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AN ANALYSIS OF THE FINANCIAL HEALTH OF COMPANIES CONCERNING THE BUSINESS ENVIRONMENT OF THE V4 COUNTRIES

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Abstract

Research background: The business environment is an integral part of all business activity. Every business operates in a certain atmosphere that is dynamic and has a constant impact on the business. Therefore, it is important to analyse and predict the development of the business environment.
Purpose: The aim of this paper is to specify the financial health of a group of companies determined by selected indicators with the business environment of the V4 countries, to interpret the obtained results and, based on them, to propose a complex of systemic measures for business practice.
Research methodology: The business environment is evaluated within two decision-making processes, in which the optimal environment is selected based on selected criteria (e.g., GDP, unemployment, inflation). To solve decision-making processes, two methods are used – the Saaty's matrix method and the TOPSIS method. The business environment is also evaluated based on the ratio indicators of the financial analysis of companies in the V4 group.
Results: Applying the TOPSIS method, it was found that Hungary's business environment is considered the most suitable for entrepreneurs. From the point of view of financial analysis indicators, it was found that companies in Poland were ranked best. Second place was occupied by Czech companies, followed by Hungarian companies. Companies in the Slovak Republic were ranked worst.
Novelty: The subjectivity of choosing the criterion weights and the lack of data might both be seen as research limitations. The difficulty lies in conducting a more in-depth study that may also be applied to a wider region. The added value of the work can be considered a mutual comparison of the

decision-making processes within the V4 group and a kind of advice for entrepreneurs, where one can do business with the best prospects for the future.

Keywords: financial analysis, financial health, business environment, Visegrád Four, Saaty's matrix, TOPSIS

JEL classification: D22, G33, L25

Introduction

The financial situation of companies and the business environment directly affect every entity that decides to do business. Currently, companies have several procedures and methods with which they can analyse the business environment and also analyse their financial situation (Ionescu, 2021). Financial-economic analysis was used to be the basic tool for analysing and predicting financial health (Hamilton, 2021). Financial analysis is a crucial component of a company's financial management because it provides feedback on the progress a company has made in each area of financial management, identifying the areas where it has succeeded in reaching its objectives and, conversely, the ones where it has fallen short of expectations (Valaskova *et al*., 2022). The purpose of financial analysis is to identify the causes that contributed to the current financial condition and to what extent. Often, the status of money is referred to as "financial health". Financial analysis is the primary instrument for analysing the economic operations of a corporation and lays the groundwork for future wise financial decisions. Financial analysis is significant because it quantifies economic phenomena, evaluates them qualitatively, and rates both economic activity and its outcomes. It is crucial to keep in mind that while assessing performance, the outcomes do not necessarily explain to the entrepreneur why anything occurred. The divergence is merely a result of the adjustments that have been made, and a business owner frequently needs to look for the root causes (Gajdosikova *et al*., 2022). The aim of this paper is to specify the financial health of a group of companies determined by selected indicators in relation to the business environment of the Visegrád Four countries, to interpret the obtained results and, based on them, to propose a complex of systemic measures for business practice. The analysis consists of several parts. The first part contains theoretical knowledge of the given issue. In the following parts, there is an analysis and comparison of the business environment of the Visegrád Four countries using decision-making processes. In the first

decision-making process, the business environment was evaluated based on various indicators such as average GDP per capita, unemployment, inflation, minimum wage, corporate income tax rate, Doing Business Index, Economic Freedom Index, European Innovation Index, Super index, time required for the fulfilment of actions during the establishment of a company, the share of fast-growing enterprises, measures taken during the COVID-19 pandemic by the states and the like (Dawson, 2021). As part of the second decision-making process, a database containing the balance sheets and profit and loss statements of 5,991 companies from the countries of the Visegrád Four was formed (using the Orbis database provided by Moody's Analytics Company). For these companies, the financial ratio indicators were calculated, which were then interpreted and compared between countries using the decision-making process. In both decision-making processes, Saaty's matrix was used to calculate the weights of the evaluation criteria. Subsequently, with the help of the obtained weights, the TOPSIS multi-criteria decision-making method was applied. The paper is divided as follows. The first section of the paper is devoted to the Literature review, where the most relevant pioneering studies are mentioned as well as the latest studies in the field. The information and procedures used to conduct the subsequent study are contained in the second section. The research findings and the discussion that follows are portrayed in the next section and summarizes the most important outputs, portrays the limitations of the study and future research challenges and also suggestions and recommendations for individual countries of the Visegrád Four. The focus is primarily on the weak points of the countries, which were discovered thanks to the implementation of both decision-making processes. The proposals and recommendations were developed for business practice in the individual countries of the Visegrád Four.

1. Literature Review

In recent years, it has become increasingly true that the environment in which people live and in which businesses operate is constantly changing. It is necessary to adapt more and more to the changing environment. If a company wants to be successful and competitive in the market, it must constantly analyse its financial situation. In general, only a financially healthy business can prosper and have a future in the market.

The first studies related to the prediction of financial health were created in the 1930s during the Great Depression. Altman, Smith and Winakor were among the first authors who dealt with the issue of the financial health of companies (Altman, 1968). These authors drew attention to the fact that businesses that fail show significantly different values of various

financial ratios compared to successful businesses (Kliestik *et al.*, 2019). W.H. Beaver (1966), M. Tamari (1984) and Altman (1968) are considered to be the founders of forecasting the financial development of companies. W. H. Beaver also examined a group of businesses, half of which consisted of prosperous businesses and the other half consisted of non-prosperous businesses (Beaver, 1966). Along with the creation of funds, the creation of a financial analysis was also developed. Initially, traders created manual analyses of their financial situation, which they used only for their needs (Grofcikova, 2020). Over time, the investigation of the financial situation of traders developed, the structure changed, and computer technology was also improved (Karpavicius, Yu, 2019). The principles remained essentially preserved. The modern method, which is referred to as financial analysis, originated in the USA. In Slovakia, the term financial analysis began to be used in practice in 1989. It was related to the creation and development of the market environment (Kotulic, 2007). Financial analysis is an important tool, thanks to which managers can transform information into useful dispositions necessary for managing a business. Financial health is viewed from several perspectives – liquidity, activity, indebtedness, and profitability (Bartosova *et al*., 2020). Knapkova (2013) understands financial analysis as a method of evaluating the financial management of a company, in which the obtained data are sorted, aggregated, and compared. Relationships between data are also quantified, causal connections are sought, and the development of these data is determined. Thanks to these activities, the informativeness of the processed data increases and their informational value increases (Gajdosikova *et al*., 2022). The information obtained helps to reach certain conclusions about the overall management of a company and its financial situation. This information represents an important basis for management. Sumani and Roziq (2020) claim that financial analysis helps reveal whether a company is sufficiently profitable, whether its capital structure is suitable, whether it can effectively use its assets, whether the company can pay its liabilities (Nurcan, Koksal, 2021). According to Klepac and Hampel (2016), the main purpose of financial analysis is the preparation of documents for high-quality decision-making about the functioning of a company. The claim that there is a close connection between accounting and business decision-making. Accounting presents monetary data values that are tied to a certain point in time and are more or less isolated (Ma, Xu, 2020; Akhtar *et al*., 2021). To assess the financial health of a company based on these data, it is necessary to subject them to financial analysis. The financial health of companies depends on profitability; it is necessary to take risk into account. As the corporate profitability grows, so does the profitability of invested capital, and this contributes to the growth of a company's financial health. A financially healthy company must be able to pay its obligations, that is, it must not have a liquidity problem

(Marinic, 2007). Liquidity is affected by the ratio of foreign financial resources to own invested capital. The smaller this ratio, the less vulnerable the company is if it achieves a worse economic result (Silaghi, 2018). The smaller the share of foreign resources, the smaller the burden of fixed interest payments in the future (Oresky, 2017). This liquidity was followed up by Lazaroiu *et al.* (2021), who argues that the collapse of a business in poor financial health usually occurs due to a change in liquidity. A financially healthy business has better prospects for obtaining external funds that it can use for business development (Grundy, Verwijmeren, 2020; Gepp, Kumar, 2015). The reason is that profit is the basic source of loan repayment and the management of constitution is an important internal source of development (Rejnus, 2014). According to Stofkova and Stofkova (2018) financial analysis is the first step by which a company moves towards meaningful decision-making. Financial analysis is effective only as a logical means that serves to evaluate and compare the obtained data. This data enables the creation of new, more valuable information than the original data (Cam, Ozer, 2021; Furlong, 2021). A company may face many problems during its activity (Sumiati, 2020). Depending on the type of problem, it is necessary to choose appropriate tools. They can be tools suitable for managing the company's cash (liquidity), tools for evaluating the recovery of receivables, and for preparing the company to implement financial decisions (Jankelova *et al*., 2021). The success or failure of the company is always reflected based on the financial situation. If the company permanently evaluates the results of its activities, it can make the right decisions and move towards effective activity (Tasaryova, Pakisova, 2021). Negative decisions by managers at different levels can have a long-term negative impact on the economic results of the company and thus on its financial health (Zavadsky *et al*., 2019). The higher the decision-making level of the company, the greater the impact of individual decisions on further results and the success of the company (Kalouda, 2015). For this reason, business people and managers should not underestimate decision-making and should increase the emphasis, above all, on strategic decision-making (Pereira *et al*., 2021; Akgun, Karataş, 2020). Continuous knowledge of the company's financial situation enables managers to make the right decisions when acquiring financial resources, when building the optimal financial structure of the company when providing business loans, when dividing profits, or when allocating free funds (Hooda *et al.*, 2021). In addition to knowing the financial situation, the company must examine and predict the business environment, including the factors that affect it (Hlawiczka *et al*., 2021). Every enterprise carries out its activity in a specific environment, which forms the business environment (Pham, Nguyen, 2020). The general environment of the enterprise includes elements that affect all enterprises (Chudik *et al*., 2017). These are economic, administrative, natural, political, and cultural factors (Xu *et al*., 2021). The specific environment

of a company should be also recognized, containing the elements related to a specific company in a specific time and space (Beerman, 1976). Business activity affects the external and internal business environment (Michalkova *et al.*, 2021). The external environment consists of factors and conditions that directly or indirectly influence the development and formation of business (Neumaier, Neumaierova, 2005). The external environment is objective to entrepreneurs and is independent of their requirements. It consists, for example, of macroeconomic policy and the legislative-political environment (Lajtkepova, 2016; Bui *et al*., 2021). Stefko *et al*. (2020) claim that the external environment consists of the social and cultural, political, and legislative, technical, and economic environment. The internal environment includes a company's resources, skills, and competencies (Stryckova, 2017; Sener *et al*., 2021). The business environment is related to the openness of the country's economy. In general, the more open the national economy, the more challenging is the business environment (Valaskova *et al*., 2021).

2. Data and Methods

The examination of the business environment of the Visegrád Four countries does play a significant role as a high-quality business environment is one of the basic prerequisites for the long-term competitiveness of a company and the growth of the market economy. Thus, the business environments of the Visegrád Four countries were examined through two decision-making processes (Valaskova *et al*., 2018; Xavier *et al.*, 2020). The methods of multi-criteria evaluation of variants can be divided into: simple methods for determining the usefulness of individual variants (basic variant method, PATTERN, weighted order method, etc.); methods using a pairwise comparison of individual variants (e.g., Saaty's method and methods based on sensitivity thresholds) (Cao *et al.*, 2019). Saaty's method and the TOPSIS method were used when solving decision-making processes (Saaty, 1990; Alexy, 2005). The main disadvantage of Saaty's method is its consistency, which indicates the level of credibility of the achieved result. The consistency is often not achieved in practice, and it can be expressed by the consistency coefficient, CI (Tomes, Alcnauer, 2014). The higher the CI value, the less consistent the reciprocal matrix (Cline *et al*., 2020; Lee, 2019). TOPSIS stands for Technique for Ordered Preference by Similarity to Ideal Solution. And the essence of the method is to assess variants according to their distance from fictitious variants – how close they are to the ideal and how far they are from the basal variant (Podhorska *et al*., 2020; Unvan, 2020). TOPSIS assumes a maximization criterion, so it is necessary to transform the minimization criteria (Kovacova *et al*., 2018; Zvarikova *et al*., 2017). As part of the first step of the TOPSIS method, it is necessary

to transform all criteria into maximization criteria. In the second step, the normalized criterion matrix $R = r_{ij}$ is constructed, where it is used:

$$R = \sum_{i=1}^{m} y_{ij}^2 \tag{1}$$

In the third step, the weighted criterion matrix $W = w_{ij}$ was created. Each column of the normalized criterion matrix R is multiplied by the corresponding weight v_{ij}. In the fourth step, the ideal (with the best variant values) and the basal variants (with the worst variant values) were calculated. The fifth step consists of calculating the distances of the variants from the ideal and also from the basal variant using the following formulas:

$$d_i^+ = \left(\sum^{k} (wij - Hj)^2 \right)^{\frac{1}{2}} \tag{2}$$

$$d_i^- = \left(\sum^{k} (wij - Dj)^2 \right)^{\frac{1}{2}} \tag{3}$$

where:

d_i^+ – distance from the ideal variant,

d_i^- – distance from the basal variant,

w_{ij} – elements of the W matrix,

H_j – value of set H,

D_j – value of set D.

The last step is the calculation of the relative indicators of the distance of individual variants from the basal alternative. Variants are located in the interval <0.1>. The value "0" is assigned to the basal variant and the value "1" to the ideal variant; the variant that reaches the maximum value is the optimal one (Kruzak *et al*., 2019).

Analysis of the Business Environment of countries of the Visegrád Four

In the first decision-making process, the evaluation criteria were formed based on the information obtained, which will then be used when choosing the most favourable business environment from the Visegrád Four countries. The decision problem is the selection of the best business environment for doing business. Subsequently, the financial health of selected companies operating in the Visegrád Four countries using financial analysis is analysed. These results are used again in the second decision-making process. Finally, the connection

between the results of both decision-making processes is determined. Small and medium-sized enterprises represent the most numerous components of enterprises in Europe (99%). The main factor of long-term economic competitiveness and also the sustainable development of small and medium-sized enterprises is the quality of the business environment. For this reason, the EU emphasizes the creation of a favourable business environment. SMEs in Central Europe operate primarily in the field of trade and industry. When forming the criteria, the most up-to-date published data were taken into consideration. The first researched criterion for comparing the business environment of countries was the **gross domestic product** (GDP) of the Visegrád Four. Table 1 shows the achieved GDP of the countries of the Visegrád Four from 2017 to 2020. Due to the different sizes of the countries, and the different numbers of inhabitants, these data are compared per capita. Another way is to compare GDP over time using the growth rate in percentage. When comparing GDP over time, it is necessary to adjust for price level differences. To adjust for price level differences, GDP is recalculated using purchasing power parity (PPP). This is a special exchange rate that takes into account differences in price levels.

Table 1. Changes in GDP per capita (PPS) in the V4 countries

Country	GDP per capita (PPS)				Average GDP per capita (PPS)	Ranking of the V4 countries
	2017	2018	2019	2020		
Poland	70	71	73	76	72.50	2.
Czechia	91	92	92	94	92.25	1.
Slovakia	71	71	70	71	70.75	4.
Hungary	69	71	73	74	71.75	3.
Criterion	Maximization					

Source: own elaboration.

The nature of this criterion will be maximization in the decision-making process. The best position within this criterion was the Czech Republic. It is followed by Poland and Hungary and in the last place is Slovakia. The next macroeconomic factor examined is the level of **unemployment** as important indicators of a state's economic performance in Table 2.

Based on the tabular representation of the development of unemployment over four years in the countries of the Visegrád Four, the clear dominance of the Czech Republic can be seen in terms of the lowest unemployment during the analysed period. This criterion is minimized in the decision-making process. Other important macroeconomic indicators are also examined. The goal is to express a summary table of the decision-making process, where these indicators are considered.

Table 2. Development of unemployment in the V4 countries

Country	Unemployment (%)				Average unemployment (%)	Ranking of the V4 countries
	2017	2018	2019	2020		
Poland	4.9	3.9	3.3	3.2	3.83	2.
Czechia	2.9	2.2	2.0	2.6	2.43	1.
Slovakia	8.1	6.5	5.8	6.7	6.78	4.
Hungary	4.2	3.7	3.4	4.3	3.90	3.
Criterion	Maximization					

Source: own elaboration.

The minimum wage represents the lowest possible wage paid to an employee for full-time work per month. This minimum wage reaches a different level in each country as can be seen in Table 3.

Table 3. Development of the minimum wage in the V4 countries

Country	Minimum wage in €				Average minimum wage (2018–2021)	Ranking of the V4 countries
	2018	2019	2020	2021		
Poland	502.75	523.09	610.79	614.08	562.68	1.
Czechia	477.78	518.97	574.62	579.22	537.65	3.
Slovakia	480.00	520.00	580.00	623.00	550.75	2.
Hungary	444.69	464.20	487.10	442.44	459.61	4.
Criterion	Minimization					

Source: own elaboration.

The highest average minimum wage in the last five years was paid in Poland (€562.68). Poland is followed by Slovakia with a lower average minimum wage (€550.75). **The Harmonized Index of Consumer Prices** (HICP) represents an indicator thanks to which the price stability of the state can be evaluated. The goal is to achieve a comparability of consumer price indices of EU countries (Table 4). Thanks to this index, inflation can be detected on a comparable basis because it considers national differences.

Slovakia shows the lowest average value of the harmonized index of consumer prices. It is followed by the Czech Republic, Poland, and Hungary shows the highest price growth. Another criterion is the **national currency** used by the given country (Table 5). This criterion was maximized, so the goal is for the country to accept the euro.

Table 4. Development of the harmonized index of consumer prices in the V4 countries

Country	HICP					Average HICP (2017–2021)	Ranking of the V4 countries
	2017	2018	2019	2020	2021		
Poland	2.4	2.0	2.6	3.4	5.2	3.12	3.
Czechia	2.4	2.0	2.6	3.3	3.3	2.72	2.
Slovakia	1.4	2.5	2.8	2.0	2.8	2.30	1.
Hungary	2.4	2.9	3.4	3.4	5.2	3.46	4.
Criterion	Minimization						

Source: own elaboration.

Table 5. National currency used in the V4 countries

Country	National currency	Euro	Transformation to a quantitative criterion
Poland	Polish zloty	NO	0
Czechia	Czech crown	NO	0
Slovakia	Euro	YES	1
Hungary	Hungarian forint	NO	0

Source: own elaboration.

The next examined criterion was the **World Bank's Doing Business project**. As part of the Doing Business survey, the World Bank examines the regulations of the business environment of world economies. As part of this survey, the business environment is assessed based on specific criteria (e.g., obtaining building permits, bank loans, business registration, etc.) using the data of the latest report published in 2020 (see Table 6).

Table 6. Index of Doing Business within the V4 countries for 2020

Country	Reached score	Global ranking	Ranking of the V4 countries
Poland	76.4	40.	1.
Czechia	76.3	41.	2.
Slovakia	75.6	45.	3.
Hungary	73.4	52.	4.
Criterion	Maximization		

Source: own elaboration.

According to the preceding table, it can be said that the best value of the V4 countries in the Doing Business index for 2020 was obtained by Poland and the worst by Hungary. The main

problem of the Slovak Republic compared to the V4 countries is the unpredictability of the business environment as a result of frequent changes to fundamental laws. The next monitored criterion is the **index of economic freedom** (EFI). EFI represents a summary index that serves to measure a country's economy, which is market oriented. This index is compiled by the Heritage Foundation and the Wall Street Journal. Thanks to the index of economic freedom, countries are divided into free, mostly free, mostly unfree, and unfree economies. The division of countries is realized based on a point evaluation, whereby a country can receive from 0 to 100 points. The higher the EFI value achieved by the country, the higher the economic freedom (see Table 7).

Table 7. Index of Economic Freedom 2020

Country	Reached score	Score of EFI	Global ranking	Ranking of the V4 countries
Poland	69.7	slightly single	41st	second
Czechia	73.8	mostly single	27th	first
Slovakia	66.3	slightly single	61st	fourth
Hungary	67.2	slightly single	55th	third
Criterion	Maximization			

Source: own elaboration.

Within the index of economic freedom, the Czech Republic achieved the best ranking among the V4 countries. This country was ranked 27th globally and 14th out of 45 countries in Europe. In last place is the Slovak Republic, which occupied the 61st position in the freest countries and finished in 33rd place within Europe. The country would gain greater economic freedom if there was significant reform of the judicial system or a significant reduction in spending. **The Global Competitiveness Index** is created by the World Economic Forum, which evaluates countries according to their ability to achieve sustainable economic growth in the medium term. This index examines 12 pillars, which are e.g., institutions, infrastructure, ICT adoption, product market, labour market, market size, financial system, macroeconomic stability and the like. All 12 pillars are evaluated with points from 0 to 100 (see Table 8).

The Czech Republic was ranked best among the V4 countries. In second place was Poland, which maintained its 37th place for the second year in a row. In hird place was the Slovak Republic. Macroeconomic stability was evaluated positively within Slovakia. **The European Innovation Scoreboard** (EIS) provides an annual overview of innovation results and assesses the performance of EU member states in the field of research and innovation. Based on the

calculation of this aggregate innovation index for 2021, the member countries are divided into four performance groups: *budding innovators*, *moderate innovators*, *strong innovators* and *innovation leaders* (European Innovation Scoreboard, 2021), (see Table 9).

Table 8. Global Competitiveness Index of the V4 countries for 2020

Country	Reached score	Global ranking	Ranking of the V4 countries
Poland	68.9	37th	second
Czechia	70.9	32nd	first
Slovakia	66.8	42nd	third
Hungary	65.1	47th	fourth
Criterion	Maximization		

Source: own elaboration.

Table 9. Ranking of the V4 countries according to the European Innovation Scoreboard 2020

Country	EIS	Global ranking	Ranking of the V4 countries	Group
Poland	58.50	24th	fourth	Budding Innovators
Czechia	83.90	17th	first	Mild Innovators
Slovakia	63.10	23rd	third	Budding Innovators
Hungary	67.90	22nd	second	Budding Innovators
Criterion	Maximization			

Source: own elaboration.

Almost all the criteria that can be used to enhance the decision-making process, which aims to identify the best country for business, have been examined in this section.

Analysis of the financial health of companies of the Visegrád Four

This subsection of the paper is focused on the determination of the financial health of selected companies operating in the Visegrád Four countries. The ratios of the financial analysis for individual companies were calculated. This database of enterprises consisted of 1,548 Slovak enterprises 1,216 Czech enterprises; 1,840 Polish enterprises; 1,387 Hungarian enterprises and was formed based on the financial data provided by Moody's Analytics Company (Orbis database). First, the ratio indicators of the financial analysis were calculated for companies within individual countries, and then their median values. These median values were then used as a part of the decision-making process. As a part of this decision-making process, the weights

Table 10. Calculation of financial analysis indicators of the V4 countries (2017-2020)

Indicators of financial analysis	Median values of countries				Criterion
	Slovakia	Czechia	Poland	Hungary	
Liquidity indicators (€)					
Cash ratio	0.41	0.23	0.27	0.33	Maximization
Quick ratio	1.13	0.79	0.91	1.05	
Current ratio	1.29	1.04	1.15	1.28	
Activity indicators					
Turnover time indicators (days)					
Stock turnover time	0.098	1.657	6.196	4.683	Minimization
Turnover period of total assets	411.628	466.662	390.589	455.442	
Turnover period of fixed assets	67.334	98.721	104.898	106.607	
Turnover period of current assets	261.825	255.457	217.863	242.190	
Collection period of short-term receivables	63.135	59.640	56.275	57.042	
Collection period of short-term trade receivables	60.590	62.084	62.338	65.292	Minimization
Maturity of short-term liabilities	147.741	214.486	152.230	164.147	
Maturity period of short-term liabilities from business transactions	40.305	37.812	39.950	41.409	
Turnover indicators (€)					
Turnover of total assets	0.784	0.618	0.763	0.688	Maximization
Turnover of fixed assets	1.309	0.982	1.444	1.210	
Turnover of current assets	1.614	1.639	1.821	1.795	
Inventory turnover	0.000	0.053	0.844	0.759	
Bond coefficients (coefficient)					
Commitment of total assets	0.807	0.866	0.713	0.740	Minimization
Commitment of fixed assets	0.118	0.177	0.171	0.158	
Obligation of current assets	0.532	0.520	0.433	0.461	
Inventory commitment	0.000	0.001	0.011	0.010	
Indebtedness indicators					
Debt level in %	63.273	76.552	68.600	63.722	Minimization
Degree of self-financing in %	36.727	23.448	31.400	36.278	Maximization
Financial leverage	1.853	1.567	2.070	1.793	Minimization
Credit indebtedness	0.000	0.000	0.000	0.000	Minimization
Interest coverage	0.000	0.000	0.000	0.000	Minimization
Profitability indicators (%)					
Return on sales ROS (EBITDA)	11.678	7.514	7.765	10.746	Maximization
Return on added value (EBITDA)	55.075	48.779	40.231	48.790	
Return on equity ROE (EBITDA)	34.210	25.475	28.491	32.371	
Return on Total Equity ROA (EBITDA)	12.570	7.960	10.189	12.258	

Source: own elaboration.

of individual indicators, i.e., criteria, were set, using Saaty's method. The TOPSIS method was applied to solve the decision-making process. Table 10 contains a summary calculation of the median values for the individual examined indicators of the financial analysis for the V4 countries, including the nature of the criteria due to the decision-making process. The previous values were processed as a part of the decision-making process, in which the decision-making problem was the selection of the optimal business environment from the countries of the Visegrád Four.

3. Results

Saaty's method was applied to these general criteria, with the help of which the weights of the general criteria were calculated and then, using the TOPSIS method, the order of the business environments of the Visegrád Four countries was determined based on their suitability for the business. Table 11 shows the calculated weights for individual criteria.

Table 11. Weights of general criteria (2017–2020)

Criterion	Standardized weights
Average GDP Per Capita (PPS) (2017–2020) (k_1)	0.1641
Average Unemployment (2017–2020) (k_2)	0.0736
Average Minimal Wage (2017–2020) (k_3)	0.1706
Average of HICP (2017–2020) (k_4)	0.0971
National Currency (k_5)	0:1241
Doing Business 2020 (k_{10})	0.0981
Index of economic freedom – EFI (k_{11})	0.0538
Global Competitiveness Index (GCI 4.0) (k_{12})	0.0884
European Innovation Scoreboard (2020) (k_{14})	0.1302
Total	1.0000

Source: own elaboration.

Using the obtained criteria weights, a ranking of the individual V4 countries was created according to the advantages of the business environment using the TOPSIS method. After the implementation of TOPSIS, the distance between each variation and the ideal and the base variant was calculated. The outcomes are given in Table 12.

Table 12. Calculation of the distances of variants from the ideal and basal variant

Country	d_i^+	d_i^-	c_i	Ranking
Poland	0.1621	0.2814	0.6344	first
Czechia	0.3452	0.1248	0.2654	fourth
Slovakia	0.2801	0.1650	0.3707	third
Hungary	0.2311	0.3254	0.5847	second

Source: own elaboration.

Based on the obtained values, the location of the countries of the Visegrád Four could be determined within the decision-making process. The maximum value was achieved by Hungary, and therefore it is evident that *Hungary* represents the best business environment among the Visegrád Four countries according to the general criteria.

Results of the comparison of the company's financial health

The first step in the implementation of this decision-making process is the determination of the nature of the individual criteria (maximizing, minimizing). The allocation to individual criteria was portrayed in the previous table. The next step is the calculation of the weights of individual criteria using Saaty's method (see Table 13).

Table 13. Standardized criteria weights (2017–2020)

Criterion	Standardized weights
1	2
Cash ratio	0.1038
Quick ratio	0.0304
Current ratio	0.0650
Stock turnover time	0.0174
Turnover period of total assets	0.0161
Turnover period of fixed assets	0.0327
Turnover period of current assets	0.0195
Collection period of short-term receivables	0.1106
Collection period of short-term trade receivables	0.0571
Maturity of short-term liabilities	0.0192
Maturity period of short-term liabilities from business transactions	0.0575
Turnover of total assets	0.0121
Turnover of fixed assets	0.0522
Turnover of current assets	0.0281

1	2
Inventory turnover	0.0172
Commitment of total assets	0.0229
Commitment of fixed assets	0.0267
Obligation of current assets	0.0232
Inventory commitment	0.0466
Degree of indebtedness	0.0247
Degree of self-financing	0.0325
Financial leverage	0.0280
Credit indebtedness	0.0379
Interest coverage	0.0168
Profitability of sales	0.0300
Profitability of added value	0.0291
Return on equity	0.0212
Return on total capital	0.0217
Together	1.0000

Source: own elaboration.

Table 13 shows the calculated weights of the criteria by Saaty's method. The highest weight was given to the collection period of short-term receivables (0.1106) and the lowest weight was given to the turnover of total assets (0.0121). These weights were subsequently used in the TOPSIS method.

Table 14. Calculation of the distances of variants from the ideal and basal variant

Country	d_i^+	d_i^-	ci	Ranking
Slovakia	0.0915	0.0830	0.4758	fourth
Czechia	0.0754	0.0815	0.5194	second
Poland	0.0722	0.0938	0.5650	first
Hungary	0.0859	0.0796	0.4809	third

Source: own elaboration.

The result of applying the TOPSIS method is in Table 14, which shows the distance of the variants (V4 countries) of the variant from the ideal and the basal variant. The highest value was obtained by *Poland*, that is, based on the indicators of financial analysis, it was ranked as a country with the best business environment among the V4 countries. According to the results of the financial analysis, the Slovak Republic has the least suitable business environment for doing business.

4. Discussion

In the previous section, two decision-making processes were implemented by which it was possible to determine the order of the business environments of the Visegrád Four countries according to suitability for business. In the first decision-making process, the countries were evaluated based on our chosen criteria, which were designated as general criteria, and in the second decision-making process, the countries of the Visegrád Four were compared based on the calculated ratio indicators of the financial analysis. The outcomes are favourable for Poland and Hungary. The main reason is the independence and different criteria based on which the countries of the Visegrád Four were analysed. In the end, it cannot be unequivocally stated which business environment is optimal for doing business. Every business environment is somewhat specific, and different, and each of them has different strengths and weaknesses (Kiestik *et al*., 2020). For entrepreneurs, it is important to examine the business environment comprehensively (Hamilton, 2021) and also to focus on what is most important for a specific company (Gregova *et al*., 2021). For one entrepreneur, it may be good results within the indicators of the financial analysis of companies, and for another entrepreneur, it may be more important, for example, the evaluation of the business environment from various international institutions (Akgun, Karataş, 2020; Mazanec *et al*., 2022). The economic level of the countries of the Visegrád Group is getting closer and closer to the countries of Western Europe. Currently, this growth is slower because the business environment has faced new and especially unexpected situations in recent years (Grundy, Verwijmeren, 2020). According to the implemented decision-making processes the countries of the Visegrád Four are very similar in the field of the business environment (Rejnus, 2014). Indeed, there are distinctions that distinguish countries from one another, and these differences either improve or lessen their competitiveness and appeal to investors and entrepreneurs (Hooda *et al*., 2021; Klepac, Hampel, 2016). Thanks to the decision-making process in which the Visegrád Four countries were compared according to the general criteria, the following facts were found. The average unemployment rate in the countries of the Visegrád Four is approximately at the same level (Tomes, Alcnauer, 2014; Wasielewska *et al*., 2014), but the Slovak Republic shows the highest average unemployment in recent years. For this reason, the Slovak Republic should analyse the causes of this higher unemployment and take the necessary measures (Pham, Nguyen, 2020; Stefko *et al*., 2021). There should be a reduction of levies for low-income employees, or self-employed; providing rewards to companies that employ people without experience in the field; providing rewards for businesses that will create new jobs; focus more on pupils etc. (Zvarikova *et al*., 2017; Oresky, 2017), focus on the

experience of students during their studies, who will subsequently obtain better employment on the market compared to people without experience in the field. From the point of view of the minimum wages of the countries of the Visegrád Four, the Slovak Republic, the Czech Republic and Poland provided their employees with approximately the same average minimum wage (€560–€582). The exception is Hungary, where the average minimum wage in recent years has been €476, which represents a significant difference. Therefore, Hungary should reconsider the average minimum wage and try to bring it closer to the countries of the Visegrád Group (Sener *et al*., 2021). In the countries of the Visegrád Four, the ambiguity of laws, frequent changes in legislation, excessive bureaucracy, and low enforcement of the law are considered serious problems (Akhtar *et al*., 2021). It is, therefore, recommended to all the countries of the Visegrád Four to improve the timeliness of court proceedings and to support the enforcement of law in the countries, because this long period can discourage many potential entrepreneurs (Tasaryova, Pakisova, 2021; Unvan, 2020). In Hungary, it takes 7 days to complete the steps for establishing a company. It takes the longest time to establish a company in Poland (37 days). Therefore, the replacement of these tasks in electronic form is highly recommended in each analysed country. In the second decision-making process, all countries of the Visegrád Four showed lower liquidity as recommended by (Silaghi, 2018; Sumiati, 2020). The Czech Republic and Poland showed lower liquidity, while the Slovak Republic and Hungary showed higher values. For this reason, Czech and Polish companies should implement measures to increase liquidity, by increasing the volume of monetary assets by means of refinancing receivables, assignment of receivables (for example, factoring, forfaiting) (Xavier *et al*., 2021; Valaskova *et al*., 2021). In the end, it may be stated that it is quite challenging to anticipate how the current business climate will develop. The best course of action for organisations, though, is to continuously assess how the business climate is changing and thus keep an eye on their financial status.

Conclusions

The business environments of individual countries was analysed on the basis of twenty-two criteria including the average GDP per capita, average unemployment, average minimum wage, national currency, corporate income tax rate, amount of taxes and levies paid from business profit, and the time required to enforce a contract through court proceedings. The economic Freedom Index, Doing Index Business, Global Competitiveness Index, Corruption Perception Index, European Innovation Scoreboard, measures were also taken by the state during the coronavirus and similar. The weights of individual criteria were assigned based on Saaty's

method. These weights were applied in the TOPSIS method, with the help of which the ranking of the countries of the Visegrád Group was determined with respect to the established criteria. Based on the TOPSIS method, Hungary's business environment was found to be the most suitable business environment, followed by the Slovak Republic and the Czech Republic. The least suitable business environment from the point of view of this decision-making process is Poland. Subsequently, the second decision-making process was implemented, in which the ratio indicators of the financial analysis were calculated for almost 6,000 companies operating in the countries of the Visegrád Four. These calculations were then used as input variables in the second decision-making process, using the TOPSIS method. From the point of view of financial analysis indicators, it was found that companies in Poland were ranked as the best ones, followed by Czech companies, and then the Hungarian ones. Companies operating in the business environment of the Slovak Republic were ranked the worst in terms of the results of the financial analysis. With the help of previous decision-making processes, the strengths and weaknesses of the Visegrád Four countries were revealed. This limitations of this study include paucity of data and subjectivity in choosing the criterion weights for the calculations. It would be appropriate to employ all of the EU nations as well to properly verify the development of the business environment. The implications of the relevant study for the entire European Union might be seen as future problems in this research as well as the inclusion of the pandemic years (2020–2023) to map the changes in the development of the business environment in the four Central European countries. However, the results add value by providing an up-to-date perspective on the worldwide situation and can be used as an advisory document for any future entrepreneurial decision-making processes in this field.

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