Financial risks and their impact on the economic security of agricultural enterprises

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Abstract. The article considers the classification of financial risks in order to determine their impact on the level of economic security of an agricultural enterprise. For this purpose, the assessment of the indicators of liquidity and financial stability was carried out on the example of a specific economic entity operating in the agro-industrial complex industry. In addition, the factors of the external environment are considered, which include natural conditions, production innovations, market conditions that determine the economic security of the agricultural enterprise. The results of the risk assessment indicate that the agricultural enterprise is on the verge of a critical risk zone in terms of financial stability. Thus, a timely assessment of financial risks helps to prevent the occurrence of threats to the loss of sustainable development by an agricultural enterprise.

1. Introduction
In modern business conditions, financial risk management is one of the key aspects in the activities of economic entities. This is due to the fact that risk factors are very diverse and arise in various areas of financial and economic activity, and their timely identification, assessment and prevention or elimination helps the organization to neutralize the negative impact of the business environment, avoid the onset of crisis phenomena and thus serves as a protective element in the system of ensuring the economic security of an economic entity [1-4]. That is why theoretical and practical risk management in order to improve the performance and economic security of agricultural organizations is particularly relevant and attracts the attention of modern researchers.

In the scientific literature, the problems of assessing and managing financial risks are often studied in the context of ensuring the economic security of agricultural enterprises and have an independent theoretical and applied significance. This is evidenced by numerous scientific publications on this topic. In particular, it should be noted the works of V. F. Dunaev, T. A. Chernyak, S. V. Udakhina, K. Yu. Kalyuta, M. A. Kosukhina, L. V. Eder, etc.

The analysis of scientific publications shows that in Russian science and practice, many aspects of financial risk management are considered in a slightly different plane than in the works of foreign researchers. One of the most pronounced limitations for the formation of evidence-based risk management in Russian enterprises in general, and in agricultural organizations in particular, is the lack of methodological standards and an insufficient level of risk management culture [5-9]. The Russian authors focus on the relationship between financial risks and economic security of economic entities, but do not offer holistic methodological approaches for analyzing and assessing the degree of such interdependence. On this basis, solving the problems of reducing the impact of financial risks on the
economic activities of agricultural organizations requires a detailed study and further analysis. The need for further research of this problem confirms the relevance of the research topic and the need for its theoretical and practical development, which predetermined the purpose of the work [10-14].

2. Research methods
When studying the nature of risk, it is necessary to focus on the variety of risks that accompany the course of financial and economic activity and their heterogeneity in a number of ways – the sources of occurrence, the nature of the impact on the agricultural enterprise, the frequency of manifestation, and so on. The specific manifestations of risks depend, first of all, on the industry affiliation of the economic entity. The risk classification of agricultural agricultural enterprises includes six main sources of risk (figure 1).

| Production risk | • includes weather, insects, diseases, technology, and any other events that directly affect the quantity and quality of products |
| Price risk | • uncertainty in the product market, such as changes in prices for input and / or output of products |
| Financial risk | • the firm's ability to pay financial obligations |
| Institutional risk | • changes in government or legal policies and standards that affect agriculture |
| Technological risk | • occurs due to insufficient availability of equipment, plant protection products, mineral fertilizers, etc. |
| Personnel risk | • it is connected with the lack of highly qualified labor force in rural areas, the possibility of attracting and training young specialists |

Figure 1. Classification of agricultural enterprise risks by sources of occurrence.

The study of the nature and types of financial risks indicates that the risk situation in the industry markets is developing very dynamically and its nature for each business entity is largely determined by the characteristics of its financial and economic activities. On this basis, the point of view of N. Mironova on the expediency of a more in-depth study of the factors and causes of risk is consistent on the grounds that "they indicate the objective and subjective processes that lead to the occurrence of risk" [15]. In order to assess the financial risks, a full analysis of the financial condition in the agricultural enterprise should be carried out. The analysis of the financial condition helps you to assess the financial stability of the agricultural enterprise, which is the criterion for assessing business risk [5].

Table 1. Calculation of solvency coefficients in the LLC "Yemelyanovskoe".

| Indicators | At the end of the year | The regulatory value |
|------------|------------------------|---------------------|
| Total amount of current assets, thousand rubles | 94222 | 122723 | 143994 | 49772 |
The amount of cash, short-term financial investments and accounts receivable, thousand rubles

|                             | 2021 | 2022 | 2023 | 2024 |
|-----------------------------|------|------|------|------|
| The amount of cash and short-term financial investments, thousand rubles | 319  | 829  | 1357 | 1038 |
| Current liabilities, thousand rubles | 31967 | 26564 | 41132 | 9165 |
| Liquidity ratios:            |      |      |      |      |
| a) current                   | 2.95 | 4.62 | 3.50 | 2.0  |
| b) fast                      | 0.23 | 0.49 | 0.55 | 1.0  |
| n) absolute                  | 0.01 | 0.03 | 0.03 | 0.2  |
| Amount ratio of own working capital to the amount of short-term liabilities | 1.95 | 3.62 | 2.50 | 1.0  |

The liquidity ratios are calculated as the elements ratios of current assets and short-term liabilities, which are provided by the corresponding calculation algorithms. According to the table 1, the values of the agricultural enterprise's liquidity indicators for 2017-2019 have improved, but only the values of the current liquidity ratio correspond to the established standards. This is due to the discrepancy in the volume and structure of current assets in groups (A1) and (A2) to the amount of the corresponding liabilities of the agricultural enterprise [16-20].

It should be noted that the increase in the liquidity of the agricultural enterprise's assets is due to an increase in inventory balances and cash, as well as an increase in the volume of accounts receivable. In general, the level of current liquidity of the agricultural enterprise's assets exceeds the standard value, which indicates an excess of the agricultural enterprise's total liquidity. At the same time, there is an insufficient level of intermediate and absolute liquidity, which leads to violations of the stability of the financial condition.

**Table 2. Determination of the agricultural enterprise's financial stability indicators.**

| Name of the indicator                                                                 | At the beginning of the year | The regulatory value |
|---------------------------------------------------------------------------------------|------------------------------|----------------------|
| 1. Equity, thousand rubles                                                             | 2017: 338312; 2018: 177108; 2019: 197404 | -                    |
| 2. Long-term loans and borrowings, thousand rubles                                     | 2017: 31895; 2018: 26185; 2019: 18493 | -                    |
| 3. Short-term loans and borrowings, accounts payable, thousand rubles                   | 2017: 31967; 2018: 26564; 2019: 41132 | -                    |
| 4. Non-current assets, thousand rubles                                                 | 2017: 307952; 2018: 107134; 2019: 113035 | -                    |
| 5. Total amount of current assets, thousand rubles                                     | 2017: 94222; 2018: 122723; 2019: 143994 | -                    |
| 6. The amount of depreciation of fixed assets, intangible assets, thousand rubles       | 2017: 43337; 2018: 17031; 2019: 16419 | -                    |
| 7. Initial cost of fixed assets and intangible assets, thousand rubles                  | 2017: 298260; 2018: 117212; 2019: 113004 | -                    |
| 8. Balance sheet currency, thousand rubles                                             | 2017: 402174; 2018: 229857; 2019: 257029 | -                    |
| 9. Own working capital, thousand rubles                                               | 2017: 30360; 2018: 69974; 2019: 84369 | -                    |
| Coefficients of:                                                                       |                              |                      |
| a) ownership                                                                          | 2017: 0.84; 2018: 0.77; 2019: 0.77 | > 0.6                |
| b) financial dependence                                                               | 2017: 0.16; 2018: 0.23; 2019: 0.23 | x                    |
| c) borrowed funds                                                                     | 2017: 0.16; 2018: 0.23; 2019: 0.23 | < 0.4                |
| d) financing                                                                          | 2017: 0.19; 2018: 0.30; 2019: 0.30 | > 1.0                |
| e) financial stability                                                                 | 2017: 5.30; 2018: 3.36; 2019: 3.31 | < 0.75               |
| f) availability of own working capital                                                | 2017: 0.32; 2018: 0.57; 2019: 0.59 | > 0.1                |
| g) maneuverability                                                                    | 2017: 0.09; 2018: 0.40; 2019: 0.43 | 0.4                  |
| h) investment                                                                        | 2017: 1.10; 2018: 1.65; 2019: 1.75 | > 1.00               |
| i) accumulation of depreciation                                                       | 2017: 0.13; 2018: 0.10; 2019: 0.08 | x                    |
The analysis of financial coefficients of LLC “Yemelyanovskoye” showed that all coefficients, except for financing and financial stability, correspond to standard values. The ownership ratio has remained consistently high for three years. Thus, during the analysis period, the state of liquidity, solvency and financial stability of LLC "Yemelyanovskoye" can be assessed as satisfactory, but the level of financial stability indicates the presence of the financial crisis manifestation.

3. Results
Along with the factors of the external environment, the economic security of individual agricultural enterprises is determined by the risks of the internal environment. In this regard, an important characteristic of the activities for LLC "Yemelyanovskoye", which gives a general idea of the level of its sustainable growth of economic performance indicators, is the financial condition. This complex characteristic reflects the availability of financial resources in the agricultural enterprise, the rationality of their placement, the availability of its own working capital to carry out effective economic activities, and so on.

The high risk of financial and economic activities of LLC "Yemelyanovskoye" is due to the imbalance of assets and liabilities, the attraction of significant amounts of short-term liabilities. In the context of unprofitable operations in 2018, the company lost a significant part of the retained earnings of previous periods and is forced to replenish sources of financing at the expense of creditors. Attracting significant amounts of borrowed funds and unprofitable activities are sources of high financial risks of the agricultural enterprise and pose a threat to its economic security. Currently, the agricultural enterprise needs to implement measures to neutralize and reduce financial risks in order to increase economic security [21-25].

According to the results of the analysis, the most significant impact on the economic security of LLC "Yemelyanovskoye" has a natural and climatic risk factor, the next in terms of the influence degree is the factor of industrial innovations introduction, followed by risk factors associated with the influence of market conditions and priorities of state policy in the agro-industrial complex.

Table 3. Results of risk assessment in the LLC "Yemelyanovskoe".

| Type of risk                        | Calculation model                                      | Risk zone   |
|------------------------------------|-------------------------------------------------------|-------------|
| Loss of solvency                   | Absolute balance sheet liquidity indicators           | Acceptable  |
|                                    | Relative indicators of solvency                      |             |
| Loss of financial stability        | Absolute indicators of the capital structure          | Critical    |
|                                    | Relative indicators of the capital structure          |             |
| Comprehensive financial condition risk assessment | Relative indicators of solvency and capital structure | Acceptable  |

As a result of the calculations, it can be concluded that at the end of the analyzed period, the agricultural enterprise is on the verge of critical and acceptable risk zones, since the agricultural enterprise has a relatively high risk of financial stability loss.

The degree of destructive influence of risks on the activities of LLC "Yemelyanovskoye" is quite large, which means that the problem of improving the processes in the field of risk management remains relevant for the agricultural enterprise. LLC "Yemelyanovskoye" does not have a system for managing financial risks and ensuring economic security. LLC "Yemelyanovskoye" needs to implement a strategy of promotion on the market, which will ensure an increase in the level of economic security in the agricultural enterprise, as well as develop a system of tactical measures aimed at overcoming the financial crisis in which the agricultural enterprise found itself [26-29].
4. Conclusion
In general, in order to ensure a qualified and balanced approach to financial risk management, the management of an economic entity must have an objective understanding of the risks associated with its activities. That is why the assessment objectivity for the full range of financial risks in an economic entity helps you to determine the level of their manifestation and the ability to take them on yourself. In many cases, such a goal statement of financial risk management contributes to the formation of an effective risk management system that helps you to accurately identify and assess their occurrence. An important place in the financial risk management system belongs to the analysis of the risks of the business entity.

The conducted research helped to determine that the financial risks of an agricultural enterprise have a direct impact on ensuring the sustainable growth of economic indicators for its activities and, consequently, on its economic security. Therefore, any agricultural enterprise needs to assess its financial condition in a timely manner and identify the factors that affect its deterioration. Thus, the timely identification of financial risks and the implementation of measures to manage them on this basis will generally contribute to improving the efficiency of the agricultural enterprise.

References
[1] Glustenkov I V 2018 Economic security of the agricultural enterprise 2 77-81
[2] Ozerova M G and Sharopatova A V 2021 Investment support for the development of agriculture in the region IOP Conf. Ser.: Earth Environ. Sci. 677(2) 22082
[3] Zinina O V, Sharopatova A V and Olentsova J A 2021 Management of an agricultural organization based on building a quality management system IOP Conference Series: Earth and Environmental Science 677(2) 022029
[4] Ozerova M G, Bastron A V, Debrin A S, Mikheeva N B and Ermakova I N 2020 The use of light filters in the photovoltaic solar power station to improve economic efficiency IOP Conference Series: Earth and Environmental Science 421(3) 032016
[5] Shardan S K, Davletbayeva N B, Morozkina S S, Musostova D Sh and Sharopatova A V 2020 Features and principles of the innovative economy formation in the region in the context of economic sanctions AD ALTA: Journal of Interdisciplinary Research 10(2) 6-9
[6] Fastovich G G and Kapsargina S A 2021 Introduction of information technologies in the agricultural sector as one of the criteria for effective state policy in the field of agro-industrial complex of the Russian Federation IOP Conference Series: Earth and Environmental Science 677(3) 032089
[7] Ozerova M G, Sharopatova A V and Olentsova J A 2020 The development level and economic efficiency of vegetable production in the Krasnoyarsk region IOP Conference Series: Earth and Environmental Science 421(3) 032049
[8] Yanova M A, Sharopatova A V and Roslyakov Yu F 2020 Introduction of innovative technology for the production of textured products from grain raw materials IOP Conference Series: Earth and Environmental Science 548(2) 022104
[9] Ozerova M G, Filimonova N G and Ermakova I N 2021 Grain production analysis in the Krasnoyarsk Territory IOP Conference Series: Earth and Environmental Science 677(2) 022070
[10] Nezamova O A and Olentsova J A 2021 Problems and prospects of agro-industrial complex in the Krasnoyarsk region IOP Conference Series: Earth and Environmental Science 677(2) 022034
[11] Sharopatova A V, Pyzhikova N I and Olentsova J A 2020 The current situation of the poultry industry and the formation of a strategy for its sustainable development in the region IOP Conference Series: Earth and Environmental Science 421(2) 022061
[12] Yanova M A, Sharopatova A V, Roslyakov Yu F and Dzobelova V B 2020 Application efficiency of new raw materials in the production of flour confectionery products with increased nutritional value IOP Conference Series: Earth and Environmental Science 548(8) 082091
[13] Kovaleva I V, Filimonova N G, Ozerova M G and Strelzowa T V 2020 The estimate agricultural market in the conditions of strategic development IOP Conference Series: Earth and Environmental Science 548(2) 022067

[14] Kuptsov M I, Minaev V A, Yablochnikov S L, Dzobelova V B and Sharopatova A V 2020 Some Statistical Features of the Information Exchange in Social Networks Systems of Signal Synchronization, Generating and Processing in Telecommunications, SYNCHROINFO 2020 9166049

[15] Mironova N N 2012 Theory of industrial agricultural enterprise risks. Understanding. Skill. 4 57-61

[16] Yanova M A, Oleynikova E N, Sharopatova A V and Olentsova J A 2019 Increasing economic efficiency of flour production from grain of the main cereal crops by extrusion method IOP Conference Series: Earth and Environmental Science 315(2) 022024

[17] Ozerova M G, Pyzhikova N I and Filimonova N G 2020 Agricultural products sales in the Arctic zone of the Krasnoyarsk Territory IOP Conference Series: Earth and Environmental Science 421(3) 032058

[18] Dalisova N A, Sharopatova A V and Karaseva M V 2020 Value and role of the strategic management in the development of agricultural agricultural enterprises IOP Conference Series: Earth and Environmental Science 548(2) 022102

[19] Parshukov D V, Shaporova Z E and Koloskova Yu I 2020 A study of the effectiveness of state support for agriculture in the region (based on material from the Krasnoyarsk territory) IOP Conference Series: Earth and Environmental Science 548(2) 022092

[20] Nezamova O and Olentsova J 2021 The role of digital marketing in improving the efficiency of the product distribution system of agricultural enterprises in the Krasnoyarsk Region E3S Web of Conferences 247 01027

[21] Ozerova M G, Bastron A V, Debrin A S, Mikheeva N B and Ermakova I N 2020 The use of light filters in the photovoltaic solar power station to improve economic efficiency IOP Conference Series: Earth and Environmental Science 421(3) 032016

[22] Parshukov D V, Shaporova Z E, Pyzhikova N I and Filimonova N G 2020 Study of value chains for selected foods in the Siberian federal district IOP Conference Series: Earth and Environmental Science 421(3) 032034

[23] Filimonova N G, Ozerova M G, Ermakova I N and Miheeva N B 2019 Crowdfunding as the way of projects financing in agribusiness IOP Conference Series: Earth and Environmental Science 315(2) 022098

[24] Kuptsov M I, Minaev V A, Yablochnikov S L, Dzobelova V B and Sharopatova A V 2020 Some statistical features of the information exchange in social networks Systems of Signal Synchronization, Generating and Processing in Telecommunications, SYNCHROINFO 2020 9166049

[25] Chebokchineva N M and Kapsargina S A 2021 The role of agriculture in the economy of modern Khakassia IOP Conference Series: Earth and Environmental Science 677(2) 022046

[26] Sharopatova A 2020 Forming a development strategy of the information resources in an agricultural organization ACM International Conference Proceeding Series 3444487

[27] Dzobelova V B, Olisaeva A V, Sharopatova A V and Parshukov D V 2020 Economy of Russian regions in the context of the coronavirus epidemic IOP Conf. Ser.: Earth Environ. Sci. 548 22103

[28] Matskevich I V, Nezvorov V N, Kolomeitsev A V and Kapsargina S A 2021 Resource-saving technology of two-stage pressing in the production of rapeseed oil IOP Conference Series: Earth and Environmental Science 640(4) 042001

[29] Gurskikh P S, Yanova M A, Sharopatova A V and Roslyakov Yu F 2021 Economic efficiency of producing a complex powdered concentrate for the production of soft drinks IOP Conference Series: Earth and Environmental Science 677(3) 032076