

Tarashevskiy M.

THE ANALYSIS OF METHODOLOGICAL APPROACHES OF THE RISK ASSESSMENT ORGANIZATION

Об'єктом дослідження є методи підходу до оцінювання ризиків, які кожна організація самостійно розробляє та впроваджує. Автор надає практично здобутий досвід у міжнародній компанії – ефективний підхід у використанні методів оцінювання ризиків.

Одним з найбільш проблемних місць є вибір методу оцінювання ризиків організації. Метод, який включається в першу чергу в сумісності місії та цілей організації, та ряду задач з обраними методами оцінювання ризиків. Для кількісного методу оцінювання ризиків – це наявність коректно розрахованих норм, згідно яких буде проводиться аналіз ризиків. Для якісного методу оцінювання ризиків – це наявність кваліфікованих експертів з достатнім та відповідним до сфери оцінювання ризиків досвідом. Для змішаного методу оцінювання ризиків – це дотримання балансу та доцільності використання між кількісним та якісним методом оцінювання ризиків.

Відповідно до обраних видів ведення економічної діяльності (далі КВЕД) організації, які потребують точного дотримання норм виробництва, законодавства, ліцензування і т. д., доцільно використовувати кількісні методи оцінювання ризиків. Як приклад, ризики пов'язані з порушенням норм: ставки екологічного податку за викидів в атмосферне повітря забруднюючих речовин, стаціонарними джерелами забруднення; утилізації небезпечних відходів; контролю за використанням води та скидами підприємств.

Запропоновано обов'язкове створення мапи ризиків для кожної організації. Це пов'язано з тим, що всі ризики повинні бути структуровані та досліджені, а також по кожному з ризиків має бути обрано метод реагування на ризик. Мапа ризиків має ряд особливостей та важливе призначення в структурі корпоративного управління, зокрема це:

- матриця ризиків, або візуалізація для топ керівництва організації;
- таблиця ризиків, або робочий інструмент для управління ризиками.

Оцінка ризиків у будь-якій сфері є дуже важливою. Завдяки цьому компанія, яка інвестує в удосконалення системи внутрішнього контролю (СВК), в підтримку СВК на заданому рівні у подальшому отримує ефекти у вигляді заощаджених коштів, відсутності штрафів, захист від корупції. Як приклад, захист від корупції забезпечує своєчасне виявлення ризиків – червоних прапорців, які вказують на можливі маніпуляції.

Ключові слова: оцінювання ризику, методи кількісного та якісного аналізу, вибір методу оцінки ризиків, результат оцінювання ризиків.

1. Introduction

An urgent and efficient organization is constantly accompanied by continuous risk assessment. Any organization, regardless of size, direction of business, profitability, faces multifaceted risks, which are caused by internal or external factors (sources). To ensure effective management of enterprises, making sound economic decisions by decision-makers, it is necessary to have objective information on the assessment of the magnitude and likelihood of risks. In addition, the complexity of the task is exacerbated by the fact that the risks vary by industry, type of activity, enterprise size, stage of its life cycle, and the like. Therefore, the study of risk assessment techniques is relevant.

In the framework of the study, the author will share the experience gained in the international company with practically gained experience – an effective (best practice) approach in the use of risk assessment methods. Structuring the stages of risk assessment (minimum requirements) will propose the systematization of risk assessment methods. The concept of the end result of the cyclical process – risk assessment, namely the Risk Map (Risk Matrix and Risk Table) will be revealed.

2. The object of research and its technological audit

The object of research are methods of approach to risk assessment, each organization independently develops and implements. The method of risk assessment is one of the stages of the risk management cycle. Conceptually, the basis for risk assessment is described in the COSO (Committee of Sponsoring Organizations of the Treadway Commission) ERM (Enterprise Risk Management) [1] is a document (set of rules) that is the most well-known and applied in the world in the field of risk management. This document is aimed at identifying potential events that may affect the company, and management associated with these events, risk, as well as control over the company's risk appetite. All this is determined by the connection with the financial performance of the company, as an example of EBITDA, Cash Flow, ROI, and so on.

According to the Risk Management Concept of the company (COSO ERM):

1. Setting goals.
2. Determination of events.
3. Risk assessment.
4. Respond to risk.

The COSO model describes the methods by which company executives can more confidently cope with the business challenges of the 21st century that they face in new and changing markets, with the need for rapid innovation and increased attention from regulators.

Effective implementation of risk assessment approaches is an integral part of risk management. The risk management model is an intangible asset of the organization.

Aggressive competitive environment, the complexity of doing business, a variety of rules in the field of law, the tax system, security requirements (life, fire, environmental, economic, etc.) and other factors make investors (owners, shareholders, employees) think about the risks and methods of risk assessment at the stage of writing a business plan. The choice of risk assessment methods is possible only after certain stages:

1. Part of corporate governance – determination of the mission and objectives of the organization.

2. Establishment of an internal control system and management risk – the creation of policies and procedures.

3. Appointment of the responsible (division, position) for risk assessment and risk management in general.

Further, those responsible for the risk assessment function choose risk assessment methods. Each risk must be worked out with the owner of the process in accordance with the zone of responsibility. The result of processing, according to the chosen method of risk assessment, is the calculation for each risk, the amount of influence on the organization as a whole, and the probability of an event. All received calculations are used to prioritize the risks that need to be reacted.

To ensure the effectiveness of risk assessment and risk management in general, it is necessary to identify and meet the company's needs for reasonable guarantees that the company's goals will be met, given its objectives and type of activity. This is what will ensure the company successful activity and attract reliable partners. COSO ERM as an example of an object of research.

The above-mentioned aspects underscore the prospects of research on the choice of methods for assessing and forecasting these risks, and the corresponding risk-forming factors, taking into account the dynamics of changes in their list and the likelihood of occurrence.

3. The aim and objectives of research

The aim of research is studying existing methodological approaches to risk assessment.

To achieve this aim, it is necessary to perform the following tasks:

1. Guidance on the stages of risk assessment.

2. Allocation of more effective methods of risk assessment for making managerial decisions.

3. Definition is the result («end product») of the risk assessment for the organization.

4. Research of existing solutions of the problem

Theoretical substantiation of the essence and problems of using risk assessment techniques is considered by many scientists in their works [2–6]. Thus, as a result of using the quantitative method [3], a more accurate indicator is obtained, which is used for complex and complex ac-

tivities, but this method is used when there is sufficient, accessible, reliable and relevant information. Separately, it is possible to select the method of «Planning a development scenario» (qualitative method) is used as a basis for creating BCP (Business Continuous Plan) policy. A business continuity plan is testing a predefined list of scenarios for each process and unit. As a result, the company receives an action plan for each critical process. The BCP theme has not been adequately explained, a list of minimum requirements for defining a list of scenarios and a description of BCM (Business Continuous Management) as a whole is presented. BCM requires further research, as this may be a new stage in risk management.

Among the main directions of solving the problem of choosing the method of risk assessment, identified in the resources of the world scientific periodicals, a number of scientific papers can be singled out. For example, [7] describes risk assessment and risk management, contains examples and approaches to risk assessment and risk management, but only one of the activities is considered. Namely, this research topic contains examples of such and defines tools and approaches that can be applied to coastal and oceanic marine systems. Research [8], which describes the successful application of risk assessments in an oil refinery, although the topic is very important. After all, compliance with standards in the workplace with an increased level of danger is primarily the life of employees and the threat of environmental pollution. But the basis of this study is primarily a qualitative method of risk assessment. To complement the research topic, it is necessary to add expert (qualitative methods) risk assessments and measures (safety of employees) to respond to them. The authors of work [9] show methodological proposals for risk assessment based on the theory of statistical, mathematical and analytical modeling and planning. An example of a quantitative assessment method is also given, but applying a quantitative approach alone is not enough, especially for large organizations. The author of the paper [10] uses quantitative methods of risk assessment as a methodological approach to the risk assessment of organizational projects as a «method of taxonomic analysis» and «a method of multivariate statistical analysis» and shows their universality. This work covers key issues of investment management, further, the author in the conclusions determines the quantitative characteristics of the risk factors of the investment project, as sufficient. But the question of choosing a mixed method (qualitative and quantitative) is not disclosed, which in turn would allow the company to attract expert assessments, create an action plan and events. Alternative options for risk assessment in the following areas of activity: construction and architecture, IT Security, Auditing and consulting activities were studied in [11–14], which simultaneously reveal specific (by type of activity) risk assessment topics and use quantitative and qualitative methods. But the topics «stages of risk assessment», «methodological approaches to quantitative and qualitative risk assessment» remain unresolved.

5. Methods of research

During the research the following scientific methods of research are used:

- method of comparison – to establish similarities or differences in risk assessment techniques, and to find a common, inherent approach;

– method of interviewing employees «interviewing method», which are responsible for the function of risk assessment, in order to determine the structure and stages of risk assessment. Interviewing employees and managers, units in the process of their work;
– method of expert (external consulting companies) assessments is used to obtain conclusions whether the expert evaluation is consistent with the data obtained during the «interviewing method».

6. Research results

An effective enterprise management system must necessarily include a risk assessment procedure. The risk assessment can be carried out according to the stages shown in Fig. 1.

Risk management process is a cyclic; final and permanent stage is monitoring and control of risks. Next, each risk is given one of the statuses: «new», «no change», or «delete».

The basis of the methodological approach to assessing the organization's risks is a combination of quantitative and qualitative methods.

The quantitative method is mainly presented as a mathematical description of the risk, which is expressed through the indicators [2] «probability» and «consequences». The indicator «probability» expresses a certain percentage of the probability of an event.

The indicator «consequences» expresses the weight of the influence that an event can cause.

Qualitative methods are used in the case when it is impossible to obtain quantitative indicators, that is, when it is impossible to assess the risk mathematically. This method is easier to use, but less accurate and reliable.

The qualitative method in many cases depends on the gained experience and the level of judgment objectivity of the one who evaluates the risk. In practice, a qualitative evaluation method includes such aspects as:

- analysis of risks associated with fraudulent activities;
- lack/availability of efficiency of use of stocks, assets (premises, land, vehicles, etc.). Identification of such data – «red flags» in the company, shows the impact of posts that monitor and analyze the functioning of the business as a whole.

The quantitative and qualitative method of evaluation can be complementary, that is, used in combination.

In work [15] it is noted that the most rational for audit, according to the risk-oriented approach is the use of a combined risk assessment method combining the advantages of both qualitative and quantitative risk assessment. Application of such approach will allow to reduce unreasonable overestimation of the value of audit risk in accordance with the model of its quantitative assessment. And also allows the auditor to use professional judgment, an intuitive approach to assessing the economic component, the ability to analyze other factors, because of the limitations can't be described in the quantitative risk assessment model.

A qualitative risk assessment in practice [4] can be carried out using many methods. Let's dwell in more detail on some of them.

In the scientific paper [16], a comparative analysis is used to assess a particular risk in terms of probability and influence in cases where management seeks additional justification for the solution. Comparative analysis data can provide management with information on the probability or impact of risks, based on the experience of other organizations.

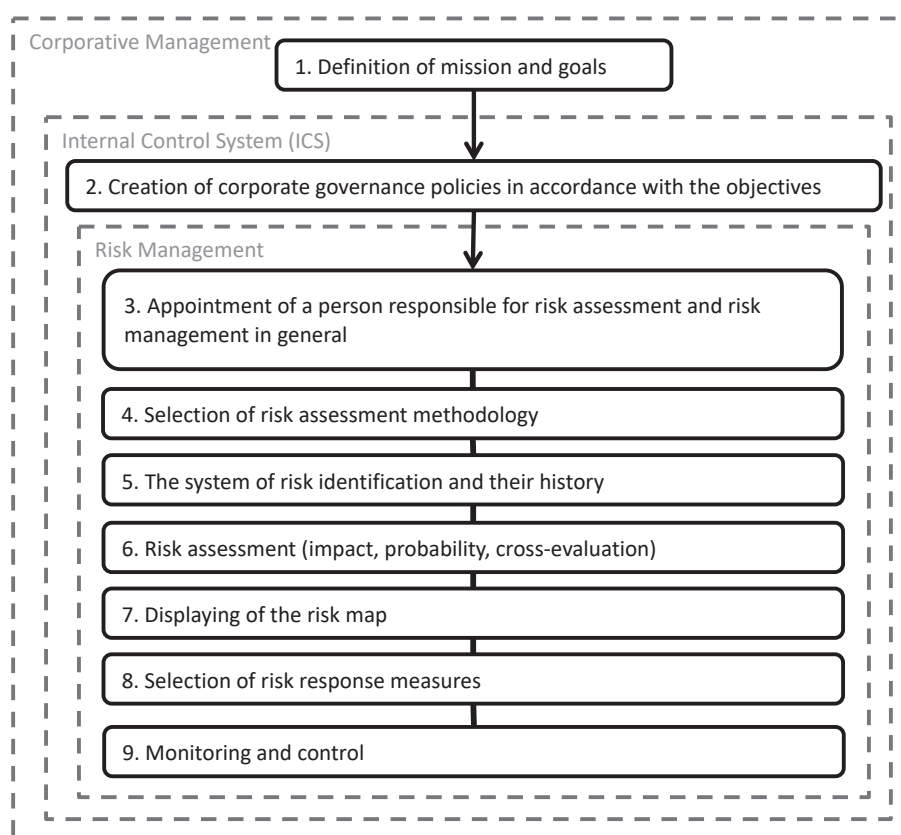


Fig. 1. Stages of risk assessment

Comparative analysis is also used in the ratio of different activities within a single business process in order to determine the opportunities for optimizing this process.

Scenario analysis is used to assess the impact of one or more events on the achievement of a goal. It can be done in planning business continuity or in assessing the impact of a failure in a system or network and displays the impact of these events on the organization. Scenario analysis can be performed in the course of strategic planning, where management links growth, risk and profit.

The sensitivity analysis is conducted to assess the impact of normal changes in potential events, which is used for operational indicators (such as the impact of changes in sales volume and delivery time, response time/customer order execution).

Relating risks and capital involves conducting an economic capital assessment to indicate the amount of capital required to cover financial risks. It is used by management when determining the strategy, allocating resources and assessing performance indicators. This method is mainly used by financial institutions.

Another method is «If analysis». «What will happen if?» This question relates to what can happen wrong, that is, what will happen if a certain event occurs. This method of analysis includes brainstorming and carried out by experts who have sufficient experience and information, knowledge of operational processes, experts who can suffer the impact of dangerous events under certain conditions.

The result «If the analysis» can be «Evaluation list». A special checklist of known threats and hazards is used to identify the relevant risks. The value of this type of analysis depends on the quality of the checklist and the testing experience.

The method of audits (external or internal) is carried out by highly paid experts. This method is one of the most effective because it enables the organization to improve the internal control system and create a system of risk assessment and risk management in general from scratch in a relatively short period of time. The lack of use of such integrated risk assessment approach is a high cost part.

When visualizing and presenting risks, organizations use various methods of presenting results, including drawing up a risk map and numerical representation of data.

The Helicopter View method is the ability, or the ability to see the business and the business processes of a company separately, as a single system, as well as the display of this system in an understandable way (graphically). This method does not require significant resources, it is both simple, relatively perceptive and difficult to implement. The complexity is explained by the fact that a specialist who uses this method must have a lot of experience and understanding of the mechanics of building all business processes, and know the management principles. As a rule, the Helicopter View method is used by internal auditors in its work [6].

A very effective risk management tool is a risk map – it is a graphical representation, usually the probability and magnitude of the impact of one or more risks. The risk map can take the form of heat maps (using color coding: red, yellow, green) or graphs of individual processes, which provide quantitative and qualitative estimates of the probability and impact of risks. Risks are presented with the allocation of more significant and less significant risks in terms of probability or impact.

Drawing up a table or matrix of risks involves the presentation of all the risks of the company, structured in the form of a matrix table. The table of risks is divided into categories:

- the owner of the process. Components: area of responsibility, assigned risk number, name of risk, brief description of risk, risk factor, selected control measures;
- specialist/team/department who are appointed to be responsible for risk control. Components: number of control according to the number of risk, the frequency of testing the control system of the relevant risk, the testing method, a review of the risk, responding to risk.

The mandatory preconditions for risk assessment are:

- determination of the mission of the organization and its objectives, as the risk assessment is aimed at achieving the set goals;
- selected period of time for which the risk assessment is carried out should be in accordance with the strategy and objectives of the organization.

It is possible to say that an assessment of risks and risk-forming elements (components) is a necessary condition for how an organization needs to manage risks in the future. In the future, since risk assessment is an ongoing process, and external and internal risk factors are constantly changing, approaches to risk assessment must also be changed, keeping the course for achieving the mission and objectives of the organization [5].

Risk management is a part and core of the internal control system, which accumulates and processes all information about the organization's activities and analysis of its risks.

Risk assessment methods provide new opportunities for the organization to determine to what extent potential events can affect the achievement of its objectives. The positive and negative impact of potential events should be analyzed separately by zones of responsibility (in the context of the organization's directions), and also at the level of the entire organization [4].

Each organization is asked the questions «How to assess the risk and where to start?» «Who in the organization should engage in risk assessment?»

Therefore, each method of assessing the organization's risks must have:

- structure (the experts responsible for the risk assessment function), the procedure (position, protocol, procedure) of the risk assessment, the way of reflection in the system, the analysis of the status of the selected measures, the support system);
- visualization and presentation (risk map and table, or risk matrix);
- measurement scale (chosen by the organization as the basis for the most common methods: nominal measurement, ordinal measurement, interval, proportional). In this case, nominal and ordinal measurements are considered as qualitative, and interval and proportional – as quantitative methods;
- rules and conventions.

The basis of the risk assessment approach is a cycle of risk management (a set of interrelated processes that form a series of sequential actions in the organization) because of the use of a quantitative, qualitative or mixed method (Fig. 2).

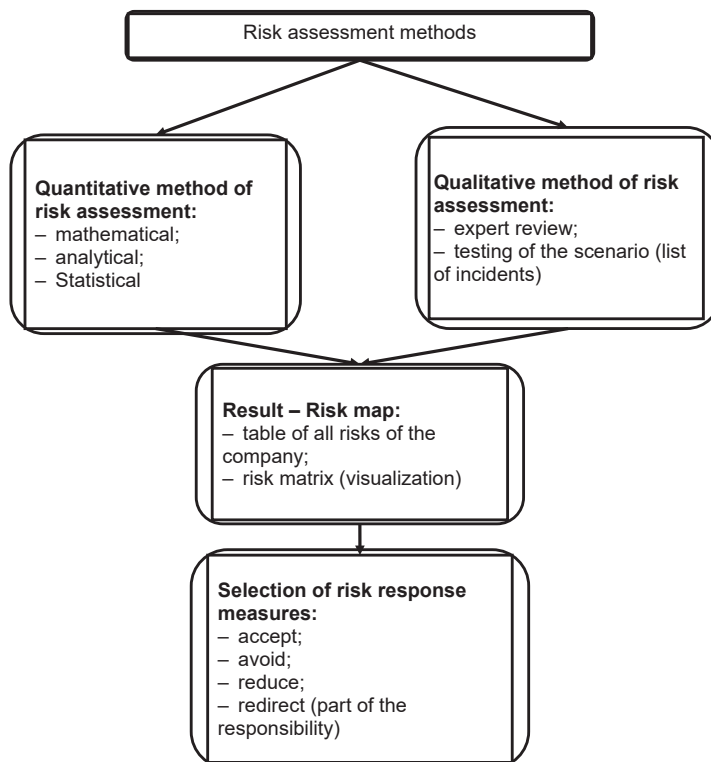


Fig. 2. Systematization of methods used in risk assessment

All results of risk assessment should be reflected in the risk map. If in one organization or group of companies, there are different directions and activities, then in this case it is advisable to form an appropriate number of risk maps (for each of the directions), as well as a general risk map of the entire organization or group of companies. For large projects (for example, the implementation of vertical integration of a new business line, large investments,

acquired or the absorption of other organizations) it is advisable to maintain a separate risk map.

The risk map has a number of features and an important purpose in the corporate governance structure, in particular:

- risk matrix, or visualization for the top management of the organization (Fig. 3);
- table of risks, or a working tool for risk management (Table 1).

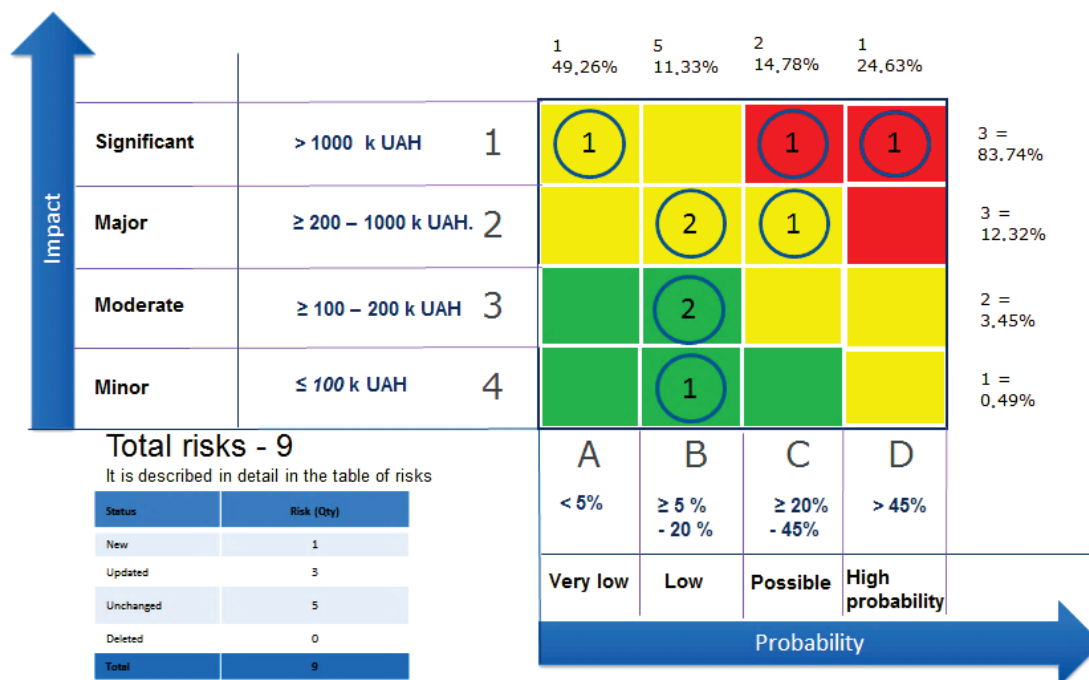


Fig. 3. Risk matrix of LLC «Exemplary Company»

Table 1

Table of risks of LLC «Exemplary Company»

No. of risk	Risk Owner Position	Risk owner unit	Risk status	Category	Response measures	Risk name	Risk description	Potential damage (thousand UAH)	Probability of occurrence (%)
1	Head of Operations Department	Operational management	Invariable	Security of tangible assets	Crisis management procedure	Natural disasters	Earthquakes, floods, landslides, snow blockages, forest fires	10 000	2
2	Head of technical department	Operational management	Invariable	Observance of legislation	Monitoring of legislation, creation, implementation of internal audit plan	Penalties for violation of environmental legislation	Identification of violations of established norms in the process of environmental inspection in accordance with the current environmental legislation	500	10
3	Head of the «safety of work and activities» department	Personnel management	Invariable	Safety of personnel	Carrying out of trainings, certification of experts, keeping a log and that to safety precautions	Accidents at work	Fines and financial losses due to a violation of occupational safety standards	100	5
4	Head of IT department	Administrative management	Invariable	IT Security	Testing of information systems according to IT security policies and procedures.	Leakage of confidential information	Loss of information or illegal seizure of information by third parties.	200	5
5	Head of fire safety department	Operational management	Invariable	Security of tangible assets	Testing systems, conducting trainings and exercises	Fire of the premises of the company	Loss of property due to fire	1000	10
6	Head of «finance» department	Financial management	New	observance of legislation	Monitoring of legislation, attraction of external experts (Audit), conducting trainings	Penalties for violation of taxation and business rules	Identification of a violation by the tax inspector in the process of planned/unplanned inspection of the rules of taxation and conducting economic activities.	500	10
7	Head of supply chain management	Supply and purchase department	Updated	raw material supply	Searching and expanding the list of alternative suppliers of raw materials	Lack of raw materials	Crude in the supply of raw materials. Failure to comply with the terms of the Contract by suppliers of raw materials	1000	25
For logistics companies									
8	Head of Customer Service Department	Partner management	Updated	Business	Search for new partners, replenishment of clients' portfolio, signing of long-term contracts	Loss of strategic partners	Termination or does not erase the signing of the treaty on a strategic partner (a share that is more than 15 % of the total business)	2 000	45
For farmers and rural households									
9	Head of Customer Service Department	Partner management	Updated	Business	Search for new partners, replenishment of clients' portfolio, signing of long-term contracts	Loss of raw materials	Lack of strategic long time, creates the risk of loss of finished products/raw materials (damage, destruction by pests)	5 000	65

Fig. 3 and Table 1 show an example of the Risk Card of ООО «Exemplary Company» (for compliance with the confidentiality policy – the name of the company was intentionally changed).

Risk assessment by the chosen method is the preliminary stage for choosing a method of responding to risk.

7. SWOT analysis of research results

Strengths. The structural approach to risk assessment allows the organization to create additional value for the company. Timely detection and prevention of risks results in a reduction in capital and operating costs.

Weaknesses. In the risk assessment process, it is difficult to choose a quantitative, qualitative or mixed risk assessment method, which can lead to additional costs. Absolute control generates absolute costs arising from a violation of the balance between the costs of risk assessment and the impact of such risks on the organization.

Opportunities. Opportunities for further studies of risk assessment techniques are the ability to systematize all types of risks in accordance with all risk methodologies. Effectively chosen risk assessment methods create reasonable guarantees for the organization, which help to achieve the company's goals.

Threats. The rate of the event and its impact level the time and result, which can be spent on risk assessment.

8. Conclusions

1. An example of structuring the «stages of risk assessment» is given. This example shows that each company begins the process of risk assessment from the time of planning the creation of the organization.

2. Of all methods of risk assessment, the most effective is the involvement of professionals in the case, who have sufficient level of knowledge and techniques, have relevant experience. These are external or internal checks by highly paid experts (or audit firms). This method is one of the most effective, since it allows the organization to improve the internal control system and create a risk assessment system. The disadvantage of using such integrated risk assessment approach is a large cost.

3. It is determined that the result of risk assessment is the «Risk Map», which consists of:

- «risk matrix» – visualization of the result of the risk assessment, risk diversification by the zones of criticality of risks. The presentation is used in reporting «company risks» for top management;
- «risk tables» – a risk management tool. It is used for detailed study of risks (categories, responsible, methods

of reaction, sum of influence, probability of approach, grading, etc.).

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Tarashevskiy Maksym, Postgraduate Student, Department of Business Logistics and Transport Technologies, State University of Infrastructure and Technology, Kyiv, Ukraine, e-mail: ttm_ua@meta.ua, ORCID: <https://orcid.org/0000-0002-0859-1824>