How to organize the efficient ERM model in non-financial companies and evaluate it efficiency in respect of corporate governance

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Abstract

This article represents a theoretical background to a practical model of risk management and internal control systems integration within corporate governance structure. The provided model reduces the risk of duplicate management functions, minimizes bureaucracy and costs intensity of processes, motivates management to obtain results and covers all levels of company management. The ability to evaluate the management processes efficiency in relation to the main objectives of the company as well as the opportunity to control the management process at each level are distinctive features of the model.

Design/methodology/approach

The model is based on the integration of the functions of the two most common models in practice: 3 LoD and functional model of risk management. Evaluating the effectiveness of management functions is achieved by the introduction of the key management performance indicators, and the accuracy of the base for the calculation of KPIs - by Behnisch M-score.

Findings

The introduction of risk management and internal control procedures are in themselves a sign of the maturity of the management company and an indicator of the potential investment appeal.

Compliance with all of the recommendations in relation to internal control and risk management is not appropriate and is destroying the value of small and medium-sized businesses.

Most of the processes of risk management and internal control systems are duplicative, but targeted at different results depending on the management objective.

Application of KPIs is expedient at evaluating the effectiveness of the organizational model of risk management and internal control, and choice of KPIs and their distribution depends on the risk owners in the model.

Application of Behnisch M-score increases business transparency and stakeholder confidence in the results.

Case study, presented in the article, fully reflects the purpose of research and demonstrates that management results are quite different among similar in size, type and market conditions companies: the poor organization of internal control and attempts to manipulate reporting, provokes negative trend - the company's value starts falling, despite the fact that the purpose of manipulation was to increase the investment attractiveness.

Originality/value

None of the presented in prior research studies was not aimed on integration of management and control functions within a single model, and, moreover, was not aimed to use the accounting approach for evaluating the effectiveness of management functions. Nevertheless, the possibility of manipulating the statements are quite broad and do not always include illegal methods. In this regard it is necessary to consider the relevance of the data in the evaluation of the effectiveness of the company's management model.

1. Introduction

At present, companies are faced with the need to comply with many regulatory requirements and recommendations for internal control, risk management, independent audit and therefore most

of the companies tend to have the state of a sufficient number of specialists in different fields (auditors, lawyers, to risk managers), whose main aim is to improve the efficiency of the company's in compliance with all legislative provisions and risk management.

An analysis of the existing literature on the theory and practice of corporate risk management revealed that most of the works are advisory in nature and relate to quite private matters of management, control and mathematical nature. It should be borne in mind that the majority of standards in the application of ERM insist on the simultaneous implementation of risk management and internal control, and consulting agencies in these areas are narrowly specialized nature and do not affect the adjacent areas. It is necessary to simulate the processes of integration of risk management in the company such a way that avoid duplication of roles and gaps in management, as well as to focus on the growth of the welfare of the owners.

Not without reason the majority of authors point out that the risk management, implement as the managerial function in the company's performance, should not be burdensome to provoke further bureaucratization [1], and prevent you from performing the main activity of the company.

The issue of burdensome functions of risk management and internal control has repeatedly studied in the scientific community. For example, the report of Kauffman-RAND Institute for Entrepreneurship Public Policy on the impact of Sarbanes-Oxley Act (SOX) on the company's performances shows that the cost of registration, and the average cost of audits for companies of all sizes who are forced to follow the recommendations of the SOX, increased dramatically.

The growth was sharp and lasted the next few years after the implementation of the recommendations. In addition, it was shown that the average size of the company's capitalization with weaker internal controls, showed a sharp drop in the market value of the shares. While quite small companies were forced to withdraw from the market.

In addition, we conducted a study in 2013 on the impact of ERM implementation of the system on the company's activities in the period 2006-2011 [16], which showed almost similar results: comprehensive risk management system does not have any positive effect on the most business performances (leverage index, Sales Growth Index, Asset quality index, Gross margin index, Index of diversification of customers and suppliers, et al.) for the first three years, but most strongly stimulates the growth of expenses related to management activities, staff wages and a number of fixed assets.

However, as in the studies of Kauffman-RAND Institute for Entrepreneurship Public Policy, as well as in a number of other studies, a positive impact on the company value have been shown in the year following the publication of the first report on the implementation of measures: Hoyt R., Liebenberg A. examined 166 insurance companies, the company's value is measured by Tobin's Q, and 16% of them indicated a positive statistically significant impact of ERM: average ERM-premium is 3.6% of the company value. In addition, the market reacts positively to information about the appointment of the Chief Risk Officer (CRO).The appearance of the top management, consolidating the activities in the field of risk management is seen as a signal that the board of directors and senior management are aware of the importance of the ERM, and the system itself is at a certain stage of development.

The authors investigated 120 companies (62 are the financial sector, 24 - energy, 34 - other industries), where, in the period 1992-2003 CRO were appointed. In general, for these companies there is no statistically significant association between this event and the change in the stock price. However, for a subset of large non-financial companies with a relatively low liquidity, the market reacts positively to the appearance of Chief Risk Officer in the company.

In respect of public companies a comparative analysis was carried out of listed companies that have implemented the ERM, in times of stock market crash. According to various studies [18; 19; 17; 20], ERM has affected on drop in share prices: the decline was reduced by 10-30%, and faster returned to pre-crisis level.

In addition, it is necessary to point out that the negative consequences of the implementation of ERM depend only on the company's capitalization [27] and are not depend on the life cycle or the organizational structure [20].ERM has a negative effect on small companies, companies in the growth stage or LTD companies (the results of testing the effect of ERM on the basic performance of the company after the implementation of the recommendations of COSO standard in 2009-2010 are shown in Table. 1. Sample represented 81 by the real economy, which carried out measures for the implementation or upgrading of risk management in 2010-2011).

Tab. 1.Values of efficiency performance of companies

Index	The range of values	Efficiency in terms of revenue	Efficiency in terms of assets	The efficiency in term of EBITDA	The efficiency in term of debt structure 2nd year	3rd year
All companies, including	low	-27045,58	-13035,07	-5989,42	-227,00	-59,00
	high	4139,36	274,99	1588,57	8,21	0,06
	mean	0,01	0,00	-0,07	0,00	-0,17
-in the growth stage	low	-27045,58	-13035,07	-5989,42	-227,00	-315,00
	high	4139,36	274,99	1588,57	8,21	8,21
	mean	1,85	0,00	-1,46	0,00	0,00
- at the stage of formalization	low	-59,81	2,42	-1,33	-76,00	-59,00
	high	7,79	-0,03	0,40	-0,07	0,06
	mean	0,00	0,01	0,00	-38,00	-29,50
-Joint stock	low	-59,81	-1,97	-3,85	-227,00	-315,00
	high	7,79	0,64	0,40	0,07	0,06
	mean	0,01	0,00	0,00	-0,01	-29,50
Limited Liability Company	low	-27045,58	-13035,07	-5989,42	-0,02	-0,17
	high	4139,36	274,99	1588,57	8,21	8,21
	mean	234,16	0,67	-0,61	0,00	0,00
Branchles Company	low	-59,81	-1,97	-3,85	-227,00	-315,00
	high	7,79	0,64	0,40	0,07	0,06
	mean	0,58	0,00	-1,33	0,00	0,00
- belonging to the holding	low	-27045,58	-13035,07	-5989,42	-76,00	-59,00
	high	4139,36	274,99	1588,57	8,21	8,21
	mean	0,01	-0,02	-0,04	0,00	0,00
Initialimple mentation	low	-59,81	-1,97	-32,56	-76,00	-29,50
	high	469,37	249,75	0,00	0,00	0,00
	mean	-0,53	0,32	-1,40	0,00	0,00
Upgrading of existing management system	low	-27045,58	-13035,07	-5989,42	-227,00	-315,00
	high	4139,36	274,99	1588,57	8,21	8,21
	mean	0,94	0,00	0,00	0,00	0,00

The question of the added value brought by the management of the company as a result of the planned measures is key in setting the risk management system in the company.

However, the consequences of risk-management standard have a lasting positive effect in the long term. Main value indicators of the company from the sample provided above, for the period from 2003 to 2011 are presented in the table 2. Values EVA, SVA and CVA, were used as the most fully reflect the effect of the added events.

Tab. 2.Value indicators of a company after SOX requirements implementation

Given: Market risk premium 6%

US Treasury 10-year 4%

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
EBITDA	662	1,289	1,516	2,674	2,695	2,781	3,295	3,880	2,361	3,813
Sales, 2003	11,077	11,703	13,349	17,673	19,401	19,884	21,489	25,804	20,756	23,573
Net income	(64)	128	290	671	691	815	879	995	405	905
Debt	2,984	3,387	3,305	3,040	3,101	2,252	2,103	2,209	3,562	3,414
Equity	3,992	3,160	4,004	6,404	6,866	7,491	8,269	7,951	8,774	10,087
Beta	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28
Market value	9,867	11,272	9,392	16,128	16,701					
WACC	11.7%									
EVA	-	(216.41)	51.49	1,356.11	828.69	18,390	25,449	24,082	113.42	1,476.75
CVA	1,886.53	623.10	349.63	280.11	497.27	173.29	1,477.26	1,178.35	(16.23)	967.99
SVA	-	-	2,469.75	6,797.91	1,356.39	1,907.10	4,535.49	4,837.35	(11,044.35)	8,376.54

The analysis revealed that EVA has increased since SOX and continued its growth throughout the entire period. Investors welcomed the company in connection with the high expectations of earnings growth, as the increase of the market value of the enterprise in the test period exceeded the increase in the book value of net assets.

In this connection, it was possible to conclude that the investment in the company was appropriate. In accordance with the CVA model cash flows from operating activities of the enterprise should cover the cost of funds as production and sales, as well as cost of capital.CVA of the company remained low during the first three years, but has increased dramatically since 2006.The growth was due to the completion of the transition period and the cost of the audit has hardly had any effect on the value of the company in terms of the CVA concept.

The change in the SVA indicator shows that the implementation of the requirements of Sarbanes-Oxley Act has not led to a decrease in the current value, which indicates the rational management decisions, especially investment. After 2003, one of the key factors influencing the SVA has increased dramatically: the current value of the residual value (PR RV) increased two times due to the growth of Earnings Before Interest (EBI)from 6 906.38 in 2003 to 14 406.53 million. This trend is observed in the following years, except for 2009, following the crisis.

In practice, mostly it refers to the recommendations on the establishment of result-oriented risk management system and control [2; 3; 4]. And the desire to increase the investment attractiveness of the business and comply with the requirements of the tax authorities are forcing companies to manipulate financial reporting data, so it is advisable to take into account the value - driven nature of management in the evaluating the effectiveness of risk management, side by side with the application of the most well-established practice of risk management models.

2. Fundamentals of modern ERM and the practical implementation of risk management at the level of the non-financial sector companies

Analysis of the modern theory and practice of implementation of the risk management of the company's work revealed:

1. Modern ERM is organized on the "top-down" principle and is designed for a holistic approach to risk assessment and risk analysis, that face the organization [5]. That is a process-oriented tool that allows senior management to visualize, evaluate and manage significant risks, which may affect the achievement of the key goals of the organization. At the same time, the risk management system is inseparable from the practice of Internal Control and Compliance, and is organically unified complex ERM.

2. Appointment of CRO is a signal to stakeholders, indicates the degree of maturity of the company's management [6, 7].

3. Most of the standards of risk management is advisory in nature and require further adjustments in the application of it in practice, clear guidelines for the organization of the risk management process in any of the standards provided.

4. The most mentioned in literature, a sign of effective risk management is the frequency and nature of the interaction of risk owners (Operations Management) and senior management.

5. The most common theoretical model of the distribution of responsibilities and coordination functions of management risks, is the model proposed by the author [8],and the most common and practical recommendations for the implementation of effective protection of against uncertainty in achieving goals is «Three lines of defense» model, adapted for application to non-financial organizations, most successfully applied in practice, Western banks after the adoption of the Basel Committee agreement on the management of operational risk.

In modern theory and practice of management has spread 3LOD model in which risk management and compliance are included in the second stage of protection implemented against the backdrop of a flawless operational management. In this case, business units are responsible for the occurrence of risks, and risk management service division provides the necessary tools to manage the risks taken (structure limits, key risk indicators, etc.).

The main function of the second line is the designing of the necessary methodological basis for the first level, as well as the regulation of the interaction between departments in the implementation of business processes, the designing of internal regulations on risk management. The third level of protection is represented by the internal and independante audit services, the main function of which is to detect irregularities in the company, and when combined with the efforts of company executives and top management – involved in strategic decisions.

The third level provides a degree of protection that is not available on the second level due to subjectivity and independence of judgment in relation to a whole range of issues such as: the effectiveness of the operations; asset protection; reliability and integrity of the reporting process; compliance with laws, regulations, policies, procedures, and contracts; elements of risk management and internal control systems; organizational and operational structure of the company.

There is no universal way to co-ordinate all lines of defense, as each organization is unique, and operates in a particular situation. Therefore, it acts as a recommendation to the distribution of specific responsibilities and coordinating risk management functions. Thus, the model of integration of internal control and risk management with corporate management, focused on value creation will allow to set up risk management in accordance with the basic principle of the ERM – management from top to bottom.

In general, the risk management activity is to monitor the process of identifying, assessing, managing, monitoring and controlling risks, where the control means check, achieved a goal or not, the majority of authors suggest the use of KPI as a measure to assess the effectiveness of risk management [9, 10; 11; 12].

3. Integration model of risk management with corporate governance

For a basis of the integration were taken: practical 3LOD model and organizational model of risk management. The result is a unified risk management function, the interaction of control and management procedures at every level of government, from the operational management connected together with independent audit of compliance guidelines and procedures (Table 3).

Tab.3.ERM Integration model

Levels 3LOD	Management Area	Functions	Performers	Analyzed factors
3	Normative and strategic / Strategic	Creating a "risk culture", risk management policy	Independent audit	An independent evaluation of risk management activities of first and second lines of defense: the elements of risk management and internal control, such as: general organization, divisions, subsidiaries, operating units; functions (including business processes): sales, production, marketing, security, features of the customer; support functions (accounting of revenues, expenses, human resources, purchasing, payroll, budgeting, infrastructure, asset management, inventory, information technology).
2	Tactical	Development of the methodology of risk management by type	The Risk Committee	Constant monitoring of the controlled area, ranging from the development of control procedures prior to their implementation. Consulting services in the field of determining the exposure, the formation of risk reports. Identify inconsistencies with the current by-legislation of, control of financial risks
1	Operational	Risk management on the basis of decisions taken 2nd and third levels	Operations management	The daily work of the operational management. The activities of this level of protection are reduced to the mapping of risks with the release of the potential for improving the efficiency of business processes and gaps in management. Operating managers own and manage risk to be responsible for the implementation of corrective actions to address the shortcomings of the process and control.

A key issue in the implementation of the proposed model is to evaluate the effectiveness of the result. On the basis of the study of literature in the field of evaluating the effectiveness of risk management and internal control [14], the effectiveness of risk management means a creation of a risk-oriented culture in the company against the background of the implementation of all necessary regulatory procedures for risk management, and is expressed through the increase of the company's value.

3.1. Evaluating the effectiveness of the management and control levels

In accordance with the organizational model each area of responsibility has to have its own certain end points. However, the following factors need to be taken into consideration in assessing the effectiveness of the integrated management and control systems:

1. The introduction of high-grade internal controls and risk management rather expensive [15], at the same time, economic efficiency costs that are attributable to the risk management and internal control, low enough and does not give a positive result in the first two years [20].

2. Potential stakeholders evaluate the company according to the results reflected in the financial statements [21], which is often subject to various manipulations [22].

The motives that can guide the company's representatives, decides on the mis-reporting may be different. Regardless of the motives that lead to such actions, statements distortion is unacceptable as reading financial statements, calculation of economic indicators based on it, the evaluation of the company's performance, as well as the construction of forecasts for the future is meaningless if the data presented in the financial statements do not correspond to reality.

3.2.   The selection of key indicators for assessing management effectiveness

In this case KPI's do not lose their relevance, and become an instrument of control over management decisions under conditions of uncertainty and risk management becomes an economically-oriented process [25], rather than the process of determining the probability of losses in the face of uncertainty. In turn, the first level of protection, submitted operational management of the company, allows control the relevant risks in the first person - the owner of the risk at the operational level.

The author recommends using no more than 3-4 parameters [10, 11], which in the model of evaluation of the effectiveness of risk management will become an instrument of management and motivation will help meet the most modern standards of risk management, to achieve the achievement of strategic objectives, as well as comply with the principles of economic efficiency [26].Thus, the present model provides an effective relationship at all levels of management and control (Table 4).

3.3. Rationale of indicators:

Indicator M-score Behnisch becomes the starting point for assessing the effect of the introduction within the enterprise risk management systems, as necessary to eliminate the possibility of falsification of accounts. Any manipulation distorts the real situation and directly affect the payment of any monetary and financial indicators. This methodology is widely used in the western practice, but in the Russian context has not received proper distribution. As an indicator characterizing the economic efficiency of the corporate risk management system will be used for results from the event on ERM to the costs.

Table 4. Integration model of risk management, internal control and corporate governance

The organizational ERM model		Correlation with 3 LOD	Who checks	What checks	How to evaluate
Levels of management	Functions				
Board of Directors (Including CRO)	Identification and development of strategies for ERM across the enterprise. Identifying and securing an acceptable level of risk. Control of organizational performance. Conducting motivational and explanatory work with the staff.	-	Independent audit	Risk Management Policy, ERM involvement in all levels, completeness and accuracy of reporting	Cost-effectiveness of corporate risk management system in the absence of distortion of facts statements, audited by M-score Behnisch
Risk Committee	The identification and monitoring of risks and threats. Identification and development of executive strategies for ERM. Monitoring and forecasting the cost of the organization.	The Risk Management, Compliance Service	Operational management. Independent audit, CRO	Accessible, acceptable methods of fullness, The strategic nature of the methods	The ratio of added value for shareholders (actual and expected)
Risk Management Departments	Direct management of risks on the basis of existing guidelines. Classification, accounting and risk analysis. Monitoring and forecasting of economic value added.	Operational management	Risk Management, Internal Audit, Compliance Service	Admissibility of management mechanisms, completeness of the risk profile, complexity of risk maps, Compliance	The ratio of economic value added (actual and expected)
Risk managers	Monitoring the level of specific risk. Monitoring and forecasting the magnitude of return on equity.	Operational management	CRO	Availability and adequacy of taken measures, the economic feasibility of management	The ratio of return on equity (actual and expected)

Since the last word with regard to the decisions taken on the use of new methods of risk management rests with the board of directors, the use of economic evaluation at this stage is a sufficient condition for the fulfillment inherent in the level of management functions.

SVA as a measure to assess the effectiveness of action by the risk management committee (shareholder value added), is appropriate because it allows to "fix" the management fee to the specific results achieved through the implementation of selected areas of their company's development.

Economic Value Added (EVA) is used as a measure to assess the effectiveness of the risk management departments, division of risk management and compliance, regardless of the type of risk, focused on the creation of added value through internal processes of building. As a measure of the "excess" value created by investments in risk management, and performing indicator of the quality of management decisions, EVA becomes the basis for awarding the management system.

The result is a risk-based management model in which the risk is processed at each of the levels of protection (Table 5, 6).

Tab.5.Methods of calculating

Indicator	Method of calculation	Thresholds	Limitations
M-score	M-score = -4,48 + DSRI x 0,920 + GMI x 0,528 + AQI x 0,404 + SGI x 0,892 + DEPI x 0,115 – SGAI x 0,172 + TATA x 4,679 – LVGI x 0,327.	*M-Score* =-2,22a value above the threshold indicate the distortions in the financial statements	The method was developed for the American public companies
E_{rm}	$E_{rm} = R_{rm}/C_{rm}$, where E_{rm} – cost-effectiveness of risk management, C_{rm} – costs associated with the implementation and upgrading of risk management, R_{rm} – revenue growth after events	$\Delta\Delta Erm<0,95$ – unsatisfactory risk management $0,95<\Delta\Delta Erm< 1,05$- actions aimed at improving ERM did not have any positive or negative result, $\Delta\Delta Erm>$ 1,05- the efficiency growth	The calculation should be implemented in terms of "organic revenue growth"
$\Delta\Delta SVA$	$\Delta\Delta SVA = \frac{SVS_n}{SVA_d}$ – where $\Delta\Delta SVA$-the relative deviation of the actual value of the company from a planned or scheduled at risk, SVA_n – the actual value of the company, SVA_d – demaded value of the company	$\Delta\Delta SVA$ <0,95 – the company's value has declined since introduced measures, $0,95<\Delta\Delta SVA <$ 1,05- ERM had no effect on the fundamental value $\Delta\Delta SVA>$ 1,05- events had a positive impact on the value	Features statements distort the data reference value of fixed assets and depreciation. Typically, the cost of fixed assets is strongly underestimated
$\Delta\Delta EVA$	$\Delta\Delta EVA = \frac{EVA_n}{EVA_{var}}$, - for public companies, $\Delta\Delta EVA = \frac{EVA_n}{EVA_p}$ –for non-public companies, *where* $\Delta\Delta EVA$ – deviation of the actual *EVA* from the added value at risk / planned, EVA_n– the actual economic value added, EVA_{var} – Economic value added at risk	$\Delta\Delta EVA<0,95$ – unsatisfactory risk management $0,95<\Delta\Delta EVA<$ 1,05- the effectiveness of ERM remained unchanged $\Delta\Delta EVA>$ 1,05- events had a positive impact on the value of the company	The indicator is strongly dependent on The terminal evaluation. The real value in the forecast period is determined based on adjustments, rather than on the basis of market data
$\Delta\Delta ROE$	$\Delta\Delta ROE = \frac{ROE_n}{RAROC}$, *or* $\Delta\Delta ROE = \frac{ROE_n}{ROE_d}$, *where* $\Delta\Delta ROE$ – deviation of the actual profitability from the industry	$\Delta\Delta ROE<0,95$ – unsatisfactory risk management $0,95<\Delta\Delta ROE< 1,05$- the effectiveness of ERM	

average, or from profitability on risk, ROE_d/ $RAROC$- average industry profitability / profitability at risk, ROE_n – the actual profitability at time n.	remained unchanged $\Delta\Delta ROE > 1,05$- the effectiveness of ERM has increased	

Tab.6. M-score Behnisch components

Index	Formula	Decoding
DSRI (Day Sales in Receivable Payment)	$DSRI = \dfrac{RP_1/S_1}{RP_0/S_0}$	$RP_{0,1}$ – Receivable Paymentin the reporting and the previous period; $S_{0,1}$ - sales in the reporting and the previous period
GMI(Gross margin index)	$GMI = \dfrac{GM_0/S_0}{GM_1/S_1}$	$GM_{0,1}$ – Gross margin of past / reporting year,$S_{0,1}$ – sales in the reporting and the previous period
AQI (Asset quality index) – индекс качества активов	$AQI = \dfrac{\frac{(1-(CA_1+NFA_1)}{TA_1}}{\frac{(1-(CA_0+NFA_0)}{TA_0}}$	$CA_{0,1}$ - current assets in the reporting and the previous period, $NFA_{0,1}$ –net fixed assets (past / reporting year),$TA_{0,1}$ –total assets,
SGI (Sales Growth Index)	$GI = \dfrac{S_1}{S_0}$	$S_{0,1}$ - sales in the reporting and the previous period
DEPI(Depreciation Index)	$DEPI = \dfrac{\frac{Depreciation_1}{PP\&E_1+Depreciation_1}}{\frac{Depreciation_0}{PP\&E_0+Depreciation_0}}$,	Depreciation$_{0,1}$ – in the reporting and the previous period; PP&E$_{0,1}$ –tangible fixed assets(past / reporting year).
SGAI (SG&A Expense Index)	$SGAI = \dfrac{\frac{SG\&A\,Expense_1}{S_1}}{\frac{SG\&A\,Expense_0}{S_0}}$	SG&A Expense$_{0,1}$ – sales and governance expenses in the reporting and the previous period, $S_{0,1}$ - salesin the reporting and the previous period
LVGI (leverage index)	$LVGI = \dfrac{\frac{CL_1+LD_1}{TA_1}}{\frac{CL_0+LD_0}{TA_0}}$	Cl$_{0,1}$ - current liabilities, LD$_{0,1}$ - long term duties, TA$_{0,1}$ – total assets
TATA (Total Accruals to Total Assets)	$ATA = \dfrac{ICO_1 - CF_1}{TA_1}$	ICO_1 -Income from Continuing Operations; CF-Cash Flows from Operations; TA-total assets.

Presented management model meets the requirements of the modern the ERM, such as:

- continuous improvement of risk management (risk-based KPI, annual report and revision);
- risk management in any decision-making (for example, capital allocation, approval of projects, restructuring and change);
- continuous communication (frequent external and internal reports, two-way process);
- Full implementation of risk management in the management structure (reflection of "uncertainty" in the long term risk management policy).

The practical application of the proposed model was carried out by the example of Russian companies and energy and metallurgical sectors. The calculation results are presented in Table 7.

Tab.7. Evaluating theERM effectiveness of companies

Index	1	2	3
M-score	-2,92	-1,97	-3,04
E_{rm}	1,196	0,88	1,26
$\Delta\Delta SVA$	2,627	0,548	0,54
$\Delta\Delta EVA$	5,736	14,195	-91,52
$\Delta\Delta ROE$	1,462	0,5243	1,1965

The analysis of data revealed that: two companies out of three have sufficiently low probability of manipulation of the financial reporting data and a high level of efficiency of operational risk management, indicating a largely successful policy of risk management and internal control. Third company is significantly different: M-score indicates that the results of the financial activities of the company were subjected to distortions and evaluation of the effectiveness of risk management at all three levels shows that only one level reflects a satisfactory efficiency - economic value added, indicating that the diligent work tactical management services based on the stated top management rules and regulations, as well as information provided by the managers on the ground.

It is worth noting that the indicators used in the model affect virtually all accounting data, so we can conclude that the artificial overstatement of business investment attractiveness due to the distortion of accounting information in the long term harm to the true state of affairs.

3.4. Relevance and limitation of the proposed model

The growing volatility is the main feature of the modern economy. According to the research of E & Y (2016), the most influential factors contributing to the growth of business uncertainties are: significant changes in the cost / availability of capital, the risk associated with changes in legislation or breach, political interference in the operation of the market, the instability of the prices of goods, the war for talent, economic shock followed by a short-term shock associated with the demand for energy.

Therefore, companies are interested in strategic development, and more and more pay attention to the ERM as a tool to maintain and increase the welfare of owners and stakeholders, while a few years ago, the ERM introduced in the majority of cases only because of the requirements of different authorities (exchanges, banks, foreign partners, etc.)

According to Allianz Risk Barometer 2016, the most relevant risks for 2017 are:
- Cyber-attacks: 33%
- Interruption (including due to a failure of supply): 11%
- Terrorism: 9%

As we can see, cyber risk is highlighted as the most influential risk, as it is unpredictable, variability, and variety of species and the size of the damage. While the effects of the second and third types of risk are more or less limited by manifestations and consequences (localized in time and space). The proposed model allows authors to set up ERM so that risk owners are aware not only about the business processes in the field of their competence, but also about the information flows that accompany these business processes. The proposed system of interaction between managers, directors and supervisors, will allow us to identify the non-standard information flows and the distribution of responsibilities between levels of government - to prevent large losses that in general can help your organization maintain shareholder value and even achieve new performance peaks.

Moreover, the current economic processes, such as new technologies, globalization, more developed financial intermediation services, highlights the issue of short-termism. The high volatility of the economy causes management to take short-term decisions, whose main results are: shortened CEO tenure, neglect   of investment activity, neglect of human   capital.

The proposed model can reduce the impact of short-term due to the following factors:

- construction company-wide risk management culture by involving all levels of management motivates employees to adopt long-term solutions.
- value oriented effectiveness assessment indicators provide the strategic nature of the model.
- regular checking of information flows for the presence of manipulation and obfuscation performance in order to obtain short-term result increases the objectivity of decision-making and improves the sustainability of the decisions taken in the long term, which generally eliminates the manifestation of the gaps in the company.

The proposed model of organization ERM is designed for non-financial sector. Given the fact that the one-year period is not sufficient to assess the positive effect of the measures on improving corporate governance, the year of implementation of the proposed measures is not appropriate to make the calculation.

The effectiveness of the first year of activities should be assessed by standard qualitative assessments, offers in abundance, for example, by professional consultants (PWC, E&Y, KPMG, etc.). In addition, limitations are imposed on the performance indicators used in the medium and long-term plans: KPI should to be built on performance in organic terms (excluding the impact of major business restructuring projects, mergers and acquisitions) and on the base of lead indicators. In this case, the indices would give an idea of the internal potential of ERM system. Lag indicators can give you some information about the past and miss any events in present.

Predicted values of the indicators are limited by the horizon of planning and strategy. Since the assessment model involving internal auditors, whereas in the first half of the year following the introduction, it is possible to adjust the key performance indicators. Indicators that can detect the distortion of financial reporting, only partially solve the problem of investment myopia.

Therefore, we assume that the macroeconomic situation and the economic environment will remain the same during the plan period in building the KPI. If the trend has reversed, the indicators need to be reviewed.

4. In conclusion:

It is worth noting that the proposed model would reduce the bureaucratization of management processes, cost management functions and enhance the transparency of administrative functions and the quality of corporate governance in general, through the provision of relevant business processes on the basis of already existing organizational model.

The following areas can be identified as the scope for future research: the analysis of ERM influence on the interest of potential stakeholders including the extension of the planning horizon, and, as a consequence, an increase in the number of long-term strategic projects, lowering the discount rate, the possibility and feasibility of application performance distributable cash flow as a comprehensive indicator of evaluating the effectiveness of risk management. The development of the proposed methodology is seen in ranking of corporate risk management systems, as well as the study of rank impact on the business rating companies. A number of analytical agencies have pointed to the growing a practical need for range of the company with respect to the ERM, but the rating system is not developed yet.

Assessment of the impact of ERM on business-rating companies will evaluate the significance of existing ERM system with respect to the attractiveness of the company. In addition, it is possible to conduct a factor analysis in order to identify "bottlenecks" in the system of corporate governance based on the proposed model.

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