

# Evaluation of the impact of the risk management of the company on the investment attractiveness of business

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*Abstract:* The risk management methods of a company are not obvious, thus, the role of the risk management system in the business might be underestimated, which means that the investment attractiveness of the business does not increase.

The main goal of this study is to identify key factors of risk management efficiency of the company, the management of which, according to the stakeholders, can improve the investment attractiveness of the business as a whole.

In some research papers on risk management, the following key performance indicators are deemed important: the behavior of stock prices at the time of a market collapse and the reduced WACC, yet due to the low information transparency of the domestic financial market, these indicators are not always useful as a method of assessing the efficiency of the business. This article presents those indicators that stakeholders analyze risk management efficiency in the preliminary assessment of the future partner.

*Key-Words:* risk management efficiency, performance evaluation, efficiency indicators, stakeholders, investment attraction

## 1 Introduction

Corporate risk management is a relatively new scientific and practical direction of corporate governance, whose main purpose of is to create added value for the company and to mitigate the negative effects of uncertainty. Risk management has a wide range of methods, techniques and tools, and, in the case of successful application, is able to stimulate an increase in the value of the company. Nevertheless, despite its relevance, risk management is reluctantly introduced to the company, this is due, primarily, to the inability to determine in advance the impact of on-going activities, as well as the lack of information on how the carried out activities would affect the attitude of the company's stakeholders and the investment attractiveness in general.

Effective risk management is still the most unexplored issue in the field of corporate governance. A sufficiently large number of researchers are studying the question of what performances management is oriented to during the implementation of certain measures, but for most of them, the analysis of the dynamics of one – two financial ratios of the company in the following year is quite enough. Due to the fact that risk

management methods are not obvious, sufficiently high interest represents the estimation of efficiency from the perspective of the stakeholders. Risk management as one of the branches of governance is focused on the creation of the value for shareholders and stakeholders. Thus it is important to take into account that the basic tenets of the investment attractiveness of the company and of the concept of market efficiency, indicating that the fair value of the shares, and the value of the company in general, directly depend on the availability of information about the object of investment and the cost of its receipt

In this article, the author presents the results of a study focused on the concept and method of estimation of risk management efficiency of the company from the perspective of external investors. The object of this article is the market component of an effective risk management, which reflects the expectations of shareholders and stakeholders on the elements of corporate governance that affect the investment attractiveness of the business.

The purpose of this research is to identify the key factors of risk management efficiency using statistical methods for research and to determine the

impact of these components on the investment attractiveness of the company.

## 2 Prior research

Theoretical research on the efficiency of risk management primarily examines the impact of risk management on company's value. The key question remains: does the risk management increase the value of the company and, if so, by how much and in what period [17; 20].

Companies that implement elements of the risk management (insurance and hedging) actually performed better, if compared with other companies, but as long as ERM is a complex methodology, the effect of it, according to the authors, can be determined by examining the market reaction to the presence of the risk management system in the company's governance.

In later studies [2] the relationship between the appointment of CRO and the value of shares was tested. The appointment of Chief Risk Officer (later CRO) is interpreted as the signal that the board of directors is aware of the importance of ERM, i.e. making every effort for the development of risk management. The practical part of the research rather weakly confirms this hypothesis: for 120 companies (62 are the financial sector, 24 - energy, 34 - other industries), where in the period of 1992-2003 a CRO were appointed, no statistically significant association between this event and changes in the stock price. However, for a subset of large non-financial companies with a relatively low liquidity of the market, it responds positively to the appearance in the company of the CRO.

Hoyt R. And Liebenberg A. [13] argue that the indicator of an ERM is the existence of reports on the activities in the field of risk management, presented in the statements of the company and the media. The study focused on the insurance segment in the US in 1995-2004. Information was found for 16% of the 166 insurers, and it allows to conclude that the presence of the company's risk management system did influence the company's value. The company's value expressed in terms of Tobin's Q ratio, for which a model depends on the indicator ERM and other value drivers. The impact of ERM on a firm's value is statistically significant: ERM-premium averaged 3.6% of the value of the company.

In relation to the public companies, a comparative analysis of the share price of companies that = implemented and upgraded ERM, in moments of the stock market crash can be applied. According to various studies [1;2;13;20], the presence of the risk management system reduced falling of stock prices

by 10-30%, and returned much faster to pre-crisis levels [19].

Under present conditions, none of the submitted studies can be used in pure form for the Russian companies, as the information on risk management is not a subject to disclosure and companies tend to publish only data on successful interventions in this area. In addition, the Russian stock market has a fairly high volatility, low efficiency and quite impulsively responds to any event in the economic and political area, and the course correction at times takes a longer period of time than in a European or American market. Nevertheless, the question of how do stakeholders score the risk management efficiency and whether this option remains quite relevant and important to invest in Russian business remains unsolved.

### 2.1 Description of the research

The main parameters of assessing the risk management efficiency from the perspective of the stakeholders are formulated on the basis of the assumptions made in the theory of market efficiency, investment attractiveness factors; they were obtained experimentally.

The main parameters of assessing the market component of risk management efficiency are formulated on the basis of the assumptions made in the theory of market efficiency, factors of investment attractiveness, and were obtained empirically.

Empirical research was designed to be three-fold. The first part was to conduct personal interviews with potential investors: as respondents have participated in the analysis of commercial and investment banks, external experts in the field of risk management and corporate governance in general, the financial analysts, experts in the field of securities market, potential investors and investors holding several packages of securities of Russian companies. The sufficient information about the study subjects and related areas was gathered in the course of the interview. This method of data collection depends on the results of the theoretical analysis and has a high level of uncertainty in the results; however, personal interviews were chosen because of the option of an immediate feedback with due clarifications needed to understand complex issues. A total of 17 interviews were conducted. In the process of analyzing the results of the interviews, the repeated answers were marked. The total list of factors that, according to respondents, demonstrate effective / ineffective system of risk management is the following:

- In relation to the main activity:

- o Focus only on the domestic or foreign markets;
- o Narrow range of customers, the ability to change them;
- o Increased receivables, soft policy with debtors;
- o Growth stocks;
- o An increase in accounts payable;
- o Term cooperation with key suppliers and customers;
- o Profitability and turnover is worse in comparison with the same companies;
- o Continuity of the production process;
- o The diversified structure of suppliers and buyers.
- In relation to financial results
  - o Volatility of profit / loss for several years;
  - o The duration of the profitable period;
  - o The duration of success;
  - o Indicators of revenues, profits, capitalization are lower in comparison with similar companies in the market.
- In relation to the sources of business financing and capital structure:
  - o Diversification of sources of capital;
  - o Lack of credit history;
  - o Low WACC or it decrease;
  - o Violation of payment terms on loans;
  - o Ratio of Debt / EBITDA;
  - o Ratio of capital structure;
  - o Current ratio.
- According to the presence of external evaluations and recommendations, such as:
  - o The availability of claims regulatory authorities and lawsuits amounting to more than 10% of NAV;
  - o Details of the media;
  - o Peer review and the availability of ratings.
- Directly in relation to risk management:
  - o Relation to the key risks;
  - o Dynamics and the absolute values of indicators: the number of accidents, claims, regulatory authorities;
  - o Flexible, no formal approach to risk management. Risk management should not

Table 1: Descriptive Statistics

I	Interpretation	N	Mean	Std. Deviation	Minimum	Maximum
k <sub>1</sub>	Diversified structure of suppliers and customers	17	4,71	1,799	2	7
k <sub>2</sub>	Profitability and turnover of the company is better than the average for the industry or activity	17	4,00	1,528	2	6
k <sub>3</sub>	WACC is lower than the industry average, or	17	3,71	2,138	2	8

- "interfere with" the work of the company, i.e. the company should not lose customers, revenues and profit due to formalities connected with him;
- o Cost-effective management of specific risks;
  - o Transparency of procedures;
  - o Availability of specialized professionals by type of risk;
  - o Availability of preventive procedures;
  - o Availability of statistics and monitoring.
  - Other:
    - o Changes in management over the past 2 years;
    - o Irregular payment of dividends.

This list of factors formed the basis of the questionnaire in which respondents were asked to classify the degree of importance of the factors for evaluating the efficiency of ERM. The questionnaire is a list of 23 issues closed type where respondents were asked to evaluate the factors with respect to the eight-point scoring system. The questionnaire was available in the public domain, sent out to banks, financial and analytical companies, as well as in the company, carrying out financial operations in addition to the main one. A hundred questionnaires were sent out and received 18 responses.

The analysis of results of the study revealed the insignificance of a number of factors; as a result, the list of questions was reduced to nine.

Secondary survey on a reduced list of factors yielded the following results:

- Sent a questionnaire: 100 companies selected at random;
  - Received replies: 17;
  - Questionnaires containing sufficient information 17;
  - Consistency expert opinion on the criterion Kendall concordance is high enough – 0.716;
  - The statistical significance of the results obtained within the significance – 0,050
- Statistical Results of the study are presented in Tables 1 and 2.

	decreased during the study period					
k <sub>4</sub>	Availability of information in the media	17	4,14	1,676	1	6
k <sub>5</sub>	Interest coverage ratio, ICR is greater than 1	17	4,29	1,380	3	7
k <sub>6</sub>	Financial security ratio is less than 3	17	5,86	1,773	4	8
k <sub>7</sub>	The current ratio is greater than 1	17	5,57	1,813	3	8
k <sub>8</sub>	The risk management policy includes a special relationship to the key risks;	17	4,57	2,370	2	8
k <sub>9</sub>	Risk management is strict compliance with the selected standard	17	3,14	1,574	1	5

Source: Author

Table 2: Test Statistics

N	17
Kendall's W <sup>a</sup>	0,716
Chi-Square	11,055
df	5
Asymp. Sig.	0,050

<sup>a</sup>. Kendall's Coefficient of Concordance

Source: Author

In the questionnaire, the importance of the criteria was estimated in the range of 1 to 8, the maximum number of points that any company could get was 72. As a result, taking into account the distribution of responses, we obtained the following equation of the market component of effective risk management:

$$R = 0,12 * k_1 + 0,10 * k_2 + 0,11 * k_3 + 0,10 * k_4 + 0,11 * k_5 + 0,14 * k_6 + 0,12 * k_7 + 0,12 * k_8 + 0,08 * k_9$$

The weights of the criteria are distributed in accordance with the preferences of the respondents. In this study, the authors will assume that the assessment of market components of risk management has three levels: high, medium and low.

### 2.1.1 Methods for calculating the individual criteria of market components of risk management

Diversified structure of suppliers and customers.

This factor is the main feature of the industry efficiency of industry [Gort M., 1962; Yoshinara E., Sakuma A., Itami K. 1979 ] and consists inof

- Constant expansion of the supplier and customer base with the inclusion of new suppliers into their supply chain,
- Support initiatives to diversify customers and suppliers,
- Stimulation of the development and self-improvement of suppliers.

The most common methods of evaluating the structure of suppliers are ABC- and XYZ-analysis, as well as their combination. Due to fairly its popularity, widespread, clarity and apparent simplicity, the methods based on the criteria of Pareto-efficient, have a number of shortcomings that reduce, in my the author's opinion, the appropriateness of the application in with respect of to this estimation of risk management efficiency. In this case, we the author describes are talking about such disadvantages as the inability of using it in unstable conditions and companies searching for suppliers and buyers on the basis of tenders. Any new supplier or a customer enters the low- value C or unstable Z category. In addition, ABC and XYZ analysis designed to work in a stable environment and in any crisis dramatically reduces the predictive value of the results obtained, as well as the formation of predicted values based on XYZ method according to time periods 3-5 years. In addition, data required for ABC and XYZ analysis, are generally classified information that makes them unavailable for the use by the a user outside.

As part of this study, the Herfindahl-Hirschman index (HII) would be used to assess the degree of diversification of suppliers and customers. This toolkit is designed to assess the degree of concentration and monopolization of markets, but it can be successfully used in the analysis of risk structure of providers, since the concentration of a narrow range of suppliers or customers carries a large operational risks associated with the probability of failure of the supply glut, disruption of production. Herfindahl - Hirschman index shows the degree of concentration of the company on key suppliers, calculated as the sum of the squares of each firm's share of sales in the industry at the threshold value of the index in 1800. If there is only one supplier or buyer, Herfindahl - Hirschman would be equal to 10000.

Herfindahl - Hirschman Ratio (HHR) shows the place, the share occupied by suppliers or buyers, owning small stakes. From the values of the Herfindahl – Hirschman coefficients and index three

types of diversification of suppliers and customers are distinguished:

Type I - a high concentration of suppliers and risk structure: at 70% <HHR <100%; 1800 <HHI <10000

Type II - medium concentration and risk structure of suppliers: at 45% <HHR <70%; 1000 <HHI <1800

Type III - low concentration of suppliers: the HHR <45%; HHI <1000

Points for inclusion in the index of efficiency are distributed as follows (Table 3).

Table 3: The threshold values of factor

Quality	Threshold values	Points
High	HHR < 45% ; HHI < 1000	1
Medium	45% < HHR < 70% ; 1000 < HHI < 1800	2
Low	70% < HHR < 100%; 1800 < HHI < 10000	3

Source: Author

- Profitability and turnover of the company is better than the average for the industry or activity. During the interview, respondents were focused on the profitability of the main activity in comparison with the industry average profitability. Profitability calculated by the formula:

$$EBIDTA_{margin} = \frac{EBITDA}{revenue}$$

This performance shows the profitability of the company's primary income, i.e. on EBITDA. For the developed model profitability ratio is defined as the ratio of profitability to the company's profitability by economic activity. Evaluation takes place in comparison with the unit.

Points for inclusion in the index of efficiency are distributed as follows (Table 4).

Table 4: The threshold values of factor

Quality	Threshold values	Points
High	$EBIDTA_{margin} > 1,05$	1
Medium	$0,95 < EBIDTA_{margin} < 1,05$	2
Low	$EBIDTA_{margin} < 0,95$	3

Source: Author

- WACC is lower than the industry average, or has decreased during the study period. The average cost of capital, weighted with respect to funding is a relative measure of the company's capital expenditures. WACC of a company in comparison with the industry average WACC demonstrates the high cost of capital employed in

relation to the average WACC as employed by the industry. Under the proposed model, the uses industry's average indicator in use is compared with the private, criterion, which takes a positive value when the ratio is greater than one's performance. WACC average value is determined according to Bloomberg.com and analytical reports of PJSC "Gazprombank"

Points for inclusion in the index of efficiency  $I_{wacc}$  are distributed as follows (Table 5).

Table 5: The threshold values of factor

Quality	Threshold values	Points
High	$I_{wacc} < 0,95$	1
Medium	$0,95 < I_{wacc} < 1,05$	2
Low	$I_{wacc} > 1,05$	3

Source: Author

- Availability of information in the media. Was the company subjected to inspections, or was there any negative information about the company or claim from regulatory authorities. It should be noted that the absence of negative information from the media says more about the lack of checks and information, rather than about the quality of risk management. A low rating assignment talks about highlights the company's interest in improving the quality of risk management. Evaluation is carried out by using the following algorithm:  
 low - no information or negative,  
 average - the availability of information on the implementation,  
 high - availability of a press release about the successful implementation.  
 Points for inclusion in the index of efficiency are distributed as follows (Table 6).

Table 6: The threshold values of factor

Quality	Threshold values	Points
High	the presence of the press releases about the successful implementation	1
Medium	the availability of information on the implementation of risk management	2
Low	no information or negative	3

Source: Author

- Interest coverage ratio (ICR, TIE) is greater than 1. It describes the ability of an organization to repay its debt obligations. The index compares the

earnings before interest and taxes (EBIT) for a certain period of time (usually one year) and an interest on the debt for the same period. The indicator is calculated as follows:

$$TIE = \frac{EBIT}{\text{annual interest expense}}$$

Low-interest coverage ratio demonstrates the high credit burden of the organization and high probability of bankruptcy. The coefficient below 1.5 calls into question the possibility of the company to service its debt. The critical factor is considered to be less than 1 (i.e. EBIT exceeds the interest payable), which means that cash flow is insufficient to pay interest to creditors.

Points for inclusion in the index of efficiency are distributed as follows (Table 7).

Table 7: The threshold values of factor

Quality	Threshold values	Points
High	TIE > 1,05	1
Medium	0,95 < TIE < 1,05	2
Low	TIE < 0,95	3

Source: Author

- Financial security ratio (Debt to EBITDA) is less than 3.

This ratio is a measure of the company's ability to pay its debts and it also gives the investor a rough understanding of the company's ability to repay the existing liabilities.

The ratio of debt to EBITDA shows the solvency of the company and is often used by management and investors, including the assessment of listed public companies.

The coefficient is determined by the formula:

$$FSR = \frac{Debt}{EBITDA}$$

The ratio of debt to EBITDA depends on industry characteristics, so it is often compared with the values of other companies within the industry.

Points for inclusion in the index of efficiency are distributed as follows (Table 8).

Table 8: The threshold values of factor

Quality	Threshold values	Points
High	FSR < 3	1
Medium	3 < FSR < 4	2
Low	4 < FSR	3

Source: Author

- The current ratio (CR) is greater than 1.

The coefficient reflecting the company's ability to repay the current (short-term) liabilities due to current assets only. The higher the score, the better the solvency of the company. The normal score is considered to be a value of 2 or more (in Russian regulations). A value below 1 indicates a high financial risk associated with the insolvency of the company. The value of more than 3 can indicate unsustainable capital structure.

Points for inclusion in the index of efficiency are distributed as follows (Table 9).

Table 9: The threshold values of factor

Quality	Threshold values	Points
High	CR > 2,05	1
Medium	1,05 < CR < 2,05	2
Low	CR < 1,05	3

Source: Author

- The risk management policy includes a special relationship to the key risks.

The company carries out regular monitoring and review of the key risks, uses advanced methods of risk identification, regularly reviews the thresholds, uses special insurance programs, hedging and limiting for certain types of risk, provides regular public reports on the results of the effective work with the key types of risks, external experts are involved into the management of specific types of risks.

Points for inclusion in the index of efficiency are distributed as follows (Table 10).

Table 10: The threshold values of factor

Quality	Threshold values	Points
High	Yes	1
Medium	Yes, but the company uses a limited set of risk management techniques	2
Low	No information or negative	3

Source: Author

- Risk management is in strict compliance with the selected standard.

Risk management is implemented in strict accordance with the one of the selected standards. As the basis of the risk management, the company has chosen one of the modern standards for risk management [3;6;11;15] and runs in compliance with their those recommendations.

Points for inclusion in the index of efficiency are distributed as follows (Table 11).

Table 11: The threshold values of factor

Quality	Threshold values	Points
High	Yes, all the sections of the standard carefully studied and adapted to a specific organization	1
Medium	Yes, but a number of sections of the standard used formally	2
Low	The company formally comply with the standard	3

Source: Author

- Number of companies: 18
- Study period: 2008-2013, (the period of relatively stable development of the Russian economy).
- Indicators: EBITDA, revenue, net assets, changes in the structure of debt capital in favor of long-term debt are calculated on the basis of "organic growth";

Due to lack of transparency, the sample of companies is small. The results of calculations are based on a sample of companies are presented in Table 12.

The results of Table 12 formed the basis for calculation of rank of risk management efficiency of companies and presented in Table 13.

### 3 Practical analysis of the proposed model

Table 12: Performance measures of risk management of the company\*

№	ICR		Debt/EBITDA		CR		HHI customer s		HHI suppliers		Key risks special attitude		Compliance		Public information		WACC ratio		ROS ratio	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1	-	-	17,0	131,7	10,3	1,0	0,1	0,1	1,8	1,9	-	+	-	+	-	++	0,9	1,7	2,7	8,9
2	3,4	1,6	9,6	8,4	1,3	0,4	35,4	28,8	1,3	2,6	+	+	+	+	-	-	0,8	1,2	1,6	1,7
3	15,3	1,2	2,7	5,3	2,7	0,8	0,0	0,0	994,0	869,0	+	+	-	-	+	+	0,9	0,8	0,5	0,5
4	15,3	1,2	2,7	5,3	2,7	0,8	0,0	0,0	994,0	869,0	+	+	-	-	+	+	0,8	0,8	0,5	0,4
5	11,9	0,1	1,9	5111,3	1,4	1,3	145,4,0	3016,0	14,9	12,4	-	+	-	-	-	-	1,8	0,9	3,7	2,3
6	20,0	-	3,8	59,0	1,8	1,0	9,2	17,6	5950,0	5950,0	-	+	-	-	-	-	2,6	2,3	0,9	0,8
7	118,8	11,5	8,3	5,9	1,0	0,6	0,1	0,1	1,8	1,9	-	+	-	+	-	-	1,6	2,8	0,3	0,1
8	36,3	6,2	0,9	2,6	2,5	1,0	0,1	0,1	1,8	1,9	-	+	-	+	+	++	1,0	1,0	309,5	268,7
9	7,4	7,1	3,9	4,8	1,7	1,5	27,6	22,9	1,3	2,6	+	+	-	+	+	+	0,0	0,1	1,2	1,5
10	-	-	23,0	10,0	0,8	0,7	568,1,0	5681,0	11,5	13,8	-	+	-	+	-	-	0,8	0,8	0,4	0,3
11	0,4	-	38,7	36,7	0,7	0,6	9,2	17,6	6550,0	7689,0	-	+	+	+	-	-	1,0	0,9	119,2	1,6
12	-	-	17,0	131,7	10,3	1,0	0,1	0,1	1,8	1,9	-	+	-	-	-	++	0,9	1,7	0,0	0,0
13	2475,1	239,62,4	74,0	-	0,3	1,9	635,0	631,0	1,8	1,9	+	+	-	+	-	+	0,9	0,4	1,7	0,4
14	1787,1	469,5	0,1	0,1	1,3	0,7	135,6,0	1134,0	1089,0	1176,0	-	+	-	-	-	-	0,9	0,8	0,3	1,6
15	-	-	1,1	0,6	3,0	3,5	35,4	28,8	3267,0	3267,0	-	+	-	+	-	-	3,0	3,6	1,7	3,3

1	-	162,9	0,2	1,2	6,6	0,5	1,8	1,9	9,2	17,6	+	+	-	-	-	-	0,5	0,5	5,3	4,1
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\*- Data quality assessments recorded in a table with marks "-" - negative information, "+" - neutral information, "++" - positive information.

Rounding to the nearest tenth is used for demonstration of data. Rounding to the thousandth is used for calculations

Source: Author

The results of Table 12 formed the basis for calculation of rank of risk management efficiency of companies and presented in Table 13.

Table 13. Total efficiency rating of corporate risk management

№	Rating		Place		Change in rank
	Meaning before or after the measures on introduction / upgrade of risk management				
	before	after	before	after	
1	1,99	1,93	10	8	improved
2	1,68	2,14	4	12	worsened
3	1,72	2,1	5	10	worsened
4	1,72	2,1	6	11	worsened
5	2,08	2,34	12	14	worsened
6	2,1	2,21	13	13	not changed
7	2,42	2,34	15	15	not changed
8	1,61	1,57	2	1	improved
9	1,77	1,58	8	2	improved
10	2,67	2,47	16	16	not changed
11	2,37	2,03	14	9	improved
12	1,77	1,79	7	7	not changed
13	2	1,64	11	13	worsened
14	1,65	1,72	3	4	improved
15	1,93	1,73	9	5	improved
16	1,47	1,75	1	6	worsened

According to the results, it can be concluded that the rating stayed unchanged in 25% of companies, deteriorated in 37%, and improved in 38% of them.

The analysis of data in Table 13 revealed that the overall efficiency of risk management increased. At the same time the analysis of the companies' structure in the sample on the basis of publicity showed (within the level of significance of less than 0.05 and an acceptable level of 95%) that improving the rankings of risk management is seen in public companies and their subsidiaries, while the downgrade is observed in non-public companies.

The further study requires quantitative analysis of the market component of risk management in relation to the investment attractiveness. As mentioned above, the most problematic area of

research the efficiency of elements of corporate governance is the lack of information about how the management processes are carried out within the company [10]. In any case, the key question still remains: what added value is being brought by the risk management [18]? The relevance of this question is confirmed by a number of studies in the field of strategic and value-based management, where risk management is treated as «an integrated strategic process, which should be the determining factor in achieving the organization's objectives ... The risk management efficiency is measured by value-added companies due to the application of elements of risk management in the corporate management of the company. .«. "[ 8; 9; 16; 6]. In this case, the author suggests evaluating the risk management efficiency through the actual figures of the increment economic added value and the fundamental value to planned. Undoubtedly, this technique allows evaluating the efficiency of the ERM in the structure of corporate governance, but cannot identify a particular stake in the effectiveness brought by the risk management. In order to avoid these disadvantages, the author chose the EVA indicator as a criterion for investment attractiveness, as well as the signal of effective risk management, which is the quantitative performance criteria reported by respondents who did the survey and answered the questionnaires.

### Description of the model parameters

The main parameters of the model are fully consistent with the description above, except for the size of the sample: in the sample presented the results of 73 companies, the expansion of the sample had taken place due to lack of the need to consider qualitative factors of risk management efficiency.

To analyze the influence of key indicators on investment attractiveness, the author used a sample of 73 companies. The chosen companies belong to a real sector of the economy and do have measures for implementing or upgrading the risk management program in 2010-2011. The sample excludes companies like natural monopolies, federal and municipal state unitary enterprises and companies of

subsidized industries. The average age of the companies was more than 15 years, companies have the organizational form of a limited liability or joint-stock companies, belonging to a holding or mono-companies. The sample includes companies in the stage of growth, as well as those implementing projects or upgrading risk management programs in approximately equal proportions. Companies are divided into two groups: at the stage of growth and at the stage of formalization.

Regression analysis of the impact of risk management performance criteria on the investment attractiveness of the company would be the following equation:

$$y = const + k_{TIE}f_{TIE} + k_{FSR}f_{FSR} + k_Cf_C + k_Sf_S + k_{ROS}f_{ROS} + k_{CR}f_{CR} + k_{WACC}f_{WACC}$$

where:  $y$  - EVA after the implementation of risk management measures;  $f_{TIE}$  - interest coverage ratio;  $f_{FSR}$  - Financial security ratio;  $f_C$  - Herfindahl - Hirschman index on customers;  $f_S$  - Hirschman index of suppliers;  $f_{ROS}$  - ROS ratio;  $f_{CR}$  - current ratio;  $f_{WACC}$  - WACC ratio.

On the basis of companies from the sample regression equation of the investment attractiveness of the company depending on the factors of risk management efficiency is the following:

$$y = 408122,3 - 3240,1f_{TIE} + 2962,8f_{FSR} + 10519,15f_S + 40339,61f_{ROS} - 15406770,5f_{CR} + 3655830,38f_{WACC}$$

From the presented equation, it is evident that with a probability of 95% and within the significance of less than 0.05 the investment attractiveness of the company is tolerant to HHI of customers and increases for companies with low TIE and current liquidity. Reduction of interest coverage ratio in conjunction with the growth WACC shows the growth of investment attractiveness for strategic partners and direct investors, and the growth of the share of regular suppliers can increase investors' confidence in the smooth core business.

Practical application of the research results related to, firstly, with the creation of a criteria list, which are essential for potential investors of the company. Investor, choosing a company, intended to preserve and increase their welfare commensurate with their level of risk appetite, so a preliminary assessment of risk management efficiency of the company and their impact on the investment attractiveness of the criteria are extremely important. Secondary, practical analysis of the efficiency of risk

management ratings revealed that the ratings have changed for the better and the worse in equal proportions. Such dynamics indicates that the main driver of efficiency has internal reasons rather than external factors. Prolongation of modernization of the risk management processes in combination with effective debt management policy and liquidity management are able to provide consistent results, focused on creating value for the owners, regardless of the nature of management: conservative, moderate or aggressive.

## 4 Conclusion

This article presents the main results of the study in evaluation of the risk management efficiency by stakeholders. Preliminary studies in this area are more focused on the reaction of the stock market value of the company and the presence of certain elements of risk management in the corporate governance. Most of them revealed rather a weak effect. Therefore, in the present study the goal was to identify the indicators which, according to the stakeholders, provide the evaluation of risk management efficiency, as well as assess the impact of these indicators on the investment attractiveness of the company. The survey revealed more than 30 indicators, of which the most important are the following: diversified structure of suppliers and customers; profitability and turnover of the company; WACC; interest coverage ratio; financial security ratio; current ratio; availability of information in the media; quality of risk management policy. As a criterion of investment attractiveness, the EVA was selected as an indicator that best relevant to attaining study objectives. The result of the study is the regression equation, which shows the dependence of the value of EVA on the efficiency factors of risk management. Practical analysis of a sample of 17 companies revealed that in 25% cases the efficiency has increased. These companies mainly relate to the public and carry out the annual upgrading of risk management processes, while in other companies the risk management efficiency has decreased or remained unchanged, suggesting the need for continuous improvement of the risk management processes. The analysis of investment attractiveness of companies, depending on the efficiency criteria of risk management showed a high dependence of investment attractiveness on the diversification of suppliers, rational using of long-term borrowings, and great attention is paid to the financial security ratio and the current ratio of a company.

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