# Forecasting the Risks Encountered in Industrial Enterprises

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**Abstract:** In this article, we have expressed our views on the role of risk in business and its importance.

**Keywords:** economic activity, small businesses, risk, commercial risk, external environment, employees, market conditions, model, mathematical simulation.

### Introduction

There are many types of economic activity. For example, we provide services with the production of various products (bread, clothing, school supplies, cars, homes, etc.) (household services, educational services, health, consulting, etc.) we distinguish. Accordingly, depending on the characteristics of the sectors and industries of the economy, the types of business activities differ in the form and content of their processes and methods of their implementation. Entrepreneurship is relatively effective in services, brokerage, consumer goods, and financial transactions. There are different types of business depending on the direction of the business, the object of capital investment and the actual results

In the world practice there is an experience of distinguishing business entities with limited economic opportunities according to the scope of their activities. Because if these businesses are not supported by the state, if the necessary conditions are not created, they will lose their competitiveness with other large enterprises and will be forced to close down. They are referred to as small businesses or small business entities. One of the most widely used criteria for distinguishing small businesses in the world is:

➢ average annual number of employees;

➢ amount of fixed and working capital;

➢ amount of profit (income);

➢ Gross sales revenue, etc.

In Uzbekistan, small businesses are defined by the type of activity and the number of employees in this field.

Today the problem of risk is one of the main ones in the commercial activity of industrial enterprises. In a market economy, risk arises at various stages of the promotion of goods and services, both within the country itself, where enterprises operate, and abroad, if they carry out foreign economic commercial activities.

Market risk becomes an indicator of the level of competitiveness and sustainability of enterprises. However, the competitive market environment leads, on the one hand, to an increase in the likelihood of bankruptcy of enterprises and a decrease in their level of security, and on the other hand, it is the engine of social progress. The probabilistic nature of many market situations and their uncertainty constantly generate commercial risk.

It can be caused by various circumstances, therefore, its analysis is associated with identifying the main causes (factors). The subject of the assessment is the factors that characterize the object and spatial affiliation, quantitative and qualitative parameters, as well as the sources and causes of their occurrence. The quality of the assessment is determined by the completeness of the risk factors.

It is obvious that the situation of commercial risk will be influenced by both external and internal factors, but to varying degrees. Thus, the commercial risk can deepen due to internal miscalculations of the enterprise, as well as under the influence of the external environment: unfair competition, erroneous public opinion, changes in market conditions, lack of reliable information, etc.

External factors include factors caused by reasons not directly related to the activities of the enterprise itself. The sources of their occurrence lie in the external environment in relation to the enterprise in question. They include the objective economic, social and political conditions of the external environment, within which a particular enterprise carries out its activities, and to which changes it is forced to adapt.

However, not all environmental factors directly and equally affect the results of commercial activities of industrial enterprises. Their manifestation can be both direct and indirect. When assessing the factors of commercial risk of the

external environment, it is necessary to identify the risk environments and their subspecies that most strongly affect the results of the functioning of industrial enterprises. It is advisable to divide the factors of commercial risk into factors of the general external environment and the private one. Generals include everything that surrounds the enterprise. Together, they form a common (global) external environment. A private (local) external environment is inherent in each specific enterprise. It is a collection of any external environments or their partial components - subspecies. Therefore, in relation to the problem of analyzing the external environment and external factors of commercial risk, we can say that the external causes of the risk of commercial activities of industrial enterprises are phenomena that occur in the global external environment and are generated by it. They, in turn, through the market entities with which the enterprise is connected, are transformed into more significant events for it that arise in its local external environment..

High operational efficiency of an industrial enterprise conducting commercial activities can be achieved if timely and high-quality decisions are made related to risk assessment at the micro level. However, the real external environment exists objectively, regardless of human perception of it and the processes occurring in it. But it is this perception that introduces subjectivity in its assessment, due to which the same risk factor is perceived ambiguously by different people and can cause different responses to it on their part. Consequently, a significant role is played by internal risk factors, the occurrence of which is caused or generated by the activities of the enterprise itself.

## Method

In practice, random variables are predicted using statistical methods, based on identifying distribution laws, determining indicators of variation, identifying and analyzing trends. The motivational nature can be assessed on the basis of preferences and choices as a reaction to the predicted values of random variables. Therefore, the most appropriate way to implement the task is imitation modeling, which allows you to reproduce the relationship between the random and motivational nature, as well as the factors that determine them.

The development of a mathematical simulation model is a complex and time-consuming process. The algorithm for its implementation can be presented as follows:

➢ the final value is selected, on the basis of which the objective function will be built;

➢ the main factors (sources) of risk are determined;

➢ a model is being developed (the relationship between the objective function and the selected factors);

➢ the laws of distribution of the selected factors (the nature of the distribution and its parameters) are determined on the basis of the available real empirical data;

➢ simulation modeling and analysis of results are performed.

Applying this simulation algorithm to obtain a predictive model for assessing commercial risk, it is necessary to study the supply and demand functions for a specific product or product group, as well as their parameters. This approach will help explain the relationship between price and quantity of goods exchanged in the market over a certain period of time.

In this case, the formalized formulation of the problem of assessing commercial risk is reduced to the following interpretation: the supply of goods (output) of all producers is denoted by S (supply function), demand from the end consumer (which is considered in a generalized sense) for each product - D (demand function). Then the risk assessment presupposes a comparison of the values of S and D. If S <D, there is no risk, otherwise (S> D) there is a risk. Using this in the analysis of market situations, we construct an assessment of commercial risk by defining a binary function of the form.

$$Y = \begin{cases} 0, if\ S < D \\ 1, if\ S > D \end{cases}$$

Thus, it is possible to recognize the state of the market situation and make management decisions in time to minimize commercial risk or avoid it altogether, thereby preserving the economic security of the enterprise. In addition, by studying the trends in the parameters and components of the supply and demand functions, it is necessary to simulate all possible outcomes and receive a timely signal about the presence of a commercial risk situation (at Y = 1).

## Conclusion

Such an approach in constructing predictive estimates of commercial risk will increase the efficiency of its management, and the use of elements of discriminant analysis in this area is innovative.

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