

# MANAGEMENT ACCOUNTING METHODOLOGY OF SOLVENCY OF RECYCLING ENTERPRISES IMPROVEMENT

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### Abstract

This article is devoted to improving the management accounting methodology of solvency of grain processing enterprises. In the article, an innovative conceptual model has been developed that assesses the probability of ensuring the solvency of grain processing enterprises using the theoretical, methodological rules and methods of solvency management accounting, and evaluates the impact of random factors on the solvency of enterprises, and makes short-term forecasts of it. The results of the research are used to make scenario decisions related to the assessment of the probability of ensuring solvency in processing enterprises, to strengthen the financial stability and liquidity of enterprises, to effectively manage production, to accelerate the turnover of working capital, to reduce the cost of products, to achieve the maximum level of profit, to increase the level of profitability, to increase the level of cash flow impact on increasing production efficiency, search for internal reserves of production in reducing costs and internal provides an opportunity to assess the optimal use of potential, early detection, prevention and elimination of economic threats and risks.

**Keywords:** Management Accounting of Solvency, Probability Theory and Mathematical Statistical Methods, Random Factors, Scenario Decision-Making, Influence of Factors on Increasing Production Efficiency, Strengthening of Financial Stability and Liquidity of Enterprises.

# **1. INTRODUCTION**

Improving the management accounting methodology of solvency in enterprises is one of the urgent problems of scientific research. The study of this problem is caused by the loss of several hundred billion rubles as a result of the crises that occurred in the Russian payment and settlement system in 1998. Such occurrences require conducting a scientific study related to ensuring the solvency of enterprises in the country's payment and settlement system. Since the solvency category was not used in the economy at the beginning of the 20th century, all relations between enterprises, industries, population and the state were implemented on the basis of planning under the rule of state property. In this situation, bankruptcy cases did not occur because there was no insolvent enterprise . When there is a shortage of working capital in enterprises, they are filled with funds by higher authorities. As a result, tens and even hundreds of operations were carried out from the funds of the authorized capital of enterprises. The use of available models and algorithms in the solvency management accounting system allows for effective management of the financial situation of the enterprise and decision-making at various levels. This opportunity requires the use of modern methods of economic-mathematical methods, theory of probabilities and mathematical statistics in economic





analysis. As a result, it will be possible to effectively manage production in enterprises, accelerate the turnover of working capital, reduce costs, reduce the cost of products, get maximum profit, increase the level of profitability, make decisions at various levels, ensure financial stability and liquidity. Economic reforms are important in accounting for the management of solvency of enterprises, which is directly related to the accounting of production processes and payments. It is characterized by the cycle of production and payments in the enterprise. In the process of reform, it is necessary to take into account the specificity of solvency, financial stability and liquidity of the enterprise, as well as their specificity. Failure to accurately and realistically maintain accounts of the solvency management of enterprises does not allow for a realistic reflection of the circulation of funds, effective management of production processes, reduction of costs, reduction of product costs, financial stability and liquidity. Therefore, the purpose of improving the methodology of accounting of solvency management of enterprises is to ensure solvency, financial stability and liquidity of enterprises, to increase production efficiency, to search for internal reserves of production while reducing costs, to achieve economic efficiency. However, failure to pay attention to solvency management accounting in the enterprise, imperfect planning, violation of the rules of management organization, inability of enterprises to perform the relevant functions can cause disruption of financial relations, inability to pay, and threats. But the solutions of some problems in the theoretical and practical aspects of management accounting have not yet been found. One of these problems is the development of a scientific methodology for keeping accounts of enterprise solvency management in complex production accounting. This is especially evident in the reform of management accounting in Uzbekistan in line with international financial reporting standards.

# 2. LITERATURE ANALYSIS

On the problems of improving the methodology of solvency management accounting of enterprises and putting it into practice. Yu.S. Trofimova economists such as conducted scientific research. In particular, M.V. Markina conducted comprehensive research on problems related to the provision and quality assessment of information used to manage the solvency of economic entities in management accounting and reporting, as well as its theoretical and practical aspects. In the study, a system of indicators was formed, which includes indicators designed to manage the solvency of economic entities, and the form of internal accounts and reports was proposed; accounting policies for solvency management have been developed in management accounting. Rudnenko N. P. an accounting model of discrete solvency monitoring was developed based on the effective management system of ensuring the solvency of the enterprise through solvency indicators, the formation of an effective management system, and the immunization of balance sheets. Trofimova Yu.S. based the theoretical and practical aspects of problems related to accounting and analysis in order to increase the efficiency of the enterprise's activity, to ensure the optimal level of profitability with solvency. In it, he researched "solvency - profitability - cash flows" as an independent object. In the study, ways to improve accounting and analytical support for the





optimality of the level of profitability with the solvency of enterprises in the system of accounting and management of cash flows were developed.

# **3. METHODOLOGY**

Having developed the following innovative conceptual models for estimating and forecasting the solvency of enterprises, taking into account the influence of random (economic) factors, using the sources of probability theory and mathematical statistics. Assume that the function R = R(t) is a time-dependent random variable. Here, the amount R is based on the data of the quarterly balances  $(t_k)$  of enterprises at a constant moment of time. B where we take the solvency of enterprises as the "probability of the event". In the problem R is the value of the quantity tin a constant moment of time  $R_{kp}$  indicates the probability of being greater than a critical amount.  $R_k$  the amount is the lower limit of the rating, which represents the situation of enterprises that do not ensure the solvency of the enterprise and have completely lost the source of their funds as a result of the losses. Over the years, the parameters of the quarterly balance sheets of enterprises are included in the model and calculated. We determine the ratings of enterprises by assessing the probability of their solvency using their numerical values on their balance sheets by quarter. Here  $R_{kp}$  the amount is calculated as the arithmetic average of the company's rating. To discuss the problematic issue raised  $R_t$  we accept the hypothesis about the distribution law of a random variable. In this case, from the distribution laws of random variables, we focus on the uniform distribution law, binomial distribution law, Poisson distribution, normal distribution law or Gaussian distribution law.

For this, random variables that are equal to each other in our problem at first  $\theta^{(n)}$  let's see, that is

$$\theta^{(n)} = \theta_1 + \theta_1 + \theta_3 + \ldots + \theta_n$$

If the mathematical expectation for random variables  $a_n$  is the mean squared variance  $\sigma_n$  is mutually equal according to, then the quantity of the normal distribution for random variables will have the following form:

$$\mu^{(n)} = 1/\sigma_n(\theta^n - a_n)$$

Muavr - According to Laplace's theory<sup>1</sup>,  $n \rightarrow \infty$  the normal distribution law of random variables follows the Gaussian law (Lloyd, E. & Lederman, W.).

A.M. Lyapunov according to the theory<sup>2</sup>, if the value of *n* has a large value, then  $\theta_1 + \theta_1 + \theta_3 + \ldots + \theta_n$  the normal distribution law of the sum of arbitrary random additions corresponds to the Gaussian law (normal distribution law), otherwise the results are as follows

$$\sum_{k=1}^{n} M(\theta_n - a_n)^3 : (\sum_{k=1}^{n} D\theta_n)^{3/2} \qquad (a_n = M\theta_n)$$

will have an appearance.





If the variance of the large additive quantities is greater than the variance of the other additive quantities, then the conditions imposed on the distribution are violated or they seem to disappear after the normal distribution. In some cases, Lyapunov conditions (regularities leading to Poisson's law) may also be violated. If these conditions satisfy the Gaussian law after the normal distribution, it means that even before the normal distribution, the Gaussian law assumes that the arbitrary arithmetic mean and variance are taken into account. Therefore, regardless of the distribution of the sum of arbitrary random variables, it is distributed according to the Gaussian law.

 $R_i$  sum of quantities since the quantity R is a sum of randomly added quantities, it is possible to talk about the normal distribution of the random quantity R many times. It is known that the normal distribution law is represented by two parameters. These parameters can be the moments of the first and second order time or the mathematical expectation (mR) and dispersion (DR) of random variables R. "x" is determined with the help of the following formula:

$$f(x) = \frac{1}{\sqrt{2\pi\sigma}} e^{-(x-a)^{2/2\sigma^2}}$$
(1)

The graph of this function has a "bell" shape. The peak of the bell corresponds to the mathematical expectation of a random variable. Here, the larger the variance of the random variable, the flatter the curve of the density function of the normal distribution.

In practice, there is a way to determine which distribution law a random variable belongs to. To determine this  $\aleph^2$  criterion is accepted. This criterion is used to check whether the random variable "x" corresponds to the normal distribution law  $F_0(x)$ . This criterion is called *agreement criterion*. If  $\aleph^2 \ge \aleph^2_a$  if the conditions of the form are fulfilled, the conditional hypothesis of the form  $H_0(F_x(x) = F_0(x))$  is rejected. In this case

$$\aleph^2 = \sum_{k=1}^k (M_i - np_i)^2 / np_i$$

 $\aleph^2$  - is called a deviation from the true distribution.

 $\aleph^2$  the amount is calculated according to the accuracy determined by the special schedule depending on the level of the free number ( *a* amount ).

Suppose that the random variable R = R(t) depends on time. If the time function R(t) accepts invariant random variables, then this process is called *a random process*. For example, if the amount *R* is determined based on the data of the quarterly balance sheets of the enterprise, then the amount *R* can take random amounts at a fixed moment in time  $(t_k)$ . In a certain period of time (from the current moment of time  $T_{np}$  up to the moment of time) to find a solution to the problem of probability  $T_{np}$  of solvency of enterprises at a moment in time *R* can assume a random variable forecast  $(R(T_{np}))$ .





Considering the past period of time  $(R_1, t_1), (R_2, t_2), ..., (R_n, t_n)$  as a set of points, it is possible to determine the extension of the rating to a certain time or to forecast the future of the mathematical expectation of random quantities, taking into account certain errors.

Using the method of least squares, it is possible to find a solution to the problem of location of a set of points on a straight line  $(R_1,t_1), (R_2,t_2), ..., (R_n,t_n)$ . If the sampling distribution is a normal distribution, then the method of least squares is directly compatible with the method of maximum similarity. To select a set of points  $(R_1, t_1), (R_2, t_2), ..., (R_n, t_n)$  it is necessary to use the mathematical expectation (mR), variance (DR) and normal distribution of the random variable R:

$$mR = a + b * t \tag{2}$$

The Gauss-Markov theorem, using the method of least squares a and b for linear parameter estimation, all classes must have mR(t) minimum variance. the extension error of the function is equal to the square root of the variance of the random variables. The larger the forecast error, the longer the forecast period. The mean square deviation of the random variable extension  $\Delta t R$  during the time interval is determined using the following formula:

$$KO = \sqrt{DR + DR * (\Delta t * b)^2)}$$
(3)

From an equation of the form (2) a and b to calculate the parameters, we use the following matrix:

$$\binom{a}{b} = \begin{pmatrix} n & \sum t_i \\ \sum t_i & \sum t_i^2 \end{pmatrix}^{-1} \mathbf{x} \begin{pmatrix} \sum R_i \\ \sum R_i t_i \end{pmatrix} \quad (4)$$

here  $n - R_i$  number of random variables;  $t_i - R_i$  time corresponding to random variables moments.

Using the formula of the form (4)  $a_1$  and  $a_2$  the coefficients are determined:

$$a = \frac{\sum R_i * \sum t_i^2 - \sum R_i * t_i * \sum t_i}{n * \sum t_i^2 - (\sum t_i)^2}$$
(5)  
$$b = \frac{n * \sum R_i * t_i - \sum R_i * \sum t_i}{n * \sum t_i^2 - (\sum t_i)^2}$$
(6)

$$D_k = \frac{1}{n-1} * \sum (mR_i - R_i)^2$$
(7)

R random of the amount average quadratic difference random the mathematical expectation of the quantity (mR) is defined as:

$$\sigma = \sqrt{D_R} \tag{8}$$





To determine the multifactor correlation coefficient, we use the following formula:

$$KR = \frac{\sum (a + bt_i)^2}{\sum R_i^2}$$
(9)

Now *R* is a random variable mathematician waiting  $T_{np}$  at the moment of time (forecasting on the date of mathematician do not wait to determine N(R, mR, DR) the change of random variables using *R* the normal distribution, the probability value (p)). Using these expressions, (p) we determine the probability value (in the range of random variables with the following formula:

$$p(c \le R \le d) = \frac{1}{\sqrt{2\pi}} \int_{c}^{d} e^{-(R-mR)^{2/2\sigma^{2}}} dR_{i}$$
(10)

In our research, enterprises are selected based on conditions such as the loss of the ability to ensure the solvency of enterprises, the end of the source of the enterprise's own funds. In our study, if *R* the rating amount is below 0,36, the firm will be insolvent and their equity will be completely depleted. As a result, this enterprise is forced to terminate its activity (go bankrupt). In such cases, the activity of the enterprise is recognized as "dangerous or dangerous". To determine the probability value of the event (the lower limit of the definite integral (*p*)  $c = R_{kp}$ , and the upper limit *d* is assumed to be infinite, we use the following formula:

$$\Phi(t) = \sqrt{\frac{2}{\pi}} \int_{0}^{t} e^{-s/2} ds$$
 (11)

The probability value of the event (p) normal of distribution definite integral from the func ts iyasi and Laplace probability values calculated using the information in the table. The information in the table about the probability values of Laplace helps to determine the probability value of the event (p). The probability of a random variable if substitutions are made in the expression R  $s = \frac{R - mR}{\sigma}$  in the formula (10). The expression  $\Phi(t)$  of the function (c) over the interval from the interval to infinity is determined by the formula of the following form :

$$p(c \le R \le \infty) = \Phi\left(\frac{\infty - mR}{\sigma}\right) - \Phi\left(\frac{c - mR}{\sigma}\right); \quad \Phi\left(\frac{\infty - mR}{\sigma}\right) = 0,5$$
$$p(c \le R \le \infty) = 0,5 - \Phi\left(\frac{c - mR}{\sigma}\right) \tag{12}$$

So,  $\Phi\left(\frac{c-mR}{\sigma}\right)$  to determine the value of the function in the form, we use the information from the table of Laplace's probability values and (p) determine the probability value of the event. Enterprises determine the level of solvency by calculating the probability value of the event





(p). Ensuring the solvency of enterprises is directly related to the impact of internal and external threats. We use the following sequence of algorithms to estimate and forecast the probability of companies' solvency:

- 1. *R* for the approximation of the random variable  $y_R = a + bt$  of eq *a* and *b* we determine the coefficients.
- 2. *R* we find the mean squared deviation ( $\sigma$ ) value of the random variable.
- 3. The multifactor correlation coefficient  $(r_m)$ .
- 4. In the near term R the forecast value of the random variable  $(R_{\pi p})$  we find.
- 5. The forecast value of the mean squared deviation ( $\sigma_{np}$ ) let's find out.
- 6. We find the value (s) of the argument of the normal distribution function using the Laplace probability integral.
- 7. In the current period, we determine (p) the level of probability of ensuring the solvency of enterprises.

(12) the amount of probability of ensuring solvency of enterprises using the formula (p) for enterprises is found using the sequence of algorithms presented above (Table 1).

| Company<br>name  | The equation parameter, $(a)$ | The equation parameter, $(b)$ | Average square deviation, ( $\sigma$ ) | Correlation<br>coefficient, $(\tau_m)$ | Rating<br>forecasti value,<br>(R <sub>np</sub> ) | Average square square deviation, forecasti value, $(\sigma_{np})$ | Function<br>argument<br>(s) | Probability<br>value,<br>(p) |
|------------------|-------------------------------|-------------------------------|--|--|--|---|-----------------------------|------------------------------|
| Compane 1        | $a_1$                         | $b_1$                         | $\sigma_1$                             | $r_1$                                  | $R_{np_1}$                                       | $\sigma_{np_1}$   | <i>s</i> <sub>1</sub>       | $p_1$                        |
| Compane 2        | <i>a</i> <sub>2</sub>         | <i>b</i> <sub>2</sub>         | $\sigma_2$                             | <i>r</i> <sub>2</sub>                  | $R_{np_2}$                                       | $\sigma_{np_2}$   | s <sub>2</sub>              | $p_2$                        |
| Company 3        | <i>a</i> <sub>3</sub>         | <i>b</i> <sub>3</sub>         | $\sigma_3$                             | r <sub>3</sub>                         | $R_{np_3}$                                       | $\sigma_{np_3}$   | <i>s</i> <sub>3</sub>       | $p_3$                        |
| Company 4        | $a_4$                         | $b_4$                         | $\sigma_4$                             | $r_4$                                  | $R_{np_4}$                                       | $\sigma_{np_4}$   | s <sub>4</sub>              | $p_4$                        |
|                  |                               |                               |  |  |  |   |                             |                              |
| Company <i>n</i> | a <sub>n</sub>                | $b_n$                         | $\sigma_n$                             | r <sub>n</sub>                         | $R_{np_n}$                                       | $\sigma_{np_n}$   | s <sub>n</sub>              | $p_n$                        |

Table 1: Ensuring the solvency of enterprises probability assessment

Therefore, these models and algorithms serve as an innovative way to estimate and forecast the solvency rating of enterprises for a certain period (month, quarter, year). In this case, they are taken into account and summarized in terms of quantity and quality in accordance with the period of assessment and forecasting of the solvency rating of enterprise.

# 4. DISCUSSION AND RESULTS

Functionality for performing experimental calculations in Electronic calculator to solve the given problem supply, software, information supply and other organizational and methodological measures will be developed and based on models and algorithms related to the





provision of solvency, taking into account the conditions and characteristics of the enterprise's activity. His models and the relationship between algorithms i is provided by a single database. A single database is the basis of information provision . Information processing to the information source input and output data into separate groups is separated . Data collection of enterprises financial statements , accounting , standards and other similar types of information.

Through the data entered into the memory of the Electronic calculator ensuring the solvency of each enterprise Analyze the level. The optimal value of the solvency indicator i of each enterprise is formed by making changes to the initial parameters within the accepted limits. The obtained n results depending on the level of supply, the experimenter decides whether to continue or terminate the study. For this reason, based on the rule of systematic information and logical communication of the given problem, we developed a scheme for assessing the degree of ensuring the solvency of enterprises with the help of software (Fig. 1).

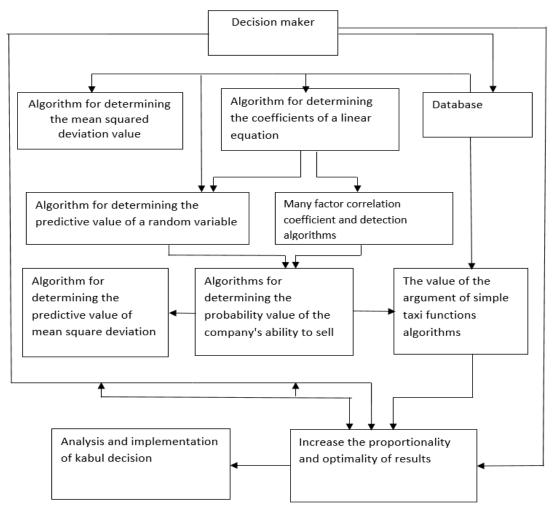


Fig 1: The mechanism for assessing the solvency of enterprises





In the study, we developed the solution parameters of the given problem by evaluating the level of ensuring the solvency of enterprises and implementing algorithms and models for finding quick forecasting solutions.

the assessment of the solvency of enterprises have been balanced, managers of different levels will compare the results of the decisions made on alternative options. If the result of any of the generated alternative scenarios does not satisfy the experimenter, managers at different levels refer to the database again and re-realize the algorithms and models using new quantitative data.

The iterative procedure continues until the results of the assessment of the companies ' solvency are found according to the scenarios.

The database envisages the possibility of using information taking into account the economic conditions of the enterprise calculated the probability of ensuring their solvency using the data of the quarterly balance sheets of the enterprises within the "Uz grain products" joint-stock company for the period of 2018-2023.

In the table, we have placed a sequence in the decreasing order of the probability of ensuring the solvency of each enterprise (from the highest amount to the lowest amount) (Table 2).

| Company<br>name                  | The equation parameter, ( $\alpha$ ) | The equation parameter, $(b)$ | Average square deviation, $(\sigma)$ | Correlation coefficient, $(r_m)$ | Rating prognosis i value, ( $R_{np}$ ) | Average square deviation, forecasti value , $(\sigma_{np})$ | Function argument, (s) | Probability<br>value,<br>( <i>p</i> ) |
|----------------------------------|--------------------------------------|-------------------------------|--------------------------------------|----------------------------------|--|---|------------------------|---------------------------------------|
| "Asaka grain products" JSC       | 0,6447                               | -0,0095                       | 0,0888                               | 0,7932                           | 0,4927                                 | 0,0888  | 1,3832                 | 0,9162                                |
| "Bogot grain products" JSC       | 1,0644                               | -0,0336                       | 0,1659                               | 0,7847                           | 0,5268                                 | 0,1667  | 0,9404                 | 0,8264                                |
| "Baghdad grain products" JSC     | 0,4388                               | -0,0037                       | 0,0422                               | 0,6925                           | 0,3796                                 | 0,0422  | 0,2274                 | 0,5871                                |
| "Jizzakh grain product lots" JSC | 0,4053                               | 0,0084                        | 0,0668                               | 0,8147                           | 0,5397                                 | 0,066 8   | 2,5400                 | 0,9945                                |
| "Dostlik grain products" JSC     | 0,7401                               | -0,0216                       | 0,0555                               | 0,7189                           | 0,3945                                 | 0,0556  | 0,4405                 | 0,6700                                |
| "Aktosh grain products" JSC      | 0,3889                               | -0,0025                       | 0,0363                               | 0,6876                           | 0,3165                                 | 0,0363  | 0,0173                 | 0,5398                                |
| "Jomboy grain products" JSC      | 0,6832                               | 0,0046                        | 0,1145                               | 0,8225                           | 0,7568                                 | 0,1146  | 3,3787                 | 0,9996                                |
| "White grain products" JSC       | 0,6499                               | -0,0063                       | 0,1389                               | 0,7997                           | 0,5491                                 | 0,1390  | 1,2892                 | 0,9015                                |
| "Kuva grain products" JSC        | 0,4032                               | -0,0031                       | 0,0399                               | 0,6957                           | 0,3467                                 | 0,0399  | 0,0159                 | 0,5590                                |
| "Khonka grain products" JSC      | 0,4132                               | -0,0038                       | 0,0417                               | 0,7086                           | 0,3763                                 | 0,0417  | 0,0257                 | 0,5793                                |
| "Shorchi grain products" JSC     | 0,5376                               | 0,0077                        | 0,1790                               | 0,8147                           | 0,6608                                 | 0,1791  | 1,6241                 | 0,9478                                |
| "Khorazm grain products" JSC     | 0,4946                               | -0,0045                       | 0,0931                               | 0,7657                           | 0,4226                                 | 0,0931  | 0,5649                 | 0,7139                                |

# Table 2: Calculation of the probability rating of the probability of ensuring the solvency of the enterprises within the joint-stock company "Uzdon products"





 $\Phi\left(\frac{a-y_p}{\theta}\right)$  values of the integral function of the normal distribution of the form are found using information from the place table of probability values.

Solvency of enterprises after the performed calculations probability value (p) is determined in the following calculation procedure. For example:

$$p(a \le R \le \infty) = \Phi\left(\frac{\infty - y_{\rm p}}{\theta}\right) - \Phi(s) = 0.5 - \Phi(-3.34787) = 0.5 + 0.499689 = 0.999689.$$

In Table 3, the value of the probability of solvency of enterprises (*p*)*reliable enterprises* in the range of 90-100%; *satisfactory enterprises* in the range of 60-89%; enterprises represented in the percentage below 59 are evaluated as *enterprises in critical condition*.

According to the information obtained in the research, enterprises such as "Jomboy grain products" JSC, "Jizzakh grain products" JSC, "Shorchi grain products" JSC, "Asaka grain products" JSC, "Oqoltin grain products" JSC are reliable *enterprises with a high* rating; "Aqoltin Grain Products" JSC, "Bogot Grain Products" JSC, "Khorazm Grain Products" JSC, "Dostlik Grain Products" JSC are *moderately satisfactory enterprises*; Enterprises such as "Baghdod Cereal Products" JSC, "Khonka Cereal Products" JSC, "Quva Cereal Products" JSC, "Aqtosh Cereal Products" JSC

enterprises whose ratings are in doubt (in critical condition).

 Table 3: The result of the probability of ensuring the solvency of enterprises within the joint-stock company ''Uzdonproducts''

| Enterprise rating  | Company name                  | Probability of supply      |       |  |
|--------------------|-------------------------------|----------------------------|-------|--|
| Enter prise rating | Company name                  | $r (a \leq R \leq \infty)$ | %     |  |
| 1 place            | "Jomboy grain products" JSC   | 0,99 96                    | 99,96 |  |
| 2 seats            | "Jizzakh cereal products" JSC | 0,994 5                    | 99,45 |  |
| 3 seats            | "Shorchi grain products " JSC | 0,9478                     | 94,78 |  |
| 4 seats            | "Asaka grain products" JSC    | 0,916 2                    | 91,62 |  |
| 5 seats            | "Oqoltin cereal products" JSC | 0,901 5                    | 90,15 |  |
| 6 seats            | "Bogot cereal products" JSC   | 0,8264                     | 82,64 |  |
| 7 places           | "Khorazm cereal products" JSC | 0,7139                     | 71,39 |  |
| 8 seats            | "Dostlik grain products" JSC  | 0,6700                     | 67,00 |  |
| 9 places           | "Baghdad grain products" JSC  | 0,5871                     | 58,71 |  |
| 10 places          | "Khonka cereal products" JSC  | 0,5793                     | 57,93 |  |
| 11 places          | "Quva grain products" JSC     | 0,5590                     | 55,90 |  |
| 12 seats           | "Aktosh grain products" JSC   | 0,5398                     | 53,98 |  |

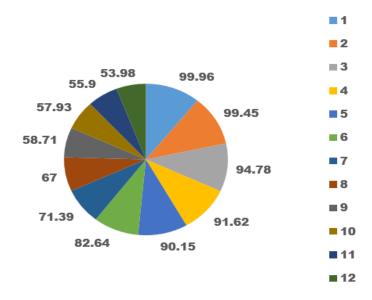
Therefore, this method serves to assess the probability of ensuring the solvency of grain processing enterprises and to make short-term forecasts.

The diagram below shows the probability of ensuring the solvency of enterprises within the joint-stock company "Uzdonproducts" using the information in table 3.





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# Picture 1: Diagram of the probability of ensuring the solvency of enterprises within the joint-stock company "Uzdonproducts", in percentage terms

The solvency rating of any company is based on the use of probability theory and mathematical statistics methods. The innovative conceptual model developed in our study serves as a method for calculating the solvency rating of enterprises. This method of probability theory and mathematical statistics helps users to not only the current state of the enterprise's activity, but also to ensure the solvency of enterprises and short-term forecasting, early detection of the emergence of economic threats and risks, assessment of their prevention and elimination, and to increase the efficiency of making quick management decisions are given.

### **5. CONCLUSION**

In the article, a concept was developed with the help of theoretical, methodological rules and methods of solvency management accounting of grain processing enterprises, in which optimal solutions for assessing the probability of ensuring solvency of enterprises, a conceptual model was developed that assesses the impact of random factors on the solvency of enterprises and makes short-term forecasts. The results of the research are related to the scenario of finding the probability of ensuring solvency in processing enterprises, making effective decisions, strengthening the financial stability and liquidity of enterprises, effective management of production, accelerating the turnover of working capital, reducing the cost of products, achieving the maximum level of profit, increasing the level of profitability, funds the effect of turnover on increasing production efficiency, reducing production costs, looking for internal reserves and internal provides an opportunity for optimal use of potential, early detection of economic threats and risks, their prevention and evaluation. He recognizes the increasing threats, takes time to avoid the decrease in solvency, maintains the image of safe enterprises, ensures the financial stability and liquidity of enterprises creates an opportunity.





### Footnotes

- 1) Guide to practical statistics / Pod editor. In E. Lloyd, U. Lederman, translated from English. / Pod ed. S.A. Ayvazyana and Yu.N. Turin. M.: Finance and statistics, 1990.
- 2) Guide to practical statistics / Pod editor. In E. Lloyd, U. Lederman, translated from English. / Pod ed. S.A. Ayvazyana and Yu.N. Turin. M.: Finance and statistics, 1990.

#### References

- Abdullayev A.@Abdullayev J. Improvement of scientific methodological approaches at the expense of complex production in grain processing plants // Seybold report (SCOPUS). ISSN 1533 – 9211. p. 415 – 428. DOI: 10.5281/zenodo.13986497
- Abdullayev A.@Abdullayev J. Improvement of cash flow accounting methodology in processing enterprises // Seybold report (SCOPUS). ISSN 1533 – 9211. p. 291 – 303. DOI: 10.5281/zenodo.14196541
- 3) Markin MV Disadvantages of forms of accounting reports for managing the solvency of the enterprise // Russian business. 2009. No. 7. P. 61 66.
- 4) Markin MV Flexible management of solvency in agricultural enterprises // Newsletter of Kazan State Agrarian University, 2009. No. 3(13). Pages 38-42.
- 5) Rudnenko NP Management and strategic accounting of solvency: theory and practice // Monograph. Rostov-on-Don RGSU, 2007. P. 229.
- 6) Trofimova Yu.S. Analytical capabilities to ensure the company's solvency. // Volga humanitarian journal. Penza: Volga Region House of Knowledge, 2001. Issue 2.http://www.ssea.runnet.ru/
- Trofimova Yu.S. The importance and analytical aspect of cash management in maintaining the company's current solvency // Volga Humanitarian Journal. - Penza: Volga Region House of Knowledge, 2003. - No. 1. http://www.ssea.runnet.ru/journal.html.

