

SIMULATION MODELING OF THE FINANCIAL RISK OF BANKRUPTCY OF AGRICULTURAL ENTERPRISES IN THE CONTEXT OF COVID-19

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Abstract

Severe restrictions on the operation of logistics chains for the supply of raw materials, equipment needed for the smooth and efficient operation of agricultural enterprises and difficulties in the sale of agricultural products caused by the COVID-19 pandemic threaten the economic stability of these entities and could lead to their bankruptcy. In this regard, it is important to systematically monitor the actual financial and economic results of agricultural enterprises, their forecasting, and taking into account the negative impact of environmental factors and the adaptation of production processes to new realities. At the same time, in the context of the frequent absence of the full amount of information necessary for making managerial decisions, this forecast should compensate for its insufficiency by imitating vectors of possible options for the functioning of agricultural enterprises. Given the above, the purpose of the study is to develop a simulation economic and mathematical model for assessing the financial risk of bankruptcy of agricultural enterprises.

In the course of the study, simulation modeling was used - to develop a model for assessing the financial risk of bankruptcy of agricultural enterprises and predicting the financial condition of business entities, taking into account the action of external environmental factors; abstract-logical method - for the implementation of theoretical generalizations to determine the algorithm for constructing a simulation economic and mathematical matrix for assessing the financial risk of bankruptcy of agricultural enterprises; and graphic method - for a visual representation of the architectonics of the process of economic and mathematical modeling of the probability of bankruptcy of agricultural enterprises.

In the article, an algorithm for calculating a simulation model adapted to the rapidly changing conditions of the environment of agricultural enterprises is developed. The proposed simulation model helps to obtain realistic results of assessing the financial risk of bankruptcy of agricultural enterprises due to its adaptive properties, which take into account the dynamics of future changes in financial performance of economic entities. In addition, the repeated implementation of simulation replications fully compensates for the lack of full information needed to make management decisions. In this regard, the study substantiates the advantages of using simulation as one of the most promising and accurate tools for constructing an average vector for forecasting the development of agricultural enterprises, which, in turn, will objectively assess the likelihood of their bankruptcy in the future.

The practical significance of this model is to enable managers to prevent in advance the onset of crises in agricultural enterprises in future periods of time and to quickly develop appropriate measures to respond to the projected results of this modeling.

Key words: *Bankruptcy, Risk, Financial stability, Imitation replications, Model.*