SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2025
ORGANIZATION AND MANAGEMENT SERIES NO. 225

PROFITABILITY OF HOTEL ENTERPRISES OF THE VISEGRAD GROUP (V4) COUNTRIES IN THE CONTEXT OF THE WAR IN UKRAINE

Iwona FRANCZAK[1], Daniel BAKOTA[2*]

[1] University of Economics in Katowice; iwona.franczak@uekat.pl, ORCID: 0000-0002-4936-5225
[2] Jan Dlugosz University in Czestochowa; d.bakota@ujd.edu.pl, ORCID: 0000-0002-5056-1928
* Correspondence author

Purpose: The main aim of the article is determine the impact of selected economic and non-economic factors on the profitability of hotel enterprises in the V4 Group countries.
Design/methodology/approach: Hypothesis verification procedures based on the non-parametric Kruskal-Wallis test and panel data regression models were selected from among the available research methods. The study adopted the dependent variable defined by net return on assets and used data for 697 hotel enterprises. The research sample includes annual economic data for the years 2019-2023.
Findings: The analysis has showed that the economic variables affecting profitability are GDP and the inflation rate. These variables behaved as expected, namely the research confirmed the positive impact of economic growth and the negative impact of high inflation in the economy. In turn, among non-economic factors, the significant variables turned out to be the variable regarding the occurrence of the SARS-CoV-2 coronavirus pandemic, which was also in line with expectations, while it is worth noting that the invasion of Ukraine by the Russian Federation had a positive impact on hotel enterprises in the V4 Group countries.
Research limitations: The results achieved in the work can be treated as an incentive for further action, in a much broader scope. However, the limitations of the study should be taken into consideration, such as the size of the sample resulting from the annual and complete financial statements only and the adopted research methodology.
Practical and social implications: This research deepen the knowledge of hotel decision-makers on how to identify key factors influencing hotel profitability or understand non-financial factors that can increase the resilience of companies to shocks such as a pandemic or a war in the region.
Orginality: Many hotels in the V4 Group countries, after the outbreak of the war in February 2022, have been rented by governments, local governments and international organizations for the purpose of temporary accommodation of refugees. The adaptation hotels to the challenges of migration due to the war has shown the importance of flexibility and the ability of companies to quickly attract external resources to support new customer segments in crisis conditions.
Keywords: Visegrad Group (V4), profitability, hotels, economic and non-economic determinants, war in Ukraine.
Category of the paper: Research paper.

1. Introduction

Cooperation between Poland, Czechoslovakia (since 1 January 1993 the Czech Republic and Slovakia) and Hungary was formally established by a declaration signed on February 15, 1991 – at the Hungarian castle in Visegrad – by two presidents Lech Wałęsa (Poland) and Václav Havel (Czechoslovakia) as well as Prime Minister József Antall (Hungary). Initially, it was a cooperation within the so-called Visegrad Triangle, and since 1993 – Visegrad Group (V4) (Kubin, 2014; Kuźnar, 2017; Krzymowski, 2021). In 2004, Poland, the Czech Republic, Slovakia and Hungary joined the European Union (Fiszer, 2018; Bieszk-Stolorz, Dmytrów, 2020), and since 2007 all four countries have been part of the Schengen area.

The V4 Group includes the International Visegrad Fund, which was established in June 2000 on the basis of a joint decision of the Prime Ministers of the Czech Republic, Polish, Slovakia and Hungary. The purpose of this fund is to promote and encourage closer cooperation between the V4 countries by financially supporting joint projects (including in the field of tourism promotion). Cooperation in the field of tourism was initiated on 4 April 2002 in Visegrad by the Hungarian side and is continuous. Every year, meetings are held between ministers responsible for tourism and the presidents of national tourism organisations from the Czech Republic, Poland, Slovakia and Hungary. The effects of the cooperation to date include, m.in, the creation of the Discover Central Europe web portal, the preparation of promotional materials, joint participation and exhibitions at tourism fairs, as well as the preparation of joint tourist products that are promoted in third countries (Żemła, Ziółkowska-Weiss, 2017).

The location of the V4 countries contributed to the development of both multiculturalism and the unique cultural heritage of this region (Tracz, Bajgier-Kowalska, 2020). In 2023, a total of 50 objects from the V4 countries were included in the UNESCO World Heritage List. Cultural objects dominate among them. Poland and the Czech Republic have the most objects entered in the above list (17 each), followed by Hungary and Slovakia (8 each). The most valuable cultural heritage is possessed by cities inscribed in the UNESCO World Heritage List, i.e.: Cracow (1978), Warsaw (1980), Budapest (1987) and Prague (1992). This advantage undoubtedly attracts tourists on the one hand, and on the other contributes to the development of accommodation and recreational infrastructure (Tracz, Bajgier-Kowalska, 2020).

The V4 countries, thanks to the development of tourist infrastructure, are constantly increasing their attractiveness and competitiveness on the international market (Zemanová, 2022). It is extremely important for the Czech Republic, Poland, Slovakia and Hungary to improve the quality of services provided (Dzurov Vargová et al., 2024). The history, culture and geographical location of the V4 countries allow them to cooperate and create both joint offers and tourism strategies (Antošová et al., 2020). When assessing tourism in the V4 countries, it is also important to remember about the very significant one-day cross-border and transit traffic. Despite the fact that these trips take place under the auspices of "invisible

tourism", they also generate expenditures that have a significant impact on the national economies of the V4 countries (m.in. retail, health and fuel) (Michalkó et al., 2021).

Various forms of tourism are developing in the V4 countries. These include cultural tourism (e.g. von Rohrscheidt, 2010; Botlík, Zedková, 2015; Kwiatek-Soltys, Bajgier-Kowalska, 2019; Krogmann et al., 2021; Csurgó, Smith, 2022), as well as urban tourism, which has been gaining importance in recent years (Tracz, Bajgier-Kowalska, 2019; Tracz, Bajgier-Kowalska, 2020).

Tourist attractions, as well as the opportunity to practise various forms of tourism, are conducive to the influx of tourists, who in turn often use accommodation services. However, it is worth noting that in the last few years the hotel industry in the V4 countries has first struggled with the SARS-CoV-2 coronavirus pandemic, which, as a matter of fact, has affected this industry worldwide (e.g. Hao et al., 2020; Japutra, Situmorang, 2021; Sahoo et al., 2021; Ntambu, Loang, 2022; Shah et al., 2022; Komodromos et al., 2022; dos Santos et al., 2023; Kanamura, 2023), and then with armed conflict just beyond the eastern border (e.g. Balli et al., 2022; Pandey, Kumar, 2023; Martins et al., 2023; Okhrimenko et al., 2024). Another problem has been record–high inflation. For example, hoteliers have been wrestling with energy price increases. The pressure of inflation and increased operating costs of hotels forced the industry to increase prices of its services.

The main objective of the article has been the determination of the impact of economic factors and non–economic variables on shaping the profitability of hotel enterprises in the V4 Group countries. The fact of there being hardly any theoretical considerations and empirical research has been one of the reasons for dedicating this study to the issue. There are relatively few studies in the area of hotel enterprises of the V4 Group and the cognitive results presented in them are often inconsistent with each other. However, the view seems to prevail among the authors that macroeconomic factors constitute a significant element shaping the profitability of enterprises, and further research in this area is important both for the development of theory and practice. The originality of the conducted research results from the inclusion of the outbreak of war in Ukraine among the factors that may affect the profitability of hotels in the V4 Group countries.

The research sample consisted of hotels located on the territory of the V4 Group countries, which provided annual financial statements for the years 2019-2023. Demonstration of such relationships required the use of appropriate econometric methods, leading to quantification of the relationship between the variables studied. Among the available research methods, hypothesis verification procedures based on the Kruskal-Wallis non-parametric test and panel data regression models were selected.

2. Theoretical background

2.1. Hotels and similar accommodation in V4 Group

The name "hotel" in each of the V4 Groups has a completely different definition. In addition, official statistics on the activities of hotels in each of these countries are collected in a different way. Therefore, for the purposes of analysing the activities of these facilities in the countries forming the V4 Group, the Eurostat database was used.

The basis was the statistical classification of economic activity of the European Union (with the indicator of "Hotels and similar accommodation" covering hotels, resort hotels, suite/apartment hotels and motels). Based on the data from Table 1, it can be concluded that in 2019-2023, the Czech Republic had the largest number of hotels and similar accommodation facilities, among the countries belonging to the V4 Group. Poland was ranked just behind it. However, it is noteworthy that in 2019 and 2023 (despite the smaller number of hotels and similar accommodation facilities), Polish facilities had more bed places than the Czech Republic. It is also interesting that the Czech Republic – in each of the periods included in the table – had the largest number of four– and five–star hotels compared to Poland, which is almost four times larger than the Czech Republic: 2019 – 770, 2020 – 887, 2021 – 878, 2022 – 908, 2023 – 917 (Statistical Yearbook of the Czech Republic 2020-2024). While in Poland, in 2019-2023, the number of four– and five-star hotels was as follows: 2019 – 494, 2020 – 484, 2021 – 504, 2022 – 536 and in 2023 – 555 (GUS, 2020-2024).

In the Czech Republic and Hungary, taking into account the period before the pandemic (2019), overnight stays in hotels and similar accommodation facilities were more often chosen by foreign tourists than domestic ones. In the Czech Republic, in 2019, foreign tourists were provided with 24 457 218 overnight stays (with the number of 17 551 652 overnight stays provided to domestic tourists). There was a smaller difference between accommodation provided to foreign and domestic tourists in Hungary. In 2019, overnight stays in hotels and similar accommodation facilities was provided to 13 413 406 foreign tourists (compared to 12 393 775 overnight stays provided to domestic tourists).

Table 1.
Hotels and similar accommodation in V4 Group in years 2019-2023

Country	Indicator – Hotels and similar accommodation		2019	2020	2021	2022	2023
Czech Republic	Establishments		6 236	–*	7 685	7 531	7 267
	Bedplaces		328 501	–*	382 402	387 488	371 396
	Nights spent at tourist accommodation establishments	Domestic tourists	17 551 652	13 930 547	15 934 810	21 531 121	21 637 261
		Foreign tourists	24 457 218	6 447 016	5 865 645	16 358 447	21 179 474

Cont. table 1.

Poland	Establishments		4 229	–*	3 949	3 974	3 982
	Bedplaces		368 944	–*	372 005	381 104	395 157
	Nights spent at tourist accommodation establishments	Domestic tourists	38 627 488	23 312 879	29 398 187	42 981 852	43 167 397
		Foreign tourists	15 089 651	4 982 403	5 493 585	12 253 375	14 308 132
Slovakia	Establishments		1 731	1 702	1 720	1 714	1 750
	Bedplaces		108 876	106 692	108 101	107 085	107 889
	Nights spent at tourist accommodation establishments	Domestic tourists	7 238 430	4 639 576	4 357 461	6 221 853	6 787 631
		Foreign tourists	4 605 416	1 652 974	1 097 929	2 884 316	3 624 972
Hungary	Establishments		2 324	–*	1 968	2 219	2 204
	Bedplaces		184 090	158 660	160 974	184 744	185 659
	Nights spent at tourist accommodation establishments	Domestic tourists	12 393 775	7 876 805	8 700 510	12 281 299	11 748 086
		Foreign tourists	13 413 406	3 125 743	4 139 082	10 138 239	11 618 352

* no information in Eurostat database.

Source: own study based on Eurostat, 2024a, 2024b.

2.2. Economic and non–economic factors that may affect the profitability of hotel enterprises

In a wide range of factors that affect the value of an enterprise, its profitability is particularly important. According to the results of numerous empirical studies, profitability is one of the key determinants of a company value (Dang et al., 2019), which shows a strong positive correlation with it. As a result, the issue of profitability is one of the central elements in the economic analysis of an enterprise, which is subject to in-depth research in most decisions of both strategic significance and in the course of operating activity.

Profitability reflects the return obtained by an enterprise in a given period in relation to the causative factor. At the same time, due to the fact that one of the most important factors of value creation is an entity's ability to effectively manage assets (Fiksel, 2003), one of the most crucial profitability indicators – illustrating the economic development of an enterprise – is precisely the profitability of assets (Ratajczak, 2016).

The challenge which businesses are facing today is management in the conditions of uncertainty. According to current research, enterprises are significantly exposed to numerous risks related to the unstable business environment both at the level of individual countries and the global economy (Batra, Kalia, 2016). For this reason, the analysis of the environment has penetrated the analytical practice of enterprises and is one of the key elements of strategic controlling (Kochalski, 2016). Consequently, high dynamics in the macroeconomic environment of enterprises constitutes a factor that must be taken into account when analysing profitability.

The international importance of hotel companies is growing in the global economy (Brida et al., 2016). However, the hotel sector is classified as a cyclical industry, highly sensitive to economic conditions, which is due to the fact that these entities have higher fixed expenses (costs incurred by all enterprises regardless of the degree of their production) than variable costs

(costs that increase or decrease as the company produces more or less) (Bodie et al., 2008). The consumption of tourist services is conditioned by many factors that differentiate its level and structure (Alejziak, 2009). Various classifications of these conditions are found in the literature on the subject. The most important are economic, demographic, social, psychological and cultural determinants (Middleton, 1996; Jedlińska, 2006). The group of determinants distinguished on the basis of the economic criterion is mainly characterized by quantitative factors, while the group of non–economic determinants is specified by qualitative factors. Economic variables, among which macro– and microeconomic variables are distinguished, are considered to be the basic determinants of the level and structure of tourist consumption. Bull (2005) sees the sources of economic impact on tourist demand, among others, in the group of economic factors occurring in the area of tourist reception. They affect tourists regardless of where they come from. These are factors related to the tourism product and to, among others, the level of prices, competition on the market, the quality of tourism products or economic regulations in the tourism sector. Panasiuk (2019) distinguishes among macroeconomic factors, among others, economic growth, real income, consumption level, unemployment level, inflation level, trade balance and budget deficit. In turn, among non–macroeconomic factors, factors such as demographic changes, the level of urbanization, the level of education, the number and generic structure of facilities, factors related to crisis phenomena – sudden economic downturns, natural disasters at reception places, terrorist activities, military conflicts, local and supra–local social political crises, ecological disasters or prolonged adverse weather conditions at reception places, epidemics and pandemics (Panasiuk, 2019).

The literature emphasizes that the financial situation of tourism enterprises and thus its study is important in a number of economic areas (Vozarova et al., 2019; Kliestik et al., 2020). Therefore, monitoring financial results is thought to be important in the hospitality industry too (Cárdenas-García et al., 2015; Liu, Wu, 2019).

The financial situation of individual entities can be viewed from different perspectives. Richard et al. (2009) found that the results of an organization represent three specific areas of business performance, i.e. financial performance (such as profit, return on assets, return on investment), market performance (such as sales, market share), and return to shareholders (such as total return on equity, economic value added – EVA, and others). The authors emphasize that the financial situation of hotels can be examined using such indicators as: profit, liquidity indicators, profitability, debt (Claver-Cortés et al., 2006; Jagels, 2007; Xiao et al., 2012; Costa, Costa, 2019).

Determinants of the financial situation of hotel companies were examined from different perspectives and in different countries. Tan (2017) stated that the growth of gross domestic product (GDP) positively affects the profitability of the tourism sector. The increase in GDP encourages hotels to undertake new investments, which in turn can improve their future profitability. Alarcón and Maspera (2015) examined differences in the 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 on Costa del Sol are the largest and most indebted, and therefore have higher interest rates, which negatively affects their profitability. Arikan (2017) analysed hospitality companies from the USA and confirmed the negative impact of company size and financial leverage on profitability, while company age and liquidity showed a positive impact. Menicucci (2018) concluded that the economic crisis strongly and negatively affects the tourism sector. The hotel industry is very sensitive to economic turmoil, as it reduces demand and prices of its services. In turn, Ben Aissa and Goaied (2014) found that terrorist attacks strongly and negatively affected Tunisian tourism. The research also includes a reference to variables related to, among others, the SARS epidemic in China in 2003. Chen (2007) and Chen et al. (2005), who examined the impact of the occurrence of epidemic on the economic situation of hotels in China and Taiwan, respectively. When it comes to the impact of a hotel size on profitability, empirical studies ambiguously explain how the size of a hotel affects its profitability. Big enterprises thanks to economies of scale, achieve a higher level of profitability compared to smaller ones (Tan, 2017). Larger companies also have cheaper access to financing, which positively affects their profitability (Agiomirgianakis et al., 2012). Ben Aissa and Goaied (2014), on the other hand, found that the profitability of hotels is negatively affected by the size of a hotel and the level of debt.

3. Research methodology

Despite high importance of the relationship between changes in macroeconomic factors and the profitability of enterprises, empirical research in this area is scarce, and the results obtained often do not confirm each other. In addition, the spectrum of macroeconomic variables studied so far seems incomplete. In response to the existing research gaps, the aim of the study is to examine the relationship between the selected macroeconomic and non-economic variables and the profitability of V4 Group hotel enterprises. Financial data that are the basis for calculating the profitability of enterprises were obtained from the EMIS (Emerging Markets Information Service) database, and macroeconomic data from the Eurostat database.

The study used data for 697 hotel enterprises (Poland – 216, Czech Republic – 159, Hungary – 136 and Slovakia – 186). The research sample includes annual economic data for the years 2019–2023.

In connection with the analysis of the literature in terms of the impact of various determinants on the activities of hotel enterprises, the main objective of the study is to determine the impact of selected economic and non–economic determinants on the profitability of hotel enterprises in the V4 Group countries.

In connection with the adopted research objective, research hypotheses were put forward:

H1: The profitability of hotel enterprises varies among the V4 Group countries.

H2: There is a relationship between the profitability of a hotel enterprise and economic factors.

H3: There is a relationship between the profitability of a hotel enterprise and non-economic factors such as the SARS-CoV-2 coronavirus pandemic or the outbreak of the war in Ukraine.

In the first stage of the research, variables that may significantly affect the analysed explained variable of the model were specified (Table 2).

Table 2.
Description of the adopted variables

Variable name	Description
$ROA_{i,t}$	Return on assets ratio converted to annual scale
$NET\_DEBT_{i,t}$	Net debt
$l\_REV_{i,t}$	Natural logarithm of total revenue
COU	Qualitative variable assuming the value of 1 for Poland (POL), 2 for the Czech Republic (CZECH), 3 for Slovakia (SLO) and 4 for Hungary (HU)
YEAR	Variable indicating the year of observation
REAL_GDP	Gross Domestic Product
EXCH_RATE	Exchange rate of the national currency to USD
CPI	Inflation index
GOV_DEBT	Government debt
UNEMPL_RATE	Unemployment rate
POP	Population
OR	The tourist interest index of the country calculated as the occupancy rate of bed places in a given period
WAR	Qualitative variable assuming the value of 1 if there is a war in Ukraine, 0 otherwise
COV	Qualitative variable assuming the value of 1 if there is a SARS-CoV-2 coronavirus pandemic, 0 otherwise

Source: own study.

Dependent variable $ROA_{i,t}$ means analysed net return on assets. This variable is often used in research because it is an indicator of a company's ability to generate profit (Ben Aissa, Goaied, 2014). Another $NET\_DEBT_{i,t}$ variable means the extent to which assets are financed by debt. Highly indebted companies bear a higher financial risk compared to those with lesser borrowed capital because they have to compensate shareholders for higher profits (Tang, Jang, 2007). An increase in the level of debt will result in an increase in the cost of borrowing (i.e. interest costs) and, in consequence, will result in a decrease in the profitability of hotels (Tan, 2017).

Potential other selected factors that may affect the profitability of hotel enterprises in the V4 Group countries refer in the study to the size of the company determined by sales revenues (logarithmic variable $l\_REV_{i,t}$), inflation rate *(CPI),* Gross Domestic Product *(REAL_GDP)*, national currency exchange rate to USD *(EXCH_RATE),* public debt *(GOV_DEBT),* unemployment rate *(UNEMPL_RATE),* population *(POP)* and an indicator of tourist interest in a particular country *(OR).*

A special group of factors are phenomena related to crisis situations. They are of different character. Their appearance is unpredictable, sudden and short–lived. It has very strong effects on the activities of tourism business entities in a very short period of time, and the time of adjusting and eliminating the effects resulting from the changes can be very long and even lead to the necessity to resign from running a business. Therefore, two independent variables *COV* and *WAR* were adopted, defining the years of the SARS-CoV-2 coronavirus pandemic and the outbreak of the war in Ukraine, respectively.

In the next research step, with the use of the presented independent variables, a panel multiple regression model was constructed. In econometric studies, by combining data in the form of time series with cross–sectional data, a cross–sectional–temporal sample is created. Econometric models estimated on the basis of such data form a group of the so-called decomposition models (*error component regression models*), called panel models (Greene, 2003; Baltagi, 2008; Mátyás, Sevestre, 2008; Andreß et al., 2013). The step regression procedure allowed to extract an initial list of determinants characterized by the highest degree of correlation with the explained variable and the lowest degree of correlation with other explanatory variables (Stanisz, 2007). The data panel for 697 entities in 5 periods, after taking into account outlier observations, allowed to obtain a sample with an observation size of N = 3485.

The resulting regression model is presented with the following equation:

$$ROA_{i,t} = \beta_0 + \beta_1 l\_REV_{i,t} + \beta_2 NET\_DEBT_{i,t} + \beta_3 REAL\_GDP + \beta_4 EXCH\_RATE + \beta_5 CPI + \beta_6 GOV\_DEBT + \beta_7 UNEMPL\_RATE + \beta_8 POP + \beta_9 OR + \beta_{10} WAR + \beta_{11} COV + \varepsilon_{it} \quad (1)$$

The construction of one–way error models is based on the assumption that units of study (or groups of units) differ from each other by certain characteristics that, for a given subject, remain constant over time. The linear model of a one-way error can be presented as follows (Muszyńska, 2006; Karabiyik et al., 2019; Eugenio-Martin, Patuelli, 2022):

$$y_{it} = \alpha + X`_{it}\beta` + u_{it} \quad (2)$$

$$u_{it} = \mu_{it} + v_{it} \quad (3)$$

where:

i, t – indexes referring to a unit of study and time respectively,

X_{it} – vector of observations on exogenous variables,

α, β – structural parameters of a model,

u_{it} – random component of a model,

μ_{it} – unobservable and not included in the regression equation individual effect[1] specific to a particular unit of study,

v_{it} – the remaining, purely random part of the random component.

[1] as the individual effect may result from a unit's membership in the i-th group, it is also often referred to as the group effect.

The group effects $\mu_{i,t}$ are interpreted as individual characteristics of the study units that are not subject to change over time.

Two-way error models, in turn, take into account the existence of not only group effects, but also time effects. They assume the possibility that at a given moment the same random disturbance occurs in all units of the study. The construction of linear two-way error models is the same for the construction of one-way error models, with only the random component being decomposed into three components (Muszyńska, 2006; Karabiyik et al., 2019; Eugenio-Martin, Patuelli, 2022):

$$u_{it} = \mu_{it} + \lambda_{it} + v_{it} \tag{4}$$

where: λ_{it} – is an unobservable and time-specific effect not included in the regression equation.

The group effects μ_{it} are not subject to change over time, while the time effects λ_{it} remain constant for all study units.

4. Results

In the next step of the study, the descriptive statistics of the variables were analyzed. Table 3 presents descriptive statistics of the tested quantitative variable.

Table 3.
Descriptive statistics of the studied quantitative variables

Variable name	Average	Median	Min.	Max.	Stand. deviat.	Variable coeffic.	Perc. 5%	Perc. 95%
$ROA_{i,t}$	-2.68	1.80	-805.00	98.75	45.69	17.03	-51.97	34.01
$l\_REV_{i,t}$	1.22	1.26	-4.60	5.92	1.14	0.93	-0.40	2.98
$NET\_DEBT_{i,t}$	0.78	-0.00	-8.02	81.00	3.84	4.90	-0.51	4.11
REAL_GDP	1.97	2.28	-5.30	7.12	3.50	1.77	-4.34	6.90
EXCH_RATE	70.17	4.20	0.85	372.59	126.77	1.80	0.85	353.00
CPI	7.264	5.10	1.94	17.60	5.08	0.69	1.94	15.10
GOV_DEBT	53.75	53.00	29.55	78.69	12.33	0.22	36.88	76.22
UNEMPL_RATE	-0.75	-1.56	-14.72	26.96	9.82	13.03	-14.72	15.04
POP	17.36	10.52	5.43	37.97	13.53	0.77	5.43	37.97
OR	42.47	44.20	24.00	59.20	11.21	0.26	24.00	59.20

Source: own study.

Results of the Kruskal-Wallis test for the evaluation of differences in values $ROA_{i,t}$ among the four countries were: test statistics (H): 88.33, p-value < 0.00. The p-value is much smaller than the typical significance level, which means that the differences in values $ROA_{i,t}$ between the countries are statistically significant. Figure 1 shows the distribution $ROA_{i,t}$ by country. We can reject the null hypothesis (no differences in $ROA_{i,t}$ between the countries), which suggests that at least one of the countries differs significantly from the others in terms of the index $ROA_{i,t}$.

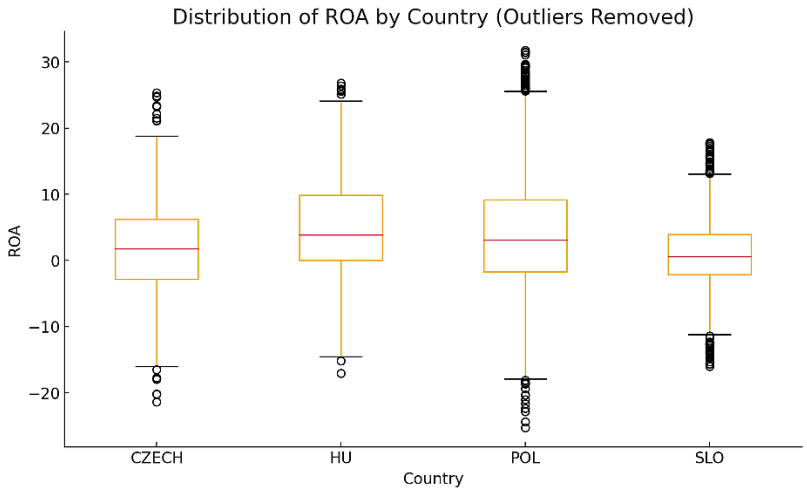

Figure 1. Distribution $ROA_{i,t}$ by country.

Source: own study.

The average level $ROA_{i,t}$ in Poland is characterized by moderate median values. The interquartile range is relatively narrow, which suggests the stability of the index $ROA_{i,t}$ among hotels in Poland. The whiskers are short, indicating that the values $ROA_{i,t}$ are concentrated around a central tendency. The median $ROA_{i,t}$ for the Czech Republic is one of the lowest ones compared to other countries. The interquartile range is noticeable, which indicates a greater dispersion of indicators $ROA_{i,t}$ in this country. Hungary is distinguished by relatively high median values $ROA_{i,t}$, which suggests better profitability of assets compared to other countries. The interquartile range is medium, indicating moderate differences in results $ROA_{i,t}$. Slovakia is distinguished by the highest median values $ROA_{i,t}$, which indicates the best performance of enterprises in terms of asset profitability. The interquartile range is the largest among the analysed countries, which suggests significant differences in the results $ROA_{i,t}$ between the observations.

In next step of the analysis conducted, the correctness of using the least squares estimation method (LQM*)* was verified *(KMNK).* In the performed diagnostic tests, the Wald test statistic was F (656, 1908) = 2.22 with the *p*-value < 0.00, which gave grounds to reject the null hypothesis that the *KMNK* panel model is correct, compared to the H_1 hypothesis that the model with permanent effects is more appropriate. Subsequently, the Breusch-Pagan test, where the test statistic was: LM = 125.13 with the *p*-value < 0.00, means rejecting the null hypothesis that the *KMNK* panel model is correct, compared to the H_1 hypothesis that the model with random effects is more appropriate. Hausmann test statistics: H = 87.48 with the *p*-value = 0.03 confirmed the correctness of the use of the model with random effects.

The pooled regression model performed for the aforementioned statistical tests still showed the presence of heteroskedasticity, so that the parameters of the subsequent corrected model introduce robust standard errors. It does not change the values of the estimated parameters, only the error estimates.

First of all, the two–way error model was estimated in the form of:

$$ROA_{i,t} = \beta_0 + \beta_1 l\_REV_{i,t} + \beta_2 NET\_DEBT_{i,t} + \beta_3 REAL\_GDP + \beta_4 EXCH\_RATE + \beta_5 CPI + \beta_6 GOV\_DEBT + \beta_7 UNEMPL\_RATE + \beta_8 POP + \beta_9 OR + \beta_{10} WAR + \beta_{11} COV + u_{it} \quad (5)$$

The results of the estimation of the two–way error model with random effects are presented in Table 4.

Table 4.
Evaluation of parameters of a two-way model with random effects dependent variable $ROA_{i,t}$

Variable	Coefficient	Standard error	*t*-student	*p*-value
const	0.769	16.091	0.047	0.96
$l\_REV_{i,t}$	7.878	1.575	5.001	<0.00*
$NET\_DEBT_{i,t}$	–0.489	0.146	−3.339	0.04*
REAL_GDP	1.953	0.491	3.975	<0.00*
EXCH_RATE	0.003	0.015	0.218	0.82
CPI	−1.856	0.494	−3.756	0.00*
GOV_DEBT	−0.096	0.204	−0.471	0.63
UNEMPL_RATE	0.394	0.200	1.961	0.06
POP	−0.39	0.128	−3.062	0.06
OR	0.098	0.237	0.414	0.67
WAR	22.442	4.726	4.748	<0.00*
COV	−12.103	7.824	−1.547	0.04
Between = 380.32 Within = 1192.2 Theta = 0.24 $R^2 = 0.41$				
Breusch-Pagan test: Test statistics: Chi-square (1) = 125.13 with *p*-value < 0.05 Hausman test: Chi-square (11) statistics = 40.58 with *p*-value = 0.22 Test for normality of distribution of residues: Test statistics: Chi-square (2) = 186.1 with *p*-value = 0.06 Residue autocorrelation test: Test statistics: F (1.509) = 8.89 with *p*-value = 0.06				

*p-value < 0.05

Source: own study.

The results of the analysis indicate factors that statistically significantly affect the dependent variable $ROA_{i,t}$, which among the control variables include the amount of the entity's debt $NET\_DEBT_{i,t}$ (assessment of the parameter β_2 = –0.489, p-value = 0.04) and the amount of sales revenues (assessment of the parameter β_1 = 7.878, p-value < 0.00). It is worth noting that the control variables behave as expected.

Among the macroeconomic variables *REAL_GDP* has significant effect on the variable $ROA_{i,t}$ (assessment of the parameter β_3 = 1.953, p-value < 0.00) and the *CPI* variable (assessment of the parameter β_5 = –1.856, p-value = 0.00).

On the other hand, non–economic variables, significantly statistical variables were found to be *COV* (assessment of the parameter β_{11} = –12.103, p-value = 0.04) and the *WAR* variable (assessment of the parameter β_{10} = 22.442, p-value < 0.00).

The estimated panel model accounts for 41% of the impact of selected explanatory variables on $ROA_{i,t}$. Higher intra-group variance (*within*) than inter-group (*between*) in the correct random model indicates that the model better explains the differentiation between individual units over

time than within these units. The results also allow to conclude that unchanged over time unobservable conditions in units, i.e. in the case of a two–way error model taking into account random effects related to a specific unit and time effects, account for 24% of the total random error.

Next, the one–way error model was estimated in the form of:

$$ROA_{i,t} = \beta_0 + \beta_1 l\_REV_{i,t} + \beta_2 NET\_DEBT_{i,t} + \beta_3 REAL\_GDP + \beta_4 EXCH\_RATE + \beta_5 CPI + \beta_6 GOV\_DEBT + \beta_7 UNEMPL\_RATE + \beta_8 POP + \beta_9 OR + \beta_{10} WAR + \beta_{11} COV + \beta_{12} YEAR + u_{it} \quad (6)$$

The results of the estimation of the one–way error model with random effects are presented in Table 5.

Table 5.
Evaluation of parameters of a one-way model with random effects, dependent variable $ROA_{i,t}$

Variable	Coefficient	Standard error	*t*-student	*p*-value
const	−2,574.46	3,099.71	−0.830	0.40
$l\_REV_{i,t}$	7.768	1.584	4.904	<0.00*
$NET\_DEBT_{i,t}$	–0.484	0.1463	−3.311	0.00*
REAL_GDP	1.856	0.519	3.571	0.00*
EXCH_RATE	0.003	0.015	0.248	0.80
CPI	−1.741	0.547	−3.178	0.00*
GOV_DEBT	−0.103	0.206	−0.499	0.61
UNEMPL_RATE	0.370	0.214	1.726	0.08
POP	−0.374	0.127	−2.929	0.07
OR	0.060	0.239	0.252	0.80
WAR	16.456	9.084	1.811	0.04*
COV	−12.153	7.864	−1.577	0.06
YEAR	1.276	1.536	0.830	0.40
Between = 369.363 Within = 1192.82 Theta = 0.28 R^2= 0.39				
Breusch-Pagan test: Test statistics: Chi-square (1) = 125.11 with *p*-value < 0.05 Hausman test: Chi-square (12) statistics = 42.25 with *p*-value = 0.17 Test for normality of distribution of residues: Test statistics: Chi-square (2) = 1809 with *p*-value = 0.06 Residue autocorrelation test: Test statistics: F (1, 509) = 8.91 with *p*-value = 0.07				

**p*-value < 0.05.

Source: own study.

The results of the analysis indicate factors that statistically significantly affect the dependent variable $ROA_{i,t}$, which among the control variables include, similarly as in the two-way error model, the amount of the entity's debt $NET\_DEBT_{i,t}$ (assessment of the parameter $\beta 2$ = –0.484, *p*-value = 0.00) and the amount of sales revenues (assessment of the parameter β_1 = 7.768, *p*-value < 0.00). The control variables also behave as expected.

Among the economic variables *REAL_GDP* has significant effect on the variable $ROA_{i,t}$ (assessment of the parameter β_3 = 1.856, *p*-value < 0.00) and the *CPI* variable (assessment of the parameter β_5 = –1.741, *p*-value = 0.00). On the other hand, among the non-economic

variables, the variable *WAR* proved to be statistically significant in the one–way error model (assessment of the parameter β_{10} = 16.456, *p*-value = 0.04).

The estimated panel model accounts for 39% of the impact of selected explanatory variables on the explained variable. Higher intra–group variance (*within*) than inter–group (*between*) in the correct random model indicates that the model better explains the differentiation between individual units over time than within these units. The results also allow to conclude that unchanged over time unobservable conditions in units, i.e. in the case of a two-way error model taking into account random effects related to a specific unit and time effects[2], account for 28% of the total random error.

The analysis has showed that the economic variables affecting profitability are GDP and the inflation rate. These variables behaved as expected, namely the research confirmed the positive impact of economic growth and the negative impact of high inflation in the economy. In turn, among non-economic factors, the significant variables turned out to be the variable regarding the occurrence of the SARS-CoV-2 coronavirus pandemic, which was also in line with expectations, while it is worth noting that the invasion of Ukraine by the Russian Federation, which began on 24 February 2022, had a positive impact on hotel enterprises in the V4 Group countries.

5. Conclusion

In a market economy, the financial condition of enterprises is one of the main determinants of achieving business goals and building a competitive advantage.

Hospitality companies that exist in the modern market do not operate in a vacuum. They operate in a multifaceted economic environment, in which there are complex operations in terms of economic content. All the more so because the modern environment in which enterprises operate is characterized, on the one hand, by the spontaneity and, on the other hand, by the unpredictability of the phenomena taking place.

The study showed that migration processes have become a key factor in changes in the hotel industry in the Visegrad Group countries. After the outbreak of the war in February 2022, millions of refugees from Ukraine poured into neighbouring countries, mainly Polish, but also the Czech Republic, Slovakia and Hungary. Many hotels have been rented by governments, local governments and international organizations for the purpose of temporary accommodation of refugees. These bookings were often long-term and paid for at near-market rates, which provided hotels with a stable and quick cash flow. Hotels participating in support programs for refugees could count on subsidies or direct refunds from state institutions, which improved their

[2] Illustrating the effects common to all entities in individual years, i.e. a change in the economic situation.

financial results compared to periods of typically low season. The adaptation of V4 Group countries hotels to the challenges of migration due to the war has also shown the importance of flexibility and the ability of companies to quickly attract external resources to support new customer segments in crisis conditions. The war in Ukraine may have impacted sustainability reporting, posing new challenges for the hotel sector. The armed conflict led to mass migration, which in turn generated additional environmental burdens (e.g., increased energy consumption and waste). Socially, hotels, in response to the humanitarian crisis caused by the war, became involved in helping refugees (primarily by providing shelter). In turn, from a management perspective, the war may impact corporate governance in hotels (particularly in the context of data security and risk management, for example).

The results achieved in the work can be treated as an incentive for further action, in a much broader scope. However, the limitations of the study should be taken into consideration, such as the size of the sample resulting from the annual and complete financial statements only. The interpretation of the results also requires caution due to their sensitivity to the adopted research methodology.

These results have important implications. The research presented in this article can enhance hotel decision-makers' understanding of key factors influencing hotel profitability or the non-financial factors that can increase company resilience to shocks such as a pandemic or a regional war. Actions hotel managers can take include, for example, providing staff training in crisis response and refugee support, as well as adapting hotel offerings to changing demand.

References

1. Agiomirgianakis, G.M., Magoutas, A.I., Sfakianakis, G. (2012). Determinants of profitability and the decision-making process of firms in the tourism sector: The case of Greece. *International Journal of Risk Assessment and Management*, *4*(3/4), 294-299. https://doi.org/10.1504/IJDSRM.2012.053381
2. Alarcón, J.P.A., Maspera, J.M.S. (2015). The financial and economic performance of hotels in Spanish beach tourist destinations. *Athens Journal of Tourism*, *2*(3), 141-152. https://doi.org/10.30958/ajt.2-3-1
3. Alejziak, W. (2009). *Determinanty i zróżnicowanie społeczne aktywności turystycznej*. Kraków: Wydawnictwo Akademii Wychowania Fizycznego im. Bronisława Czecha.
4. Andreß, H-J., Golsch, K., Schmidt, A.W. (2013). *Applied Panel Data Analysis for Economic and Social Surveys*. Berlin/Heidelberg: Springer.

5. Antošová, G., Vogl, M., Schraud, M. (2020). Challenges for the Visegrad Group – the coronavirus crises and its impact on tourism. *Visegrad Journal on Bioeconomy and Sustainable Development*, *9*(1), 28-32. https://doi.org/10.2478/vjbsd-2020-0006
6. Arikan, D. (2017). *Determinants of profitability among hospitality firms: Evidence from U.S.* Master's thesis. Istanbul, Turkey: Istanbul Bilgi University, Institute of Social Sciences, Financial Economics Master Program.
7. Balli, F., Billah, M., Chowdhury, I. (2022). Impact of the Russia–Ukraine war on hospitality equity mar-kets. *Tourism Economics*, *29*(8), 2206-2215. https://doi.org/10.1177/13548166221133493
8. Baltagi, B.H. (2008). *Econometric Analysis of Panel Data (3rd ed.)*. Chichester: John Wiley & Sons Ltd.
9. Batra, R., Kalia, A. (2016). Rethinking and redefining the determinants of corporate profitability. *Global Business Review*, *17*(4), 921-933. https://doi.org/10.1177/0972150916645695
10. Ben Aissa, S., Goaied, M. (2014). Determinants of tourism hotel profitability in Tunisia. *Tourism and Hospitality Research*, *14*(4), 163-175. https://doi.org/10.1177/1467358414543970
11. Bieszk-Stolorz, B., Dmytrów, K. (2020). Influence of Accession of the Visegrad Group Countries to the EU on the Situation in Their Labour Markets. *Sustainability*, *12*(16), 6694. https://doi.org/10.3390/su12166694
12. Bodie, Z., Kane, A., Marcus, A.J. (2008). *Essentials of Investments (9th ed.)*. McGraw-Hill.
13. Botlík, J., Zedková, A. (2015). *Potential of the Moravian-Silesian Region for Cultural Tourism in the Czech Republic*. Proceedings of the 26th International Business Information Management Association Conference – Innovation Management and Sustainable Economic Competitive Advantage: From Regional Development to Global Growth.
14. Brida, J.G., Cortes-Jimenez, I., Pulina, M. (2016). Has the tourism-led growth hypothesis been validated? A literature review. *Current Issues in Tourism*, *19*(5), 394-430. https://doi.org/10.1080/13683500.2013.868414
15. Bull, A. (2005). *The Economics of Travel and Tourism (2nd ed.)*. Oxford: Longman.
16. Cárdenas-García, P.J., Sánchez-Rivero, M., Pulido-Fernandez, J.I. (2015). Does Tourism Growth Influence Economic Development? *Journal of Travel Research*, *54*(2), 206-221. https://doi.org/10.1177/0047287513514297
17. Chen, M.H. (2007). Macro and non-macro explanatory factors of Chinese hotel stock returns. *Hospitality Management*, *26*(4), 991-1004. https://doi.org/10.1016/j.ijhm.2006.04.002
18. Chen, M.H., Kim, W.G., Kim, H.J. (2005). The impact of macroeconomic and non-macroeconomic forces on hotel stock returns. *International Journal of Hospitality Management*, *24*(2), 243-258. https://doi.org/10.1016/j.ijhm.2004.06.008

19. Claver-Cortés, E., Molina-Azorin, J.F., Pereira-Moliner, J. (2006). Strategic groups in the hospitality industry: Intergroup and intragroup performance differences in Alicante, Spain. *Tourism Management*, *27*(6), 1101-1116. https://doi.org/10.1016/j.tourman.2005.11.006
20. Costa, V., Costa, C. (2019). *Competitiveness and Business Performance in the Portuguese Hotel Industry.* Proceedings of the 2nd International Conference on Tourism Research (ICTR 2019).
21. Csurgó, B., Smith, M.K. (2022). Cultural Heritage, Sense of Place and Tourism: An Analysis of Cultural Ecosystem Services in Rural Hungary. *Sustainability*, *14*(12), 7305. https://doi.org/10.3390/su14127305
22. Dang, H.N., Vu, V.T.T., Ngo, X.T., Hoang, H.T.V. (2019). Study the impact of growth, firm size, capital structure, and profitability on enterprise value: Evidence of enterprises in Vietnam. *Journal of Corporate Accounting and Finance*, *30*, 144-160. https://doi.org/10.1002/jcaf.22371
23. dos Santos, M.C., Magano, J., Mota, J. (2023). The impact of the Covid–19 pandemic on the hotel industry's economic performance: evidence from Portugal. *Heliyon*, *9*(5), e15850. https://doi.org/10.1016/j.heliyon.2023.e15850
24. Dzurov Vargová, T., Matušíková, D., Šaffová, I. (2024). Aspects of tourism performance in V4 Countries under the influence of the Covid-19 pandemic for future management and quality. *GeoJournal of Tourism and Geosites*, *52*(1), 231-238. https://doi.org/10.30892/gtg.52122-1199
25. Eugenio-Martin, J.L., Patuelli, R. (2022). Panel data models in tourism research: Innovative applications and methods. *Tourism Economics*, *28*(5), 1348-1354. https://doi.org/10.1177/13548166221115784
26. Eurostat (2024a). *Establishments, bedrooms and bed-places in tourist accommodation*. Available online: https://ec.europa.eu/eurostat/databrowser/view/tour_cap_nat/default/table?lang=en, 25.01.2025.
27. Eurostat (2024b). *Nights spent at tourist accommodation establishments*. Available online: https://ec.europa.eu/eurostat/databrowser/view/tour_occ_ninat/default/table?lang=en, 25.01.2025.
28. Fiksel, J. (2003). Revealing the value of sustainable development. *Corporate Strategy Today*, 28-36.
29. Fiszer, J.M. (2018). Pozytywne i negatywne aspekty działalności państw Grupy Wyszehradzkiej w latach 1991-2018. *Myśl Ekonomiczna i Polityczna*, *4*(63), 208-234. https://doi.org/10.26399/meip.4(63).2018.50/j.m.fiszer
30. Greene, W.H. (2003). *Econometric Analysis (5th ed.)*. New York: Prentice Hall; Upper Saddle River: Macmillan Publishing Company.
31. GUS (2020-2024). *Bank Danych Lokalnych*. Available online: https://bdl.stat.gov.pl/bdl/dane/podgrup/tablica, 25.01.2025.

32. Hao, F., Xiao, Q., Chon, K.Y. (2020). COVID-19 and China's Hotel Industry: Impacts, a Disaster Management Framework, and Post-Pandemic Agenda. *International Journal of Hospitality Management*, *90*, 102636. https://doi.org/10.1016/j.ijhm.2020.102636
33. Jagels, M.G. (2007). *Hospitality management accounting (9th ed.)*. John Wiley and Sons.
34. Japutra, A., Situmorang, R. (2021). The repercussions and challenges of COVID-19 in the hotel industry: Potential strategies from a case study of Indonesia. *International Journal of Hospitality Management*, *95*, 102890. https://doi.org/10.1016/j.ijhm.2021.102890
35. Jedlińska, M. (2006). Specyfika zachowań konsumenckich na rynku turystycznym. In: A. Nowakowska, M. Przydział (Eds.), *Turystyka w badaniach naukowych. Prace ekonomiczne* (pp. 171-188). Rzeszów: Wydawnictwo Wyższej Szkoły Informatyki i Zarządzania.
36. Kanamura, T. (2023). An impact assessment of the COVID-19 pandemic on Japanese and US hotel stocks. *Financial Innovation*, *9*(1), 87. https://doi.org/10.1186/s40854-023-00478-2
37. Karabiyik, H., Palm, F.C., Urbain, J.P. (2019). Econometric Analysis of Panel Data Models with Multifactor Error Structures. *Annual Review of Economics*, *11*, 495-522. https://doi.org/10.1146/annurev-economics-063016-104338
38. Kliestik, T., Valaskova, K., Lazaroiu, G., Kovacova, M., Vrbka, J. (2020). Remaining Financially Healthy and Competitive: The Role of Financial Predictors. *Journal of Competitiveness*, *12*(1), 74-92. https://doi.org/10.7441/joc.2020.01.05
39. Kochalski, C. (2016). Analiza otoczenia. In: C. Kochalski (Ed.), *Zielony controlling i finanse. Podstawy teoretyczne* (pp. 121-124). Warszawa: C.H. Beck.
40. Komodromos, M., Abadir, S., Alserhan, B.A., Halkias, D. (2022). Applied strategic management by managers in the hotel and tourism industry in Cyprus and Greece during the COVID-19 pandemic. *Journal for International Business and Entrepreneurship Development*, *14*(3), 378-399. https://doi.org/10.1504/JIBED.2022.126948
41. Krogmann, A., Ivanic, P., Kramareková, H., Petrikovicová, L., Petrovic, F., Grezo, H. (2021). Cultural Tourism in Nitra, Slovakia: Overview of Current and Future Trends. *Sustainability*, *13*(9), 5181. https://doi.org/10.3390/su13095181
42. Krzymowski, A. (2021). The Visegrad Group countries: The United Arab Emirates Perspective. *Politics in Central Europe*, *17*(1), 107-126. https://doi.org/10.2478/pce-2021-0005
43. Kubin, T. (2014). Grupa Wyszehradzka - perspektywy dalszej współpracy. *Athenaeum. Polskie Studia Politologiczne*, *42*, 24-39.
44. Kuźnar, A. (2017). Kraje Grupy Wyszehradzkiej w globalnych łańcuchach wartości. *Research Papers of Wrocław University of Economics*, *498*, 167-180. https://doi.org/10.15611/pn.2017.498.16

45. Kwiatek-Soltys, A., Bajgier-Kowalska, M. (2019). The role of cultural heritage sites in the creation of tourism potential of small towns in Poland. *European Spatial Research and Policy*, *26*(2), 237-255. https://doi.org/10.18778/1231-1952.26.2.11
46. Liu, A., Wu, D.C. (2019). Tourism productivity and economic growth. *Annals of Tourism Research*, *76*, 253-265. https://doi.org/10.1016/j.annals.2019.04.005
47. Martins, A.M., Correia, P., Cró, S. (2023). Stock market reaction to the military conflict between Russia and Ukraine: an event study for the European tourism and hospitality industry. *Journal of Applied Economics*, *26*(1), 2261756. https://doi.org/10.1080/15140326.2023.2261756
48. Mátyás, L., Sevestre, P. (2008). *The Econometrics of Panel Data. Fundamentals and Recent Developments in Theory and Practice (3rd ed.)*. Springer.
49. Menicucci, E. (2018). The influence of firm characteristics on profitability: Evidence from Italian hospitality industry. *International Journal of Contemporary Hospitality Management*, *30*(8), 2845-2868. https://doi.org/10.1108/IJCHM-04-2017-0219
50. Michalkó, G., Németh, J., Tokodi, P., Abboud, T.K., Birkner, Z. (2021). The potential of the Visegrad Cooperation (V4) for the safe restarting of tourism in the region following the COVID-19 epidemic. *Scientia et Securitas*, *2*(4), 452-458.
51. Middleton, V.T.C. (1996). *Marketing w turystyce*. Warszawa: Polska Agencja Promocji Turystyki.
52. Muszyńska, J. (2006). Modelowanie danych panelowych. *Zeszyty Naukowe Państwowej Wyższej Szkoły Zawodowej we Włocławku*, *1*, 213-236.
53. Ntambu, D., Loang, O.K. (2022). The Impact Of Covid-19 On Hotel Industry In Malaysia. *International Journal of Accounting, Finance and Business (IJAFB)*, *7*(45), 135-147. https://doi.org/10.55573/IJAFB.074509
54. Okhrimenko, A., Boiko, M., Bosovska, M., Vedmid, N., Kulyk, M. (2024). Changes in hotel activities in Ukraine and Poland due to the war: Migration aspect. *Problems and Perspectives in Management*, *22*(4), 352-367. https://doi.org/10.21511/ppm.22(4).2024.27
55. Panasiuk, A. (2019). Ocena zmian w makrootoczeniu funkcjonowania współczesnego biznesu turystycznego. *Rozprawy Naukowe Akademii Wychowania Fizycznego we Wrocławiu*, *64*, 11-22.
56. Pandey, D.K., Kumar, R. (2023). Russia–Ukraine War and the global tourism sector: A 13-day tale. *Current Issues in Tourism*, *26*(5), 692-700. https://doi.org/10.1080/13683500.2022.2081789
57. Ratajczak, P. (2016). Mierniki i wskaźniki w controllingu ekologicznym. In: C. Kochalski (Ed.), *Zielony controlling i finanse. Podstawy teoretyczne* (pp. 203-226). Warszawa: C.H. Beck.
58. Richard, P.J., Devinney, T.M., Yip, G.S., Johnson, G. (2009). Measuring Organizational Performance: Towards Methodological Best Practice. *Journal of Management*, *35*(3), 718-804. https://doi.org/10.1177/0149206308330560

59. Sahoo, K.K., Awuor, E., Panigrahi, R.R. (2021). Impact of COVID-19 on Hospitality Industry: A Case Study of Hotels in Nairobi and Mombasa in Kenya. *Empirical Economics Letters*, *20*(1), 165-174.
60. Shah, S., Dasgupta, H., Debgupta, S. (2022). Analyzing the impact of Covid-19 on the hotel industry in Nepal. *Cardiometry*, *22*, 244-250. https://doi.org/10.18137/cardiometry.2022.22.244250
61. Stanisz, A. (2007). *Przystępny kurs statystyki z zastosowaniem STATISTICA PL na przykładach z medycyny. Modele liniowe i nieliniowe, tom 2.* Kraków: StatSoft Polska.
62. *Statistical Yearbook of the Czech Republic* (2020-2024). Available online: https://csu.gov.cz/, 25.01.2025.
63. Tan, Y. (2017). *Hotel-Specific, Industry-Specific and Macroeconomic Determinants of Profitability in London Hotel Industry: Structure-Conduct-Performance or Efficient-Structure Hypothesis?* Available online: https://ssrn.com/abstract=2943487, 30.01.2025.
64. Tang, C.H., Jang, S. (2007). Revisit to the determinants of capital structure: A comparison between lodging firms and software firms. *International Journal of Hospitality Management*, *26*(1), 175-187. https://doi.org/10.1016/j.ijhm.2005.08.002
65. Tracz, M., Bajgier-Kowalska, M. (2019). Profile of tourists visiting cultural heritage cities: Comparative study of selected cities in Central Europe. *Geographia Polonica*, *92*(4), 455-468. https://doi.org/10.7163/GPol.0159
66. Tracz, M., Bajgier-Kowalska, M. (2020). Zmiany w ruchu turystycznym w wybranych miastach dziedzictwa kulturowego państw Grupy Wyszehradzkiej (V4). *Studies of the Industrial Geography Commission of the Polish Geographical Society*, *34*(3), 67-83. https://doi.org/10.24917/20801653.343
67. von Rohrscheidt, A.M. (2010). Medieval defense objects in Poland as tourist destinations and attractions for cultural tourism. *Ido Movement for Culture. Journal of Martial Arts Anthropology*, *10*(1), 102-117.
68. Vozarova, I.K., Kotulic, R., Vavrek, R. (2019). Disparities in the financial performance of agricultural entities according to the legal form: the case of Slovakia. *Applied Economics*, *51*(56), 5999-6008. https://doi.org/10.1080/00036846.2019.1645285
69. Xiao, Q., O'Neill, J.W., Mattila, A.S. (2012). The role of hotel owners: the influence of corporate strategies on hotel performance. *International Journal of Contemporary Hospitality Management*, *24*(1), 122-139. https://doi.org/10.1108/09596111211197836
70. Zemanová, L. (2022). Comparison of State Policy of Tourism in V4 Countries. *Studia Turistica*, *13*(2), 39-51.
71. Żemła, M., Ziółkowska-Weiss, K. (2017). Turystyka między krajami Grupy Wyszehradzkiej. Wybrane problemy i perspektywy na przyszłość. *Research Papers of Wrocław University of Economics*, *473*, 637-647. https://doi.org/10.15611/pn.2017.473.60