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The impact of selected HRM factors on company's survival of SMEs: Empirical research in V4 countries

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Abstract. This paper aimed to present and quantify the impact of significant HRM factors on the survival of SMEs in the V4 countries. In June 2022, researchers conducted a study in the Visegrad Four countries to understand the attitudes of SMEs. The study employed a random sampling method and included 1,398 respondents. The established scientific hypothesis was verified using linear regression modelling at a significance level of $\alpha = 5\%$. The study found a link between specific HR practices and the medium-term survival of SMEs in the Visegrad Four countries. The intensity of this dependence varies across the V4 countries. Czech respondents emphasized the importance of investing in

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improving the qualification of their employees in the context of firm sustainability. At the same time, Slovak SMEs drew attention to the importance of the existing incentive system for employees. SMEs in Poland strongly and positively perceived the importance of human capital in the company and regular evaluation of employee performance in their attitudes. A somewhat surprising finding is that in Hungary, the individual HRM factors were not statistically significant. The aggregate model for all V4 countries showed the highest intensity of dependence between the defined variables.

Keywords: small and medium-sized enterprises, Human Resource Management, factors of HRM, company's survival

JEL Classification: J24, J53, L26

1. INTRODUCTION

Despite their crucial role in the global economy, small and medium-sized businesses face constant threats that could jeopardize their survival. This makes understanding how SMEs endure these challenges a vital area of research (Kim, 2021; Belas & Rahman, 2023).

Every firm strives for sustainable growth, a key factor in its long-term survival. This goal necessitates strategic and financial planning (Vukovic et al., 2022; Khan et al., 2023; Parluhutan Sinaga & Sitorus, 2023; Staniek, 2023).

Pursuing economic survival in the current turbulent economic environment and intensifying competition, many firms are adopting significant strategic changes in corporate governance (Bubenik et al., 2022). These strategic changes aim to ensure firms thrive and stay competitive in the long run. According to the authors, the key to success is to focus on critical internal processes within the firm aimed to strengthen the factors that positively influence firm performance (financial management and customer orientation). In this context, Górný (2019) states that the growth and improvement of firms depend critically on the quality management of a wide range of internal and external factors.

According to Kim (2021), as technology advances, the Industrial Revolution 4.0 is the primary global economic trend and a new paradigm for businesses looking to grow sustainably. The author also emphasizes how research is necessary to ensure the survival and expansion of SMEs because Industrial Revolution 4.0 is unrelated to their needs. In this scenario, efficient human resource management (HRM) will remain crucial.

HRM is an essential part of SME's corporate management. The application of quality HRM tools can contribute significantly to the survival of the company due to the considerable specificities of these companies. Sima et al. (2020) and Filippaios et al. (2019) offer an interesting idea in this regard. According to the authors, firms with an effectively collaborative multigenerational workforce have a specific strategic advantage because people of different ages have different life experiences and knowledge, which can be effectively exploited for the firm's growth.

This research examines the impact of high-quality HRM on firm survival. The research can be described as original and excellent as it is based on the attitudes of entrepreneurs from the SME segment. The research is quite robust and examines the attitudes of SMEs in the Visegrad Four countries (V4 countries).

The structure of this article is as follows: In the first part, the results of relevant scientific research are presented. In the next section, the aim of the study, methodology and data are described. In the results

section, the findings of the empirical research and a brief discussion of them are presented. In the conclusion, the main results of the research are formulated.

2. LITERATURE REVIEW

Numerous different factors that affect financial performance have an impact on the survival of SMEs'. In the case of long-term problems with financial performance, the firm usually goes out of business. Of course, this process can also occur in the case of a one-off extreme market shock (Virglerova et al., 2021; Tomášková & Kaňovská, 2022; Malkowska & Uhruska, 2022).

The first group of factors that determine the survival of a firm is financial management. The assessment of these factors accurately indicates, first of all, the bankruptcy models, which are found extensively in scientific studies. However, these models are not the subject of our research.

According to Vukovic et al. (2022), the fundamental financial aspect of sustainable firm growth is based on the fact that the actual growth of a company should be in line with its financial resources. The crucial factor is the amount of equity capital and the capital structure (Cerkovskis et al., 2022; Momany et al., 2024; Xie, 2024). The results of their research indicate that low liquidity and high financial leverage have a significantly negative impact on the sustainable growth of the firm, while the profitability of the firm has a significantly positive impact on sustainable growth. In this context, Lozano-Torró et al. (2019) emphasize that effective risk management is vital for firm survival.

Ayadi et al. (2021) examined the survival prospects of reorganized companies in France. Their objective was to identify the determinants that accelerate or shorten the time to failure of reorganized firms. According to the authors, the failure process of a reorganized firm is similar to that of a new firm. The study's findings indicate that the following five covariates - firm size, profitability, liquidity, industry profitability, and inflation rate - have a favorable effect on a firm's ability to survive. Additionally, they identified the two most important adverse factors - shifting interest rates and financial leverage. The authors also present a fascinating finding: *"When a firm survives for five or more years, the probability of it failing in the near future becomes low."* Other significant factors affecting the financial condition of businesses in particular national settings were listed by Krasteva & Nagy (2022).

Rostami et al. (2022) highlight the importance of optimal financial leverage. According to the authors, the growth and survival of companies depend on this factor because optimal financial leverage can bring maximum value to the firm's owners. The decision on the mix of financial leverage is the responsibility of firm managers, and their decisions may be influenced by their characteristics. This largely intuitive and spontaneous way of firm managing is typical for SMEs, where the personality of the owner or manager is crucial for corporate management. The authors highlight the need to eliminate 'managerial myopia'. The authors argue that it is "managerial myopia" that harms the speed of adjustment of the firm's financial leverage towards optimal financial leverage.

In assessing the financial factors of firm sustainability, it should be highlighted that SMEs have many financial constraints on external financing, which leads them to prefer internal sources of finance. This approach essentially limits their development opportunities (Karas & Režňáková, 2021; 2023).

The second important group of factors that determine the survival of a firm are non-financial factors. The application of quality management practices is a significant factor with regard to financial performance, according to León-Gómez et al. (2022) and Potkany et al. (2022a). These factors can be found in various areas of corporate management and represent a mediating element in shaping the financial performance of the firm. The degree of an internal audit is very important when it comes to quality.

According to Kai et al. (2022), any firm's ability to survive and grow depends on the quality of its internal audit. The author focused on creating an index to assess "internal audit quality using the common

approaches of balanced scorecard, Delphi process and analytical hierarchy process" with five dimensions (stakeholders and their satisfaction, stakeholder contribution, firm's financial performance, internal audit process, and learning and growth in the field). Similar findings are obtained by Derun & Mysaka (2021).

Kim (2021) in his study evaluated the variables affecting the sustainable growth of SMEs in the context of the digital transformation of the economic environment. The author highlights the importance of business model innovation for the sustainable growth of SMEs. Gallo et al. (2023) and Straková et al. (2022) formulate similar conclusions in their study. Kim (2021) identified management, technology, and technical knowledge in marketing and innovation as the most important determinants of firm performance.

This view has been confirmed by other authors. For instance, according to Ma et al. (2022), innovation in science and technology is crucial to a company's ability to survive and grow in the future. It is the responsibility of management to foster the company's technological advancement and to apply new technological developments in the framework of the company's increasing competitiveness. Currently, these activities are not limited to large companies of strategic importance but are also emerging in the SME sector (Oliveira et al., 2019; Arif et al., 2022).

On the other hand, Grishunin et al. (2022) point out that firms that are implementing innovation-focused strategies or digital transformation are exposed to significant long-term risks (similar conclusions states Androniceanu, 2023; Machova et al., 2023; Androniceanu et al., 2022; Bosovska et al., 2023). The authors believe that inadequate handling of these risks destroys a company's worth and casts doubt on its ability to survive. They point to the need to guard against "strategic myopia", which prevents strategic risks from being identified and addressed promptly, and as a consequence, limits investment into physical and intellectual capital. This view is also supported by Zhang (2021). According to the author, firms that adopt more innovative measures in product development and invest more in R&D face more significant financial constraints due to the practical expenses, which negatively affects their financial performance. Potkany et al. (2022) assert that the field of effective application of controlling principles is linked to risk elimination and cost control.

Ghuslan et al. (2021) emphasize the importance of a firm's reputation in its survival process. According to the authors, a firm's reputation is the most valuable corporate asset because it can provide several competitive advantages. In this context, they call for top management to perform their roles and responsibilities in an accountable and transparent manner, which will result in the growth of the firm's management efficiency and enhance its reputation.

Pietruszka-Ortyl (2019) posits that a firm's ability to survive depends on its focus on providing high-quality products and services. The author claims that because consumers are becoming less tolerant of lower-quality goods and services in the current competitive climate, businesses must embrace quality culture as a fundamental value if they are to thrive.

HRM-related issues are an essential factor in the context of firm survival.

Gahlawat and Kundu (2019) reported that strategic HRM positively influences employee behaviour and organizational performance. In addition, it has a positive impact on employee creativity, job satisfaction, commitment, and leadership skills. Most importantly, it has a positive impact on employee turnover. This argument suggests how the firm's competitive advantage can be increased by developing employees' skills and motivation. When considering any strategic decision, it is essential to communicate with the people in the firm so that senior managers understand their requirements, capabilities, goals and timeframe and gain support for the upcoming changes in the firm. These findings are aligned with conclusions on positive changes of firm performance under the influence of social capital growth (Mishchuk et al., 2023).

Castro-González et al. (2021) examined the impact of corporate social responsibility (CSR) practices on employee turnover. The authors state that employee turnover is a crucial issue that can threaten the firm's survival in the context of its financial performance (decline in revenues or increase in costs).

According to the authors, the implementation of CSR practices leads to a reduction in reputational risk and an increase in organizational pride among employees. The authors emphasize that employee retention is an important step in the firm's management activities. Employee retention is necessary because employee turnover imposes significant costs from both customer and HRM perspectives (recruiting suitable employees, training costs, and other costs).

Xie et al. (2022) consider employee attitudes and behaviour an essential factor for firm survival. According to the authors, employees' loyalty and satisfaction with the corporate culture are the basis for sustainable firm development. Like Castro-González et al. (2021), the authors highlight the negative impact of unwanted turnover in the firm: "Employees are the foundation of the company and its guarantee for its sustainable development."

According to Górný (2019), a company's ability to survive in a setting that is becoming more and more competitive depends on its ability to grow continuously. It is vital to pinpoint areas that require improvement in this particular environment. A company's ability to survive is largely dependent on numerous internal and external factors. Improving employees' working conditions is one of the core areas.

Saks (2022) examined HRM practices in the context of employee engagement. According to the author, a careful approach to HRM creates an appropriate organizational climate that increases employee engagement, which will translate into employees being more interested in the company they work for and more engaged in their work tasks. In this context, the author stresses that careful HRM practices should include, first of all, the following areas: employee training, flexible working conditions, work-life balance, participation in company decision-making and career development.

Alsafadi & Altahat (2021) looked into how HRM procedures could boost employee productivity. The results of their research showed that appropriate HRM approaches had a positive impact on employee performance growth as well as job satisfaction and its components (job stability and job enrichment). The successful management needs of a company needs to create conditions for employee satisfaction because this factor increases their commitment to achieving corporate goals.

Fenech (2022) sees positive implications in the SME segment in reaping the benefits of more efficient HRM through automation, which saves time and creates more room for strategic business decisions. Investing in social media, mobile, and cloud technology is delivering a return on investment for companies. The author points out that the new generation entering the job market values companies that do not resist digital transformation. Companies whose culture is not aligned with such a transformation may lose out on talent.

Based on scientific research, it is evident that properly configured HRM tools significantly improve the performance of SMEs, a necessary condition for the company's survival.

Based on the presented results of scientific studies, the following scientific research question was defined:

RQ: What is the intensity of the impact of HRM on firm survival in the SME segment in the V4 countries?

3. AIM, METHODOLOGY, AND DATA

This paper aims to present and quantify the impact of significant HRM factors on the survival of SMEs in the V4 countries.

The empirical research, which aimed at identifying the attitudes of SMEs, was conducted in June 2022 in the Visegrad Four countries (Czech Republic, Slovakia, Poland, and Hungary). The selection of respondents was carried out using a random sampling method. Only owners or top managers of the enterprise could answer the questions. The questionnaire was distributed in each country in the national

language of the respondents. Control questions were used to check the consistency of the answers for each surveyed area (a question asked differently, synonymously, but with the same meaning as the previous one).

The total number of respondents from the V4 countries was 1398. In the Czech Republic, the total number of respondents was 347 (24.8%), in the Slovak Republic, the total number of respondents was 322 (23.0%), in Poland, the total number of respondents was 381 (27.3%), and in Hungary, the total number of respondents was 348 (24.9%). The most significant number of firms did business in services 368 (26.3%) and trade 264 (18.9%), followed by the following areas: 226 (16.2%) manufacturing, 226 (16.2%) tourism, 112 (8.0%) construction, 54 (3.8%) transport, 46 (3.3%) agriculture, and 102 (7.3%) of respondents indicated other business sectors. Of the total respondents from V4 countries, 48.5% were male and 51.5% were female. Respondents expressed their attitude to the following statements using a 5-point Likert scale with the following wording: 1 - strongly agree, 2 - agree, 3 - neither agree nor disagree (N/A), 4 - disagree, 5 - strongly disagree.

The statements to which the respondents expressed their attitude are as follows:

Dependent variables:

y - Our firm will survive in the market in five years.

Independent variables:

x1 - I consider the people in the firm to be the most crucial asset.

x2 - I consider human resource management to be the most important area of corporate management.

x3 - I regularly evaluate the performance of my subordinates and motivate them to innovate their working practices.

x4 - I apply a participative management style (I consider the opinions of colleagues and employees when making decisions).

x5 - I devote much time to personnel management in my management work.

x6 - I invest much money in improving the skills of our employees.

x7 - I have developed a motivation system for employees.

The following scientific hypotheses were defined in the research:

H1: The acceptance of people as the most essential capital in a company has a significant impact on the perception of the company's survival in the V4 countries.

H2: The perception of HRM as the most crucial area of corporate management has a significant impact on the perception of the company's survival in the V4 countries.

H3: Regular employee performance appraisals have a significant impact on the perception of the company's survival in the V4 countries.

H4: The application of participative management style has a significant impact on the perception of the company's survival in the V4 countries.

H5: Sufficient time for HRM has a significant impact on the perception of the company's survival in V4 countries.

H6: Investment in the upskilling of employees has a significant impact on the perception of the company's survival in the V4 countries.

H7: The developed system of material employee involvement has a significant impact on the perception of the company's survival in the V4 countries.

The regression analysis method was used to verify the scientific hypotheses at the significance level $\alpha = 5\%$. Linear regression modelling (LRM) was used for linear scaling of responses in quantitative research (Likert scale with scores 1-5). Positive responses to the independent variables (x1 – x7) should lead to positive perceptions of the dependent variable (y) - verifying the dependence of y1 on x1-x7 statements

(independent variables: x1-x7) among SME owners and top managers in every single V4 country. Multicollinearity was assessed through the VIF value.

4. EMPIRICAL RESULTS AND DISCUSSION

The regression model findings for each of the V4 nations individually as well as for the V4 countries collectively are displayed in the following tables.

Table 1

Regression and correlation analysis for the Czech Republic

<i>Descriptive</i>	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>Mean</i>	2.0086	1.7262	2.0000	2.0663	2.0288	2.2680	2.5187	2.4236
<i>Standard Error</i>	0.0479	0.0475	0.0467	0.0517	0.0495	0.0535	0.0592	0.0553
<i>Standard Deviation</i>	0.8915	0.8850	0.8702	0.9639	0.9213	0.9972	1.1026	1.0295
<i>Kurtosis</i>	0.6250	2.8146	1.7024	0.8501	1.3695	0.3349	-0.2155	0.0852
<i>Skewness</i>	0.7955	1.5211	1.0323	0.9380	1.0132	0.6908	0.5573	0.5822
<i>Correlation</i>	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>y</i>	1							
<i>x1</i>	0.2375	1						
<i>x2</i>	0.2161	0.6418	1					
<i>x3</i>	0.3121	0.5363	0.6375	1				
<i>x4</i>	0.2847	0.5308	0.6056	0.6324	1			
<i>x5</i>	0.3062	0.4829	0.6561	0.7121	0.6113	1		
<i>x6</i>	0.3512	0.2970	0.4579	0.5604	0.4234	0.6171	1	
<i>x7</i>	0.3078	0.4258	0.5968	0.6764	0.5508	0.7167	0.7352	1
<i>Regression statistics</i>			<i>Multiple R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>F</i>	<i>p-value</i>	
			0.4015	0.1612	0.144	9.307	0.000*	
	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>Coefficients</i>	1.0789	0.1172	-0.1289	0.0806	0.1056	0.0503	0.2052	-0.0111
<i>Standard Error</i>	0.1333	0.0682	0.0811	0.0756	0.0685	0.0762	0.0609	0.0770
<i>t Stat</i>	8.0919	1.7197	-1.5892	1.0662	1.5424	0.6609	3.3712	-0.1435
<i>p-value coef</i>	0.0000	0.0864	0.1130	0.2871	0.1239	0.5091	0.0008	0.8860
<i>VIF</i>		1.8504	2.5333	2.7025	2.0245	2.9328	2.2911	3.1989
<i>SE</i>		0.0475	0.0467	0.0517	0.0495	0.0535	0.0592	0.0553

*<0.0001 $\alpha = 0.05$

Source: Authors' results.

Based on the kurtosis and skewness values, it can be concluded that the conditions of a normal distribution are met. The results of the correlation analysis at the significance level $\alpha = 0.05$ confirmed that the perception of business continuity over a 5-year horizon (the company's survival) positively depends on factors x1 to x7 (see Table 1 - Correlation).

The LRM results showed that the perception of the company's survival in the Czech Republic is 14.4% (Adjusted R square 0.144) influenced by HRM factor x6 ($C = 0.2052$, $p\text{-value coef} = 0.0008$). In their attitudes, Czech respondents demonstrated the high importance of investing in improving the skills of their employees in the context of firm sustainability. The other factors examined are not statistically significant.

This regression model is statistically significant ($p\text{-value} < 0.0001$). Based on the results of the VIF calculation to identify multicollinearity (variance inflation factor), it can be concluded that the individual independent variables (x) are moderately correlated (in the interval $1 < VIF < 5$).

Table 2

Regression and correlation analysis for the Slovak Republic

<i>Descriptive</i>	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
Mean	1.9534	1.5745	1.7671	1.9099	1.9596	2.1584	2.2484	2.3354
Standard Error	0.0466	0.0404	0.0383	0.0480	0.0458	0.0493	0.0548	0.0553
Standard Deviation	0.8359	0.7250	0.6871	0.8618	0.8212	0.8841	0.9829	0.9918
Kurtosis	0.5236	2.4740	0.3794	0.9558	1.8583	0.4626	-0.2366	0.0196
Skewness	0.6997	1.3422	0.6278	0.9093	1.0259	0.6372	0.4949	0.5401
<i>Correlation</i>	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>y</i>	1							
<i>x1</i>	0.2499	1						
<i>x2</i>	0.2685	0.5134	1					
<i>x3</i>	0.3185	0.4970	0.5590	1				
<i>x4</i>	0.2287	0.4368	0.5465	0.5759	1			
<i>x5</i>	0.2798	0.4554	0.5379	0.6239	0.5967	1		
<i>x6</i>	0.3250	0.3718	0.5057	0.5782	0.5489	0.7074	1	
<i>x7</i>	0.3946	0.3940	0.4807	0.5494	0.5101	0.7066	0.7227	1
<i>Regression statistics</i>			Multiple R	R Square	Adjusted R Square	<i>F</i>	<i>p-value</i>	
			0.4264	0.1818	0.1636	9.9688	0.000*	
	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>Coefficients</i>	1.0156	0.0885	0.0627	0.1280	-0.0412	-0.1078	0.0548	0.2712
<i>Standard Error</i>	0.1376	0.0728	0.0843	0.0717	0.0716	0.0811	0.0707	0.0685
<i>t Stat</i>	7.3830	1.2151	0.7432	1.7853	-0.5752	-1.3285	0.7759	3.9609
<i>p-value coef</i>	0.0000	0.2252	0.4579	0.0752	0.5656	0.1850	0.4384	0.0001
<i>VIF</i>		1.5304	1.8436	2.0971	1.8977	2.8272	2.6511	2.5323
<i>SE</i>		0.0404	0.0383	0.0480	0.0458	0.0493	0.0548	0.0553

*<0.0001 $\alpha = 0.05$

Source: Authors' results.

Based on the kurtosis and skewness values, it can be concluded that the conditions of a normal distribution are met. The results of the correlation analysis at the significance level $\alpha = 0.05$ confirm that the perception of the company's survival is positively dependent on factors x1 to x7 (see Table 2 - Correlation).

The LRM results showed that the perception of the company's survival in Slovakia is 16% (Adjusted R square 0.1636), influenced by HRM factor x7 ($C = 0.2712$, p -value coef = 0.0001). Based on the attitudes of the Slovak respondents, a trend can be formulated that indicates that the developed system of material employee involvement positively influences the SMEs' belief that their company will survive the next five years. The other factors examined are not statistically significant.

This regression model is statistically significant (p -value < 0.0001). Based on the results of the VIF calculation to identify multicollinearity (variance inflation factor), it can be assessed that the independent variables (x) are moderately correlated (in the interval $1 < VIF < 5$).

Table 3

Regression and correlation analysis for Poland

<i>Descriptive</i>	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
Mean	1.8058	1.4488	1.7507	1.8609	1.8976	1.9528	1.8898	2.0761
Standard Error	0.0443	0.0385	0.0422	0.0470	0.0465	0.0498	0.0506	0.0538
Standard Deviation	0.8639	0.7509	0.8229	0.9171	0.9076	0.9722	0.9886	1.0498
Kurtosis	1.3056	6.7567	2.5281	1.6667	1.0670	0.4867	1.1288	0.3793
Skewness	1.1243	2.2750	1.3169	1.2051	1.0104	0.9413	1.1592	0.9036
<i>Correlation</i>	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>y</i>	1							
<i>x1</i>	0.4309	1						
<i>x2</i>	0.4499	0.6075	1					
<i>x3</i>	0.5072	0.4501	0.5920	1				
<i>x4</i>	0.4612	0.4808	0.4872	0.6626	1			
<i>x5</i>	0.4402	0.5014	0.5477	0.6892	0.6865	1		
<i>x6</i>	0.4432	0.4178	0.5193	0.6506	0.6415	0.6462	1	
<i>x7</i>	0.4255	0.4306	0.5064	0.6014	0.6048	0.6507	0.7181	1
<i>Regression statistics</i>			Multiple R	R Square	Adjusted R Square	F	p-value	
			0.5775	0.3335	0.3210	26.6589	0.000*	
	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>Coefficients</i>	0.5524	0.1910	0.1080	0.2160	0.1058	-0.0138	0.0600	0.0474
<i>Standard Error</i>	0.1004	0.0642	0.0637	0.0639	0.0625	0.0616	0.0600	0.0543
<i>t Stat</i>	5.5005	2.9771	1.6960	3.3822	1.6942	-0.2235	0.9994	0.8722
<i>p-value coef</i>	0.0000	0.0031	0.0907	0.0008	0.0911	0.8233	0.3182	0.3837
<i>VIF</i>		1.7408	2.0577	2.5729	2.4091	2.6874	2.6370	2.4360
<i>SE</i>		0.0385	0.0422	0.0470	0.0465	0.0498	0.0506	0.0538

* <0.0001 $\alpha = 0.05$

Source: Authors' results.

The skewness and kurtosis data demonstrated that the prerequisites for a normal distribution were met. The results of the correlation analysis at the significance level $\alpha = 0.05$, confirmed that the perception of the company's survival is moderately positively dependent on factors *x1* to *x7* (see Table 3 - Correlation).

The LRM results showed that the company's survival in Poland is 32% (Adjusted R square 0.3210), influenced by the factors HRM *x1* ($C = 0.1910$, p -value coef = 0.0031) and HRM *x3* ($C = 0.2160$, p -value coef = 0.0008). Thus, positive perceptions of human capital in the firm and regular employee performance appraisals are the two most significant factors shaping positive perceptions of the future of SMEs in Poland. The other factors examined are not statistically significant.

This regression model is statistically significant (p -value < 0.0001). Based on the results of the VIF calculation to identify multicollinearity (Variance inflation factor), we can present that there is a moderate correlation between the independent variables (*x*) in the interval ($1 < VIF < 5$).

Table 4

Regression and correlation analysis for Hungary

<i>Descriptive</i>	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>Mean</i>	1.7098	1.5086	1.8276	1.6753	1.8103	1.8534	1.8937	1.9339
<i>Standard Error</i>	0.0444	0.0410	0.0425	0.0439	0.0481	0.0488	0.0469	0.0491
<i>Standard Deviation</i>	0.8276	0.7648	0.7920	0.8182	0.8975	0.9103	0.8740	0.9165
<i>Kurtosis</i>	1.1400	3.2683	1.3037	1.5852	1.0992	1.5682	0.4542	0.9418
<i>Skewness</i>	1.1374	1.7202	0.9823	1.2658	1.1284	1.1932	0.8334	0.9898
<i>Correlation</i>	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>y</i>	1							
<i>x1</i>	0.2111	1						
<i>x2</i>	0.2576	0.5686	1					
<i>x3</i>	0.2775	0.4167	0.5315	1				
<i>x4</i>	0.2477	0.3845	0.5053	0.5713	1			
<i>x5</i>	0.2991	0.4385	0.5645	0.5976	0.6432	1		
<i>x6</i>	0.2640	0.3872	0.5563	0.5964	0.7054	0.6903	1	
<i>x7</i>	0.2824	0.3934	0.4845	0.6131	0.5803	0.6067	0.7287	1
<i>Regression statistics</i>			Multiple R	R Square	Adjusted R Square	F	p-value	
			0.3427	0.1175	0.0993	6.4649	0.000*	
	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>Coefficients</i>	0.9733	0.0426	0.0697	0.0829	0.0175	0.1193	-0.0192	0.0979
<i>Standard Error</i>	0.1222	0.0687	0.0750	0.0732	0.0711	0.0718	0.0867	0.0718
<i>t Stat</i>	7.9662	0.6203	0.9289	1.1322	0.2467	1.6616	-0.2212	1.3641
<i>p-value coef</i>	0.0000	0.5355	0.3536	0.2583	0.8053	0.0975	0.8251	0.1734
<i>VIF</i>		1.5528	1.9852	2.0187	2.2892	2.4017	3.2293	2.4355
<i>SE</i>		0.0410	0.0425	0.0439	0.0481	0.0488	0.0469	0.0491

*<0.0001 $\alpha = 0.05$

Source: Authors' results.

The skewness and kurtosis data demonstrated that the prerequisites for a normal distribution were met. The results of the correlation analysis at the significance level $\alpha = 0.05$ confirmed that the perception of the company's survival is weakly positively related to factors x1 to x7 (see Table 4 - Correlation).

The LRM results showed that the perception of the company's survival in Hungary is only nearly 10% (Adjusted R square 0.0993) and is not significantly affected by any of the defined HRM factors. This regression model is statistically significant ($p\text{-value} < 0.0001$). Thus, the individual HRM factors in Hungary are not statistically significant.

Based on the results of the VIF calculation to identify multicollinearity (Variance inflation factor), the individual independent variables (x) are moderately correlated (in the interval $1 < VIF < 5$).

Table 5

Regression and correlation analysis for V4 countries (aggregate model)

<i>Descriptive</i>	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>Mean</i>	1.8662	1.5615	1.8355	1.8770	1.9227	2.0536	2.1295	2.1867
<i>Standard Error</i>	0.0231	0.0211	0.0215	0.0241	0.0239	0.0256	0.0274	0.0272
<i>Standard Deviation</i>	0.8628	0.7902	0.8036	0.9029	0.8920	0.9568	1.0242	1.0175
<i>Kurtosis</i>	0.8008	3.7918	1.8021	1.2481	1.2617	0.5404	0.2137	0.2104
<i>Skewness</i>	0.9304	1.7324	1.0684	1.0859	1.0303	0.8453	0.7877	0.7390
<i>Correlation</i>	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>y</i>	1							
<i>x1</i>	0.2940	1						
<i>x2</i>	0.3058	0.5954	1					
<i>x3</i>	0.3731	0.4832	0.5838	1				
<i>x4</i>	0.3214	0.4658	0.5355	0.6183	1			
<i>x5</i>	0.3521	0.4799	0.5803	0.6689	0.6406	1		
<i>x6</i>	0.3695	0.3806	0.5077	0.6040	0.5711	0.6700	1	
<i>x7</i>	0.3717	0.4215	0.5191	0.6219	0.5680	0.6809	0.7344	1
<i>Regression</i>	statistics		Multiple R	R Square	Adjusted R Square	F	p-value	
			0.4369	0.1909	0.1868	46.8372	0.000*	
	<i>y</i>	<i>x1</i>	<i>x2</i>	<i>x3</i>	<i>x4</i>	<i>x5</i>	<i>x6</i>	<i>x7</i>
<i>Coefficients</i>	0.8884	0.1066	0.0163	0.1286	0.0327	0.0227	0.1067	0.0929
<i>Standard Error</i>	0.0602	0.0340	0.0371	0.0352	0.0334	0.0359	0.0326	0.0334
<i>t Stat</i>	14.7688	3.1335	0.4398	3.6509	0.9788	0.6341	3.2761	2.7865
<i>p-value coef</i>	0.0000	0.0018	0.6602	0.0003	0.3279	0.5261	0.0011	0.0054
<i>VIF</i>		1.6687	2.0492	2.3334	2.0482	2.7187	2.5682	2.6581
<i>SE</i>		0.0211	0.0215	0.0241	0.0239	0.0256	0.0274	0.0272

*<0.0001 $\alpha = 0.05$

Source: Authors' results.

The results of the kurtosis and skewness calculations indicate that the requirements for a normal distribution were satisfied. The perception of business continuity over a 5-year horizon is considerably positively dependent on parameters x_1 to x_7 , according to the correlation analysis results aggregated for the V4 countries at the significance level $\alpha = 0.05$ (see Table 5 - Correlation).

The LRM results showed that the perception of business continuity at a horizon of 5 years is 19% (Adjusted R square 0.1868) influenced by HRM factor x_1 in V4 countries (aggregate model) ($C = 0.1066$, $p\text{-value coef} = 0.0018$), HRM x_3 ($C = 0.1286$, $p\text{-value coef} = 0.0003$), HRM x_6 ($C = 0.1067$, $p\text{-value coef} = 0.0011$) and HRM x_7 ($C = 0.0929$, $p\text{-value coef} = 0.0054$).

This regression model is statistically significant ($p\text{-value} < 0.0001$). The examined factors HRM x_2 , HRM x_4 and HRM x_5 are not statistically significant. Based on the results of the VIF calculation to identify multicollinearity (Variance inflation factor), the independent variables (x) are moderately correlated (in the interval $1 < VIF < 5$).

Table 6

Summarization of regression analyses

Country	Regression models for y
CR	$y_{CR} = 1.0789 + 0.1172 x_1 - 0.1289 x_2 + 0.0806 x_3 + 0.1056 x_4 + 0.0503 x_5 + 0.2052 x_6 - 0.0111 x_7$
SR	$y_{SR} = 1.0156 + 0.0885 x_1 + 0.0627 x_2 + 0.1280 x_3 - 0.0412 x_4 - 0.1078 x_5 + 0.0548 x_6 + 0.2712 x_7$
PL	$y_{PL} = 0.5524 + 0.1910 x_1 + 0.1080 x_2 + 0.2160 x_3 + 0.1058 x_4 - 0.0138 x_5 + 0.0600 x_6 + 0.0474 x_7$
HU	$y_{HU} = 0.9733 + 0.0426 x_1 + 0.0697 x_2 + 0.0829 x_3 + 0.0175 x_4 + 0.1193 x_5 - 0.0192 x_6 + 0.0979 x_7$
V4	$y_{V4} = 0.8884 + 0.1066 x_1 + 0.0163 x_2 + 0.1286 x_3 + 0.0327 x_4 + 0.0227 x_5 + 0.1067 x_6 + 0.0929 x_7$

Source: Authors' results.

The frequency of incidence of each HRM factor on the survival of SMEs in the V4 nations is displayed in Table 6's results. In none of the V4 countries did factors X2, X4, and X5 show any noticeable impact on the survival of SMEs.

Table 7

Hypotheses overview

	H1	H2	H3	H4	H5	H6	H7
V4	C	R	C	R	R	C	C
CZ	R	R	R	R	R	C	R
SK	R	R	R	R	R	R	C
PL	C	R	C	R	R	R	R
HU	R	R	R	R	R	R	R

C – confirmed R - rejected

Source: Authors' results.

Hypotheses H1, H3, H6, and H7 were confirmed based on the results from the V4 countries (aggregate model). Hypotheses H2, H4, and H5 in the V4 countries are rejected.

Hypothesis H6 is accepted for the Czech Republic. Hypothesis H7 is accepted for Slovakia. For Poland, we accepted hypotheses H1 and H3. For Hungary, all hypotheses have been rejected.

5. DISCUSSION

In this article, the scientific question has been defined: *What is the intensity of the impact of HRM on firm survival in the SME segment in the V4 countries?* The scientific question was transformed into seven statistical hypotheses.

The results of the empirical research confirmed that there is a dependence between the optimistic view of SMEs on the medium-term existence of the firm and the defined HRM factors. The intensity of this dependence varies across the V4 countries. Poland has a moderate connection between the stated variables, but the intensity of this dependence is minimal in the Czech Republic, Slovakia, and Hungary. Additionally, a moderate dependence between these variables is shown by the aggregate model.

The aggregate model confirmed the validity of hypotheses H1 (the impact of positive human capital assessment in the firm on its sustainability in the medium term), H3 (the impact of regular employee performance evaluation on the company's survival), H6 (the impact of investment in increasing employee qualifications), and H7 (the impact of the motivation system on the company's survival). In the Czech Republic, hypothesis H6 (statistically significant impact of investment in increasing employee qualifications) was accepted. In Slovakia, hypotheses H7 (the influence of the motivation system), in Poland H1 (the influence of positive evaluation of human capital in the company on the company's survival), and H3 (the

influence of regular evaluation of employee performance) were accepted. In Hungary, all hypotheses were rejected.

Thus, the results did not confirm that all factors from x1 to x7 influenced individual countries. Each country has some differences, as pointed out by several previous studies (Belás et al., 2021; Metzker & Zvarikova, 2021; Zvarikova et al., 2023).

The study's findings align with those of Castro-González et al. (2021) and Xie et al. (2022), which highlight the necessity of limiting staff turnover through corporate policies (CSR, HRM), since it can jeopardize the company's existence by adversely affecting its financial performance.

The presented empirical research results are also compatible with the views of Górný (2019), who appeals to improve the working conditions of employees in the context of sustainable development of SMEs or support the claims according to Saks (2022), who focuses on a careful approach to HRM and its benefits for firm growth and retention. The study of Alsafadi & Altahat (2021), which examined the beneficial effects of HRM practices on enhancing employee performance, is noteworthy in this regard. It is essential for the successful management of a firm to create conditions for employee satisfaction, as this factor increases their commitment to achieving the firm's goals.

Petrov et al. (2020), in the context of SME competitiveness, emphasise the idea that the transition from an industrial to a knowledge-based economy requires new practices and new management models within human resources. Implementing knowledge management in the SME segment is vital, as knowledge is a critical factor in their increasing competitiveness. Knowledge, expertise, craftsmanship, ideas, and intuitions are the most important sources of growth available to SMEs. A firm's competitive advantage is not derived from the dynamics of the industry. However, the firm's ability to design processes to accumulate and utilize internal resources, i.e., competitive advantage is the result of the way a firm utilizes the resources at its disposal, including human resources and knowledge.

The findings of this study demonstrate that well-crafted HRM solutions significantly improve the performance of SMEs by facilitating efficient human capital management, which is essential for business survival.

6. CONCLUSION

The paper aims to present and quantify the impact of significant HRM factors on the survival of SMEs in the V4 countries.

The research results have shown that there is a dependence between the sustainability of SMEs in the medium term and the defined HRM factors. The intensity of this dependence varies across the V4 countries.

SMEs in the Czech Republic highlighted the importance of investing in improving the qualifications of their employees in the context of firm sustainability. Slovak SMEs in this context emphasised the importance of the existing motivation system for employees. Positive perception of human capital in the firm and regular evaluation of employee performance were the two most significant factors shaping the positive perception of the future of SMEs in Poland. A somewhat surprising finding is that in Hungary, the individual HRM factors were not statistically significant.

The aggregate model for all V4 countries showed the highest intensity, as up to 4 out of the total number of defined HRM factors had a statistically significant impact on the entrepreneurial optimism of SMEs in the V4 countries. The empirical research's findings can be interpreted to suggest that SMEs' beliefs about their ability to survive over a five-year period are positively influenced by their perception of human capital, regular performance appraisals, appropriate motivation, and reasonable investments in skill development.

This research has some limitations, and therefore, the presented results should be seen as a contribution to the discussion within the defined research area. The empirical research was limited to the segment of SMEs in the V4 countries; it was conducted in a particular historical period, which was determined by significant economic and political events, namely the enormous growth of inflation in these countries, the rise in the price of energy inputs, and the impact of the war in Ukraine on the socio-economic systems of these countries.

Future scholarly research will focus on examining the attitudes of SMEs in stable economic conditions and development.

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