the foundation of previous research, has been articulated as:

$H_0$: *There is significant impact of selected intrinsic factors on the hotel industry profitability.*

## 3. Dataset and methodology

### 3.1 Dataset and sample selection
In order to investigate the intrinsic determinants of hotel profitability an unbalanced panel data of 614 select hotel companies from eight Central and Eastern European Union member states was performed, covering the period 2015-2022. The dataset was extracted from the EMIS database with the following limitations within the query: the minimum total assets were more than 3 mill. €, the number of employees was higher than 5, the total equity was more than 500.000 €. Furthermore, limitations were imposed based on industry classification; only companies that have NAICS industry description "Hotels (except Casino Hotels) and Motels (72111)" were considered for inclusion. Initially, the database covered 913 companies. However, companies with operational status "closed" and "in liquidation" as well as those with substantial gaps in their data for the majority of the observed period, were excluded from the sample. The countries included in this study are European Union central and eastern countries Slovenia, Croatia, Hungary, Slovakia, Czech Republic, Poland, Romania and Bulgaria. For the purpose of creating a comparative analysis and measuring the contribution of total tourism to GDP, data for the years 2019 and 2022 is provided for eight selected counties as follows: Croatia (25,6% in 2019 and 25,8% in 2022), Slovenia (10,8% 2019 vs 9,2% in 2022), Hungary (8,3% and 6,6% in 2022), Bulgaria (9,9% in 2019 vs 6,5 in 2022), Romania (6% in 2019 and 5,5% in 2022), Slovakia (6,3% and 4,6% in 2022), Czech Republic (6,2% in 2019 and 4% in 2022) and Poland (4,8% in 2019 vs 4% 2022) (Statista, 2023). It's important to note that the impact of the COVID-19 has resulted in a noticeable decrease in the tourism to GDP ratio, compared to the pre-pandemic period.

### 3.2 Methodology
For this study the author followed the methodology applied in the studies (Mahajan et al., 2018; Dakic & Mijic, 2020; Bhayani & Butalal, 2021). Considering the panel data acquired, the model incorporated the intrinsic variables, allowing for the impact of these factors on hotel profitability performance to be assessed, as measured by ROA. Since the proposed model has a considerably high number of predictors in those cases according to the (Baltagi, 2005), panel

data was used, thus providing more variability and less collinearity among observed predictors. Therefore, the following panel regression test is performed:

$$ROA_{it} = \beta_0 + \beta_1 TE_{it} + \beta_2 TRT_{it} + \beta_3 WCT_{it} + \beta_4 LTD_{it} + \beta_5 CR_{it} + \beta_6 DTAR_{it} + \beta_7 DER_{it} + \beta_8 NSRT_{it}$$
$$+ \beta_9 TORT_{it} + \beta_{10} SET_{it} + \beta_{11} CTA_{it} + \beta_{12} CLTL_{it} + \xi_1 \quad (1)$$

Where the $_i$ is as subscript for observation 614 companies (i = 1,…,614), and t is for time (t = 1,…,8). The variables in the models are described as follows:

TE - Total equity
ROA - Return on Assets (ROA) (%)
TRT - Trade Receivable Turnover (x)
WCT - Working Capital Turnover (x)
LTD - Long term Debt
CR - Current Ratio (x)
DTAR - Debt to Total Assets Ratio (%)
DER - Debt to Equity Ratio (%)
NSRT - Net Sales Revenue Trend (%)
TORT - Total Operating Revenue Trend (%)
SET - Shareholders' Equity Trend (%)
CTA - Cash to Total Assets (%)
CLTL - Current Liabilities to Total Liabilities (%)

## 4. Results
The empirical findings and interpretations of the study are presented in this section. Descriptive statistics are presented in the table (1) below:

**Table 1: Descriptive statistics**

| Number of observations=2744 | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|
| ROA | 4.82 | 11.48 | -89.11 | 119.78 |
| TE | 3484.96 | 2501.47 | -6238 | 22739 |
| TRT | -2020.41 | 111640.3 | -5847388 | 71321.44 |
| WCT | 2.70 | 146.75 | -2748.76 | 4878.49 |
| LTD | 1588.96 | 4228.74 | -3.42 | 63822.52 |
| CR | 5.23 | 27.14 | -8.75 | 722.76 |
| DTAR | 17.13 | 22.54 | -.09 | 163.66 |
| DER | 109.55 | 1673.47 | -5013.43 | 81537.82 |
| NSRT | 354776.3 | 1.86e+07 | -153577.1 | 9.73e+08 |
| TORT | 17733.21 | 921632.2 | -272421.3 | 4.83e+07 |
| SET | 80.47 | 2339.04 | -9361.12 | 113049.1 |
| CTA | 8.81 | 13.61 | -28.25 | 97.17 |
| CLTL | 91.37 | 2055.94 | -.11 | 107733 |

ROA of the observed companies sample in period 2015-2022 averaged 4,82% with the minimum of -89,11 up to 119,78 at the maximum. It needs to be highlighted that during the period from 2020 to 2022, the entire sector was profoundly affected by COVID-19, resulting in an overall decrease in ROA. The something inferior mean results of the hotel industry can be linked to the pandemic and post-pandemic impact. Total equity of the hotel industry designates it as capital intensive industry with the average 3484,96 with range -6238 up to 22739. Average trade receivables turnover (TRT) with average negative -2020,41, with minimum of 5847388 and maximum 71321,44 indicating inefficient collection process of the whole industry. Unlike the TRT, the working capital turnover (WCT) is optimal and in average is 2,70 with the min-max range -2748,76-4878,48. Ratios that are positive are the following: cash ratio (CR) with the average 5,23 what is higher 5 times than usual results for hotels (see Macrotrends.net for more) and TORT total operating revenue trend has positive score in average totals 17733,21, as well as net seals revenue trend (NSRT) with the average 3454776,3. Current liabilities in total liabilities are exceeding 90% what is indicating that industry was huge short term liabilities share in total.

In multiple regression analysis, the variance inflation factor (VIF) is frequently applied as indicator of multicolinearity. Acceptable level of VIF is ten and is recommended as the maximum appropriate level of acceptance. As evident in the table 2 results of VIF tested, there is no present collinearity given that all results are lower than 10.

| Variable | VIF | 1/VIF |
|---|---|---|
| TE | 1.07 | 0.932296 |
| TRT | 1.02 | 0.982158 |
| WCT | 1 | 0.99764 |
| LTD | 1.78 | 0.561105 |
| CR | 1.03 | 0.969859 |
| DTAR | 1.83 | 0.546678 |
| DER | 1.03 | 0.972714 |
| NSRT | 1.01 | 0.986703 |
| TORT | 1.01 | 0.991477 |
| SET | 1.01 | 0.993596 |
| CTA | 1.11 | 0.903679 |
| CLTL | 1 | 0.997757 |
| year | | |
| 2015 | 1.96 | 0.510765 |
| 2016 | 1.36 | 0.735558 |
| 2017 | 1.84 | 0.543989 |
| 2018 | 4.13 | 0.242294 |
| 2019 | 4.55 | 0.219821 |
| 2020 | 4.43 | 0.225833 |
| 2021 | 4.34 | 0.230288 |
| 2022 | 3.95 | 0.253332 |
| Mean VIF | 2.02 | |

After that, the model was tested with the Breusch and Pagan Lagrangian multiplier test for random effects $X^2$ (1, N = 2744) = 518.24, p< 0,001, with the conclusion that random effects is more suitable than pooled OLS. Next, joint F test was performed for fixed effects where F (613, 2110) = 4.13, p<0.001 indicating that fixed effects is suitable than pooled OLS. After that, Hausman's specification test was applied for a choice between a fixed effect (FE) and a random effect (RE) model.

Hausman test based on disturbance variance estimate from efficient estimator i
$$X^2 (13) = 65,48, p< 0,001 \quad (2)$$

Hausman test based on disturbance variance estimate from consistent estimator
$$X^2 (13) = 65,67, p< 0,001 \quad (3)$$

Indicating that fixed effect model is more suitable for the selected panel data then random effect model. Additionally, test of overidentifying restrictions: fixed vs random effects – Sargan-Hansen statistics was performed, also indicating that fixed effect is more suitable than random effects: $X^2$ (20) = 85,377, p< 0,001 (5)

Further, joint tests of significance for year variables were implemented where the results, F (8, 2110) = 50.38, p<0.001, indicated that years should be included in original model. Based on previous stated results for fixed effects model are presented in table 3.

Table 3: Result from fixed effects model

| ROA | Coef. | Std. Err. | t | P>\|t\| |
|---|---|---|---|---|
| TE | 0,00087*** | 0,000143 | 6,06 | 0,000 |
| TRT | -6,93e-06*** | 1,56e-06 | -4,44 | 0,000 |
| WCT | 0,00113 | 0,00120 | 0,94 | 0,346 |
| LTD | 0,00024 | 0,000146 | 1,63 | 0,103 |
| CR | 0,0457*** | 0,00861 | 5,31 | 0,000 |
| DTAR | -0,103*** | 0,0226 | -4,54 | 0,000 |
| DER | 4,16e-05 | 0,000104 | 0,40 | 0,689 |
| NSRT | -3,17e-09 | 9,37e-09 | -0,34 | 0,735 |
| TORT | -1,18e-07 | 1,81e-07 | -0,65 | 0,514 |
| SET | 0,00011 | 7,50e-05 | 1,43 | 0,152 |
| CTA | 0,238*** | 0,0238 | 10,03 | 0,000 |
| CLTL | -1,53e-05 | 8,24e-05 | -0,19 | 0,853 |

| year | | | | |
|---|---|---|---|---|
| 2015 year | 0,125 | 1,093 | 0,11 | 0,909 |
| 2016 year | 0,200 | 1,526 | 0,13 | 0,896 |
| 2017 year | -0,703 | 1,170 | -0,60 | 0,548 |
| 2018 year | 0,422 | 0,918 | 0,46 | 0,646 |
| 2019 year | 0,588 | 0,909 | 0,65 | 0,517 |
| 2020 year | -7,279*** | 0,908 | -8,02 | 0,000 |
| 2021 year | -1,716* | 0,922 | -1,86 | 0,063 |
| 2022 year | 2,343** | 0,950 | 2,47 | 0,014 |
| Cons | 1,935405 | 1,026242 | 1,890 | 0,059 |
| sigma_u | 9.780 | | | |
| sigma_e | 7.930 | | | |
| rho | 0.603 | | | |

| Number of observations = 2,744 | R-sq | | |
|---|---|---|---|
| Number of groups = 614 | | Within | = 0,2701 |
| | | Between | = 0,066 |
| | | Overall | = 0,1460 |

It is observed that the variables total equity, trade receivables turnover, current ratio, debt to total assets ratio, cash to total assets and years 2020 and 2021 are significant. Total equity, current ratio, cash to total assets have a positive and significant impact on the return on assets, whereas trade receivables turnover debt on total assets ratio, and years 2020 and 2021 have negative impact and are inversely related to the observed dependent variable. The total equity presents the ability of the company for exercising leverage, additionally the positive perception of the company in the market and it has positive impact to the ROA of the hotel industry. The current ratio also reveals positive impact to ROA as well as cash to total assets. The negative impact has trade receivable turnover indicating and debt to total assets ratio what presents logical connection. As leverage is raising the risk premium is rising and, respectively, the cost of capital. Years 2020 and 2021 had a negative and significant impact, which is connected to the COVID period.

## 5. Conclusion and Recommendations

This study addressed the analysis of the intrinsic factors of hotel industry financial performance of the eight selected Central and Eastern European Union member states, with the specific focus on the significance of the return of assets (ROA) as measure of profitability. This analysis involved a sample of 614 hotel companies from Croatia, Slovenia, Hungary, Slovakia, Czech Republic, Poland, Romania and Bulgaria over the period of 2015-2022. The findings provide novel insight into the Central and Eastern European countries' hospitality industry underlining the importance of the intrinsic factors when assessing financial performance of the hotels. Only few studies have investigated the variables of hotel industry of select central and eastern counties; therefore, this paper attempts to bridge this gap.

The analytical approach undertaken in this study encompassed the use of panel data fixed effects model. Results obtained in the analysis suggest that total equity, current ratio, and cash to total assets have a positive impact on the return on assets of the hotel industry, while trade receivables turnover debt to total assets ratio, and years 2020 and 2021 have negative influence on ROA. Considering the preceding contributions in the literature and comparing the collected data to them, this study yields the following conclusions. The COVID-19 negative impact on the profitability performance is undisputable and it is in line with numerous previous studies. The hotel industry in the selected countries has effective working capital management notable through current ratio and working capital turnover. Moreover, total equity results imply higher total equity has positive ROA, and it is in line with previous literature. On the contrary, the higher leverage indicates lower ROA, which was expected due to the risk premium i.e. risk of debt payment default. Hotel companies with higher leverage can affect the financial options and negotiation position in terms of financial resources and arrangements, consequently exerting an influence on its overall profitability.

The research limitations arise from the lack of data on extrinsic variables as well as intrinsic variables of business model (location, chain/franchise, education etc.). Also, this study was limited just on a narrow geographic area - the select eight Central and Eastern European Union member states – thus, for future research it is recommended that all EU countries should be included in the sample. Additionally, for future research it is suggested to include extrinsic variables such as GDP, inflation, monetary policy etc. as well as other intrinsic variables (stated above).

This research provides valuable information for both academics and hotel owners and managers as it addresses the management of financial performance in the hotel industry, and as such, delivers valuable evidence for everyone concerned.

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