

# Risk Management through Controlling in Industrial Enterprises Operating in Slovakia

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**Abstract**—This report is focused on widening the theoretical knowledge as well as controlling practical application from the risk management point of view, regarding to dynamic business changes that have occurred in Slovakia which recently has been considered to be an environment full of risk and uncertainty. The idea of the report is the proposal of the controlling operation model in the course of risk management process in an enterprise operating in Slovakia, by which the controller is able to identify early risk factors in suggested major areas of the business management upon appropriate business information integration, consecutive control and prognoses and to prepare in time full-value documents in order to suggest measures for reduction thereof. Dealing with risk factors, that can quickly limit the growth potential of the enterprise, is an essential part of managerial activities on each level. This is the reason why mutual unofficial, ergo collegial cooperation of individual departments is necessary for controlling application from the business risk management point of view. An important part of the report is elaborated survey of the most important risk factors existing in major management areas of enterprises operating in Slovakia. The outcome of the performed survey is a catalogue of the most important enterprise risk factors. The catalogue serves for better understanding risk factors affecting the Slovak enterprises, their importance and evaluation.

**Keywords**—Controlling, information system, risks management, risk factor, crisis of enterprise.

## I. INTRODUCTION

**F**ORMATION of a fine control system in the enterprise is currently becoming a necessary condition for survival in particular due to the economic crisis. Enterprise acquires a substantially greater belief in success, in case it has created a good early warning system, where it is able to identify the crisis in time and to prepare remedial measures in order to repudiate the crisis [1]. Not many people solve the problem during the time the business is doing well. However, this is not leading to a vital and sustainable business. Effective risk early identification and risk assessment system in the enterprise may also be the controlling as the potential crisis early indicator.

From the present theory point of view in Slovakia, the idea of industrial enterprise controlling has been analyzed to a certain extent, although elaborated there are still controlling tasks missing in the management support sector as well as other major areas within the enterprise that have been clearly stated but for the most part, no theory which could bring basic

information on controlling has been prepared from the business risks management point of view.

From the practice point of view in Slovakia, the controlling has its largest blanks in providing essential information for management decision making as well as in the sole strategic controlling in the enterprise. Experts inform that 90% of all crises are caused by the enterprise itself and it has the substantial share in the rise of the crises. The reason may also be the fact, that the majority of enterprises in Slovakia have not adopted to fundamental solutions how to manage the risks in a correct manner [2].

By now, according to our knowledge neither in theory or nor in practice in Slovakia, there have not been any special issues worked out, which could provide basic information on controlling from the risk factors effecting industrial enterprises operating in Slovakia early identification point of view.

A major goal of the report is to raise the significance of risk management through controlling in industrial enterprises operating in Slovakia as an early warning system. To draft controlling operation model in the risk management process through controlling integrated information system, so that it was possible to identify any prospective risks affecting the existence of the enterprise.

As the risk management level in enterprises operating in Slovakia is still very low and impacts of the economic crisis remained large marks on enterprises operating in Slovakia, this issue is very alive.

## II. CONTROLLING AS SUPPORT IN THE BUSINESS MANAGEMENT SYSTEM

*Controlling* is a management instrument, whose function is the planning coordination, control coordination and information data basis assurance with the focus on enterprise outcomes improvement; controlling bears responsibility for data collection, its processing and structuring for the needs of the management decision making [3].

*Risk* is understood as probability, that the really achieved outcomes of the business operation will be deviated from the assumed or planned outcomes, where these deviations might be desired, ergo leading to higher profits, or undesired, ergo leading to loss [2].

*Risk factor* – Risk source is a feature, which has internal potential to lead to risk on its own or in a combination [2].

*Risk identification* is the process of risk searching, recognition and description. Risk identification includes identification of risk sources, events, their reasons and prospective consequences [4].

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*Soft (weak) calls* are information, which has not been drawn to our attention in every day practice. Generally, the information is indefinite; in some cases, it is not quantifiable; or frequently it is just a trivial issue for the management of the enterprise. It is a significant contribution for the early warning system enhancement [5].

*A crisis in an enterprise* is either an unbalance between the enterprise and its environment, or dysfunction (common operation violation) between internal enterprise system, which is jeopardizing the goals achievement, or even the further existence of the enterprise. Unbalance and dysfunction are the consequence of the risk display [5].

*Risk management* is an instrument of how to make the enterprise booming, operating without commotions and crises [6]. It requires adoption of measures how to identify the risk, how to avoid the risk and how to regulate the risk in such a way that in case it is incurred, as least losses and damages would be caused as possible.

It is a necessity to undergo management by controlling what is shown in the business practice in the timely lack of information for management, as well as in a missing professional knowledge of people making decisions [7]. Due to this situation, the work distribution between a manager and a controller has to be followed, under which the controller is acting as an economic advisor as well as an information manager with his or her own contributions.

Controlling operations should be orientated to reach the business' goals through coordination of the management system and providing information for more effective management decision making. Major controlling operations in business are [8]:

- Planning process support (prognoses, calculations).
- Control process and deviations analyses support (risks identification).
- Proposal of measures on unfavourable development in the business results.
- Information system ensuring with the stress put on reporting.

Controlling operations may be simply defined as a constant cycle of repeating operations, necessary and needed for assuring the existence of an enterprise. Periodicity of the operation frequency depends on special conditions of the enterprise. A major goal of controlling operations is to ensure feedback as a starting point for future correct managerial decision making and to make the business management system transparent or rebound [9].

Controlling operations should sustain major areas of the business management on business strategy realisation. Functional controlling in the fields of marketing and sale, purchase, manufacture, quality, finance, human resources, investments, development and logistics forms the assumption for creation of strategic controlling. Strategic controlling area creates a vertical relation up to the scope of the mentioned fields of controlling and is referring to the strategic management process. Scope of support is resting on the individual enterprise specifications. That is why we suggest,

that these major management areas should be sustained in the enterprise:

1. Finance – Financial controlling.
2. Investments – Investments controlling.
3. Marketing and Sale – Marketing and sale controlling.
4. Purchase – Purchase and supply controlling.
5. Manufacture – Manufacture controlling.
6. Quality – Quality controlling.
7. Development – Development controlling.
8. Logistics – Logistics controlling.
9. Human Resources – Personal controlling.

Major sense of the controlling support in individual areas of the business management is embodied in:

- Transparency of the business outcomes and financial costs related to individual divisions in the enterprise.
- Integration of planning, control and measures layout.
- Formation of simple and transparent reporting for various management levels (General Director, controller, each sector manager).
- Setting of rating tests for contributions of individual operations, processes, divisions and employees to the economy of the enterprise.
- Ranking of deviations from the desired goal and specification of the place, reason of the deviation incurrence and setting of liability in case of unfavourable development.
- Perception horizon enlargement of the business environment for all levels of management

### III. RISK FACTORS IN MAJOR AREAS OF THE BUSINESS MANAGEMENT

Controlling indicators are exact information specifications in the form of financial economic indicators. These are the instrument of decision making support, or instrument of planning, control, business analysis, as well as the instrument of early risks identification. These controlling indicators play their role in terms of decision making support process when it comes to selection and processes relevant information at all levels of the business management. Controlling should mainly monitor bunches of indicators in the enterprise, i.e. important strategic financial indicators and financial economic indicators in major areas of the business management, where the outcome has an influence on the existence of the enterprise. The necessity of the indicators formation within the functional area is given by circumstances that can be changed and disclosed in an easier way [10].

Risk factors from external and internal environment of the enterprise, which are the major areas of original risks having influence on the existence of enterprise, may affect individual controlling indicators. Under the pyramidal system, it is the highest probability of operative risks sources identification in the bottom parts of the pyramid, in which less aggregated constants are situated. It is an easier way to assign potential strategic risk factors affecting the major and additional goals of the enterprise [11].

Based on analyses of available resources from literature of authors [2], [4], [12]-[17], applying risks in enterprise and

through the synthesis method, we have suggested a risk factor structure from external and internal environment affecting existence of the enterprise. Due to greater scope of the suggested risk factors we have introduced five risk factors prior the environment individual structure.

*Suggested Risk Factors Structure Consists of:*

- 1. External business environment risk factors**, record changes in two basic areas:
  - Risk factors from macro environment, i.e. social, economic, political legal, technological, ecological, e.g.:
    - Lack of qualified employees on market,
    - Taxation development,
    - Innovating development weak preconditions in the country,
    - Environment protection legislation tightening,
    - Political situation development in the country, etc.
  - Sector environment risk factors i.e. competition, suppliers, customers, e.g.:
    - Strong position of the market competition,
    - Competition products higher class,
    - Supplied material quality lowering,
    - Increasing customers' claims,
    - Key customers' insolvency, etc.
- 2. Internal business environment risk factors**, record changes in two basic areas:
  - Risk factors from major areas of the enterprise i.e. marketing-sale, manufacture, purchase, finance, human sources, development, logistics, quality, e.g.:
    - Insufficient profit of enterprise,
    - High variable costs of enterprise,
    - Insufficient use of production capacities,
    - Insufficient products innovations,
    - High fluctuation, etc.
  - Business management risk factors i.e. soft calls, e.g.:
    - Incorrect management system adjustments,
    - Insufficient management abilities,
    - Unclear assignment of competences and tasks,
    - Problems in communication among co-workers,
    - Bad interpersonal relations at work place, etc.

*The Most Important Current Risk Factors Research in Enterprises Operating in Slovakia*

We made a research in order to designate priority of suggested risk factors having impact on existence of the enterprise. Its central goal was to detect the significance of risk factors in major areas of management, through expert rating executed by professionals coming from top management and middle management of industrial enterprises operating in Slovakia, through an enquiry and through using top point multi test rating that uses a scale method. The method is established on practical experience, knowledge and intuition of the managers working in enterprises. It is a quantitative risk analyses method. Outcome of the produced expert rating is a catalogue (list) of the most significant (the most important) risk factors having impact on the existence of the enterprise.

Idea of the test – significance of risk factors that consist consideration of two views [18], [19]:

- **Probability of risk factor occurrence** – it is a so called probability indicating the measure of expert's opinion on possibilities of particular risk factors that occurred.
- **Possible consequences of a risk factor** – the rating can be executed by a method of point rating, where the intensity of risk factors application depends on selected indicators of the subject that will be discovered.

In an interrogatory research 30 manufacture enterprises were requested and 55% thereof belong to the large companies group whereas 45% thereof belong to the medium companies group [20]. Data collection was anonymous and responses were calculated by cumulative processing of companies that are operating in Slovakia and have become representatives of the data. Outcomes of the enquiry were statistically evaluated and by the modified progressive weight schedule method – Tree of multi test rating criteria priority and norm weight was assigned ergo the significance of key risk factors that was a high importance.

The chart order was designated from the processed outcomes:

- 1. Most substantial (most significant) risk factors**, which are most important in the whole enterprise. On such order assignment, it is possible to evaluate the risk factors from internal environment, sector environment and soft calls (business management), because stating the risk factors occurrence probability from macro environment is very difficult or impossible.
- 2. Risk factors in major areas of enterprise - Risk factors catalogue.** The significance of the risk factor has been calculated and we made a classification of key risk factors, also according to major areas in the enterprise. The assigned order in the risk factors catalogue allocates the importance of each risk factor in major areas clearly and contributes to better evaluation of the total enterprise risk position. It is the individual risk factors, to which the enterprise is currently exposed.

The risk factors catalogue with use of controlling should inform the managers of their development and their management ways. Timeliness and accuracy rate depends on requirements of the top managers. It is necessary to assign persons to the defined risk factors that are liable for their management and at the same time to allocate resources and competences. At first sight it should be clear, what process will be applied at the critical moment [20].

Proportion of the most important risk factors having an impact on existence of enterprise is graphically illustrated at Fig. 1. It has emerged from the research outcomes, that most key risk factors are 21% from finance area, 20% of customers' sector and 14% of marketing and sale. That is why higher attention should be paid to these areas by managers working in enterprises operating in Slovakia [21].

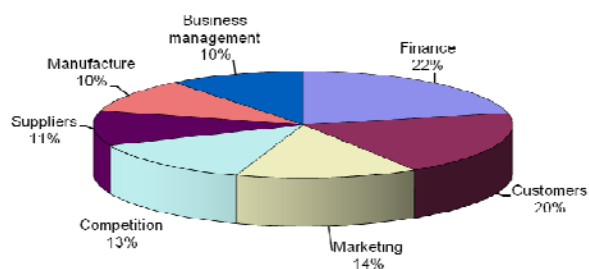


Fig. 1 Most substantial risk factors rate in enterprise

#### IV. THE PROPOSAL OF CONTROLLING OPERATION MODEL IN THE RISK MANAGEMENT

Suggested key risk factors classified according to the criteria of their significance by Slovak managers, should be identified in the enterprise in time by controlling through financial economic indicators. It is important to discover the indicators clearly, their values in time and for them to be constantly monitored by controllers in individual areas of the enterprise in a required interval. This means to monitor important changes, so that unexpected occurrences of events could be identified in an early stage, to prevent incurrence of turn-overs or gains losses, as well as to make use of offered opportunities optimally. Controlling should be presented as a form of effective risks early identification and consideration system – early warning system [22].

Upon such acquired information, we suggested the controlling operation model in the risk management process as an early indicator of the potential crisis. Its major goal is to prevent the financial crisis to occur and to assure the existence of the enterprise. Suggested controlling operation model is made of the sequence of the steps in the risk management process [13], [23], [24], (see Fig. 2):

1. Early research in external and internal environment of the enterprise.
2. Early recognition of risk factors namely:
  - Regular control.
  - Prognoses (Extrapolation).
3. Early warning of the business management.

Controlling operation model in the risk management process as the potential crisis early indicator will be applied successfully in the enterprise, if the following requirements are ensured and accepted by the management:

- a) An assignment for monitoring major areas in the enterprise and mutual cooperation of divisions.
- b) An assignment of competences, liabilities of managers and controllers.
- c) Information flows assurance in the enterprise i.e. integration information system.
- d) Integrated planning assurance and regular control in the enterprise.
- e) Risk factors timely identification and assignment of indicators allowance.

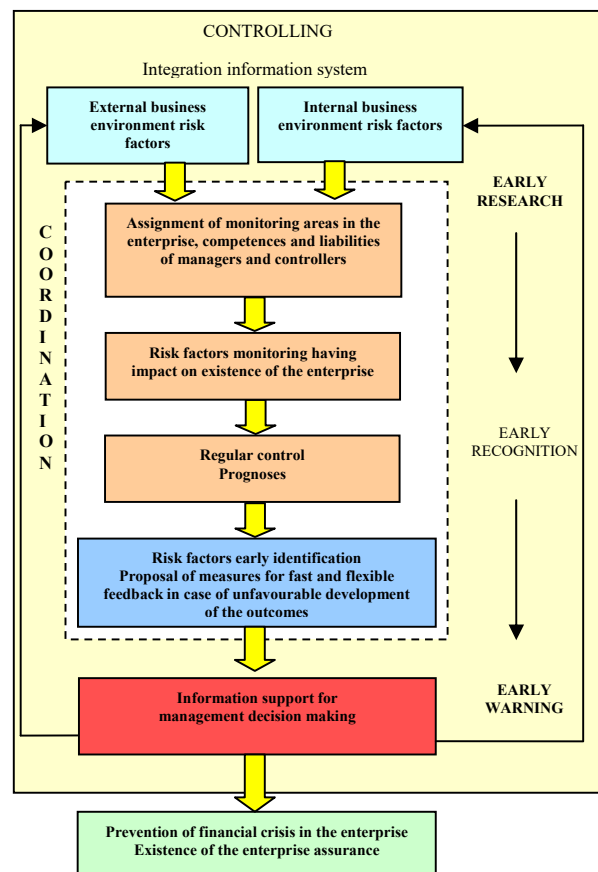


Fig. 2 Controlling operation model in the risk management process as the potential crisis early indicator

#### V. CONCLUSION

Controlling as the management amendment sustains the planning and control process. Upon appropriate business information integration and coordination, regular control and prognoses can identify the risk factors in major areas of the enterprise in time. Their knowledge is important for management decision making at any management level due to assurance of the enterprise existence. Risk factors correct recognition prepares full-value documents for proposal of measures for their reduction, by which the planning process quality will be increased significantly. That is why we can consider the controlling as an appropriate early warning system in the enterprise.

A major contribution of this report is the establishment of complete theoretical controlling approach from the risk management point of view and highlight of risk management importance through controlling in industrial enterprises operating in Slovakia. Further contribution of the report is the assignment of the controlling application and support in major areas of management in the enterprise, designation of integrated information system tasks through controlling, and statement of the suggested risk factors having impact on existence of the enterprise significance in major areas of management in the enterprise operating in Slovakia.

Suggested controlling operation model in the risk management process through integrated information system should be operating as the potential crisis early indicator. It is also possibly used in practice for medium and large industrial enterprises operating in Slovakia, as the crisis prevention. It is important, that Slovak managers would pay sufficient attention to the designated risk factors, kept monitoring these risk factors and comparing them to their own tolerance limitations.

Existence of an industrial enterprise operating in Slovakia in nowadays dynamic times means to understand and manage the risks, upon which better business management results will also be achieved, in a correct way. Controlling can bring a new look at the risk management, which goal should be a better consideration of prospective impact on each important decision. That can be reflected to the formulation of decisions, which should give rise to the risk reduction to respectable level.

Coordinated approach to risks increases the company competitiveness and gross profit margin. Risk factors monitored by controlling can represent one of the most significant potentials for constant improvement of the manufacture industrial enterprise. Enterprises, which will catch the risk factors and interpret them in a correct way in time, are getting into mark ant lead and obtaining advantages when comparing to enterprises, which need strong, specific, clearly explainable signals for decision. In the business world, the risk management is becoming a part of the management system of each enterprise. In enterprises operating in Slovakia the risk management standard is still very low, and that is why the suggested early warning system with the use of controlling should be considered as a part of common management of each enterprise.

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#### REFERENCES

- [1] T. Korol, Multicriteria Early Warning System of Enterprises against the Bankruptcy Risk. *Contemporary Economics*, 2011, Vol. 4, Issue 4, p.1.
- [2] T. Varcholová, L. Dubovická, *New risks management*. Bratislava: Iura Edition, 2008.
- [3] P. Horváth, *New conception of controlling (way to effective controlling)*. Praha: Profess Consulting, 2004.
- [4] D. Čunderlík, D. Rybárová, *Podnikateľské riziko*. Bratislava: Ekonóm, 2002.
- [5] R. Zuzák, M. Königová, *Enterprise Crisis Management*. Praha: Grada. 2009.
- [6] S. Gates, J.L. Nicolas, and P.L. Walker, Enterprise Risk Management: *A Process for Enhanced Management and Improved Performance*. Management Accounting Quarterly. Spring 2012, Vol. 13 Issue 3, pp. 28-38.
- [7] J. Vodak, J. Soviar, and V. Lendel, Cooperation management in Slovak enterprises. *Procedia Social and Behavioral Sciences*, Proceedings of 2nd world conference on business, economics and management, Istanbul, Turkey, 2014. pp. 1147-1151.
- [8] L. Zhang, J. Qi, Controlling Path and Controlling Segment Analysis in Repetitive Scheduling Method. *Journal of Construction Engineering & Management*. Vol. 138 Issue 11, 2012, pp. 1341-1345.

- [9] V. Diestegge, S. Kress, and M. Lüke, Moderne Instrumente des Immobilien-Controllings im Mittelstand. *Controller Magazin*, 2012, Vol. 37, Issue 5, pp. 40-47.
- [10] A. Razaque, Ch. Bach, N. Salama, and A. Alotaibi, Fostering Project Scheduling and Controlling Risk Management. *International Journal of Business and Social Science*. Volume 3(14) Special Issue July 2012.
- [11] J. Belás, P. Bartoš, J. Habánik, and P. Novák, Significant Attributes of the Business Environment in Small and Medium-Sized Enterprises. *Economics and Sociology*, vol. 7, no 3, 2014. pp. 22-39.
- [12] S. Chrobok, W. Gleißner, Risk Intelligence - Indikator für die Zukunftsorientierung des Controllings. *Controller Magazin*, Vol. 37, Issue 5, 2012, pp. 70-71.
- [13] A. Töpfer, *Risiken des Unternehmens – vorbeugen und meistern*. München: Rainer Hampp Verlag, 2002.
- [14] H. Pollak, *How to restore viability of declining enterprises*, Praha: Beck, 2003.
- [15] R. Steinöcker, *Strategic controlling (affecting factors, potentials for success and market strategies)*. Praha: BaBtext, 1992.
- [16] H. Stiegler, R. Hofmeister, *Controlling teil I: Grundlagen und Planung*, Wien TecScript Dokumentationsdienste GmbH, A-1140, Wifi Österreich, 2002.
- [17] H. Urbancová, and M. Hudáková, *Employee Development in Small and Medium Enterprise in the Light of Demographic Evolution*, Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, volume 63, Number 3, 2015, pp.1043-1050.
- [18] Standard STN ISO 31000.2011. *Risk management. Principles and guide*, Slovenský ústav technickej normalizácie, 2011.
- [19] Standard ISO Guide 73:2009. *Risk management - Vocabulary (Risk management - Dictionary)*, Guidelines for use in standards (Austrália).
- [20] U. Ojiako, T. Papadopoulos, Cho. Thumborisuthi, and Y. F. Yang, *Perception variability for categorised risk factors*. Industrial Management & Data Systems. 2012, Vol. 112 Issue 4, pp. 600-618.
- [21] M. Hudakova, K. Buganová, J. Dvorský; J. Belas, and L. P. Dana, *Analysis of the risks of small and medium-sized enterprises in the Zilina region*. Communications: scientific letters of the University of Žilina. Vol. 17, no. 1. 2015, pp. 34-39.
- [22] M. Luskova, and M. Hudakova, Using methods of risk analysis in slovak enterprises. WMSCI 2009 - *The 13th World Multi-Conference on Systemics, Cybernetics and Informatics*, Jointly with the 15th International Conference on Information Systems Analysis and Synthesis, ISAS 2009 - Proc. 2 , 2009, pp. 283-286.
- [23] Y. Haimes, *Risk Modeling, Assesment and Management*. New Jersey, USA: John Wiley and Sons, Inc., 2004.
- [24] A. Hakim, and H. Hakim, A practical model on controlling the ERP implementation risks. *Special Section: Context-Oriented Information Integration, Information Systems*. 35(2), 2009. pp. 204-214.