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Risk analysis and methods of management in SMEs

The risk management process is structurally presented in the article, the risk assessment schedule is suggested and the classification of risk evaluation methods is specified. The process of risk management is a set of values to achieve risk procedures within certain limits – a multi-stage process, which aims to reduce economic or compensate for the facility upon the occurrence of adverse events. Under the conditions of the existence of risk and uncertainty and the associated losses there is a need in the management of business risks. In the transition to innovation economy, entrepreneurship, a key aspect of the overall strategy of the state policy. Innovation activity of business in all economically developed countries is stimulated and actively supported by the state. Without the creation of appropriate conditions for the innovative development of the entrepreneur is not able to run their own innovation processes. State regulation of business activity involves a significant degree of control of the political and economic system, a high level of professionalism of civil servants, the effectiveness of the policy in term of the business, developed a system of non-governmental organizations, the principles of public accountability and the accountability of the authorities, the lack of interaction between business and corrupt government.

Key words: enterprise risk, risk management process, risk evaluation methods, risk assessment schedule.

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ШОБ субъектілерінде оларды басқарудың рисктері мен әдістерінің талдауы

Мақалада рисктерді басқарудың үрдісі нақты көрсетілген, оны талдаудың әдістері ұсынылған және оны бағалаудың әдістемелерінің топтамасы айқындалған. Рисктерді басқару үрдісінің өзі риск шамасының белгілі бір шекке жетуі бойынша рәсімдердің жиынтығын білдіреді. Бұл жағымсыз оқиға орын алған кезде нысан үшін келтірілген залалды азайту мен орнын толтыруға бағытталған өзінің экономикалық мақсаты бар көпсатылы үрдіс. Риск пен белгісіздік орын алған жағдайда және оныменбайланысты зардаптар кәсіпкерлік рисктерді басқарудың қажеттілігін туындатады. Инновациялық экономикаға өту жағдайында, кәсіпкерлік мемлекеттік саясаттың ортақ стратегиясындағы негізгі аспект болып табылады. Экономикасы ілгері дамыған барлық мемлекетте кәсіпкерліктің инновациялық қызметі ынталандырылады және мемлекеттің белсенді қолдауына ие. Инновациялық дамуға қажет жағдай жасалынбайынша кәсіпкер инновациялық үдерісті өздігінен жүзеге асыра алмайды. Кәсіпкерлік қызметті мемлекеттік реттеу арқылы саяси және экономикалық жүйені басқару деңгейін көтеруді, мемлекеттік қызметкерлердің кәсіби деңгейін, бизнеске қатысты жүргізіліп отырған саясаттың тиімділігін арттыруды, мемлекеттік емес ұйымдардың жүйесін дамытуды, ашық есеп беру қағидалары мен билік органдарының бақылауда болуын, бизнес пен билік органдарының арасындағы сыбайлас жемқорлықтың болмауын болжайды.

Түйін сөздер: кәсіпкерлік риск, рисктерді басқару үрдісі, рискті бағалау әдісі, рискті бағалау әдістемесі.

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Анализ рисков и методов их управления в субъектах МСБ

В статье последовательно представлен процесс управления рисками, предложена методика его анализа и уточнена классификация методов их оценки. Сам процесс управления рисками представляет собой совокупность процедур по установлению величины риска в определенных пределах – это многоступенчатый процесс, экономической целью которого является уменьшение или компенсирование ущерба для объекта при наступлении неблагоприятных событий. В этих условиях существования риска и неопределенности и связанных с ним потерь возникает потребность в управлении предпринимательскими рисками. В условиях перехода к инновационной экономике предпринимательство есть ключевой аспект в общей стратегии государственной политики. Инновационная деятельность предпринимательства во всех экономически развитых странах стимулируется и активно поддерживается государством. Без создания соответствующих условий для инновационного развития предприниматель не способен самостоятельно запустить инновационные процессы. Государственное регулирование предпринимательской деятельности предполагает значительную степень управляемости политической и экономической системы, высокий уровень профессионализма государственных служащих, эффективность проводимой политики в отношении бизнеса, развитую систему негосударственных организаций, принципы открытой отчетности и подконтрольности органов власти, отсутствие коррупционного взаимодействия бизнеса и органов власти.

Ключевые слова: предпринимательский риск, процесс управления рисками, методы оценки риска, методика оценки риска.

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RISK ANALYSIS AND METHODS OF MANAGEMENT IN SMES

Business risk as an economic category, is the possibility of occurrence of such events, in which the entrepreneur has taken the decision aimed at achieving this goal, will incur losses in excess of stipulated forecast or receive revenue, lower than those for which he expected under the impact of a number of factors internal and environment [1]. Risk management as a system consists of two subsystems: controls (control object) and control (control subject). The object of risk management is regarded as a process that has an input and an output. Login process is formed by the information about the economic entity.

This information includes the main documents, in writing or in electronic form, the study of which is necessary for risk analysis. Such documents may include:

1) Accounting and financial statements of the enterprise. Of the balance, and other forms of the annual report can get an idea about this property company, its solvency, risks, actual damages.

2) Contracts concluded between the company and suppliers, customers, buyers, contractors, etc.

3) Also this will be useful documents such as bills of lading, invoices, records of the average monthly balance in stock, delivery notes, data quality assurance services, the company plans, projects, etc.

Risk management is the subject of risk and economic relations between economic entities arising in the risk process.

The subjects of risk management are the CFO, accountant, heads of financial and economic planning department, sales department, service logistics, Insurance Specialist, Risk techniques, risk engineer. In larger enterprises it is advisable to create a separate division for risk management. At the enterprises of small and medium-sized businesses is useful to introduce the post of risk controller.

Information on the state of the control object can be a form of internal enterprise reporting, reflecting the effects of the risk impact on the activities of the organization. [2]

For a complete understanding of the risk management process is necessary to consider the methods and techniques used.

The study of the literature on relevant topics led to the conclusion that special attention is paid to the description and development of risk management techniques. The method of

analysis of business risk is considered in Vasin SM [2], Kachalov RM [5], Beley VV [1], and others. After reviewing and summarizing the scientific views of the authors of the above, I developed a list of entrepreneurial risk analysis.

The first step in risk management is to define the organization of risk analysis objectives. The purpose of the risk – this is the result you want to obtain. Any action associated with a risk always purposeful, since the absence of objective decision making associated with meaningless risk. These objectives must be clear. In addition, at this stage it is planned not only to determine the goal of risk analysis but also definition of the mission and goals of the company, to determine the characteristics of the organization and definition of its property.

The next step in the risk management organization is to analyze the internal and external risk factors. At this stage, the classification of risks and identification of risk factors according to the selected classification. Properly compiled classification to determine the location of each type of risk in the general system of the enterprise risks and choose appropriate methods of risk assessment and management. At this stage, used information should be timely, accurate, and complete and clear [3]. Risk assessment at this stage, the qualitative and quantitative risk assessment. Risk analysis generally consists of risk identification and assessment. When identifying risks (qualitative component) are determined all the risks inherent in the system under study.

Qualitative analysis involves: identifying the sources and causes of risks, milestones and work, under which there is a risk, i.e. .: the establishment of potential risk areas; identification (determination) of all possible negative consequences that can occur when implementing risk content solutions.

To justify the decision you need to know the risk of any kind and type will have to deal. As well as identify potential waste of resources that accompany the onset of risk events.

The results of qualitative analysis provide an important source of information for quantitative analysis, which assumes the numerical identification of risks. At this stage, the numerical values of the probability of occurrence of risk events and their consequences, carried out a quantitative evaluation of the degree (level) of risk, as determined by the permissible in this particular situation the level of risk.

In the fourth stage, the risk assessment and decision-making on risk management. At this stage, you need to make sure that the goals and objectives of risk assessment achieved. In addition, at this stage determine the level of acceptable risk. One way to establish the level of acceptable risk is to determine the threshold values of key performance indicators that characterize the performance of the organization's objectives. However, the choice of these indicators will depend on the specific conditions of risk assessment [4].

At the final stage, the control over implementation of the decisions taken and the analysis of management efficiency. At this stage it is possible to allocate the following processes:

1. Analysis of possible actions regarding the risk:

– risk aversion, i.e., abandonment of the activity, making operations with a high risk;

– reducing the risk when the level of risk is acceptable to the business entity level, and the impact of this risk is not possible or not cost-effective;

– partial or full transfer of the risk to third parties, when the impact of it on the part of the enterprise impossible or not cost-effective, and risk level exceeds the allowable level of the enterprise.

– risk taking when no action in relation to the risk of not being implemented.

2. Preparation and implementation of an action plan to reduce risks.

3. Building on the results of its management efficiency control systems and updating policies and procedures[5].

Let stop at this important stage of risk analysis as a quantitative evaluation.

Review of risk assessment methods showed that basically use the same methods, while at the same time, did not reveal a clear classification – the same methods are classified by different authors in different ways. For example, the use of indicators in assessing the risk as the expectation, standard deviation, variance, coefficient of variation, some authors (Esipov VE Makhovikov GA, Beley VV) [1,3] are classified as statistical methods, other (Komelchik SL) [6] they belong to a group of mathematical methods, others (AE Shevelev, Shevelev EV) – a group of methods of probability theory.

The research allowed to summarize the various methods of quantitative risk assessment and to present them in Table 1.

Table 1 – Methods of quantifying business risks

Name of the method	The essence of the method	Application area
Mathematical methods of risk assessment		
Probabilistic analysis	It is believed that the model calculations carried out in accordance with the principles of the theory of probability, whereas in the case of sampling is done by calculations workings. The probability of loss is determined on the basis of statistical data of previous periods with the establishment of the area of risk, adequacy of investment, risk factor.	Within each of the areas of the measures taken will have a different attitude to the cost effectiveness of their software. Therefore, in certain circumstances economically feasible to spend money does not prevent or reduce the risk, and to compensation for possible damage.
Game theory	This is the theory of mathematical models of optimal decision making in situations of conflict or uncertainty. The conflict is seen as a game of several players. Each player seeks to maximize his gain (win) at the expense of another.	Analysis of situations using game theory allows us to consider all the possible alternatives, such as the actions and strategies of partners and competitors.
Pareto optimality	This method consists in the definition of the integral criterion of optimality as the sum of the individual partial criteria with variable weights. The advantage of this method is its simplicity, the resulting alternative obviously is considered effective.	A similar technique is used quite often. At the applicability of this method is mandatory participation or some entrepreneur expert.
The statistical method of decision-making under risk	Statistical approach to decision-making under risk is to study the statistics of losses and profits, taking place on the same or similar businesses, in order to determine the probability of the event, to establish the magnitude of risk. risk assessment of probability method involves calculation of standard performance risk on the basis of objective and subjective values of the probability of certain conditions and results of the project.	The probability assessment mathematically developed enough, but based only on mathematical calculations in business is not always justified, since the accuracy of calculations depends on the quality of the initial information.
Analytical methods for risk assessment		
Sensitivity analysis	The method allows to evaluate how changes the output indicators when changing the input parameters required for the calculation.	Using this method allows the manager or entrepreneur to choose a more reasonable (acceptable) method of growth of profitability of the business, taking into account the risks and uncertainties inherent in the market economy.
Scenario analysis	The method involves the development of a number of options (scenarios) of the situation and their comparative evaluation. As a rule, consider the optimistic, pessimistic, and most probabilistic scenarios.	The possibility of practical application of this method is limited in that it does not allow to take into account the probability of changes in individual parameters on the profitability of the project investment and the related risk.
Expediency method costs	Based on the calculation of indicators such as: critical volume of production (sales); Reserve economic (financial) strength; the effect of production (operational) leviridzha and others.	This method is required for the development of new products, decline in output caused by a reduction in demand, product replacement by a new and others.
Analysis of financial stability	This method is determined by changes in the main economic indicators of the project under adverse changes in various factors.	Identification and assessment of risks by using financial ratios.
The method of calculation of the integrated risk index	Based on accounting data of an economic entity.	One of the most informative in terms of reliability.
Methods based on the use of computer programs		
Simulation (Monte Carlo simulation)	It is the integration of the sensitivity analysis and the analysis based on the theory of probability scenarios.	The result appears the probability distribution of possible outcomes of the business plan. The implementation of this method is only possible using a computer program (Project Expert)

Trees method of construction solutions	It involves stepping branching process with risk assessment, costs, damages and benefits.	Identification and analysis of the risks of virtual processes. Project management.
The method of expert evaluations		
Expert analysis	The complex logical and mathematical-statistical procedures for the processing of information required by the examiner.	The method is applied in the absence or inadequacy of the volume of the initial information.
Use unique method		
Analog method	Using a database of directions of financial activity carried out previously for the transfer of their impact on the estimated financial assets.	The method is used when the internal and external environment areas of financial activity and its analogs have sufficient similarities on the basic parameters.

The analysis presented in Table. 1 quantitative methods of risk assessment reveals the following assessment categories:

Mathematical Methods – risk assessment is carried out using the theory of probability. In this group of methods used stochastic (probabilistic), linguistic (descriptive), non-stochastic (gaming, behavioral) model. In addition, the group can make a statistical evaluation methods. To use this group of methods is needed quite a large amount of raw data;

Analytical methods – brings together all the techniques that involve the analysis, based on available quantitative information. This group of methods used in practice often enough. The advantage of these methods is that they are sufficiently well established and fairly easy to understand.

Methods based on the use of computer programs – this group of methods is based on the probability distribution of possible project outcomes. These methods are not widely used in practice. One of the reasons – uncertain variables distribution functions, which are used in the calculations.

Methods of expert assessments – based on the use of knowledge of experts in the analysis and accounting of the impact of qualitative factors;

Methods of analogies – based on analysis of similar events for the calculation of the probability of loss. This method is used when there is sufficient information for the study and application of other methods is difficult [6].

It is worth noting that, considered in this paper is a common evaluation scheme. Selection of a particular method is largely dependent on the specifics of the analyzed enterprise and a certain kind of risk. In addition, it is first necessary to make a qualitative analysis, which will be an important source of information for the risk estimation.

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