

Controlling as an efficient tool for the strategic management of industrial companies

Jaroslav Gonos¹, Mária Muchová² and Lucia Domaracká³

At present, the situation in many companies is affected by new technologies and the related growing quantity of information. Each enterprise pursues efficient operation of their corporate processes; controlling is very likely to guarantee such efficiency when used properly, as it facilitates timely identification of errors, deviations, and drawbacks, provides the time and objective potential to eliminate them in the form of important information.

The article is focused on controlling as an efficient tool supporting the strategic enterprise management. The survey was carried out with the sample of industrial enterprises consisting primarily of mining companies operating in the Slovak Republic. The first part of the article deals with the theoretical fundamentals of the importance of controlling as the tool efficiently supporting the work of enterprise managing staff in their decision-making and strategic management. The main part of the article deals with the sample of industrial enterprises selected for the studied purpose and subjected to the questionnaire survey. On the basis of outputs obtained from this survey, we examine their attitude towards controlling, its importance and use in the inquired enterprises. In the concluding part, we evaluate and analyse the outputs from our observations in the form of discussion and conclusions drawn from the survey.

Key words: *controlling, tool, management, industrial companies, strategic management*

Introduction

The open nature of economies and markets in individual countries creates constantly and dynamically changing competitive environment. Obviously, if an enterprise wishes to maintain their financial situation and thus their position in this changing market, they need to, and definitely, should use various new modern methods and tools to monitor their economic performance. One of these modern tools is controlling, which becomes if implemented in an enterprise and used properly, an efficient tool for the strategic enterprise management. Each enterprise that strives for the competitiveness is forced to elaborate a corporate management concept containing, in addition to the defined objectives and the real potential of an enterprise, also the feedback system that identifies and promptly responds to weaknesses of an enterprise and thus provides important information that contribute to, and efficiently provide, solutions eliminating these weaknesses. Such efficient tool that pursues the application of these steps is controlling. On the basis of facts, it can be regarded as a very important tool in the decision-making process.

The controlling tool represents a supporting system facilitating the achievement of an enterprise's objectives; it eliminates unexpected negative situations and provides timely notification of possible danger. This tool manages an enterprise on the basis of the plan - reality comparison. Each enterprise pursues efficient operation of their corporate processes; controlling is very likely to guarantee such efficiency when used properly, as it facilitates timely identification of errors, deviations, and drawbacks, provides the time and objective potential to eliminate them in the form of important information. As a result, an enterprise avoids undesired situations that might occur in future due to ignoring the information provided by the controlling as the output data. At present, the situation in many companies is affected by new technologies and the related growing quantity of information. These organisations gradually tend to draw up corporate management concepts containing, in addition to the defined objectives and real opportunities of an enterprise, also the feedback system that provides timely notification of weaknesses together with important information that contribute to the solution of a particular situation. Controlling is the tool that tries to apply these steps.

A mistake often happens in an enterprise's practice of associating the controlling with the control, although it contains certain control elements, technologies. Controlling is a tool used by the top management of an enterprise when collecting and processing the information on the costs and revenues of the given enterprise. Particularly the importance of this information is emphasised for the purpose of strategic enterprise management.

¹ Ing. Jaroslav Gonos, PhD., University of Prešov, Faculty of Management, Department of Economic Sciences and Economy, Konstantinova 16, 080 01 Prešov, Slovakia, jaroslavgonos@gmail.com

² Mgr. Mária Muchová, PhD., TU Košice, Faculty BERG, Letná 9, 040 01 Košice, Slovakia maria.muchova@tuke.sk

³ doc. Ing. Lucia Domaracká, PhD., TU Košice, Faculty BERG, Letná 9, 040 01 Košice, Slovakia, lucia.domaracka@tuke.sk

Managers use this information in the communication, evaluation, and ultimately also in the management of an enterprise, but obviously, they do not forget to apply the strategy of a given enterprise.

Controlling is not a brand new tool; in our article, we rather point out its potential and importance for proper and thorough implementation thereof in the management practice. Many enterprises face various problems within their organisations, and they often lack a comprehensive view of these problems or negative situations that arise within the enterprise. Thanks to the input information and analysis thereof, controlling is a tool capable of timely identification of key points that cause such negative situations and ensure the timely elimination of problems that occurred, or are arising within an enterprise.

The practice requires controlling, and Slovak companies still lack thorough management and a comprehensive view of problems, as already mentioned above, in the internal as well as the external environment. That is particularly why we decided to focus the first part of the article on the survey of selected industrial enterprises, on the basis of their attitudes towards this tool. The first aspect of the main part of the article was devoted to the category based on the ownership of industrial enterprises selected for the survey and its impact on the use of controlling in their entrepreneurial practice. The second aspect of the main part of the article was devoted to the category of a company size, as we were examining the potential relationship between the controlling implementation and a company size, or number of employees, as we assume that the size of an enterprise belongs to important factors when making decisions on the controlling implementation and proper use.

Controlling Definition

Controlling is a set of rules (also referred to as a subsystem of the management system) that facilitates the achievement of an enterprise's objectives; it is aimed at avoiding unexpected situations, anticipating danger in time, and taking measures to eliminate such danger (Mann, Mayer 1992).

Various tasks arise in the managerial practice. Sometimes they require prompt decisions and response. For example, you face a task to find a fast solution of problems in a company's economy, and you are not able to identify a place or activity for which you pay more than you should. Identification of such weaknesses can help to determine strategic objectives and solutions for the company's economy. When making such decisions, managers can make use particularly of the process calculations and the process management in order to have a better view of the company and the costs of the company's operations. (Gallo 2014)

The role of controlling is to prepare the information required for the solution of the planning, decision-making, implementation and control tasks. It cannot be mistaken with control or management, as its role is not only to assess events "after" they happen, but on the contrary, anticipate, set the direction which is most suitable for the achievement of a company's objective (Bestvinova 2002).

Controlling as a Management Tool

As a result of dynamic changes in the economy and growing intensity of competition, companies have to face new challenges, including the incorporation of the controlling concept in the company's management. In the last quarter of the century, companies in Europe were intensively dealing with the implementation of controlling and the establishment of controlling workplaces, i.e. they were adopting the controlling concepts and creating controlling infrastructures (Gučík 2007).

Controlling is often mistakenly compared to control. It is a management concept focused on the result. This concept exceeds the functionality borders and coordinates planning, control, and information flows. It is also necessary to differentiate between the notion of controlling as a function of a controller as a carrier of this function. In fact, in terms of management, controlling is the main task of the management. Each manager's position comprises the task of controlling. Controlling as a process and method of thinking is formed in the team in cooperation with a manager and a controller, it represents a conjunction of both sets (Horváth 2004).

The globalisation of markets creates for small and medium businesses a new dimension of competition. So far achieved results of enterprises show in the new conditions are to be unsatisfactory. An enterprise that wants to prosper in the long term, the strategy has to leave short-term local success. It must determine goals to ensure its existence and prosperity in an international competition. (Bednárová, Liberko, Weiss 2009)

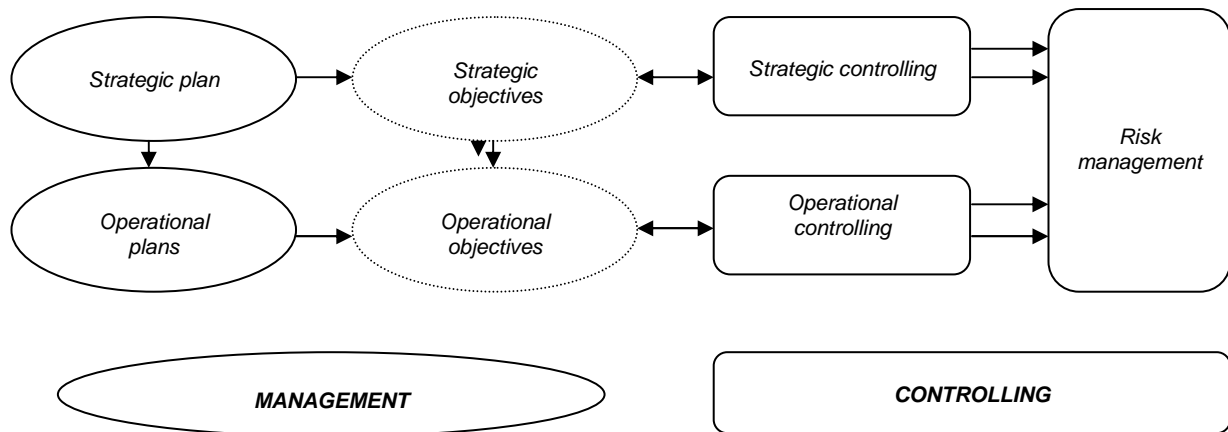


Fig. 1. Process management of an enterprise.
Source: Processed by the authors according to: Havlíček, 2011.

Controlling, Management, Controlling Levels

At present many of Slovak companies realise that if they want to succeed in the market, they must go through many changes. These changes would entail long periods of time and businesses must be based on the options available to them. (Bednarova, Liberko 2008)

The role of production is to produce a quality product with low costs and high labour productivity. At present, management of corporate and production processes is not possible without the use of information systems. They are information and management systems on individual levels of a company management. (Gbuřová, Lelková 2014)

The first and the fundamental controlling level relates to accounting and its objective is to record the achieved results. In this step, it is very important that the accounting, together with reporting, makes records of the information and data that are important for the management and thus simplifies the decision-making process. With regard to the fact that the accounting is focused on the present and the past, while controlling, on the contrary, on the future, we can state that it has become an adequate companion of controlling. (Cehlár 2000, Vidová 2003)

The second level is focused on the comparison and monitoring of deviations from the plan, i.e. from a company's objectives. Controlling registers and evaluates the observed changes and suggests improvements. Here, its role as a navigator is manifested. (Vidová 2003)

The third level is focused on the company's management support. It performs comprehensive control of management by means of planning, evaluation and correction information. It proves that a well-working information system represents a necessary component of controlling. (Vidová 2003)

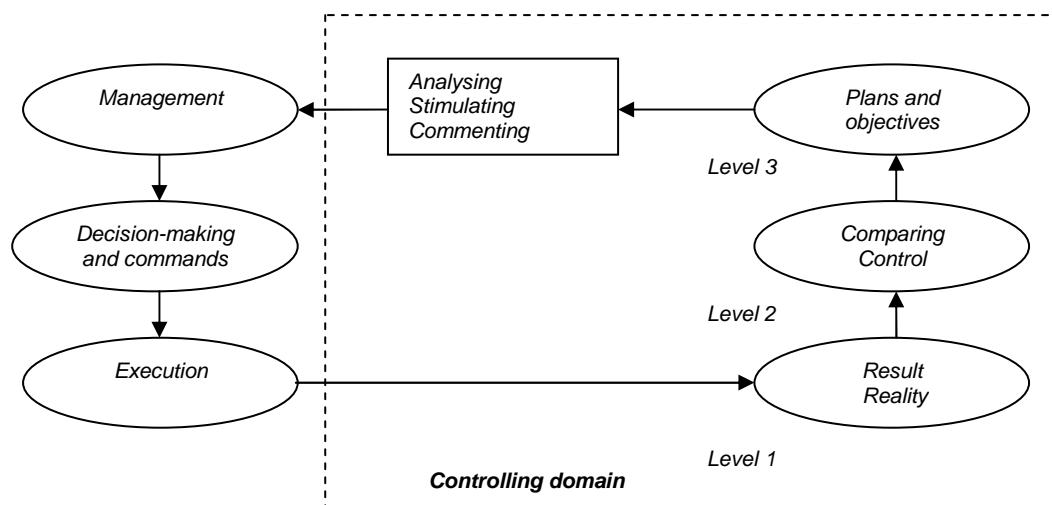


Fig. 2. Controlling, Management, Controlling Levels.
Source: Processed by the authors according to: Baran, 2006.

Material and Methodology

A collection of primary information regarding the given topic was carried out using quantitative and qualitative methods. As for quantitative methods, we applied written inquiries by means of a questionnaire addressed to more than 70 industrial enterprises selected in the database published on the Internet. We concentrated mainly on mining companies which represent the substantial part of the performed survey. Ultimately, we evaluated 50 companies, because some companies did not respond to our questionnaire and some questionnaires contained errors. As for qualitative methods, we applied brainstorming that facilitated new ideas and later selection within the constructiveness for the solution of the given problem.

The article is based on fundamental scientific methods, such as observation, comparison, generalisation, analysis and synthesis. These methods of the cognitive cycle were used concurrently in several steps. The observation method consisted in the systematic and purposeful perception of the subject and the occurrence of the examined topic. As the perception of external aspects of the examined topic, comparison of particular processes, as well as a collection of factual data on the qualitative and quantitative aspects of the examined topic. The obtained empirical material is logically processed while applying logical and scientific methods, such as analysis and synthesis, comparison, generalisation, abstraction. As the supporting methods, we used scientific methods of induction and deduction. One of the quantitative methods of output processing was the use of contingency tables in Microsoft Excel, which served well for the evaluation of the required information and outputs.

For the purpose hereof, we examined the impact of two categorical variables:

- a, company size (micro-company, small company, middle-size company, large company),
- b, company ownership (foreign company, Slovak company),

to the asked question: “Is controlling in your company an efficient management tool?”, which represented the same variable type (3 categories).

Identification of the relationship between these variables was carried out using the Pearson's chi-square test which compares, according to Markechova, Tirpáková, Stehlíková (2011), the differences between empirical and theoretical counts. For the calculation of the test characteristics, it uses the formula:

$$\chi^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

where O_i represents real, i.e. observed counts and E_i – theoretical counts (Pacáková et al. 2009).

The Pearson's chi-square test is based on the assumption that a random vector with multinomial distribution can be transformed into a random parameter, which, in case the null hypothesis applies, is asymptotically governed by the χ^2 division (Budíková, Králová, Maroš 2010). The null hypothesis is thus tested – there is no contingency between the categorical signs, and it is determined by the inequation:

$$\chi^2 > \chi_{1-\alpha}^2((r-1) * (s-1)).$$
$$\chi^2 > \chi_{1-\alpha}^2((r-1) * (s-1)).$$

While applying this test, we examined both requirements of its use, which would result in the integration of categories, if not fulfilled.

The calculations were carried using the MS Office and Statgraphics software.

Results and Discussion

The survey was based on the solution of the key question “**Is controlling an efficient management tool in your company?**“. In the introductory part of the article and in the theoretical part, we tried to point out the importance and significance of this tool for enterprises. In this case, we concentrate on industrial enterprises. Therefore, we wanted to identify and examine the attitudes of the selected enterprises towards controlling and its importance and significance on the basis of implementation into their entrepreneurial practice.

On the basis of this question, we offered three answer options in the questionnaire, to which we expected responses by individual industrial enterprises. As already mentioned above, the companies could choose one of three answer options as follows:

- a. Yes, controlling is manifested as an efficient tool of strategic management.
- b. Yes, the strategic relation between controlling and strategic management is used.
- c. No, controlling is only a formal part of strategic management.

The output from the sample of 50 industrial enterprises responding to the given question is presented in Figure 3.

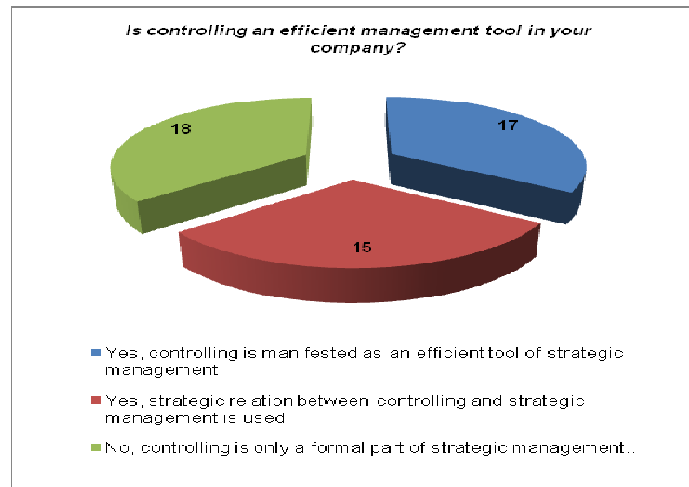


Fig. 3. Responses by industrial enterprises to the presented question.
Source: Processed by authors.

On the basis of those above, we can work with 50 relevant questionnaires. The sample of 50 industrial enterprises responded to the given question. The number of answers to the presented question with three answer options is more-less evenly distributed. It is possible to state that the selected enterprises are aware of the controlling tool and more than 70% of enterprises do not regard it only as a formal part of the strategic management, but they use this tool in the strategic management. Obviously, the survey continuation potential arises here, while focusing the questions to be submitted to companies either in the field of enterprises working with controlling in their entrepreneurial practice, or, on the contrary, in the field of enterprises that perceive controlling only as a formal part of the strategic management, in case we wish to get a deeper insight and more comprehensive information on the attitudes towards controlling. However, in these cases, we would have to prepare new questionnaires, as this was not the objective of our survey.

The survey was focused on industrial enterprises that were divided according to several criteria. The examined sample consisted of companies operating in various industries, which is graphically represented in Figure 4.

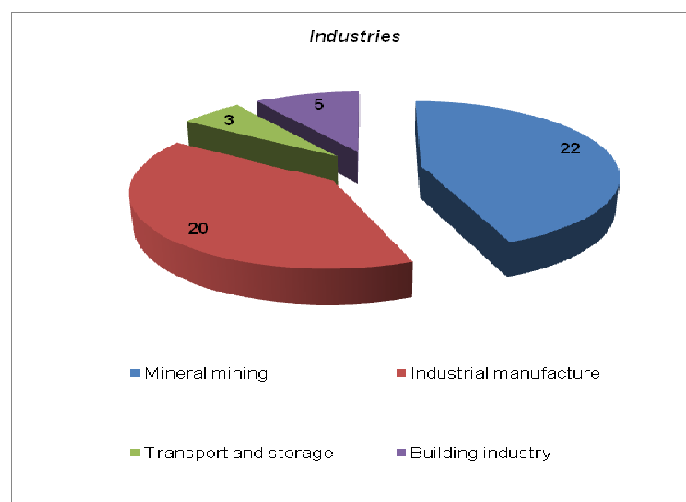


Fig. 4. Industrial companies by industries.
Source: Processed by authors.

In our survey, the outputs of which represent the subject of this article, we concentrated on the evaluation of questions included in this questionnaire, the objective of which was to provide an insight, using the sample of industrial enterprises, in the use of controlling, and whether companies are familiar with this tool in their corporate processes. This was one of the three survey purposes, to identify a number of enterprises out of the examined sample which uses controlling as well as the information on the rate of the use thereof. In the

second and the third purpose of the survey, we tried to assume or exclude, the factors affecting the controlling implementation in industrial enterprises operating in the Slovak Republic.

The second purpose of the survey was pursued on the basis of the company size factor, where the criterion for the size is the number of employees. On the basis of the questionnaire, we examined and analysed this factor and subsequently obtained the outputs. We were trying to find out whether the company size, i.e. the number of employees, affects the implementation and use of controlling in the strategic management. We considered several assumptions; we assumed that the higher number of employees, the higher staff potential affects the implementation and use of controlling in a company. We assumed the existence of the relationship between the company size and its dynamic response to new tools, methods, and the implementation thereof. We were particularly interested in the controlling as a management subsystem as a tool, proper use of which affects the economic performance of a company. The fundamental controlling element is the information.

The company size determines the creation of the information system. While in small companies the communication is simpler, faster, and more addressed, a formalised information system is required in large companies. (Bestvinová 2005, Teplická 2012)

In addition to the representation in tables, we tried to confirm or disconfirm this assumption also by applying a statistical method.

| | YES 1 | YES 2 | NO | |
|---------------------|-------|-------|----|----|
| Large company | 8 | 2 | 5 | 15 |
| Middle-size company | 9 | 11 | 5 | 25 |
| Small company | 0 | 2 | 4 | 6 |
| Micro-company | 0 | 0 | 4 | 4 |
| | 17 | 15 | 18 | 50 |

| | YES 1 | YES 2 | NO | |
|---------|-------|-------|----|----|
| Foreign | 11 | 8 | 7 | 26 |
| Slovak | 6 | 7 | 11 | 24 |
| | 17 | 15 | 18 | 50 |

The Pearson's chi-square test did not confirm the relationship between a company size, determined by the number of employees, and the use of controlling in the company. In the case of testing the relationship between the answer and the company size, it was necessary, due to non-fulfilment of the test requirements, to join the answers into two categories – large companies and other companies, or small companies. After such modification, the test again disconfirmed the relationship between these variables on the examined importance level of $\alpha = 0.05$.

We state that the use of controlling is not determined by a company size.

Tab. 1. Evaluation of responses by companies by number of employees.

| By the number of employees | Number of companies | Is controlling an efficient management tool in your company? | Number of companies |
|----------------------------|---------------------|---|---------------------|
| Large company | 15 | Yes, controlling is manifested as an efficient tool of strategic management. | 8 |
| | | Yes, strategic relationship between controlling and strategic management is used. | 2 |
| | | No, controlling is only a formal part of strategic management. | 5 |
| Middle-size company | 25 | Yes, controlling is manifested as an efficient tool of strategic management. | 9 |
| | | Yes, strategic relationship between controlling and strategic management is used. | 11 |
| | | No, controlling is only a formal part of strategic management. | 5 |
| Small company | 6 | Yes, controlling is manifested as an efficient tool of strategic management. | 0 |

| | | | |
|---------------|---|---|---|
| | | Yes, strategic relationship between controlling and strategic management is used. | 2 |
| | | No, controlling is only a formal part of strategic management. | 4 |
| Micro-company | 4 | Yes, controlling is manifested as an efficient tool of strategic management. | 0 |
| | | Yes, strategic relationship between controlling and strategic management is used. | 0 |
| | | No, controlling is only a formal part of strategic management. | 4 |

The third purpose of the survey was carried out and evaluated on the basis of the ownership criterion. We assumed that companies with foreign ownership have a tendency to respond more flexibly to new tools and methods, efficient use of which increases a company's competitiveness. We also considered the fact that these companies, in the majority of cases, are managed by foreigners, or are controlled by a foreign entity. This assumption was evaluated on the basis of outputs from questionnaires, but we also tried to prove the statistical relationship, or absence thereof, between the ownership and the perception and use of controlling as an efficient tool of the strategic enterprise management.

The Pearson's chi-square test did not confirm the relationship between a company's ownership and the use of controlling in a company. The null hypothesis was confirmed on the importance level of $\alpha = 0.05$.

We state that the use of controlling is not determined by a company ownership or by a company size.

Tab. 2. Evaluation of answers by companies by ownership.

| By ownership | Number of companies | Is controlling an efficient management tool in your company? | Number of companies |
|--------------|---------------------|---|---------------------|
| Foreign | 26 | Yes, controlling is manifested as an efficient tool of strategic management. | 11 |
| | | Yes, strategic relationship between controlling and strategic management is used. | 8 |
| | | No, controlling is only a formal part of strategic management. | 7 |
| Slovak | 24 | Yes, controlling is manifested as an efficient tool of strategic management. | 6 |
| | | Yes, strategic relationship between controlling and strategic management is used. | 7 |
| | | No, controlling is only a formal part of strategic management. | 11 |

Conclusion

In conclusion, we can state that controlling represents an important and significant tool for the monitoring of economic performance of enterprises and proper implementation and use thereof is the precondition for maintaining or increasing a company's competitiveness. In our survey, on the basis of our examined sample of 50 selected industrial enterprises operating in the Slovak Republic, it is evident that there are companies that perceive controlling only as a formal part of management and they do not regard it as adequately important. Certain assumptions, relationships, that we were trying to focus on have not been fulfilled; however, it does not reduce the significance of the fact that many companies do not work with this tool and do not use it in their corporate processes. The performed survey provided us with the insight in the controlling as a subsystem of the enterprise management as well as the view on how it is perceived and used in the selected examined sample of companies, and, subsequently, confirmed on this sample the statistical independence of the determined criteria, such as the importance of a company size according to the number of employees, and the importance of a company ownership when focusing on controlling. Controlling is a tool, or a system of tools, which is also innovated and developed, and such innovation and development contribute to better use by a company's management. In our survey, we tried to provide a view of this tool in the selected industrial enterprises not only in terms of the rate of the use and implementation thereof in the strategic management, but also in terms of implementation thereof in relation to the company size, determined by the number of employees in these companies, and the ownership of a company, where we examined how the controlling is applied in companies with foreign or domestic ownership.

Acknowledgments: The article was elaborated with the support by the KEGA 020PU-4/2015 project "Creation of Multimedial Web Documents for e-learning Education and Increasing the Quality of Knowledge among Managers and Students" and the KEGA 035PU-4/2016 "Macroeconomics for managers - innovation structures, contents and methods of teaching the subject" and the VEGA 1/0139/16 "The analysis of the determinants and factors affecting the efficiency and competitiveness of entities working the soil in Slovakia"

References

- Adamišín, P., Kotulič, R.: Evaluation of the agrarian businesses results according to their legal form, In: *Agricultural economics*, ISSN: 0139-570X, Vol. 59, no. 9 (2013).
- Bednárova, L., Liberko, I.: Aplikácia benchmarkingu vo firmách na výrobu šamotových tehál, In: *Acta Montanistica Slovaca, Ročník 13, 2008, číslo 4, str. 502-511. ISSN 1335-1788*
- Bednárova, L., Liberko, I., Weiss, R.: Benchmarking v riadení podnikov, In: *Acta Montanistica Slovaca, Ročník 14, 2009, číslo 1, str. 86-91. ISSN 1335-1788*
- Baran, D.: Aplikácia controllingu v enterprisesej praxi. Bratislava : *Slovenská technická univerzita v Bratislave, 2006. 136 s. ISBN 80-227-2570-6.*
- Bestvinová, V.: Reporting ako jedna zo základných úloh controllingu. Reporting as one of the basic tasks of controlling In: *Materials Science and Technology [online]. - ISSN 1335-9053 (<http://mf.stuba.sk/casopis/obsah1.html>) . - Roč. 5, č. 5 [cit. 2005-12-29] (2005)*
- Bestvinová, V.: Uplatnenie controllingu v enterprisesej praxi. *Projekt doktorandskej dizertačnej práce. [online]. Trnava : KMaK MtF STU Trnava, 2002. 59 s. [citované 2010-10-12].*
- Budíková, M., Kráľová, M., Maroš, B. 2010. Průvodce základními statistickými metodami. *Praha: Grada publishing. 272s. ISBN 978-80-247-3243-5.*
- Cehlár, M., Kyseľová, K.: Nástroje ekonomického rozhodovania. Košice: In: *Acta Montanistica Slovaca. Roč. 5, č. 2, s. 147-150. - ISSN 1335-1788,2000 .*
- Gallo, P.: Strategické managemente nákladov v controllingu a ich použitie v enterprisesej praxi, ISSN: 1805-9783 In: *Cafinews, Roč. 2, č. 3 (2014), s. 8-14.*
- Gburova, J., Lelkova, A.: Nákupné správanie na trhu. 1. vyd. *Prešov : Bookman, 2014. 81 s. ISBN 978-80-8165-074-1.*
- Gučík, M., et. al.: Kontroling enterprises cestovného ruchu. *Banská Bystrica: Dali – BB, s.r.o. pre Slovak-Swiss Tourism. ISBN 978-80-89090-31-0, 2007.*

- Havlíček, K.: 2011. Management a controlling malé a střední firmy. *Praha: OMIKRON Praha, spol. s r. o. ISBN 978-80-7408-056-2.*
- Horváth, P., et. al.: 2004. Nová koncepce controllingu. *Praha: Profess Consulting. ISBN 80-7259-002-2.*
- Mann, R., Mayer, E.: Controlling – metoda úspěšného enterpriseání. *Praha : Prumysl a obchod, 1992. 358 s. ISBN 80-85 603-20-9.*
- Markechová, D., Tirpáková, A., Stehlíková, B. 2011. Základy štatistiky pre pedagógov. *Nitra: UKF v Nitre. s. ISBN 978-80-8094-899-3.*
- Pacáková, V. et al. 2009. Štatistické metódy pre ekonómov. *Bratislava: Iura Edition. 411 s. ISBN 978-80-8078-284-9.*
- Stefko, R., Habanik, J., Sindleryova-Butoracova, I.: Marketing Instrumentary in the Process of Project Acceptation within the Acceleration of Back-warded Regions Development, EKONOMICKY CASOPIS, 2015, 5 year JCR® Category Rank in Category Quartile in Category, *ECONOMICS 228 of 345, Volume: 58 Issue: 5 Pages: 512-526 Published: 2010*
- Teplická, K., Čulková, K., Manová, E. 2012. Using of operation analysis models in selected industrial firm. Košice: In: *Acta Montanistica Slovaca. Roč. 17, č. 3, s. 151-157. - ISSN 1335-1788.*
- Vidová, H.: 2003. Controlling – systémový prvok enterprisesého managementa. [online]. [cit. 2014-1-16]. *Dostupné na internete: <http://www.fce.vutbr.cz/veda/dk2003texty/pdf/5-2/rp/vidova.pdf>*
<http://www.dominanta.sk/>