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# RISK ASSESSMENT IN CONSTRUCTION MATERIALS INDUSTRY ENTERPRISES METHODOLOGICAL FOUNDATIONS

Shokhrukhbek Makhmudov

Assistant, Department of Management, Fergana Polytechnic Institute, Fergana, Uzbekistan

## Abstract

On a global scale, scientific research is being conducted aimed at risk management, ensuring its modern standards and wide application of best practices in this regard. In risk management, the introduction of new risk management standards developed by the International Organization for Standardization to industrial enterprises, elimination of risks that may arise in production processes due to the introduction of high technologies, diversification of risk management standards, not limited to ISO standards, the leading international in this regard development of a standard for risk management in cooperation with organizations is one of the priority areas of scientific research.

**Keywords:** Principles of risk assessment, purposefulness, truthfulness, effectiveness, reliability, accuracy, sufficiency.

## Introduction

The second stage of risk management technology is the stage of risk assessment and analysis. The organization of this stage is not sufficiently established in industrial enterprises [1-4]. Currently, industrial enterprises have a number of shortcomings and problems in terms of risk identification, assessment and management, for example:

- Inadequate implementation of risk assessment and management activities in enterprises. Management personnel and specialists for risk management and regulation are not formed in enterprises, and this is considered as an additional cost.
- Risks are not fully taken into account when making business plans. When business plans are developed by enterprises, their structure is not perfect and does not provide an opportunity to calculate the risks affecting the enterprise's activities at different levels.
- Lack of qualified risk management personnel - risk managers. The main reason for this is the lack of specialists analyzing and forecasting risk.
- Inadequacy of information gathering and processing processes for the purpose of risk identification and assessment. In most cases, information in enterprises is not collected completely and is not processed classified according to certain characteristics.

Risk assessment is the determination of the risk that affects or may affect the enterprise in units of quality and volume. Risk assessment is carried out by special specialists on the basis of certain preparations. Risk assessment can be considered as a set of processes such as collecting, analyzing, processing, risk identification, summarizing the obtained results and identifying deviations and deviations. Risk identification is the definition of risk-specific

characteristics [5-9]. In our opinion, it is appropriate to base a number of principles on risk assessment.

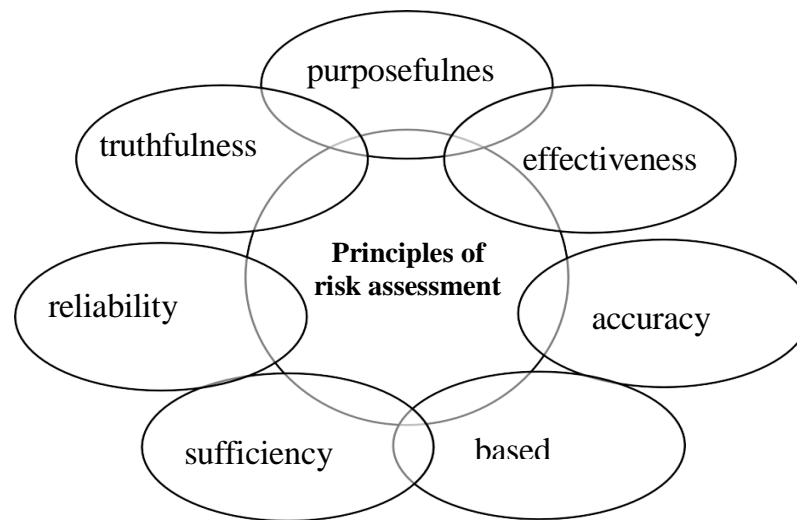


Figure 1. Principles of risk assessment

Analyzing risk and assessing it by developing appropriate models is a complex task. On the one hand, it is characterized by the instability of the causes of risk factors, and on the other hand, by the complexity of the formation of activity results [10-17]. Therefore, the development and justification of risk assessment models requires a thorough description of the causes of risk factors and information about them, as well as a thorough analysis of the research objective. It is important to consider return and risk when determining risk metrics. This condition becomes one of the criteria for expert assessment when assessing risk. Because in practice there is a correct correlation between risk and profitability. As the profit increases, so does the risk [18-25]. The following requirements are imposed on the selection of indicators for assessing the level of risk:

- It should reflect a quantitative assessment of risk that can be structured and interpreted.
- The information being analyzed in terms of space and time should be comparable and their measurements should be compatible with each other.
- It is necessary to use the units of measurement used to measure the expected income or expenses of the enterprise, as well as investment and other income indicators of the enterprise.

In the assessment of risks affecting the activity of industrial enterprises, in many scientific and research works devoted to this field, they are analyzed by dividing them into qualitative and quantitative indicators or by dividing them into mathematical and economic indicators. Today, digital, psychological and ecological approaches are added to risk assessment, and the scope of assessment is increasing [26-31].

It can be seen from the conducted studies that, regardless of the direction in which the approaches to risk assessment are carried out, the assessment indicators can be reflected in the order shown in Figure 2.

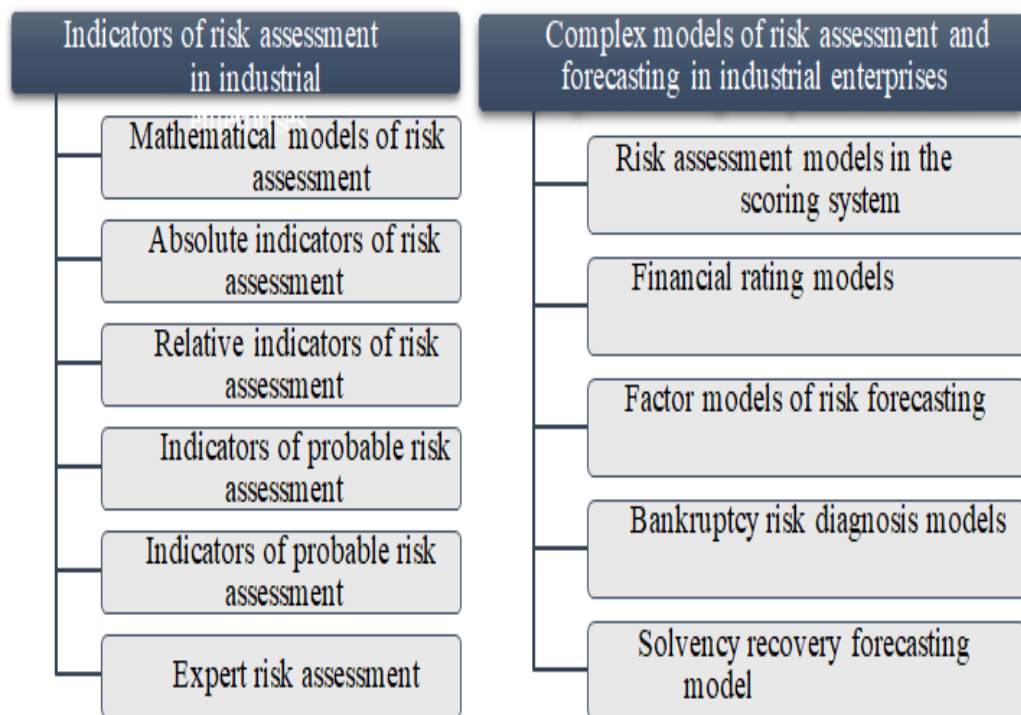


Figure 2. Risk assessment and forecasting in industrial enterprises directions

The mathematical approach to risk assessment is determined as a result of correlation between the probability of occurrence of a risky situation and its potential damages. That is, in the assessment of risk in industrial enterprises, the probability of occurrence of a risky event and the cost of its consequences can lead to a decrease in the potential profit of the enterprise [28-32].

### ANALYSIS AND RESULTS

Mathematical models of risk assessment are divided into deterministic, stochastic and non-stochastic and linguistic types. During the risk assessment, the industrial enterprise faces well-known risks. These risks are known in advance for the company, and the nature and causes of their occurrence are clear, as well as the consequences are predetermined risks. The deterministic method of the mathematical model is used in the assessment of these risks. Mathematical methods of analysis and programming are used to describe entrepreneurial risk in this way.

In practice, known risks are rare. Since the risks affecting the activities of enterprises are formed in an environment of uncertainty, the reason for their occurrence remains uncertain or probable. If the causes of risk occurrence are probable, stochastic models are used in risk assessment. When describing the risk, it is described by separating it from the set of influencing risks. For the reasonable use of stochastic models, it is necessary to say that stochastic models are important statistical data of past uncertain time intervals.

Table 1. Analysis of compliance of current assets in building materials industrial enterprises by the end of 2021, in percent

Asset group	Recommended rotation structure of funds, %	“Kvarts” joint stock company	“Bekobod - sement“ joint stock company	“Qizilqum - sement” joint stock company	“Olmaliq metallurgiya kombinati” joint stock company	“Oxangaron - sement” joint stock company
A1	6.6	4	32	2	28	17
A2	26.7	20	20	17	24	28
A3	66.7	76	48	81	48	55

From the data of the table, it can be seen that working capital was formed close to the standard level in only “Kvarts” JSC, and the standard was not properly distributed in other analyzed enterprises. This is due to the fact that working capital is not used in the right direction or the cash funds have increased. The stagnation of cash causes a decrease in productivity in enterprises.

In Kyzylqumsement JSC and Ohangaronsement JSC, fixed liabilities make up more than half of the total assets. This indicator was 27% in Quartz JSC, 36% in Bekobodsement JSC and 44% in Almalyk Metallurgical Combine JSC. From these indicators, it can be seen that there is a risk in the level of sufficiency of own funds in “Kvarts” JSC. In addition, long-term liabilities have increased in this enterprise. This was influenced by the purchase of long-term assets at the expense of accounts payable. As a result, P2 increased due to the delay in payment of overdue payables.

Table 2. Analysis of liabilities in construction materials industrial enterprises by the end of 2021 by the speed of payment, in percent

Name of enterprises	“Kvarts” joint stock company			“Bekobod - sement“ joint stock company			“Qizilqum - sement” joint stock company			“Olmaliq metallurgiya kombinati” joint stock company			“Oxangaron - sement” joint stock company		
	At the beginning of the period	To the end of the period	Difference	At the beginning of the period	To the end of the period	Difference	At the beginning of the period	To the end of the period	Difference	At the beginning of the period	To the end of the period	Difference	At the beginning of the period	To the end of the period	Difference
Asset composition															
P1	4	8	4	7	6	-1	4	3	-1	12	17	5	4	5	1
P2	0	21	21	3	1	-2	1	2	1	4	6	2	1	0	-1
P3	70	44	26	56	57	1	29	29	0	45	33	-12	35	38	3
P4	26	27	1	34	36	2	66	66	0	39	44	5	60	57	-3

Another group of absolute indicators of risk assessment are the indicators of calculating the loss of solvency. The risk of insolvency of industrial enterprises indicates that they will not be able to pay their financial debts on time. This indicator shows the ability to realize

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solvency in the short term through absolute and relative indicators. In order to calculate these indicators, it is necessary to collect data, divide assets and liabilities into groups, evaluate them, and perform comparative analysis.

## **CONCLUSIONS**

1. Growth in the standard of living of the population, development of tourism and service industries require structural changes in the gross domestic product. In this case, in the structure of industrial sectors, such areas as the construction materials industry will have higher growth trends compared to other sectors. No matter how much the economic situation of the society develops, the growth of the construction industry and building materials industry can be observed.
2. The process of risk management in construction materials industrial enterprises should consist of technologies based on clear systems, proven, logical sequence. If the sequence changes in the technological unit of risk management, the effectiveness of management will also decrease.
3. The issue of determining the direction in risk assessment arises from the knowledge of experts in risk studies. In practice, there are many unique approaches to risk assessment. Examples of them include quantitative measurement, relative, point, predictive, complex, probabilistic and many other methods. The choice of the type of risk assessment is based on the source of available information.

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