

Measuring the economic efficiency of corporate risk management

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Abstract. Risk management, along with financial management are the most important trends of the modern corporate governance, the efficiency of those cannot be determined unambiguously. The most common methods of evaluating are the following: cost and value-based approach, KPI's, rating assessment. This diversity is the result of the versatility of risk management. Despite the prevalence of these approaches to the evaluation of the successfulness of risk management, it should be mentioned that the problem of its comprehensive assessment of the efficiency is unsolved. The basis of the risk management efficiency is the economic impact of its implication, which evaluation methodology is disclosed in this article.

Key words: economic impact, risk management efficiency, measurement approach

The analysis of the literature on the theory and practice of risk management has demonstrated a relatively small number of studies on the assessment of the efficiency of risk management, as well as a lack of consistency in approaches to the definition of it and its measurement. Summing up the approaches to the definition of risk management efficiency, it should be noted that the main features of an effective system of risk management are: risk management identified most of the factors that create an unfavorable environment for the company's activity; identified opportunities to improve the efficiency of the company; as a result of the measures, the company is ready for any eventuality; is strategically and value oriented system; operatively and promptly responds to changes; positively affects on a persistence of accounting earnings, on a firm performance and value; clearable system with minimum decision choice.

At the same time, the risk management is an integral part of business management should therefore meet the basic criteria of business efficiency [2, 4], such as: to be good at turning out maximum outputs given minimum inputs [8]; to be on the verge of production capacity [11]; reduce the cost of debt [12]; create added value for shareholders and stakeholders [10]; create favorable conditions for self-fulfillment and professional growth of managers and senior management personnel[5]. From the theoretical point of view, the efficient risk management is a strategy that improves corporate governance in general and represents the ability to cope with environmental risks and uncertainties that could affect variability in net sales and thereby influence the stability of the corporate earning development. From the practical point of view, efficient risk management is a process precisely organized in accordance with the recommendations of standards and programs and is focused on the optimization of the company's profits under risks. In any case, the estimation of economic efficiency of risk management is the starting point in the analysis. The most common methods of assessing the economic effects of risk management is the cost approach and an approach based on determining the net present value of the project for implementation of risk management.

The approach based on the economic impact of risk management (E_{rm}), which is characterized by a general excess of risk management results over costs:

$$E_{rm} = R_{rm} - C_{rm}, \text{ where}$$

$$C_{rm} = \left(\sum_{i=1}^N L_{f_i} + \sum_{i=1}^N H_{f_i} \right) + \left(\sum_{j=1}^K L_{f_u} + \sum_{j=1}^K H_{f_u} \right), \text{ where}$$

C_{rm} – costs in the risk management process;

L_{f_i}/L_{f_u} – actual losses from manifestation of the i-th identified/unidentified risk;

H_{f_i} – /the actual costs of processing i-th identified risk;

H_{f_u} – the actual costs of processing i-th unidentified risk;

K/N – number of unidentified/ identified risks.

$$R_{rm} = \sum_{i=1}^N M_{0_i} - \sum_{i=1}^N M_i, \text{ where}$$

R_{rm} – the result of risk management (projected decrease the impact on the progress of the identified risks as the final result of their processing);

M_0/M – probable losses from the manifestation of the i -th identified risk (without processing/after processing).

The economic effect of risk management is characterized by excess of risk management results over costs in the management process. The company's costs for the risk neutralization (mitigation) should not exceed the amount of financial losses on it, even at the highest degree of probability of occurrence of a risk event. These criteria of risk management effectiveness should be respected in the implementation of self-insurance as well as external security risks.

This method of determining the cost-effectiveness of risk management gives the result in absolute terms, which is not enough indicative in making comparisons between companies, unacceptable for analytical purposes, and requires additional calculations and the introduction of indicators such as return on risk management, risk management rate of return, NPV, or profitability index of risk management.

The following criterion of economic efficiency of risk management, is often used in the implementation of risk management, is the NPV. The application of this criterion is usually used to evaluate the economic benefits by improving their own safety, in this case, the various options for risk management activities are evaluated according to the same principle as the investment projects: first, determine the costs, then the absolute profit or rate profit per unit of input [3].

The possibility of modeling different variants of criterion depends on changes in the discount rate. In this case, expert estimates method is used to determine the values of the coefficients and coefficients reflect the degree of confidence of experts in relation to the expected cash flow.

Certainty equivalent of the expected cash flow is defined as:

$$FCF_t = \alpha_t * PCF_t, \text{ where}$$

PCF_t - the expected value of net cash flows of the project in the period t ;

α - the reliability coefficient of receipt of the expected cash flow in the period t ;

$$\alpha_t = \frac{FCF_t}{PCF_t}, \alpha \leq 1, t = 1.2 \dots n$$

After equivalents of cash flows are determined, the calculation of criterion to the adjusted cash flow is carried out.

$$FNVP = \sum_{t=1}^n \frac{\alpha_t \times PCF_t}{(1+k)^t} - I_0$$

The calculation of derived indicators *IRR*, *PI*, *PP* is carried out using the adjusted net present value criterion *FNVP*.

Application of methods for assessing the effectiveness of investment projects to the evaluation of the cost-effectiveness of risk management requires taking into account a number of assumptions and conditions: the existence of only one objective function - value of capital; specified duration of the project (planning horizon); reliability of data and expert evaluations; payments are made at a specific point of time; the existence of a perfect capital market; method relates more to planning tool rather than a tool to assess the efficiency of the daily management.

In my opinion the most appropriate to use the following algorithm for determine the cost-effectiveness of risk management:

0) Based on the concept of efficiency, I will relate the result (identified risks and their implications for management) and the costs (resources spent on getting this result);

1) What are the risks identified, classified, ranked;

2) How the identified risks are evaluated;

3) Any managerial decisions taken on the basis of (1) and (2);

4) What resources (time, labor, material, intangibles, fund, etc.) were used for the adoption and implementation of these (3) decisions (in monetary terms);

5) How these (3) decisions have changed the performance of the company (revenue, type of profit, other income, etc. and (or) increase in the assets (including goodwill) and (or) reduction of liabilities (all in monetary terms) ;

6) Starting from (0), relate (5) and (4), we obtain the coefficients of efficiency of risk management, if more than one, then risk management is effective in a given time, if less than one - is ineffective.

Company chooses target performance (5) independently, depending on the stage of the organizational life cycle and challenges facing the operating and investing

activities. For example, at the stage of Existence risk management may not exist at all. The process of risk management and control is based on the personal involvement of the head in all workflows, but at the stage of Survival organizations look to pursue growth [1]. Therefore, at this stage is not unusual to attract professional managers from outside and giving them some management functions, as well as access to consultants to establish accounting and control. Along with other management activities the elements of risk management are introduced at this stage. The main aim at this stage is to generate sufficient revenue [7]. So thus, as the target performance at this stage it is expedient to select revenue.

Further, at the stage of Maturity. By this stage the company comes with the experience and is able to maintain a stable position. This stage is characterized by specialization top and middle management on different tasks. A frequent problem encountered at this stage would be those associated with excessive bureaucratization[9]. Organizations are focused on further growth [6]. As a target performance it is expedient to select growth in assets in the early stages, and then – reduction of liabilities at the stage of Renewal.

At the stage of Decline the companies are faced to the problem of reduction of sales and profits, on a background of organizational change is carried out to search for new opportunities and ways to hold markets [6]. As the target performance at this stage it is expedient to select profit (EBITDA). EBITDA was not chosen by chance as a target, this performance is widespread in practice and investors to assess the profitability of operations. EBITDA to evaluate the effectiveness of business "in its purest form" - without considering the peculiarities of the national system of taxation, credit load and restoration costs of fixed assets and settlement of liabilities to investors. This allows comparing the statements of various companies, as well as the company's performance in different periods. Despite the fact that directly in calculations of financial ratios EBITDA is not often used, as an independent parameter it is widespread.

As a result of the provided algorithm, we obtain a relative measure of economic impact, taking into account the stage of the organizational life cycle of the company

and taking into account the financial result from the proposed activities. The given algorithm allows to avoid disadvantages associated with application of absolute performance and limitations associated with net present value, as well as to bind the result of the algorithm to the financial result of corporate governance.

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