



RISK AND WAYS TO REDUCE IT

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Annotation: The relevance of this topic lies in the fact that in the modern conditions of the development of competitive relations between economic entities, the impact of risks on the efficiency of companies has significantly increased. Therefore, the study of business risks, their management and methods of prevention are important. There are many different methods of risk management. At the present stage of economic development, various domestic and Western researchers have developed specific preferences regarding risk management methods. These methods are determined by the nature of the economic development of the state, as well as by the groups of risks studied

Key words: Risk, entrepreneurship, regulatory method, insurance, hedging, diversification, standard deviation, coefficient, differential function, Gaussian curve, probability distribution, strategy.

РИСК И СПОСОБЫ ЕГО СНИЖЕНИЯ

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Аннотация: Актуальность данной темы заключается в том, что в современных условиях развития конкурентных отношений между хозяйствующими субъектами значительно возросло влияние рисков на эффективность компаний. Поэтому изучение бизнес-рисков, их управление и методы предотвращения имеют важное значение. Существует много различных методов управления рисками. На современном этапе экономического развития различные отечественные и западные исследователи выработали определенные предпочтения в отношении методов управления рисками. Эти методы определяются характером



экономического развития государства, а также изучаемыми группами рисков

Ключевые слова: Риск, предпринимательство, метод регулирования, страхование, хеджирование, диверсификация, стандартное отклонение, коэффициент, дифференциальная функция, гауссова кривая, распределение вероятностей, стратегия.

Introduction

In the conditions of market relations, the problem of assessing and accounting for economic risk acquires independent theoretical and applied significance as an important component of the theory and practice of management. Most management decisions are made under conditions of risk, which is due to a number of factors-the lack of complete information, the presence of conflicting trends, elements of randomness, etc. In these conditions, there is uncertainty and uncertainty in obtaining the expected final result, the probability of additional costs and losses increases. The problem of risk is of particular importance in entrepreneurial activity. It is known that success in the business world depends crucially on the correctness and validity of the chosen business strategy. At the same time, the probabilities of critical situations should be taken into account. It would be extremely naive to believe that entrepreneurial activity is possible without risk. The legislation on enterprises and entrepreneurial activity adopted in the world practice defines entrepreneurship as an initiative, independent activity citizens and their associations, aimed at making a profit, carried out at their own risk and under their own property responsibility.

Research methodology

An important element of the risk management system is the development of measures to reduce them.

The regulatory method is the establishment of certain standards, limits, restrictions on carrying out certain actions, namely: the establishment of the maximum volume of output, the maximum volume of shipment of products on credit (taking into account the financial situation of consumers), limits on attracting borrowed funds, limits on the volume of investments in a certain field of activity (for specific structural divisions, levels of responsibility, etc.), etc.

The creation of insurance (reserve) funds includes, in particular, the formation of reserve funds for stocks of raw materials, materials and finished products, a reserve balance of funds on the settlement account of the enterprise, a reserve fund for the payment of interest on bonds and dividends on preferred shares, etc. However, it should be borne in mind that the creation of reserve funds slows down the turnover of capital, and therefore leads to a decrease in production efficiency.

The insurance of the interest rate risk that arises when the company issues coupon bonds and is associated with the possibility of losses from a decrease in interest rates, early repayment of bonds, the establishment of a variable (floating) coupon, etc. is used.

Hedging is associated with possible changes in prices for raw materials, finished products, exchange rate fluctuations, etc. Hedging procedures are reduced to the conclusion of fixed-term contracts for the purchase (sale) of products or currency values at fixed yen in the future. The main types of hedging are forward contracts that provide for mutual obligations of the parties to buy and sell products in the future at the prices specified in the contract, as well as forward contracts for currency and currency options.



Diversification is the expansion of technologically diverse areas of activity of the enterprise. It includes the diversification of products, when an enterprise produces a variety of products, some of which are not related to the specialization of production and often require the development of new technologies; the diversification of capital investments by region and type of production; the diversification of financial assets — the acquisition of various types of securities.

Results of the study

In practice, companies use a set of ways to reduce risks, and managers formulate risk management rules based on previous experience:

- you can't risk more than your own capital can afford;
- you need to think about the consequences of risk;
- you can't risk a lot for a little;
- the decision on investment is made only in the absence of doubts;
- if there are doubts, such a decision is not taken;
- we should not assume that there is always only one solution. Perhaps there are

other solutions.

Entrepreneurship, as follows from its definition, is impossible without risk. Therefore, it is important to learn how to manage risks, i.e. analyze, plan and evaluate them.

Analyzes

As noted earlier, one of the most common methods of quantitative risk assessment is the statistical method. The main tools of the statistical method for calculating risk are:

- the average value (\bar{X}) of the studied random variable (the consequences of any action, for example, income, profit, etc.);
- variance (σ^2);
- standard (standard deviation) (σ);
- coefficient of variation (V);
- the probability distribution of the studied random variable.

It is known from the theory of statistics that for a limited number (n) of possible values of a random variable, its average value is determined from the expression

$$\bar{X} = \sum_{i=1}^n X_i P_i ,$$

where X_i — the value of a random variable;

P_i — is the probability of occurrence of a random variable.

The average value is a generalized quantitative characteristic of the expected result.

An important characteristic that determines the measure of variability of a possible result is the variance — the weighted average of the squares of the deviations of the actual results from the average

$$\sigma^2 = \sum_{i=1}^n (X_i - \bar{X})^2 P_i ,$$

and also, the very closely related standard deviation determined from the expression

$$\sigma = \sqrt{\sigma^2} = \sqrt{\sum_{i=1}^n (X_i - \bar{X})^2 P_i} .$$

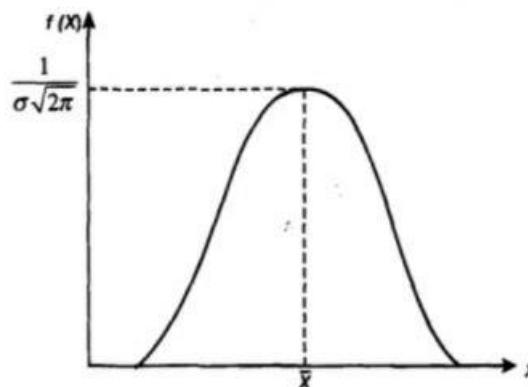
The variance and standard deviation serve as measures of absolute scattering and are measured in the same physical units in which the varying feature is measured.

To analyze the measure of variability, the coefficient of variation is often used, which is the ratio of the mean square deviation to the arithmetic mean and shows the degree of deviation of the obtained values. The coefficient of variation is a relative value. Therefore, it can be used to compare the fluctuation of features expressed in different units of measurement.

From the course of probability theory and mathematical statistics, it is known that a normally distributed random variable is continuous and its differential distribution function has the form:

$$y = f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-\bar{x})^2}{2\sigma^2}},$$

where $y = f(X)$ – determines the probability distribution density for each point X .
The graph of the normal distribution function is described by the so-called normal curve (Gaussian curve):



To estimate the probability of a random variable falling into a certain interval, the integral probability density function is used:

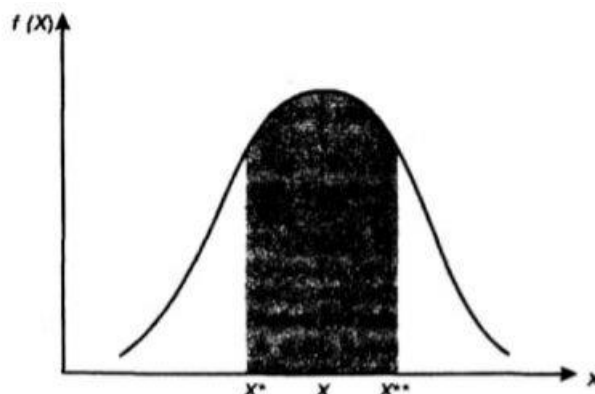
$$\Phi(X) = \int_{-\infty}^X f(t) dt.$$

The probability of a random variable falling into the interval (α, β) is determined as follows:

$$P(\alpha < X < \beta) = \Phi(\beta) - \Phi(\alpha) = \int_{\alpha}^{\beta} f(t) dt,$$

where $f(t)$ – is the differential function of the normal distribution.

Then the boundaries in which this result should be located will be $X^* = X_{exp} - \Delta$;
 $X^{**} = X_{exp} + \Delta$.



Based on the meaning of the distribution density function, the probability that the achieved result will be within acceptable limits (P_1) is determined from the expression

$$P_1 = P(X^* \leq X_{exp} \leq X^{**}) = \int_{X^*}^{X^{**}} f(X) dX,$$

where $f(X)$ – is the density function of the distribution of the studied (considered) quantity.

The desired probability result can be obtained by calculating the area of the shaded area in Fig. 2.



We will call the probability obtained in this way the probability level of achieving the expected (planned) result.

Naturally, the question immediately arises about what is the probability of getting the value of the X_{exp} beyond the permissible limits borders (P_2). Having calculated the area of the uncovered plot in Fig. 2, we get an answer to this question.

Based on the characteristics (properties) of the normal distribution curve, it can be argued that the event consisting in the fact that a random variable will take a value on the interval of the axis X , bounded by a normal curve, is reliable, i.e. its probability is 1.

Then

$$P_2 = P(X_{exp} < X^*) + P(X_{exp} > X^{**}) = 1 - P(X^* \leq X_{exp} \leq X^{**}), \\ P_2 = 1 - P_1.$$

The probability P_2 evaluates the uncertainty of the result.

As a rule, the boundary of the change in the expected result in the positive direction (direction) is not set, therefore, when determining P_2 in most cases, we are talking only about the value $P_2 = P(X_{exp} < X^*)$. Thus, in practice, the figure of the square is always asymmetric.

It should be noted that some authors consider the P_2 value to be a direct risk meter.

Indeed, in relatively simple cases, the probability of obtaining a negative result (P_2) can be used to assess the degree of risk.

However, as follows from the definition of risk considered by us, the essential factors of the concept of risk are not even touched upon here.

Summary and suggestions

Based on the results of our research, we can draw the following conclusions: Risk is a certain probability of the occurrence of adverse factors, due to which both material losses (loss of funds, property, etc.) and physical ones are possible. Risk management methods that are used in business activities are divided into four groups of methods. - risk avoidance; - localization of risks; - risk diversification; - risk compensation. It is necessary to correctly calculate the salary of employees in the organization and take into account the cost of materials. Savings should be appropriate and justified, and the management of financial affairs should be correct. The costs must be justified, it is important to make an assessment of them. If the risk factors of the enterprise are obvious, you can use a loan policy that will save you from bankruptcy to some extent and reduce the risk of the collapse of the enterprise. In order to avoid difficulties in the organization, it is important to give a correct assessment of the activities of competitors. If there is a competitive struggle, you need to come up with your own management plan that will help bring the organization to a higher level. Today, there are many enterprises that compete with domestic or foreign ones. It is important to develop your own management strategy and evaluate it in order to avoid the risk of bankruptcy as much as possible. In conclusion, it should be noted if certain concomitants of bankruptcy are obvious, which are very important to prevent.

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