

## **Organizational questions of ERM implementing in non-financial companies**

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This article represents 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.

**Key words:** enterprise risk management, internal control, organizational model, efficiency, key performance indicators

### **Risk management**

#### **Introduction**

At present, companies are faced with the need to comply with many regulatory requirements and recommendations for internal controls, 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, implemented 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 question of the added value brought by the management of the company as a result of the planned measures is key issue in setting the risk management system in the company.

In practice, it is a matter mostly refers to the recommendations on the establishment of result-oriented risk management system and control [2; 3; 4]. And the need 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 when evaluating the effectiveness of risk management it is advisable to take into account the value - driven nature of management, along with the use of the most well-established practice of risk management models.

#### **1. 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 frequency and nature of the interaction between risk owners (Operations Management) and senior management is the most mentioned in literature sign of effective risk management is.

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.

6. The implementation of standards is costly and generally do not give the expected results in the early periods of application (table 1) [15]

Table1. The average cost for the audit of the companies operating/ not operating in accordance with the Sarbanes-Oxley Act

Market capitalization (MILL.\$)	The average audit costs as a% of revenue (until SOX recommendations, 2003 year)	The average audit costs as a% of revenue (after SOX recommendations, 2004 year)	
		Companies that make up the reports on internal control in accordance with the Sarbanes-Oxley Act	
		yes	no
0-75	0.64	0.79	1.14
75-250	0.29	0.35	0.56
250-500	0.18	0.26	0.4
500-700	0.15	0.2	0.3
700-1,000	0.13	0.12	0.25
>1,000	0.07	0.07	0.13

In the 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, the business units are responsible for are generated in the process of the activity 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 formation 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 formation of internal regulations on risk management. The third level of protection is represented by the internal and substantive 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 the three 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].

**2. 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 2).

Table 2. ERM Integration model

Levels 3LOD	Management Area	Functions	Performers	Analyzed factors
3	Normative and strategic	Creating a "risk culture", risk management policy	Independent audit	An independent evaluation of the risk management activities of the 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).
	Strategic			

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 is 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 [16].
2. Potential stakeholders evaluate the company according to the results reflected in the financial statements [17], which is often subject to various manipulations [18].

The motives that can guide the company's representatives, decides on the misreporting 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 [21], 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 authors recommend the use of 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 [22]. Thus, the present model provides an effective relationship at all levels of management and control (Table 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. 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 - value added for shareholders), is appropriate because it allows you 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.

Table 3. Integration model of risk management, internal control and corporate governance

The organizational ERM model		Correlation with Appropriate level of 3 LOD	Who checks	What checks	How to evaluate
Levels of management	Functions				
Board of Directors (Including CRO)	<p>Identification and development of strategies for risk management across the enterprise.</p> <p>Identifying and securing an acceptable level of risk for the company.</p> <p>Control of organizational performance.</p> <p>Conducting motivational and explanatory work with the staff on risk management.</p>	-	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	<p>The identification and monitoring of risks and threats.</p> <p>Identification and development of executive strategies for risk management.</p> <p>Monitoring and forecasting the cost of the organization.</p>	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	<p>Direct management of risks on the basis of existing guidelines.</p> <p>Classification, accounting and risk analysis.</p> <p>Monitoring and forecasting of economic value added.</p>	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	<p>Monitoring the level of specific risk.</p> <p>Monitoring and forecasting the magnitude of return on equity.</p>	Operational management	CRO	Availability and adequacy of taken measures, the economic feasibility of management	The ratio of return on equity (actual and expected)

The result is a risk-based management model in which the risk is processed at each of the levels of protection (Table 4, 5).

Table 4. Methods of calculating

Indicator	Method of calculation	Thresholds	Limitations
M-score	$M\text{-score} = -4,48 + DSRI \times 0,920 + GMI \times 0,528 + AQI \times 0,404 + SGI \times 0,892 + DEPI \times 0,115 - SGAI \times 0,172 + TATA \times 4,679 - LVGI \times 0,327.$	$M\text{-Score} = -2,22$ a 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	$\Delta\Delta E_{rm} < 0,95$ – unsatisfactory risk management $0,95 < \Delta\Delta E_{rm} < 1,05$ – actions aimed at improving ERM did not have any positive or negative result, $\Delta\Delta E_{rm} > 1,05$ – the efficiency growth	The calculation should be implemented in terms of "organic revenue growth"
$\Delta\Delta SVA$	$\Delta\Delta SVA = \frac{SVSn}{SVA_d} -$ where $\Delta\Delta SVA$ – the relative deviation of the actual value of the company from a planned or scheduled at risk, $SVAn$ – the actual value of the company, $SVA_d$ – demanded 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 average, or from profitability on risk, $ROE_d$ / $RAROC$ – average industry profitability / profitability at risk, $ROE_n$ – the actual profitability at time n.	$\Delta\Delta ROE < 0,95$ – unsatisfactory risk management $0,95 < \Delta\Delta ROE < 1,05$ – the effectiveness of ERM remained unchanged $\Delta\Delta ROE > 1,05$ – the effectiveness of ERM has increased	

Table 5. M-score Behnisch components

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

Presented management model meets the requirements of the modern the ERM, and in the first place, 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 11.

Table 11. Evaluating the ERM 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:

Insufficient 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.

**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 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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