

Article

Analysis and Comparison of Economic and Financial Risk Sources in SMEs of the Visegrad Group and Serbia

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Abstract: Risk management is one of the most important internal process, not only in large companies but also in small and medium-sized enterprises (SMEs). To identify the source of risk can be crucial in all companies. The primary objective of this study is to analyze and compare the economic and financial risk sources in SMEs of the V4 (Visegrad Group: Czech Republic, Hungary, Poland and Slovakia) and Serbia, in the context of the business environment of the countries analyzed. To achieve this goal, a questionnaire-based survey was carried out involving 2110 SMEs from Hungary, Poland, Slovakia, the Czech Republic, and Serbia. The questionnaire included questions about the importance of risks and the concept of risk management in the company. To test the formulated hypotheses, the following statistical tools were used: contingency tables, a Z-value, and a general non-hierarchical log-linear model with three categorical variables and a continuous covariate. Finally, the differences among V4 countries and Serbia were identified. Serbia is more vulnerable to the financial risk sources studied than the V4 countries. The result of the research shows that insufficient profit is more hazardous compared to the other risk sources and all countries are more vulnerable in this issue. The article concludes with a discussion and a comparison with previous international researches.

Keywords: entrepreneurs; economic risk; financial risk; SMEs; source of risk

1. Introduction

The European Commission has declared that the European economy's "source of lifeblood" is derived from the 23 million SMEs which make up more than 98% of the business community. These businesses provide two-thirds of private sector employment, and have been responsible for approximately 80% of new workplaces created over the last five years [1].

The significant role which SMEs have in Europe is also reflected in their importance around the world [2–7]. They fulfill vital roles in the economy, so much so that today's financial market failure has presented serious hindrances to SME expansion and growth [8]. Consequently, they need to be supported both administratively and financially by governments at all levels [9].

As an example of their significant role in the European Union, almost 99% of economic activities originate in SMEs [10], and they provide two-thirds of all workplaces in the private sector [11]. Risk and uncertainty play an important role in terms of their influence over patterns of SME internationalization. One business competency which managers have at their disposal to deal with opportunities associated with risk is enterprise risk management (ERM) [12,13]. To a greater degree than larger organizations, SMEs need to adopt a risk management strategy and methodology, given the fact that they lack the resources to react quickly to internal and external threats. This can cause potentially enormous losses which can even threaten their survival [14].

It is important to emphasize the role of SMEs in stabilizing the economy, as well as the role business managers play in managing risk. This is particularly true of developing economies which are naturally more vulnerable than advanced economies [15].

It should, however, be remembered that for a company's executives and managers decision-making processes are made much more complicated by the dynamics and uncertainty of the business environment [16]. Every activity of the company is influenced by risks. Without risk, there would be no motivation to conduct business [17]; these risks significantly influence the business as well as the decisions taken by the business community. Therefore, companies must obtain more information about the present situation of their business partners and any possible current insurance claims [18]. Business managers must be able to identify the main risks, create the right context for discussion, and put forward suggestions for preventive action, with a focus on avoiding business crises [19]. All of this has implications in terms of the need for SME managers to be involved in active and systematic risk management [20,21].

Management by risk is a global process, and drives business process innovation. To use it effectively, it must be supported by both a knowledge base and a decision support system [22].

There is a need for further empirical research on risk identification, risk analysis, and strategy implementation, as well as on control in the SME risk management process [23–25].

Some previous research has found that financial risks and economic risks are the most serious risks for entrepreneurs [26–29].

The Visegrad Group (V4) is a group of four Central European countries: the Czech Republic, Slovakia, Poland, and Hungary. These countries not only have similar histories, but are also characterized by also similar economic development and geo-political ideas [30]. Therefore, we have selected—together with these four countries—another country with a similar economy and history, namely Serbia. The Visegrad countries constitute an important unit in the European economic system and SMEs are their main economic drivers [31]. SMEs provide about 67% of total employment in the Czech Republic, 72% in Slovakia, 68% in Poland, 69% in Hungary, and 65% in Serbia [32–36]. Moreover, V4 countries share quite similar economic conditions and development [37], although the risks can be perceived differently. Serbia is situated in the Balkans and has different economic conditions and historical development in comparison with the V4 countries. Therefore, this paper compares the exposure to risk and the perception of financial and economic risks between the group of V4 countries and Serbia.

This article is focused on financial and economic risks and their sources in SMEs in V4 countries and Serbia. Its main purpose is to identify the most important sources of these two risk types. The article is structured as follows. The first section categorizes and describes financial and economic risks. The research and data collecting methods are introduced. Seven hypotheses from the selected area are established. The exposure to and perception of the risks and their source in V4 countries are analyzed and the results are compared with Serbia. The last part of the article describes our results, and then discusses both the results and the limitations of the research.

2. Literature Review

In today's unpredictable market conditions, a great amount of tangible and intangible resources are devoted to acquiring competitive advantage and superior performance. The vulnerability of SMEs to this economic turbulence is particularly marked compared to large and well-established firms; however, they have a more significant role than larger firms in creating workplaces and stabilizing the

economy. SMEs play a crucial role for the whole economy. In selected countries SMEs represent more than 50% of the value added [32–36]. Therefore, their survival and sustainability are very important not only for themselves but also for the growth and development of national economics. Holt et al. [38] have argued that: ‘... the involvement of SMEs is also vitally important in achieving the national environmental targets. Indeed, it is difficult to see how some of these national targets can be achieved without significant involvement of SMEs.’ All around the world small and medium-sized firms have an important role in promoting economic growth and employment [39]. The individual impact of these firms may well be quite small, but taken together, it is substantial, especially given that SMEs typically make up about 95% of all firms in the private sector in most modern countries, and so account for a major proportion of all economic activity [40].

Sustainable entrepreneurship offers a firm a real opportunity to stand out from the competition. So far, the returns on funds of companies engaged in sustainable development have been encouraging [41]. However, research has highlighted three major obstacles to SMEs adopting environmental practices. Firstly, there is a perception among SMEs that they themselves only have a minor effect on the environment [42,43]. Secondly, the literature has revealed a lack of expertise and poor understanding in terms of the strategies needed to address environmental issues [43,44]. Finally, cost presents a major barrier to SMEs adopting more proactive environmental behavior, since managers feel their environmental investments only bring a limited financial advantage [45].

Two strategic frameworks which are used to study and manage the environmental consequences of human actions are risk management and sustainable development. Naturally, both frameworks need indicators which can measure, monitor, and communicate information [46]. Risk and sustainability are two fields which are significantly interrelated, and which could benefit from closer contact.

An SME's approach to risk management is also dependent on its attitude to sustainable development, as can be seen in the Czech Republic [47] and in Slovenia [48]. In both countries a company's risk management policy is very dependent on its managers' responsibility, both to owners and to other stakeholders.

If the companies do not identify financial and economic risks and do not apply a risk management strategy, their sustainability can be affected [49]. The most serious risks are economic [50] and financial risks [19,51,52]. According to Bartram et al. [53], there are several types of financial risk, including loan risk, asset-backed risk, credit risk, foreign investment risk, liquidity risk, market risk, and operational risk, etc. Zhao and Zeng [54] state that financial risk can cause SMEs to default due to a lack of bank financing. According to Saeidi et al. [55] the most serious financial and economic risks are: the interest rate, loan availability, inflation, exchange rate, condition of the national and global economy, natural disasters, and bad weather conditions. SMEs which are not able to manage economic risks with their limited financial resources can face a serious problem [56,57]. Unlike large companies, for SMEs it is much more complicated to take out a loan because they are not in a position to negotiate with banks about credit terms, so they may not have easy access to loans with fewer restrictions or those involving larger sums [58].

Today's risk management systems must be flexible, dynamic and have sufficient ability to adapt rapidly to a quickly changing environment. Nowadays, the nonlinearity of the economy and fluctuations in economic processes induce objective multivariance and irreversibility [50].

The success of an SME is closely linked to local economic conditions, given that the SME sector's market typically grows at the same pace as the macro economy; consequently, an economic downturn will usually also bring problems for SMEs [59,60].

The analysis of the current global and domestic situation demonstrates enterprises' increasing need—in both the financial and real economy sectors—for the organizing and functioning of an effective integrated risk management instrument to ensure a company's profitability in a highly competitive and risk-intensive business environment.

Even though SMEs are the most active economic units in a nation's economy, their levels of operational and credit guarantee risk are very high, given their special characteristics, and this results in a low credit rating in general [61,62].

Financial risk management (FRM) is one method of creating economic value in a firm. It adopts financial techniques and methodologies in order to manage exposure to risks (i.e., credit, exchange rate, inflation, interest rate, price, and liquidity risks) [63]. According to much of finance theory, there is a direct connection between risk and financial exposure, such that higher financial exposure is accompanied by higher risk while lower financial exposure brings lower risk [64]. Over the past few years increased attention has been devoted to financial risk management. Dvorský et al. [65] established that SMEs now perceive credit risk more keenly than was the case in the pre-crisis era.

Virglerová et al. [66] noted the need for financial risk management in SMEs, as well as the impact of certain factors and the approaches they adopt to management of financial risks. They also argued that scanning and checking possible hazards means these hazards can be eliminated as soon as possible, and so banks have more confidence when providing them with business loans. Jeck [67] demonstrated that SMEs have restricted access to sources of external funding, and so for them, bank lending is an important element in their financing. The flow of finance to this sector has been intensively studied as it is considered to be crucial for economic growth and success. However, from a lending perspective, there is only quite scarce research into credit risk management for SMEs. The optimum method for ensuring a flow of finance to SMEs is to improve credit information and to create appropriate risk models for this sector [68]. In the real world, however, developing a credit risk model suited to SMEs is hampered by poor data availability [69].

When viewed from a credit risk perspective, SMEs are unlike large corporations, for many reasons. Dietsch and Petey [70], for example, study a group of German and French SMEs and come to the conclusion that they are more at risk but have a lower asset correlation with each other than larger businesses. This research shows how important it is for banks to model credit risks for SMEs separately from those of large corporations. The results show that managing credit risk for SMEs must be carried out with models and procedures clearly focused on the SME segment [4]. International SMEs have to deal with greater credit risks, although they are financially more transparent to lenders and suppliers than their domestic counterparts are [71,72]. Even in a situation in which SME credit risks are correctly priced, usury laws may prevent banks charging interest rates that would profitably cover the high unit cost of lending to small firms. What is more, the imperfect competition which develops in credit markets may mean banks focus on larger, more profitable clients [73]. SMEs do not enjoy optimal asset structures and cash flows, and must confront trade restrictions and higher risks. However, banks need to appreciate SMEs' high growth potential and the high degree of flexibility which means they can adapt to changing conditions. On their side, SMEs should focus more on risk management, in order to eliminate risks and to improve bank evaluations [74].

Berry et al. [75] addressed the issue of acquiring funds and the attitude of banks to SMEs. They highlighted the vital role banks play in SME financing given the problems SMEs face in accessing capital markets. Consequently, SMEs depend on internal or "personal" funds, are increasingly exposed to problems related to information asymmetry, and provide a low internal rate of return [76]. Bank financing is one of the most usual external source of financing SMEs and the crucial means of support for their growth [77]. Making credit standards stricter builds a strong barrier for doing business that could have its impact on a number of SMEs and also on the growth of the already existing businesses [78].

What we have shown specifically, is that managerial inefficiencies are important ex-ante indicators of a firm's financial risk [79]. Ramaswamy [80] argues that international SMEs do not show such high risks because they can diversify in terms of revenue and cash flow, although Michael et al. [81] report that there is a greater risk of default with international SMEs because they are exposed to a variety of political and financial environments.

One of the most important risks in SMEs are small investments in research and development (R and D). The expenditure of the business enterprise sector is also only one third of the total expenditure on R and D [82]. Each risk should be managed properly. There is a high possibility that SMEs cannot apply appropriate methods due to financial reasons. Kozubikova et al. [83] showed that among entrepreneurs in the Czech Republic and Slovakia only a small proportion

can manage financial risks in their companies appropriately. Hudakova et al. [84] argue that applying risk management brings an improvement in business performance, and also reduces costs. Belás and Sopková's comparative study [49] analyzed important determinants of the Czech and Slovak business environments in terms of the financial and credit risks present there. Their results indicated that there is a relatively low degree of competitiveness in this area. The index they created for the Czech and Slovak business environments produced values below the median interval. They also found that the value of Internal Financial Control over Financial Reporting (IFCR) was statistically significantly higher in Slovakia; this finding suggests that conditions for doing business in Slovakia in the financial and credit risk areas are better, and that the business community has a better approach to risk management.

Kuzmisin [85] provided a lengthy list of permanent challenges for all actors in the business environment. These include improving business conditions, providing support for the entrepreneurial spirit, flexible labor markets, company and worker adaptability, investments in education and science, research and innovation, market access, and secure energy supplies. The economic environment also has an enormous impact on the business environment [86]. As long as annual GDP growth fluctuates around zero, it is likely that companies will be working hard to make a profit and trying to cut costs to ensure survival on the market.

The Republic of Serbia is currently going through the process of being admitted to the European Union as a member state, something which is currently on the agenda for future EU enlargement. The risks have to be reduced in the national economics and business environment as well. The key economics risks in Serbia are delays to implementation of serious fiscal and economic reform [87]. Tax rates, access to financing, and inefficient government bureaucracy are considered to be particularly problematic factors for doing business in Serbia [88]. The local tax policy adopted during the transition period has had no significant impact on overall economic trends in the country [89]. Serbia has considerable potential for further development in the private sector, which could contribute to sustainable economic convergence. Serbia's private sector provides around 70% of total employment, and its profitability is low when compared to central and south-east European countries [88].

3. Materials and Methods

The primary reason of this study is to analyze and compare the most severe sources of economic and financial risk in the V4 countries (Slovakia—SR, Poland—PL, the Czech Republic—CR, Hungary—HU) and Serbia (SRB). Our secondary goal was to detect statistically significant differences in the perception of economic and financial perils among the companies from the selected countries. The research focuses on the assessment of economic and financial risk factors regarding 2110 SMEs. The sample represents 1% (CR, PL, HU)—3% (SK, SRB) of all SMEs.

Data samples were collected between 2017 and 2018. The whole sample consisted of 2110 enterprises representing the SMEs operating in the five countries studied. In order to collect data an online survey was conducted by using a standard questionnaire. The major challenge was to ensure the uniformity and straightforwardness of the questions. In order to facilitate better understanding the questionnaire was translated into Slovak, Polish, Czech, Hungarian and Serbian languages.

The selection of entrepreneurs was carried out with “the random selection method” by using the “Randbetween” function in Microsoft Excel from specialized databases for each country (Slovakia—Cribis database, Czech Republic—Albertina database, Poland—Central registration and information on business (CEIDG), Hungary—Hungarian Chamber of Commerce and Industry, Serbia—Statistical Office of the Republic of Serbia (OP3C)). Regarding the subsamples Slovakia provided 487 respondents (25.6%), Poland 498 respondents (24.9%), the Czech Republic 408 respondents (21.4%), Hungary 388 respondents (11.3%) and Serbia 329 respondents (16.8%). The proportion of the companies that declined the survey was 30%.

The questionnaire consisted of 22 questions about the estimation of the intensity and importance of the risk sources involving market, economic, financial and credit risks as well as operational, personnel, security and legal risks. On the other hand social and demographic factors such as gender and age

of the entrepreneur, entrepreneurship education, size of business, length and region of business and sector of business were also asked. A former article dealt with only the market risk sources and the present study focuses on the economic and financial risk sources [25].

The structure of the SMEs was as follows:

- The Czech Republic (CR): micro business 261 (65%), small business 96 (23%), medium business 51 (12%); according to the sector: industry 91 (22%), trade 93 (23%), agriculture 15 (4%), construction 63 (15%), transportation 20 (5%), services 78 (19%), other 48 (12%).
- Slovakia (SR): micro business 314 (64%), small business 115 (24%), medium business 58 (12%); according to the sector: industry 72 (15%), trade 118 (24%), agriculture 2 (0%), construction 59 (12%), transportation 31 (6%), services 155 (32%), other 50 (10%).
- Poland (PL): micro business 299 (60%), small business 144 (29%), medium business 55 (11%); according to the sector: industry 74 (15%), trade 158 (32%), agriculture 30 (6%), construction 34 (7%), transportation 57 (6%), services 116 (23%), other 29 (6%).
- Hungary (HU): micro business 241 (62%), small business 72 (19%), medium business 75 (19%); according to the sector: industry 21 (5%), trade 76 (20%), agriculture 62 (16%), construction 20 (5%), transportation 24 (6%), services 98 (25%), other 87 (22%).
- Serbia (SRB): micro business 173 (53%), small business 90 (27%), medium business 66 (20%); according to the sector: industry 48 (15%), trade 99 (30%), agriculture 12 (3%), construction 18 (5%), transportation 20 (6%), services 117 (36%), other 15 (5%).

The research objective was to examine and compare selected factors of entrepreneur's personality and experience with the impact on the approach to risk assessment in SMEs of selected countries.

We tested the following hypotheses:

Hypotheses 1 (H1). *Serbia is more vulnerable in all types of risk sources than the V4 countries regarding both financial and economic risks.*

Hypotheses 2 (H2). *V4 companies have a greater level of experience in applied risk management and the average number of years spent in domestic and foreign trade is higher, compared to Serbia.*

Hypotheses 3 (H3). *Countries are more exposed to the risk of insufficient profit, and less exposed to corporate debt risk.*

Hypotheses 4 (H4). *V4 countries are more exposed to the development of taxes, and less exposed to the development of interest rates, compared to Serbia.*

Hypotheses 5 (H5). *The development of taxes and the rise in energy prices are the greatest sources of economic risk for all countries.*

Hypotheses 6 (H6). *Generally, countries are more exposed to economic sources of risk than financial sources, especially Serbia compared to the V4 countries.*

Hypotheses 7 (H7). *Those companies that have spent more years in domestic and foreign trade and applied a more developed risk management strategy (i.e., higher experience level) perceive any kind of financial risks to be at a much lower level.*

The formation of hypotheses was based on actual data as well as economic and financial indicators available at www.tradingeconomics.com over the past 10 years. We studied the 10-year average and variance of the following indicators: consumer spending (H3), consumer price index (H1, H6), corporate tax (H3, H4), inflation and interest rates (H1, H4, H5, H6), loans to the private sector (H3, H6), gasoline prices (H5), competitiveness index (H1, H6), financial account surpluses (H1, H6), and the forecasted change in the industrial production (H1, H3). The average corporate tax rate was 18.7% in the V4 group while Serbia had an average tax rate of 13% over the past 10 years. On the other hand, the average interest rate was around 8% in Serbia while on average 1.9% in the V4 group. The average gasoline price was approximately 1.4 USD/l but the variance varied between 14–31%. The average

amount of the consumer spending as well as the loans to the private sector were significantly lower for Serbia compared to the V4 group (6.0 and 8.2 billion EUR vs. 25.3 and 24.6 billion EUR). The average debt to GDP accounted for 57% in Serbia and 54.6% in the V4 group. The competitiveness index of the Serbian companies was lower than the competitiveness of the V4 companies. The forecasted percentage change in the industrial production is negative, namely -5.5% per year in the coming years for Serbia and on average 4.1% for the V4 group.

The Kolmogorov–Smirnov test was used to test the normality of the distribution for experience level. We analyzed the differences in the average experience level according to risk perception level and country by using the Mann–Whitney nonparametric test. Therefore, the Mann–Whitney test was used only to test hypotheses involving experience level (H2, H7), and the rest of the hypotheses were tested by Log-linear modeling [90].

Our choice was Log-linear modeling because it allows us to study the structure of multi-dimensional tables of categorical variables and requires fewer distributional assumptions and limitations [90]. The detailed methodology and its application in the field of risk assessment can be found in Dvorsky et al. [25].

Hoti and McAleer [91] studied rating agencies with regard to the measurement of economic and financial risks. Furthermore, Hoti and McAleer [91] stated that these agencies employed different methods but country risks can be typically modeled by a linear or log-linear regression and these models are popular in empirical economic research. Beneki and Papastathopoulos [92] examined the complex interactions among variables that affect the performance of European manufacturing SMEs by using a hierarchical log-linear model. The authors stressed that the applied model allowed them to gain a better understanding of complex interactions and associations at multiple scales of manufacturing in Europe.

Due to the large number of observations obtained independently from each other we could avoid zero frequencies. In this study a general non-hierarchical log-linear model with three categorical variables and a continuous covariate was fitted to the data.

Data were analyzed by SPSS Statistics software (version = 23, company = IBM, city = New York, country = United States) using the HILOGLINEAR procedure and are given in Table 1. Table 1 contains the relative frequencies of the V4 countries and Serbia with respect to the importance of a given risk source. Risk perception of the risk sources was basically measured on a Likert type scale: a very low intensity (V1); low intensity (V2); medium intensity (V3); high intensity (V4) and very high intensity (V5). Moreover, Risk Perception was categorized into a lower (V1 + V2 + V3) and a higher (V4 + V5) level (Table 1).

Table 1. Relative frequencies of the Visegrad Group (V4) and Serbia with respect to the importance of the risk sources.

Type of Risk/Risk Source		Country			
		V4 Group		Serbia	
		Lower (V1–V3)	Higher (V4–V5)	Lower (V1–V3)	Higher (V4–V5)
economic	development of taxes	57.4% (m ₁₁₁)	42.6% (m ₁₁₂)	49.2% (m ₁₂₁)	50.8% (m ₁₂₂)
	poor availability of financial resources	77.1% (m ₂₁₁)	22.9% (m ₂₁₂)	66.3% (m ₂₂₁)	33.7% (m ₂₂₂)
	development of interest rates	82.3% (m ₃₁₁)	17.7% (m ₃₁₂)	62.9% (m ₃₂₁)	37.1% (m ₃₂₂)
	the rise in energy prices	66.9% (m ₄₁₁)	33.1% (m ₄₁₂)	53.2% (m ₄₂₁)	46.8% (m ₄₂₂)
economic total		70.9% (m * ₁₁₁)	29.1% (m * ₁₁₂)	57.9% (m * ₁₂₁)	42.1% (m * ₁₂₂)
financial	insufficient profit	62.3% (m ₁₁₁)	37.7% (m ₁₁₂)	58.7% (m ₁₂₁)	41.3% (m ₁₂₂)
	corporate debt	83.3% (m ₂₁₁)	16.7% (m ₂₁₂)	78.4% (m ₂₂₁)	21.6% (m ₂₂₂)
	unpaid receivables	74.1% (m ₃₁₁)	25.9% (m ₃₁₂)	68.7% (m ₃₂₁)	31.3% (m ₃₂₂)
	inability to pay for liabilities	78.0% (m ₄₁₁)	22.0% (m ₄₁₂)	68.1% (m ₄₂₁)	31.9% (m ₄₂₂)
	financial total	74.4% (m * ₂₁₁)	25.6% (m * ₂₁₂)	68.5% (m * ₂₂₁)	31.5% (m * ₂₂₂)

Source: Authors' own data collection, 2018.

For each type of risk, a cross-table with three variables can be defined: Risk source (A) with levels i (for economic risk: $i = 1$ for development of taxes; 2 for poor availability of financial resources; 3 for development of interest rates; 4 for the rise in energy prices). Country (B) with levels j ($j = 1$ for V4 countries; 2 for Serbia), and risk perception level (C) with levels k ($k = 1$ for lower values; 2 = higher values). The continuous covariate D denotes the experience level of the country (which depends on the number of years spent in domestic and foreign trade and the applied risk management strategy) and varies between 1 and 12.

The estimated non-hierarchical model 1 can be denoted as follows:

$$\ln(m_{ijk}) = \lambda + \lambda_k^C + \lambda_{ik}^{AC} \times \theta_{ik}^D + \lambda_{jk}^{BC} \times \theta_{jk}^D + \lambda_{ijk}^{ABC}, \quad (1)$$

where λ is a constant, m_{ijk} is the expected frequency for cells (i, j, k) , and θ_{ik}^D and θ_{jk}^D measure the effect of experience on risk source and risk perception level interaction, and on country and risk perception level interaction. λ is a constant and the sum of the other subscripted λ -terms is zero over each lettered subscript. For instance, the set of terms λ_{jk}^{BC} describes the relationship between B and C (country and risk perception level) and the following constraints should be satisfied:

$$\lambda_{11}^{BC} = -\lambda_{12}^{BC} = -\lambda_{21}^{BC} = \lambda_{22}^{BC} \quad (2)$$

The λ -terms can easily be converted to odds ratios, for example, as follows:

$$\lambda_{11}^{AC} = \frac{1}{4} \ln \left(\frac{\sum_i m_{1i1} \times \sum_i m_{2i2}}{\sum_i m_{1i2} \times \sum_i m_{2i1}} \right) \text{ and } \lambda_{111}^{ABC} = \frac{1}{8} \times \ln \left(\frac{m_{111} \times m_{221}}{m_{121} \times m_{211}} \times \frac{m_{122} \times m_{212}}{m_{112} \times m_{222}} \right) \quad (3)$$

For the sake of a better understanding of the results, the concept of odds ratio should be explained in detail. The odds for an event are the ratio of the probabilities of the event and its complement. If the odds are greater than 1 the event is more probable than its complement. The odds ratio of an event on two groups is the ratio of the odds of the event occurring in the first group compared to the odds of it occurring in the second group. Hence the event is more likely in the first group when the odds ratio is greater than 1 and less probable otherwise.

We could also set up another multi-dimensional table to study the relationship between the type of risk (E) with levels l ($l = 1$ for economic risk and $l = 2$ for financial risk), country (B) and risk perception level C, and θ_{kl}^D measure the effect of experience on risk source and risk perception level interaction. The estimated nonhierarchical model 2 is as follows:

$$\ln(m_{*jkl}^*) = \lambda + \lambda_{kl}^{CE} \times \theta_{kl}^D + \lambda_{jkl}^{BCE} \quad (4)$$

Model 1 was used to test hypotheses related to the type of risk source (H1, H3-H5), while model 2 was applied only to test the H6 hypothesis. A hierarchical backwards elimination analysis using the Pearson Chi-square test statistic was performed to test the partial associations between the effects. The significance of the effects in the log-linear models was tested by the Wald z-statistic. During hypothesis testing 5% significance level was used to determine significant differences.

4. Results

Tables 2 and 3 present the correlation and basic descriptive statistics (median/mean and interquartile range (IQR)/standard deviations (sd) of the risk sources (economic and financial) and experience levels in risk management for the V4 group and Serbia. The correlation matrix contains the Pearson correlation coefficients under the main diagonal. The upper triangular matrix over the diagonal contains rather low p-values (<0.001) indicating strongly significant coefficients, except in some cases regarding experience level. The main diagonal contains 1 values because every factor is obviously well correlated with itself.

The correlation matrix for the V4 group reveals causal relationships between the risk sources (Table 2). The development of interest rates can lead to the poor availability of financial resources ($r = 0.562$) and a rise in energy prices ($r = 0.494$). An increase in corporate debt is strongly connected to the development of interest rates ($r = 0.311$) and the poor availability of financial resources.

Table 2. Descriptive statistics and correlations of the factors analyzed for the V4 group.

Factor	Median/Mean *	IQR/sd *	1	2	3	4	5	6	7	8	9
development of taxes (1)	3.35	1.75	1.000	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.242
poor availability of financial resources (2)	2.70	1.73	0.331	1.000	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
development of interest rates (3)	2.51	1.72	0.310	0.562	1.000	<0.001	<0.001	<0.001	<0.001	<0.001	0.065
the rise in energy prices (4)	3.04	1.69	0.325	0.362	0.494	1.000	<0.001	<0.001	<0.001	<0.001	0.014
insufficient profit (5)	3.15	1.80	0.296	0.276	0.193	0.170	1.000	<0.001	<0.001	<0.001	0.000
corporate debt (6)	2.11	1.91	0.107	0.324	0.311	0.175	0.432	1.000	<0.001	<0.001	0.201
unpaid receivables (7)	2.49	2.14	0.132	0.210	0.184	0.130	0.411	0.512	1.000	<0.001	0.112
inability to pay for liabilities (8)	2.26	2.12	0.118	0.297	0.241	0.136	0.468	0.594	0.665	1.000	0.006
Experience level (9)	5.82	2.98	0.028	−0.088	−0.044	0.059	−0.092	−0.030	0.038	−0.066	1.000

* In the case of experience level the mean and standard deviation, for the other risk sources the median and interquartile range were calculated. Source: Authors' own data collection, 2018.

The correlation matrix for Serbia shows different patterns compared to the V4 group (Table 3). In the case of Serbia there is a stronger relationship between the development of interest rates and taxes ($r = 0.440$) and the development of taxes more strongly affects the availability of financial sources ($r = 0.501$) compared to the V4 group.

Table 3. Descriptive statistics and correlations of the factors analyzed for Serbia.

Factor	Median/Mean *	IQR/sd *	1	2	3	4	5	6	7	8	9
development of taxes (1)	3.60	2.00	1.000	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.662
poor availability of financial resources (2)	3.00	1.90	0.501	1.000	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.616
development of interest rates (3)	3.20	1.80	0.440	0.561	1.000	<0.001	<0.001	<0.001	<0.001	<0.001	0.390
the rise in energy prices (4)	3.48	2.02	0.340	0.370	0.424	1.000	<0.001	<0.001	<0.001	<0.001	0.225
insufficient profit (5)	3.14	2.30	0.328	0.330	0.268	0.221	1.000	<0.001	<0.001	<0.001	0.768
corporate debt (6)	2.51	2.03	0.257	0.306	0.268	0.150	0.418	1.000	<0.001	<0.001	0.104
unpaid receivables (7)	2.86	2.17	0.222	0.287	0.319	0.242	0.408	0.597	1.000	<0.001	0.213
inability to pay for liabilities (8)	2.77	2.29	0.258	0.266	0.344	0.214	0.508	0.557	0.579	1.000	0.851
Experience level (9)	5.43	2.82	0.024	0.028	0.048	0.068	0.016	0.091	0.070	−0.010	1.000

* In the case of experience level the mean and standard deviation, for the other risk sources the median and interquartile range were calculated. Source: Authors' own data collection, 2018.

Serbia is generally more vulnerable economically; thus for the development of taxes and interest rates there is a much higher risk of insufficient profit ($r = 0.328$), unpaid receivables ($r = 0.319$), and inability to pay for liabilities ($r = 0.344$).

Table 4 presents the observed odds ratios of risk perception levels for V4 against Serbia with respect to risk source. Risk perception has been categorized into lower and higher levels to demonstrate that risk perceptions differ between countries with special regard to risk sources. The backwards elimination test indicated significant higher order effects of Country by Risk source by Risk perception level (Pearson Chi-square (χ^2) = 15.1, degree of freedom (df) = 3, significance (p) = 0.002)). The second order effects were also significant ($\chi^2 = 405.1$, df = 7, $p < 0.001$) except the country by risk source effect ($\chi^2 = 3.5$, df = 3, $p = 0.315$) which was left out from the final model. Therefore, the non-hierarchical model fitted the data well.

Table 4. Parameter estimates of the log-linear model 1 for economic risk I.

Effect		Estimate Regarding Experience Level	Std. Error	Z-Value	Significance	Odds Ratio for V4 Group Against Serbia	
						Lower (V1 + V2 + V3) vs. Higher Level (V4 + V5)	Higher (V4 + V5) vs. Lower Level (V1 + V2 + V3)
Country by risk perception level by risk source	development of taxes	−0.064	0.027	−2.37	0.018	0.60	1.67
	poor availability of financial resources	−0.021	0.028	−0.75	0.453	0.85	1.18
	development of interest rates	0.092	0.028	3.27	0.001	2.09	0.48
	the rise in energy prices	−0.007	0.028	−0.25	0.803	0.95	1.06
Country by risk perception level	V4	0.028	0.003	9.87	<0.001	1.12	0.89
	Serbia	−0.028	0.003	−9.33	<0.001	0.89	1.12

Source: Authors' own data collection, 2018.

A significant difference can be found in the case of the development of taxes and interest rates. The country and risk source effect was not significant at all, indicating that each of these risk sources could occur in the same way in Serbia, as well as in the V4 countries. During the calculation the influence of the average experience level in risk management was considered. As the Kolmogorov–Smirnov test showed the non-normal distribution for experience level, we have analyzed the differences between V4 and Serbia using the Mann–Whitney nonparametric test. This test showed a significant difference between the regions ($Z = -2.899$; $p = 0.004$), V4 had a higher average level of experience (H2) of 5.82, while the average score was only 5.43 for Serbia on a one to 12 scale.

The observed odds ratio for the country effect (V4 against Serbia) and risk sources (development of taxes vs. other risk sources) on the risk perception level (higher vs. lower) is 1.67. That is to say, the odds of a higher risk perception level (V4 + V5) against the lower level (V1 + V2 + V3) in case of the V4 countries were 1.67 times the odds of Serbia for development of taxes compared to other risk sources (H4). Hence, the V4 countries are more vulnerable to this type of risk, although regarding the development of interest rates their odds are much lower (0.47) and the development of interest rates is twice as much likely in Serbia.

The observed odds ratio for the country effect (V4 against Serbia) on risk perception level (higher vs. lower) is 1.12. This implies that higher Risk perception levels are more likely in case of Serbia than in case of the V4 countries with respect to all risk sources. Hence, the studied risk sources have a more intensive effect on business in Serbia.

Table 5 shows the observed odds ratios for lower against higher risk perception levels with respect to the economic risk sources without the country effect, in order to measure the general effect of economic risk sources for all countries analyzed.

A significant difference at the 5% level can be determined in all risk types. Lower risk perception levels are 1.12 and 1.16 times likelier for the poor availability of financial resources and the development of interest rates compared to the other risk sources; the opposite is true for the development of taxes and the rise in energy prices. Therefore, the development of taxes and the rise in energy prices are the two major risk sources with higher intensity for all countries analysed (H5).

Table 6 presents the observed odds ratios for lower against higher risk perception levels with respect to financial risk sources to measure the general effect of financial risk sources of all the countries and present differences in financial risk perceptions between the countries.

The partial associations test did not indicate a significant country effect by risk source by risk perception level ($\text{Chi}^2 = 4.1$, $\text{df} = 3$, $p = 0.255$) regarding financial risk. The second order effects ($\text{Chi}^2 = 271.4$, $\text{df} = 10$, $p < 0.001$) were significant, except for the country by risk source effect ($\text{Chi}^2 = 0.6$, $\text{df} = 3$, $p = 0.894$) so this effect was left out from the final model. High significances of the second order effects indicate a proper fit of the non-hierarchical model.

A significant difference can only be determined in the case of insufficient profit and corporate debt regarding influence of the average experience level in risk management.

Lower risk perception levels are 1.19 times likelier for corporate debt compared to the other risk sources; the opposite is true for insufficient profit for which the odds are 1.22 times higher for higher risk perception levels. Therefore, corporate debt is less risky and insufficient profit is riskier than the other risk sources and all countries should be especially prepared for them (H3).

The observed odds ratio for the Country effect (V4 against Serbia) on the Risk perception level (higher vs lower) is 1.06. This implies that the odds of a higher risk perception level against the lower in the case of Serbia is slightly higher regarding all the financial risk sources (H1).

A Mann–Whitney test determined a significant relationship between the risk perception and level of experience at the 95% confidence level ($Z = -2.143$; $p = 0.035$). Those companies that had a significantly higher level of experience perceived any kind of financial risk at a much lower level. The average score for level of experience was 5.79 for companies which perceived risks at a lower level, while the average was 5.68 for those which experienced risks at a higher level (H7).

Table 5. Parameter estimates of the log-linear model 1 for economic risk II.

Effect		Estimate Regarding Experience Level	Std. Error	Z-Value	Significance	Lower (V1 + V2 + V3) vs. Higher Level (V4 + V5)	Higher (V4 + V5) vs. Lower Level (V1 + V2 + V3)
Risk perception level by risk source	development of taxes	−0.044	0.005	−9.46	<0.001	0.84	1.19
	poor availability of financial resources	0.028	0.005	5.66	<0.001	1.12	0.89
	development of interest rates	0.036	0.005	7.18	<0.001	1.16	0.87
	the rise in energy prices	−0.020	0.005	−4.03	<0.001	0.92	1.08

Source: Authors' own data collection, 2018.

Table 6. Parameter estimates of the log-linear model 1 for financial risk.

Effect/Country		Estimate Regarding Experience Level	Std. Error	Z-Value	Significance	Odds Ratio for V4 Group Against Serbia	
						Lower (V1 + V2 + V3) vs. Higher Level (V4 + V5)	Higher (V4 + V5) vs. Lower Level (V1 + V2 + V3)
Country by risk perception level	V4	0.014	0.003	4.64	<0.001	1.06	0.95
	Serbia	−0.014	0.003	−4.64	<0.001	0.95	1.06
Risk perception level by risk source	insufficient profit	−0.050	0.004	−14.29	<0.001	0.82	1.22
	corporate debt	0.044	0.004	10.46	<0.001	1.19	0.84
	unpaid receivables	−0.004	0.004	−1.14	0.254	0.98	1.02
	inability to pay for liabilities	0.010	0.004	2.66	0.008	1.04	0.96

Source: Authors' own data collection, 2018.

Table 7. Parameter estimates of the log-linear model 2.

Effect/Risk Type		Estimate Regarding Experience Level	Std. Error	Z-Value	Significance	Odds Ratio for V4 Group Against Serbia	
						Lower (V1 + V2 + V3) vs. Higher level (V4 + V5)	Higher (V4 + V5) vs. Lower Level (V1 + V2 + V3)
Country by type of risk by risk perception level	Economic	0.036	0.012	3.29	0.001	1.33	0.87
	Financial	−0.036	0.012	−3.29	0.001	0.87	1.33
Risk perception level by risk type	Economic	−0.012	0.002	−6.36	<0.001	0.95	1.05
	Financial	0.012	0.002	6.36	<0.001	1.05	0.95

Source: Authors' own data collection, 2018.

Table 7 illustrates the observed odds ratios for lower against higher risk perception levels with respect to the risk types and countries. The second log-linear model (Equation (4)) was used for estimating the odds ratios to compare the effect of financial risk sources with the effect of economic risk sources.

The partial associations test indicated a significant country effect by risk source by risk perception level ($\text{Chi}^2 = 9.8$, $\text{df} = 1$, $p = 0.002$) regarding financial risk. The second order effects ($\text{Chi}^2 = 144.5$, $\text{df} = 3$, $p < 0.001$) were also significant, except for the country by risk source effect ($\text{Chi}^2 = 0.3$, $\text{df} = 1$, $p = 0.616$) so this effect was left out from the final model. High significances of the second order effects indicate a proper fit of the non-hierarchical model.

A significant difference at the 5% level can be determined between economic and financial risk types. There is a greater chance of lower risk perception levels for financial risks, and generally countries are more exposed to economic risk sources. Therefore, economic risk sources are more likely than financial risk sources and all countries are concerned (H6).

The observed odds ratio for the Country effect (V4 against Serbia) and risk type (financial vs economic risk sources) on Risk perception level (higher vs lower) is 1.33. Thus, higher risk perception levels are more likely in case of the V4 countries for financial risks compared to economic risks than for Serbia (H6).

5. Discussion and Conclusions

The aim of the article was to identify the most serious sources of economic and financial risk SMEs in countries of the V4 Group and Serbia. The importance of understanding the factors that affect small business performance are also confirmed by Gaskill et al. [93]. Hudáková and Masár [20] confirmed the importance of identifying the most serious risks, discussing them and implementing preventive measures with a focus on preventing business crises. Our findings have potentially important implications for managers and for the literature on risk management [65]. The results can also be useful for regional associations which are focused on help for SMEs. This can be influenced by the political situation in the country and the attention paid to SMEs in individual countries.

Our research confirmed that Serbia is generally slightly more exposed to financial risk sources than the V4 countries (H1). V4 countries have a greater level of experience in applied risk management than Serbia (H2). It was found that corporate debt is perceived as less risky in all countries. On the contrary, an insufficient profit is riskier than other risk sources and all countries are exposed to it (H3). V4 countries are more exposed to the risks of development of taxes and interest rates compared to other risk sources. Serbia is twice as exposed to the development of interest rates (H4). Moreover, the development of taxes and the rise in energy prices are much riskier than poor availability of financial resources and the development of interest rates in all selected countries (H5).

The study shows that economic sources are more likely to occur than financial risk sources and all countries are more exposed to them. In addition, V4 countries are more exposed to financial risks and less exposed to economic risks compared to Serbia (H6). This result was also supported by Kozubikova et al. [83] and Belás et al. [94] and Dumitrescu et al. [95]. According to the company's experiences, it was found that companies that have a significantly higher level of experience perceive any kind of risk at a much lower level (H7). The results confirmed the findings of studies about the significance and importance of addressing the assessment of key risks and their resources in SMEs of the Visegrad Group [96,97].

Economic risk sources with special respect to the development of interest rates and taxes are strongly connected to financial risks. For example, the rise in the interest rates can increase energy prices, corporate debt, and poor availability of financial sources. Serbia seems to be more vulnerable due to the stronger correlations between economic and financial risk sources compared to the V4 group.

Even though the V4 countries are similar in terms of historical development and economic conditions, differences in the business environment are noticeable. The differences in comparison with Serbia in the business environment were confirmed. The implications of the key outcomes can be caused by various differences among the countries. While all V4 countries are already members of the

EU, Serbia is still a candidate country, reflecting the significant progress made so far in structural and institutional reform. The process of risk management development in Serbia may be faster than in the V4 countries. By contrast, developments in the V4 countries are likely to be more stable.

The research has some limitations. The results are valid only among V4 countries and Serbia; they cannot be generalized. All countries completed the questionnaire in their native language; however, some misunderstandings can occur when providing responses. Untruthful answers cannot be exposed. This research can be extended to other countries in the future to obtain a better understanding of the importance of risks in different countries around the world.

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