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## Risk management at Slovak enterprises: an empirical study<sup>1</sup>

**Abstract.** Risk management is a process aimed at assessing and managing risks with the goal to minimise losses and maximise benefits. The analysis and evaluation of the risks are decisive in risk assessment according to the risk management framework. The purpose of this article is to assess the current state of implementing the process of analysing and assessing risks related to small and medium-sized enterprises (SMEs) and to define the main problems outlined in the questionnaire research carried out in 2017 in which 485 SMEs working in Slovakia took part. The questionnaire contained questions about the implementation of risk analysis and risk assessment in SMEs. To conduct the research, the authors used basic methods of statistical assessment, namely simple classification of statistics and calculations of relative accountability. Based on the results of the given research, it can be concluded that the SMEs pay the least attention to the analysis and evaluation of risks. In our opinion, this is due to the failure to apply exact methods which seem to be complicated in terms their practical use.

**Keywords:** Risk; Risk Management; Analysis; Evaluation; Enterprise; Small and Medium-sized Enterprises

**JEL Classification:** M20; L20; L11; D81

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### Управління ризиками на словацьких підприємствах: емпіричне дослідження

**Анотація.** Управління ризиками – це процес, націлений на оцінку й управління ризиками з метою мінімізації витрат і максимізації можливостей. Аналіз й оцінка ризиків є основним елементом оцінки ризиків в структурі управління ризиками. Метою цієї статті є визначення поточного стану реалізації процесу аналізу та оцінки ризиків на малих і середніх підприємствах, а також пов'язаних із цим процесом проблем на підставі анкетного дослідження, проведеного в 2017 році, в якому взяли участь 485 малих і середніх підприємств, що працюють у Словаччині. Анкета, розроблена для проведення дослідження, містила питання, які стосуються впровадження аналізу та оцінки ризиків на малих і середніх підприємствах. Для отримання результатів дослідження авторами статті було застосовано основні методи статистичної оцінки, а саме: проста класифікація статистики та розрахунки відносної звітності. Результати цього дослідження показали, що малі та середні підприємства не приділяють належної уваги аналізу й оцінці ризиків, що, на думку авторів, пов'язано зі складністю використання точних методів аналізу та оцінки ризиків.

**Ключові слова:** ризик; управління ризиками; аналіз; оцінка; підприємство; малі та середні підприємства.

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### Управление рисками на словацких предприятиях: эмпирическое исследование

<sup>1</sup> The study was partially presented by the authors at the CBU International Conference 2018: <https://www.journals.cz/index.php/CBUIC/article/view/1158>

**Аннотация.** Управление рисками – это процесс, направленный на оценку и управление рисками с целью минимизации потерь и максимизации возможностей. Анализ и оценка рисков являются основной частью оценки рисков в структуре управления рисками. Целью данной статьи является оценка текущего состояния реализации процесса анализа и оценки рисков на малых и средних предприятиях, а также определение связанных с этим процессом проблем на основании анкетного опроса, проведенного в 2017 году, в котором приняли участие 485 малых и средних предприятий, работающих в Словакии. Анкета, разработанная для проведения исследования, содержала вопросы, касающиеся внедрения методов анализа и оценки рисков на малых и средних предприятиях. Для получения результатов исследования были применены основные методы статистической оценки, а именно: простая классификация статистики и расчеты относительной отчетности. Результаты данного исследования показали, что малые и средние предприятия не уделяют должного внимания анализу и оценке рисков, что, по мнению авторов исследования, связано со сложностями в использовании точных методов анализа и оценки рисков.

**Ключевые слова:** риск; управление рисками; анализ; оценка; предприятие; малые и средние предприятия.

## 1. Introduction

The essence of risk management is to reveal and to reduce risks purposefully. The risk management process consists of several basic steps (phases). The risk management process is described in the professional literature in various ways. Š. Zapletalová (2012) divides them into three phases (identification of risks, analysis and assessment of risks, treatment of risks). Some publications (Kafka 2009; Mikušová 2014) say the risk management process contains four phases and according to ISO STN 31 000 Risk Management and the Australian standard 4360:2004 it consists of five basic steps. These differences consist in a different classification of the activities into individual phases and steps. The content and essence of the individual activities, as well as their accessibility, is the same in all of the aforementioned sources. This article is based on classifying the risk management process into two basic phases, i.e. the assessment and management of the risks. In the framework of risk assessment, we analyse internal links and their overall importance. Subsequently, the identification, analysis and evaluation of risks are carried out. The phase of risk management consists of reducing risks, informing the concerned and competent persons about residual risks and monitoring (checking) risks.

## 2. Brief Literature Review

### *Risk assessment in the enterprise*

The activities carried out in the framework of risk assessment are aimed at understanding the relations and links between the elements of the system being assessed, which enables a simpler identification of possible threats. A subsequent risk analysis investigates the essential properties and factors of the risk with an emphasis on the likelihood of developing a negative event and consequences it can cause. Risk evaluation is the last step in the framework of assessing risks. The output of the risk evaluation is a list of acceptable and unacceptable risks, and it is a basis for realising the risk management phase. We can say that data with various information values is the input, and the selection of the unacceptable risks we have work primarily with is the desired output. Based on the importance of risks, decisions about risk management are subsequently taken. Some professional sources do not differentiate the analysis and evaluation of risks during the risk assessment phase, others consider them to be independent activities. We recommend distinguishing the analysis and evaluation from both the terminological and content point of view.

According to the STN ISO 31 000, the analysis contains «considerations about the causes and sources of the risk». The identification of the factors resulting from the consequences of a negative event and the likelihood of its development (the causes and sources of the risks); their evaluation and the subsequent definition of the risk extent is carried out in the framework of risk analysis. Risk evaluation is aimed at comparing the size of the analysed risks themselves, as well as comparing them with the stated level of unacceptable risks. In some cases, the assessed risks can be analysed again. Risk evaluation determines the risks we have to deal with or manage. The output of the evaluation is the creation of the risk list and their classification into the acceptable and unacceptable ones. The realisation of analysing and managing the risks is identically understood in the Australian standard 4360:2004. According to COSO ERM (Curtis, 2012), the structure of risk management was created regarding to the requirements of the standard ISO 31 000. In spite of this, it makes no difference between the activities of the

analysis and evaluation. The main goal and perhaps the sense of the risk assessment phase is, above all, being aware of all risks which threaten the planned activities and providing support for making decisions in the risk management phase.

The international research Treasury Risk Survey aimed at enterprise risk management says that the goal of risk management for the majority of companies is to minimise the negative impact of risks on economic results. Companies are aware of the necessity of risk management and they focus especially on internal inspections and changes in the processes in an effort to minimise the risk. At the same time, the survey also indicates that a difficult market situation forces even small companies to pay attention to risk management. In the majority of enterprises, risk management is centralised at the top management level (CFO Best Practice, 2013).

P. Lechner, N. Gatzler, J. Bereceska and M. Hudakova support a different point of view. They point to the fact that the size, the international diversification and the industry sector have a positive impact on the implementation of risk management at enterprises (Lechner & Gatzler, 2017; Bereceska & Hudakova, 2018). Results provided by some researches (Florio & Leoni, 2016; Silva, da Silva & Chan, 2018) show that practical use of enterprise risk management has a positive effect on financial performance, market evaluation and firm value.

Also, several surveys dealing with the entrepreneurial risk management have been carried out in Slovakia. We consider the research of the SMEs in 2016 (Klučka & Grünbichler, 2016) to be very incentive. The researchers found out that only a negligible part of the addressed SMEs had a person responsible for risk management or a department created for this purpose within the enterprise. Except for this, no exact techniques are used to define risks, and their estimation is only of an intuitive character, when the owners rely on their empirical knowledge. This can be explained by the fact that a significant part of the SME owners or the managers do not know the exact techniques or they consider them to be too complicated for any practical utilisation.

Based on the findings of these authors, we decided to examine the validity of their claims. However, we anticipate that risk management is more used by medium-sized enterprises like in micro and small enterprises.

**3. The Purpose** of this article is to assess the current state of implementing the process of analysing and assessing risks related to small and medium-sized enterprises and define the main problems relevant to SMEs working in Slovakia.

## 4. Data description and methodology

The questionnaire survey aimed at the risk management in the SMEs in Slovakia was carried out in 2017. The research was part of the project VEGA 1/0560/16 Risk Management in SMEs in the Slovak Republic - Prevention of Corporate Crisis. The companies were asked about the real state of analysing and assessing risks. 485 companies (314 micro-companies, 114 small and 57 medium-sized enterprises) took part in the survey. In order to present the detected facts through the questionnaire research, we used basic methods of statistical assessment which are the simple classification of the logogram, the classification according to two or three statistical signs and calculation of relative quantity belong to these methods. The basic questionnaire question deals with an activity which is emphasised in the framework of risk management. The answers to the question represent the basic idea of this article. This question was as follows: Which of the main risk management activities do you pay the biggest

attention to? The following answers were available: identifying the risks; analysing the risks (defining the likelihood and consequence); assessing the risks (stating the seriousness of the risks); creating measures to reduce the risks; all activities are paid the same attention; none of the above activities

Based on the fact that companies pay the lowest attention to the analysis and evaluation of risks, this article focuses on these two risk management activities. Here, the following conclusion can be derived - the analysis and evaluation of risks are complicated activities in terms of time and expertise. Companies are satisfied with a simplified risk assessment only, and they pay attention to what they think to be «more important» activities. Therefore, the article investigates how companies define the size of different risks. The determined size of risks is an assumption to define their importance.

Micro-companies accounted for 97.1%, small enterprises comprised 2.3% and medium-sized enterprises represented 0.5% of the companies in Slovakia in 2016 (SBA, 2017). According to the questionnaire survey, this representation of Slovak companies shows the basic statistical file. 65% of the micro-companies, 24% of the small enterprises and 12% of the medium-sized enterprises took part in the survey. The percentage of the companies by their size in the representative sample of the questionnaire is adequate to the percentage of the enterprises in the basic statistical file. Therefore, we can generalise detected conclusions regarding the whole entrepreneurial environment.

**5. Results**

**Assessing and managing risks in SMEs in Slovakia**

Figure 1 depicts the relative quantity of the companies (regardless of their size). It shows which of the risk management activities is paid the greatest attention to. The results show that 123 of the addressed companies (25%) do not deal with the risk management. We can say that the micro-companies and small enterprises especially do not deal with the risk management. They perceive risk management as another administrative burden and do not see any reason to realise it. In spite of this fact, the survey shows that 75% of the addressed companies deal with risk management and 114 of the enterprises (24%) cover all risk management activities. We can say these enterprises realise risk management in a continual way. However, there is a majority of companies that prefer only some of these activities. The companies predominantly focus on identifying the risks and creating measures for their reduction. The least attention is paid to risk evaluation except for the small enterprises that deal with risk monitoring at the lowest level. Further presentations of the research results do not take into account the companies' size.

The values of risks are not defined by 48% of the addressed companies (see the Figure 2). When stating the size of the risk, we implement the qualitative expression in the form of a verbal description (e.g. small, medium or big risks). 38% of the companies define the risk size in this way. Only a small part of the addressed companies state the size of the risks either quantitatively through expressing the risk in a mathematical or statistical way or semi-quantitatively, or verbally by attaching the point value. This determination of risks is also used by 7% of the enterprises.

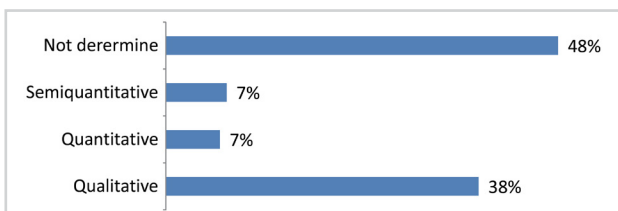


Fig. 2: **Proportional classification of the companies according to the method of stating the size of risks**  
Source: Compiled by the authors

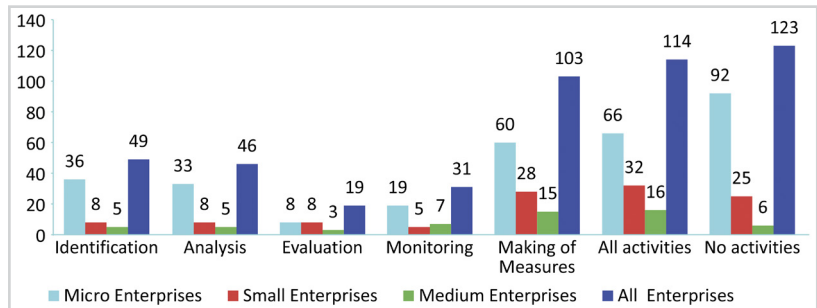


Fig. 1: **Proportional comparison of the companies according to their activities to which they pay the greatest attention in the risk management area**  
Source: Compiled by the authors

The comparison of the enterprises according to the classification to the preferred activities of the risk management and risk assessment methods shows that the qualitative, quantitative and semi-quantitative risk evaluation is used by the companies approximately at the same level. We cannot say whether 45% of the companies that define the risk value either qualitatively or semi-quantitatively carry out this analysis by using the method of risk evaluation or they only rely on intuitive estimation. There is another challenge for an investigation. The companies utilising the mathematical and statistical expression of risks are expected to use these methods and techniques.

The next question (after the question about the method of stating the risk value) concerning the factors which the companies take into account when determining the risk value is as follows. It has been detected that 34% of the companies assess the likelihood and consequence of developing a negative event when determining the risk size; 17% of the enterprises take into account only the consequence and 8% of the companies take into consideration only the likelihood of developing a negative event during the risk evaluation process (see Figure 3). It is worth mentioning that 25% of the companies take into account none of the two basic factors when determining the risk size (neither the likelihood nor the consequences). If we compare it with the 34% of the companies that take into consideration the likelihood as well as the consequences when assessing the risks, 25% of the enterprises is a significant amount. There can be two explanations for such a result.

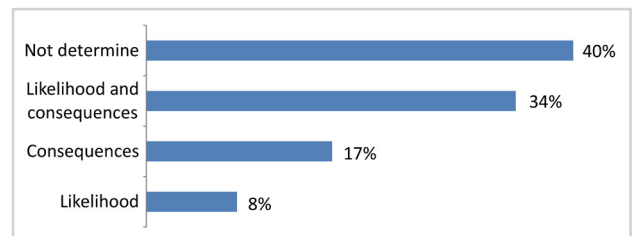


Fig. 3: **Proportional classification of the companies according to the factors they take into account when stating the risk value**  
Source: Compiled by the authors

The first reason can be a different understanding of risks by the companies. In spite of the fact that the professional literature defines a risk as a likelihood of developing a negative event and its consequence, there are also risk definitions that consider it either a likelihood of developing an undesirable event or the expected loss (i.e. the consequences). For example, T. Aven (2011) distinguishes nine basic categories of the risk definition which differ just in the framework of defining the likelihood and the consequences as part of any risk.

The second reason can be measures created to reduce risks. The measures relating to risk reduction are aimed at either limiting the development of negative events or at reducing their consequences. Therefore, it is possible to assume that according to the preference of measures, the companies take into consideration the factor the size of which they want to reduce. The results show that twice as many enterprises prefer the evaluation of the consequences compared with the evalu-

ation of the likelihood of developing a negative event when assessing the risks.

The answer to the question why the companies aim more at assessing the consequences than at determining the development of a negative event, and namely when they take into account only the likelihood or only the consequences, cannot be clearly defined. The reasons why the companies focus more on the risk than on the consequences as a likelihood of developing a negative event are as follows:

- The understanding of the entrepreneurial risk as a possibility of developing not only negative but also positive consequences. The entrepreneurial risk is often labelled as a speculative risk because it is connected with the successfulness of the selected activity and develops in the framework of the entrepreneurial decision-making. The companies assess and compare the possibilities of negative consequences (losses) with the positive results (profit) when taking the risk.
- The size of a negative consequence in the case of a particular entrepreneurial subject depends especially on the available financial means invested to address activities which threaten the event. It is a more complicated thing to state the size of likelihood for developing a negative event. In contrast to defining the consequences where the entrepreneurial subject possesses the necessary data (keeping records of accounting and necessary documentation about the value of the assets), the enterprise does not have the necessary information at its disposal when it attempts to state the likelihood of some events.

The factors that the enterprises take into consideration for stating the risk value (the likelihood and the consequences) are also connected with how they are stated (quantitatively, qualitatively or semi-quantitatively). Figure 4 shows the classification of the enterprises according to the method of stating the risk and the risk factor they prefer for their evaluations. The comparison excludes those companies that do not use any method for stating the risk value.

The usage of the quantitative methods depends on a sufficient amount of information due to which the enterprise is able to assess both the likelihood and the consequences. This was confirmed by a research according to which 78% of companies utilising the quantitative methods state the size of the likelihood and the consequence, 10% of the enterprises monitor only the likelihood and 6% detect only the consequences (marked green in Figure 4). In the framework of the qualitative and semi-quantitative risk evaluation, there are three times more companies that state the risk value only as a consequence of a negative event compared with stating the risk value only as a quantity of likelihood of developing a negative event. When we use the qualitative methods, the ratio is

31:11, and in the case of the semi-quantitative methods it is 22:8 in favour of the consequence versus likelihood. The biggest disproportion can be seen in the qualitative risk evaluation (marked blue in Figure 4). There are only by 5% fewer companies (47%) that assess risks by the likelihood and the consequence of a negative event than those that take into account either the likelihood or the consequences (42%).

There is an interesting observation that when we divide the companies according to the semi-quantitative method of risk evaluation (marked orange in Figure 4) there is a zero representation of the companies that do not state the value of risks when stating the risk value. 6% of the companies do not state the risk value when evaluating the risks qualitatively and, in the case of the qualitative evaluation, these companies amount to 11%. A logical explanation can be the fact that these companies consider risk evaluation only as a definition of importance (as mentioned in the first investigated question in this article) without determining the value of risks. In our opinion, they follow the development trend of the investigated enterprise data for the quantitative evaluation. Based on inclination to either grow or decrease, they determine the importance of risks without any necessity to state their value. In the case of the qualitative evaluation, it can be only an analytical analysis of risks, without stating their value, however, with determining their importance for the enterprise.

At the end of this part of the article, we would like to show negative answers of the companies to the questions (Figure 5). We purposefully omitted them in the previous context. 25% of the addressed companies deal with the risk management (see Figure 5, above). Based on this percentage, we expected that the representation of the companies utilising no methods of stating the risk value would be a little more than 25%. We derived such an assumption based on the fact that the companies deal only with some activities and can neglect the others. Out of the introduced 48% companies, 25% deal with risk management, and the remaining 13% pay attention only to some activities associated with risk management. A simple classification shows that the companies that say they pay attention to all risk management activities or take appropriate measures have the highest representation here.

The representation of the enterprises that answered negatively to the question regarding to the method of stating the risk value (Figure 5, middle) and taking into account the factors for risk evaluation (Figure 5, below) is approximately the same. In spite of this, there is an 8% representation of the companies that do not utilise the qualitative, semi-quantitative or quantitative methods of risk evaluation; however they take into consideration its factors when determining the size of the risk. We can say that if we do not apply the qualitative,

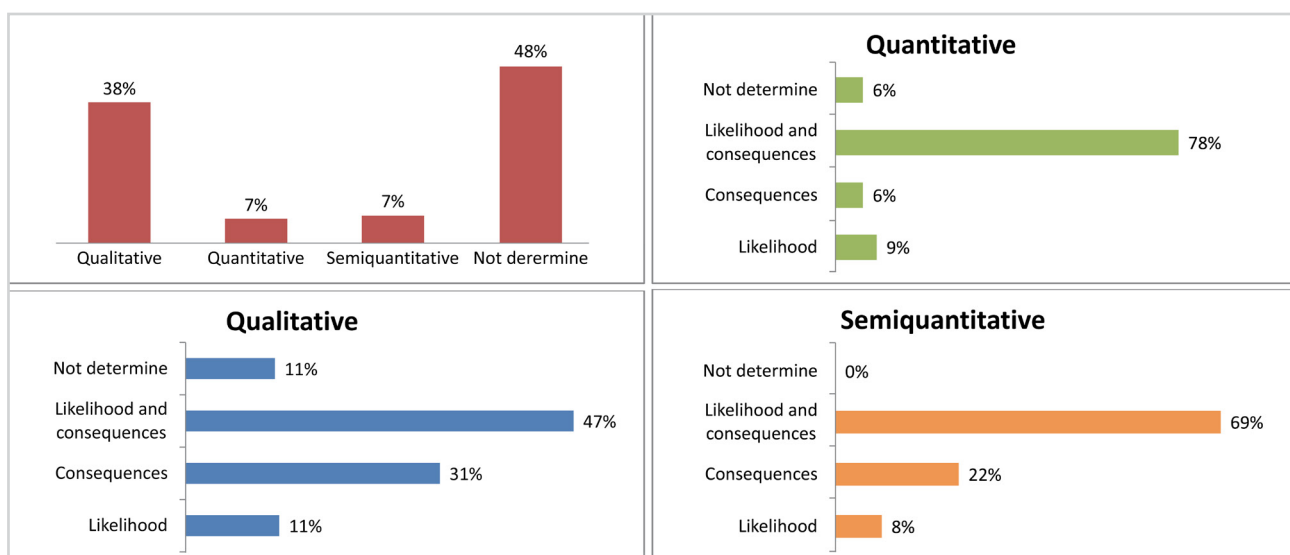


Fig. 4: Classification and comparison of the percentage of the companies according to the method for stating the risk value and the factor used for assessing the risks that are taken into account

Source: Compiled by the authors

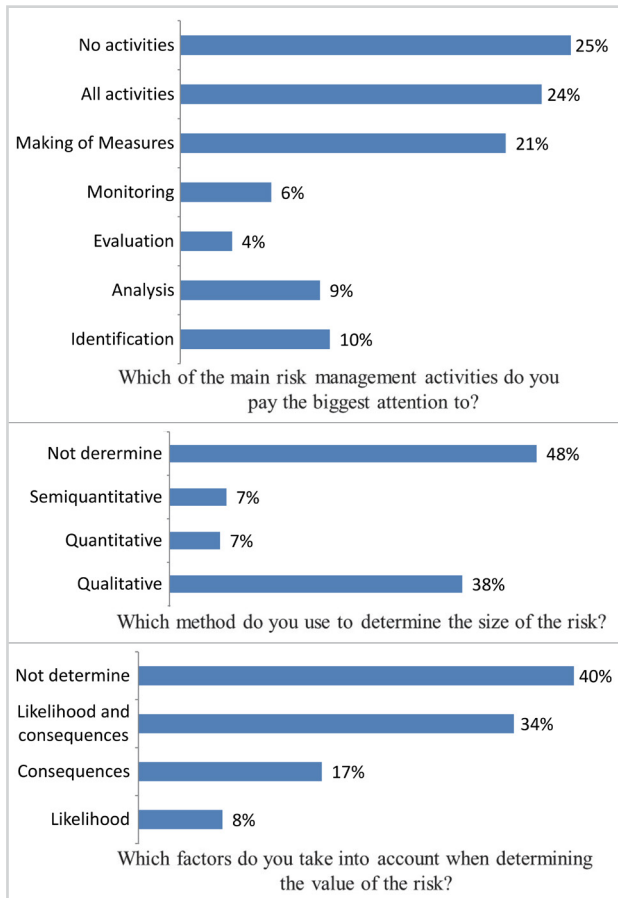


Fig. 5: Percentage share of negative answers of the companies to the chosen questions  
Source: Compiled by the authors

semi-quantitative or quantitative methods, the risk value can be defined only intuitively in the form of rough estimations. Of course, a simple explanation of these results can be also the fact that the companies did not understand the questions, or they answered only in a formal way without any deeper understanding of the problem.

## References

- Ahmed, I., & Manab, N. A. (2016). Influence of Enterprise Risk Management Success Factors on Firm Financial and Non-financial Performance: A Proposed Model. *International Journal of Economics and Financial Issues*, 6(3), 830-836. Retrieved from <https://www.econjournals.com/index.php/ijefi/article/view/1993>
- Aven, T. (2011). *Quantitative Risk Assessments: The Scientific Platform*. New York: Cambridge University Press.
- Beasley, M., Branson, B., & Hancock, B. (2016). *The State of Risk Oversight: An Overview of Enterprise Risk Management Practices* (7<sup>th</sup> Edition). The Enterprise Risk Management (ERM) Initiative at NC State University. Retrieved from [https://erm.ncsu.edu/az/erm/i/chan/library/AICPA\\_ERM\\_Research\\_Study\\_2016.pdf](https://erm.ncsu.edu/az/erm/i/chan/library/AICPA_ERM_Research_Study_2016.pdf)
- Berešecka, J., & Hudakova, M. (2018). Identity of Businesses in Rural Tourism. *21<sup>st</sup> International Colloquium on Regional Sciences*. Conference Proceedings (pp. 573-580). Brno: Masaryk University. doi: <https://doi.org/10.5817/CZ.MUNI.P210-8970-2018-75> (in Slovak)
- Curtis P., & Carey, M. (2012). *Risk Assessment in Practice*. Deloitte & Touche LLP. Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Governance-Risk-Compliance/dttl-grc-riskassessmentinpractice.pdf>
- Florio, C., & Leoni, G. (2017). Enterprise risk management and firm performance: The Italian Case. *The British Accounting Review*, 49(1), 56-74. doi: <https://doi.org/10.1016/j.bar.2016.08.003>
- CFO Best Practice (2013). *Global trends in enterprise risk management*. [Web blog post]. Retrieved from <http://www.cfo.sk/articles/globalne-trendy-v-riadeni-podnikovych-rizik#.WJg6jNLhDcs> (in Slovak)
- Hosseini, M. R., Chileshe, N., Jepson, J., & Araschpour, M. (2016). Critical Success Factors for Implementing Risk Management Systems in Developing Countries. *Construction Economics and Building*, 16(1), 18-32. doi: <https://doi.org/10.5130/AJCEB.v16i1.4651>
- Cho, E. (2015). *Exploring Barriers to Effective Risk Management Through a Proposed Risk Governance Framework*. (Doctoral dissertation). Georgia State University. Retrieved from [https://scholarworks.gsu.edu/bus\\_admin\\_diss/60](https://scholarworks.gsu.edu/bus_admin_diss/60)
- Kafka, T. (2009). *Guide to Internal Audit and Risk Management* (1<sup>st</sup> edition). Prague: C. H. Beck (in Czech).
- Klučka, J., & Grünbichler, R. (2016). Risk management: exploitation, importance and future expectations: a comparison between Austria, Slovakia and Germany. *Controller Magazin, Arbeitsergebnisse aus der Controller-Praxis*, 41, 49-54 (in German).
- Lechner, P., & Gatzert, N. (2017). Determinants and Value of Enterprise Risk Management: Empirical Evidence from Germany. *The European Journal of Finance*, 24(10), 867-887. doi: <https://doi.org/10.1080/1351847X.2017.1347100>
- SBA (Ed.). (2017). *Small and medium business in numbers*. Bratislava: Slovak Business Agency. Retrieved from [http://www.sbagency.sk/sites/default/files/image/msp\\_v\\_cislach\\_v\\_roku\\_2016\\_final\\_v\\_20\\_10\\_2017\\_002.pdf](http://www.sbagency.sk/sites/default/files/image/msp_v_cislach_v_roku_2016_final_v_20_10_2017_002.pdf) (in Slovak)
- Silva, J. R., da Silva, A. F., & Chan, B. L. (2018). Enterprise Risk Management and Firm Value: Evidence from Brazil. *Emerging Markets Finance and Trade*, 55(3), 687-703. doi: <https://doi.org/10.1080/1540496X.2018.1460723>
- Mikušová, M. (2014). *Crisis Management for Small and Medium-Sized Enterprises* (1<sup>st</sup> edition). Bratislava: Wolters Kluwer (in Czech).
- Zapletalová, Š., Chobotová, M., Janečková, V., Lednický, V., Pawliczek, A., Rylková, Ž., Stefanová, Z., & Šebestová, J. (2012). *Crisis management of a company for the 21<sup>st</sup> century* (1<sup>st</sup> edition). Prague: Ekopress (in Czech).

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