

# MANAGEMENT OF FINANCIAL RISKS OF ENTERPRISES AS A PREVENTION COMPONENT OF THEIR FINANCIAL INSTABILITY AND BANKRUPTCY FOR THE SUSTAINABLE DEVELOPMENT ACHIEVING

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**Abstract.** The development is impossible without ups and downs, as a result the stability is disrupted. It is hypothesized that development cannot occur continuously, and therefore it does not exclude the possibility of unstable states. The enterprise unsustainable development is characterized by its financial failure, which is identified with its bankruptcy. At the same time, bankruptcy and liquidation of enterprises in Ukraine is currently a fairly common phenomenon. The purpose of the article is to systematize the methods of financial risk management of enterprises as an ingredient prevention of their financial instability and bankruptcy for achieving sustainable development. A set of general scientific and special research methods were used to solve the set tasks, in particular: generalization and comparison - to establish similarities and differences between the results of research by other authors regarding their understanding of the essence of the categories "development", "sustainable development" and "risk"; grouping of indicators - to operate with information of the kinds and types of risks existing in the scientific literature and to operate with statistical data of the initiated bankruptcy procedures number of legal entities in Ukraine; mathematical - to develop a model for determining the maximum allowable value of lost cash flow of the enterprise, graphic - to visualize the presentation of information, etc. It is substantiated that the prevention of bankruptcy of enterprises is a tool for the sustainable development ensuring. An economic and legal tool is the plan of sustainable development of the enterprise that helps to solve the problem. Its component should be an economic analysis of the company's financial condition. At the same time, any enterprise carries risks related with its business activities. Scientists mostly recommend to use the minimum cost criterion for measures to reduce risk to its acceptable level as the main criterion for risk management. However, the question arises: what risk is considered to be acceptable? For the determination it is advisable to model the movement of the company's cash flows and to identify the limits that lead to unacceptable results for the company, For example, that can lead to the deterioration of the company's financial condition as well as to its bankruptcy and even liquidation. It is taken into account that the economic activity of the enterprise can take place both under normal operating conditions and burdened by certain extraordinary events. The method of determining the maximum permissible risks for enterprises of two groups is substantiated: for the ones, which violation of the bankruptcy procedure in general is possible; for the ones, which violation of the bankruptcy procedure is unlikely. The events that determine the risks during the export of products are considered.

**Keywords:** development, changes, sustainable development, unsustainable development, financial instability, bankruptcy, liquidation, risk, maximum permissible risk, risk management.

**JEL Classification:** C 51, D 81, G 33, O 10

**Formulas:** 7; **fig.:** 0; **tabl.:** 0; **bibl.:** 36

**Introduction.** A huge number of countries of the world, including Ukraine, declared the sustainable development of states as the main direction of the movement vector of world society as a result of the adoption of such international legal acts as the Agenda for the XXI century (Rio de Janeiro, 1992) [11], UN Millennium Declaration 2000 [6], Johannesburg Declaration on Sustainable Development 2002 [10], etc. The priority is the development that meets the needs of the present time without jeopardizing the ability of future generations to meet their own needs.

The concept consists in ensuring the development of modern civilization on the basis of a harmonious combination of the realization of social, economic and ecological goals, as a result of which the satisfaction of not only material, but also spiritual, social, ecological, cultural needs of both modern people and future generations is ensured. The sustainable development at the macroeconomic level contributes to the ecological growth of the country, preserves and restores the environment, fairly distributes property and non-property goods and on this basis overcomes poverty. Taking into account the close interrelationship of macro- and microeconomics, it is possible to speak about the sustainable development of both the economy in general and an individual enterprise. Moreover, it is difficult to talk about achieving the goals of sustainable development at the country level without the sustainable development of business entities.

The signing of the Association Agreement between Ukraine and the European Union, between the European Atomic Energy Community and their member states has strengthened the urgency of introducing sustainable economic development, because ensuring such a vector of development is one of the prerequisites for our country to acquire the status of a full member of the EU.

However, the rapid spread of the infectious disease COVID-19 had a negative impact on the world economy and endangered the level of its sustainable development. The one of the indicators of the world economy state, the Dow Jones index, experienced a record drop. In Ukraine, the impact of the pandemic exacerbated crisis phenomena due to the layering on top of the unstable economic and political situation in the country. Nevertheless, the most terrible and most difficult challenge was Russia's armed aggression against Ukraine, which began on February 24, 2022. This entire chain of outlined events that have taken place recently led to a rapid increase in the number of unprofitable enterprises. In addition, as a result of Russian armed aggression, enterprises lose property due to its destruction, demolition and damage, which also leads to unprofitability of enterprises, their bankruptcy and forced sale of assets and business. In turn, the rapidly growing share of bankrupt and liquidated enterprises became one of the factors of increasing unemployment in Ukraine. Therefore, it can be stated that as a result of the martial law declared in Ukraine, the possibility of implementing the Decree of the President of Ukraine dated September 30, 2019 No. 722/2019 "On the Sustainable Development Goals of Ukraine for the period until 2030" is under threat, which was aimed at ensuring national interests of Ukraine regarding the sustainable development of the economy, civil society and the State.

The application of methods of economic forecasting, regarding the further application of appropriate economic and legal measures, aimed at financial recovery, makes it possible to identify the enterprise unstable state. That enables on the one hand, to solve the problem in time, and on the other hand, to determine the expediency of the debtor rehabilitation with his economic activity restoring in the case of a creditor filing a claim for bankruptcy. The financial rehabilitation of the debtor ensures the stability of not only this enterprise development, but ultimately of a certain industry in general.

As the main criterion for risk management, most scientists recommend to apply the minimum cost criterion for measures to reduce risk to its acceptable level. However, the question arises: what risk is considered to be acceptable? It is advisable to model the movement of the company's cash flows to determine the risk, as well as to define the limits that lead to unacceptable results for the company. For example, it can lead to the deterioration of the company's financial condition, which can result its bankruptcy and liquidation as well.

The above outlines the relevance of this study from both theoretical and practical considerations.

**Literature review.** Recently, a huge number of scientific works have been devoted to the study of the society sustainable development problems, outlining it from the point of view of legal and economic aspects. But the works of researchers, both lawyers and economists, do not reveal the issue of sustainable development of enterprises, in particular by preventing their bankruptcy.

In their works, O. Belyanovich, A. Butyrskiy, I. Butyrskaya, V. Jun, S. Zhukov, Yu. Kabenok, V. Pogrebnyak, B. Polyakov, and O. Sinegubov revealed the issue of directions for improving the legal regulation of the bankruptcy procedure. Without diminishing the importance of the preliminary studies, it should be noted that neither at the works of economists nor at the works of lawyers included the research about the issue of the enterprises bankruptcy probability preventing, as one of the most important conditions capable for influencing the provision of their sustainable development.

There is a significant contribution to the development of modern theory and practice of risk analysis and assessment, as well as its management, consideration when making management decisions and the determination of possible risk consequences in the works written by such domestic and foreign scientists as I. Blank, Z. Bodi, R. Braley, Y. Brigham, J. C. Van Horn, D. Wachowicz, W. Witlinsky, L. Gapeski, R. Daft, R. Kaplan, A. Kane, B. Coyle, S. Myers, F. H. Knight, D Norton, V. Nusinov, A. J. Marcus, V. Savchuk, J. G. Siegel, T. Rice, J. K. Shim, and others. However, the issue of identification, classification, assessment and management of risks is still the subject of close attention and discussions among scientists, which causes a number of approaches to their interpretation and measurement.

**Aims.** It is the determination of the factors that lead to the bankruptcy of the enterprise, as well as economic and legal means, appropriate to prevent the development of financial insolvency of the enterprise and the abuse of the right to file

a lawsuit to declare the enterprise bankrupt and the developing of a methodical approach that will allow determining the maximum permissible risks for enterprises of two groups:

1) for the ones, when the violation of the bankruptcy procedure is generally possible;

2) for the ones, when the violation of the bankruptcy procedure is unlikely.

In addition, the events that determine the risks during the export of products are considered.

The purpose of the article is to systematize the methods of financial risk management of enterprises as an ingredient prevention of their financial instability and bankruptcy for achieving sustainable development.

**Methodology.** A set of general scientific and special research methods were used to solve the set tasks, in particular: *generalization and comparison* - to establish similarities and differences between the results of research by other authors regarding their understanding of the essence of the categories "development", "sustainable development" and "risk"; *grouping of indicators* - to operate with information of the kinds and types of risks existing in the scientific literature and to operate with statistical data of the initiated bankruptcy procedures number of legal entities in Ukraine; *mathematical* - to develop a model for determining the maximum allowable value of lost cash flow of the enterprise, *graphic* - to visualize the presentation of information, etc.

**Results.** In order to achieve the goals of the research, it is necessary to focus more on the understanding of the essence of the category "sustainable development of the enterprise".

It is worth of attention the opinion of V. Nepiyvoda [15], who studied the philological interpretation of this word, stresses that these words are derived two synonyms strings, namely:

1) the feature of the first row (sustainable – steady – stable) is constancy;

2) the term "development" is a process resulting in a change in the quality of something. Similarly, the word "process" means a successive change of states or phenomena.

Therefore, his opinion is correct that the phrase "sustainable development" is an oxymoron (that is a stylistic phrase consisting of an emphasized combination of categories that are opposite in content, which logically exclude each other, but together give a new idea).

According to L. Kvyatkovska, the sustainable development of the enterprise in the current period should be considered as its ability to carry out economic activity at each individual moment of time in conditions of the external environment effects uncertainty, which disrupt the normal functioning and development of the enterprise [13].

According to D. Prozorov, the sustainable development of an enterprise is a purposeful and continuous development aimed at creating long-term value by balancing financial and non-financial goals, effective use of available resources (capital), implementation of the concept of corporate social responsibility and the

use of opportunities and management of risks that arise as a result of economic, social and ecological development [25].

N.Vasyutkina considers the sustainable development of an enterprise as the balancing of the enterprise development process based on the acquired approaches and technologies, taking into account the constantly changing external and internal conditions, by increasing and regulating its potential. That provides an opportunity to maintain the stability of the operation of all subsystems [32].

Mainly, the researchers share the opinion that the sustainable development of an enterprise is determined by a set of possible changes in the economic, ecological and social subsystems caused by the influence of various factors that lead to the transition of the enterprise from one relatively stable state to another [7, 29; 34].

Therefore, the sustainable development of the enterprise is characterized by the stable, balanced functioning of its three subsystems - economic, social, and environmental. It can be noticed that their material basis is the presence of a stable cash flow that is able to meet the development requirements of the specified three components of the enterprise sustainable development. Indeed, the implementation of natural resources economical use, measures to raise social standards for company employees, development of one's own economic activity – are the objects that require the investment of funds, the lack of which leads to a decrease in standards for certain components of sustainable development. Therefore, financial insolvency is the evidence of the enterprise unsustainable development. First of all, this requires careful monitoring of such processes by the enterprise top managers as well as the prevention of negative phenomena by the use of appropriate economic and legal means.

Also, the factors of sustainable development of the enterprise, proposed in the economic literature, should be grouped into the following three blocks:

- macro environment - shows the dependence of the enterprise sustainable development on economic, scientific and technical, political, legal, international, environmental and infrastructural factors;

- meso-environment - reflects the state of the enterprise's field of activity in general, and also provides an opportunity to assess the specifics of the field development state influence on the sustainable development of a separate enterprise;

- microenvironment - operates out of the middle of the enterprise and, unlike the previous ones, it can be managed, and if necessary, managerial decisions can be made for correction [12].

One can partially agree with the above thesis. Indeed, it is impossible for the management of the enterprise to directly manage the factors of the macro environment and meso environment, but due to forecasting and risk management, the enterprise management can timely monitor the negative trends of the first two factors that affect the sustainable development of the enterprise and significantly correct the influence at the microeconomic level.

At the same time, the question is actual: "what period of time will the sustainable development of the enterprise last?". If the time range of the enterprise sustainable development is exhausted, then its development will be unstable. That is, the development involves the possibility of unstable states. The unstable development of the enterprise is mostly characterized by its financial instability, which increases the probability of negative consequences in the form of bankruptcy.

When economists define the concept of bankruptcy, the main emphasis is placed on the lack of assets and the financial inability of the debtor to satisfy the demands of creditors and fulfill obligations to the budget.

Thus, I. Blank points out that bankruptcy is a judicially established financial insolvency of an enterprise, i.e. its inability to meet the demands of creditors and fulfill its obligations to the budget within the prescribed period [3].

O. Tereshchenko considers that bankruptcy is connected with the insufficiency of assets in liquid form, that is the inability of a legal entity to satisfy the demands made to it by creditors and fulfill its obligations to the budget within the period established for this purpose [30].

The disadvantage of these definitions is that they do not fully take into account the provisions of the Code of Ukraine on Bankruptcy Procedures (hereinafter the Bankruptcy Code).

First, the lawmaker operates a single term – the creditor in opposition to the debtor. The latter include a legal entity or an individual, as well as a supervisory body authorized to take measures to ensure the repayment of tax debt and arrears from the payment of a single contribution to mandatory state social insurance, and other state bodies that have requirements regarding monetary obligations to the debtor (Article 1 of the Labor Code). Therefore, it does not make sense to single out obligations to the budget in the general definition.

Secondly, the legislator does not deal with any non-fulfillment of the debtor's monetary obligations to the creditor, but with persistent financial insolvency. The basis for such a conclusion is the provisions of Art.1 of the Code of Criminal Procedure of Ukraine that bankruptcy is the inability of the debtor, recognized by the commercial court, to restore his solvency through the rehabilitation and restructuring procedure and to repay the monetary claims of creditors established in accordance with the procedure specified by the Code of Criminal Procedure, other than through the application of the liquidation procedure, as well as the provisions of Part 6 of Art. 39 of the Code of Civil Procedure, according to which the commercial court refuses to open proceedings in the case when the demands of the creditor (creditors) are satisfied by the debtor in full size before the preparatory court session.

Thirdly, according to the provisions of Part 6 of Art. 39 of the Code of Civil Procedure, the creditor's claims must indicate the absence of a dispute about the right, which is a subject to a decision in the procedure of a lawsuit, that is, the creditor's claims must be undisputed.

Therefore, financial insolvency in the bankruptcy procedure is associated with the persistent inability to satisfy the creditor's undisputed monetary claim. Therefore, it is possible to identify bankruptcy with the financial insolvency of the enterprise, which cannot be eliminated in the course of court proceedings by the application of rehabilitation and restructuring, that is, with the unstable development of the enterprise for a certain, sufficiently long time.

On the one hand, such an unstable state of the enterprise leads to a decrease in the sustainable development of higher-level systems, which are - the industry as well as the economy of the country, because the debts of the bankrupt enterprise are canceled, and as a result, creditors may be deprived of a significant part of the funds due to them. As a result, the state will not receive taxes, workers will be deprived of their jobs. That is all reduces the sustainable development of the country in general.

On the other hand, the institution of bankruptcy is aimed at ensuring the discipline of settlements between economic entities and the stability of economic turnover. It is a means of responsibility "for the inefficient organization of the work of enterprises and allows to create conditions for the capital transferring from inefficient, unprofitable industries to profitable areas of economic activity" [12].

In view of the above, it is difficult to disagree with N. Aseeva, who noted that the purpose of applying the insolvency procedure is to find a balance between the interests of the creditor, the debtor, society and the state by applying various procedures provided by law to the debtor [2].

The significant factor is incorrect decisions of the enterprise management that leads to the emergence of financial insolvency and do not ensure the sustainable development of the enterprise. The aspirations of the top management of any enterprise are mostly reduced to the following: that is to achieve the maximum development of the enterprise as well as to ensure its longest functioning. At the same time, under the influence of time, the concept of "conservation through development" is to replace the previously existing management priority "first conservation, then development".

According to O. Raevneva, the development is a unique process of transformations of an open system in space and time, characterized by a permanent change in the global goals of its existence through the formation of a new dissipative structure and its transformation into a new attractor of functioning [26].

We agree with the statement of V. Vasylenko regarding the fact that the development is not a one-time transformation aiming at the achieving the best (and therefore primordial) state of the system, but a process that does not stop in time, the flow of which does not always occur constantly and uninterruptedly. Mostly, it goes in leaps and bounds, overcoming the crises different in depth and coverage [31].

In the work [1] the development is characterized as a process based on the results of scientific and technical achievements and contributes to the development of productive forces and the satisfaction of society's needs for high-quality goods. The authors of the work [1] emphasize that the development is associated with an increase in the degree of efficiency, improvement of business processes or their management,

as a result of which a quantitative or qualitative useful result increase is achieved compared to the previous level. Therefore, according to researchers [1], the development is accompanied by exclusively positive changes.

One can only partially agree with this opinion, because management activity at the enterprise consists in correctly assessing risks and preventing them, predicting in a certain way the processes of development of the political and economic situation not only in the domestic market, but in the conditions of globalization and in the foreign market, monitoring development of science and technology, as well as prospective legislation. This process is quite complex and not always successful, as a result of which the negative trends arise in the enterprise.

The category "risk" is the subject of great controversy among scientists, surrounded by attempts to define it and measure it. Therefore, the concept of risk is multifaceted and is used in various fields of science: sociology, political science, economics, law, international sciences, etc.

In practice, top managers often face the need to determine whether a particular project should be accepted or rejected. For this, it is necessary to assess possible consequences for the enterprise. Of course, the risk factor must be taken into account at the decision-making process. It is worth noting that a risk-related decision is made on the basis of a sufficient amount of information, aimed at the specific goal achieving, but the future results of various choices may change.

T. Rice and B. Koili rightly note that risk is associated with the uncertainty of the future situation and occurs when actual events differ from the expected ones [27].

Decisions are made under conditions of uncertainty, when it is impossible to estimate the probability of potential outcomes, because the necessary factors are complex and new, and it is impossible to obtain sufficiently relevant information about them.

Uncertainty is generated by the unpredictability of the final result, which can either coincide with the expected one, or occur to be better or worse. In the conditions of uncertainty, the final result can only be predicted approximately by assuming the one of the potentially possible values. As a rule, the uncertainty is caused by the subjective perception of real phenomena.

In the contrast to the uncertainty concept, the concept of risk has a practical application, and therefore its content needs an objective definition. Therefore, a transition is needed from the subjectively perceived uncertainty and randomness to an objective concept of risk. It is the only way to make such a transition is to estimate uncertainty (randomness) using quantitative methods, giving it real numerical values. It follows that only such a risk can only be recognized by the quantified uncertainty.

It is possible to give the most accurate quantitative assessment of uncertain values by calculating the probability of their occurrence. This probability has the characteristic feature that simultaneously takes into account two necessary components of the general assessment of complementary randomness:

- the frequency of occurrence of the event in relation to place and time;
- the size of the loss, that is, the absolute value of the negative deviation of the actual result from the expected one.

Therefore, the risk indicator by its meaning is not only the probability of an uncertain (random) event, but is also the probability of a negative result.

Uncertainty is the lack of sufficient information about possible events. It determines the risk, that is, the possibility of deviation of the actual results from the expected ones. The greater the uncertainty, the greater the risk when making a decision.

The level of uncertainty is characterized by a lack or complete absence of information about processes, phenomena, and the impact of individual factors on the company's activities. According to the approach applied by specialists of the McKinsey consulting firm, there are four levels of uncertainty:

- level 1 (fairly clear future) – the possibility of predicting only one forecast of the future, which is accurate enough to develop a strategy;

- level 2 (alternative options for the future) - the future is predicted in the form of one of several alternative options for the development of events, or alternative scenarios;

- level 3 (a wide range of future options) – a range of potential opportunities is predicted, when limited by time;

- level 4 (complete uncertainty) - forecasting is impossible.

The higher the level of uncertainty, the lower the quality of management decisions and the effectiveness of actions. Therefore, it is necessary to minimize (ideally, to eliminate) the uncertainty in order to improve the quality of managerial influence by structuring information about the situation inside and around the enterprise, i.e., to separate defined and uncertain parameters, and to choose methods of increasing the certainty of the latter, etc. The reduction of uncertainty contributes to streamlining the activities of company managers and enables them to develop solutions for adapting the organization and its individual subsystems to the situation changes.

According to the results of the literary sources review regarding the essence of the "risk" category, it was concluded that scientists mainly identify risk with the danger or uncertainty of the future situation, an unfavorable event or result, expenditures or losses of the enterprise. In addition, the terms "risk" and "uncertainty" are improperly equated by scientists very often.

We share the opinion of those researchers who believe that risk - it is not always bad. At the same time, big bets mean not only big successes, but also big losses.

The essence of the risk, the variety of its manifestations and characteristics are reflected in the classifications. Today, researchers offer a large number of risk classifications based on their various features, such as: the field of occurrence, the nature of the origin, dependance on the reason for the occurrence of risks, on the possible result, etc. At the same time, risk classification systems include groups, categories, types, subtypes, and kinds of risks. In general, despite the variety of existing risk classifications, they are all based on two principles:

1. Subject classification of risks, which contains a large list of risk types and provides a basis for characterizing their possible consequences.

2. Division of risks into groups for the purposes of their management.

So, for example, V. Savchuk classifies risk into operational, financial, investment, market and political [28].

The authors of the works [5; 35] distinguish the following types of risk depending on the possible result:

1) dynamic – the risk of unforeseen changes in the value of fixed capital as a result of management decisions or unforeseen circumstances (that can lead to both losses and profits);

2) static (or liquidity) – the risk of real assets loss due to damage to property, as well as loss of income due to the incapacity of the enterprise (that leads only to losses).

The authors of the work [35] classify risks according to certain characteristics, distinguishing subtypes of risks:

- depending on the main cause of risks – natural, environmental, political, transport, commercial;

- by structural feature - property, production, trade, financial;

- risks related to the purchasing power of money - inflationary, deflationary, currency and liquidity risks;

investment risks – risk of lost profits, risk of lost profitability, risks of direct financial losses.

We share the opinion of the authors of the work [35] regarding the fact that other risks are derived from their main types and are the kinds of risk, and each type of risk corresponds to its own system of techniques and ways of managing it.

Within this study, it is appropriate to focus on the definition of the financial risk of the enterprise.

V. Savchuk [28] rightly notes that financial risk characterizes the possibility of financial losses associated with the failure to achieve the set goal or the ambiguity of the predicted result.

The authors of the work [19] note that financial risk is the probability of unplanned changes in the composition and structure of the company's financial resources. The approach to the definition of risks simplifies their identification and is a prerequisite for the application of effective management mechanisms.

It should be noted that today there is no unity in the views of scientists regarding the types of financial risk. The most widely used are the following approaches to its classification:

– interest rate, credit, currency, investment and business risk [27];

– business, market, interest, liquidity, non-repayment of debt (non-payment), purchasing power [35];

– risks associated with the purchasing power of money and risks associated with capital investment (investment risks) [17].

V. Nusinov [17] emphasizes that the purpose of qualitative analysis is to establish potential areas of risk and identify all possible risks, as well as the purpose of quantitative analysis is the numerical determination of risks. Therefore, the risk tolerance degree determining becomes important.

Sharing the view of R.Dafta we mean the probability of a negative impact of future events on the effectiveness of the made choice under the concept of "degree of risk".

We also consider that risk is an element that arises when making any decision and which cannot be neglected, because it determines the choice of a certain behavior or action.

Therefore, the development process is accompanied by gradual quantitative and qualitative changes, which can be both positive and negative under the influence of certain factors, so development can be managed.

It overcomes crisis phenomena under the condition of the enterprise proper management, and management errors lead to the occurrence of negative phenomena up to the occurrence of insolvency.

The economic and legal means that ensures the prevention of insolvency is the planning of the activity and development of the enterprise on the basis of sustainable development. The one of the important elements of this planning is the assessment of the negative indicators of the enterprise's development, which allow early detection of negative trends at the initial stage and the use of appropriate response measures. Risk occurs only in relation to future events and is associated with forecasting and planning, as well as with management decision-making. This determines the need to take into account the risk, manage it and determine its consequences. For this, it is necessary to use the toolkit that economic science can offer, in particular, the one proposed below by the authors of this study.

According to the results of the literary sources review accomplished by the author of the work [17], it was concluded that according to the the risk consequences scale, scientists mostly distinguish the following types of risk:

1) acceptable risk – is the threat of activities profit loss under accepted conditions;

2) critical risk – is associated not only with profit loss, but also with failure to receive the proposed revenue, when costs have to be reimbursed at one's own expense;

3) catastrophic risk – it leads to loss of investments, company property or even to its bankruptcy.

We consider that such an approach is also appropriate for diagnosing the degree of risk admissibility. But at the same time, in our opinion, the names of the categories "critical risk" and "catastrophic risk" need to be clarified, because these concepts are quite close in their lexical meaning. As it seems, it is more correct to replace the name of the category "critical risk" with "marginally acceptable risk", and "catastrophic risk" is to be replaced with "extraordinary".

Thus, when evaluating the management made decisions, we consider it expedient to quantitatively measure their risk and identify it as acceptable, marginally acceptable and extraordinary.

We share the opinion of the authors of the work [27] regarding the fact that risks arise during the movement of financial flows and are caused by the action of certain exogenous (systematic risk) and endogenous factors (unsystematic risk).

An exogenous factor of risk management is its insurance, and endogenous factors include risk avoidance, limiting, diversification, hedging, creation of reserves, obtaining additional information, etc. In the scientific research, a lot of attention is paid to the illumination of various aspects of endogenous financial risk management mechanisms. However, in our opinion, methodical aspects of risk limitation need improvement due to the lack of unity among scientists regarding their normalization, limit values and calculation methods. Today, the list of such financial standards and their limit values is established by each enterprise independently.

The author of the work [17] characterizes the limit as a quantitative limitation that is imposed on certain characteristics of operations or indicators of enterprise activity.

Indeed, when using limiting, it is possible to establish a system of restrictions for those financial risks that go beyond acceptable limits. This will contribute to the reduction of the degree of risk, i.e. establishing the limit of its level according to the main indicators of the enterprise's activity.

Therefore, limiting financial transactions must be carried out in the zone of maximum permissible and extraordinary risk by establishing appropriate internal standards at the enterprise for key indicators of the enterprise's activity.

It should be noted that the economic activity of the enterprise can take place both under normal operating conditions (that is, without any extraordinary or extraordinary events), and burdened by certain extraordinary events.

For example, if the money from the debtors was not received in full or late to repay the debt owed to the company, then, as a result, the creditor will not receive them in a timely manner and may file a petition regarding the bankruptcy proceedings of the company. For example, if the company is in the process of restructuring, in this case, the lack of funds can lead to the failure to implement the company's restructuring plan and, ultimately, to its liquidation. At the same time, it is advisable to justify the maximum permissible risks for each case separately.

Let's consider the justification of the maximum permissible risks in the first case. To do this, we will use the division of all enterprises into two groups, as suggested in the work [18]:

1. Enterprises for which violation of the bankruptcy procedure in general is possible.

2. Enterprises for which violation of the bankruptcy procedure is unlikely (for example, enterprises of raw materials industries - mining and ore-dressing combines, metallurgical plants, iron ore enterprises, which are the monopolists at the specialized markets in their exclusive majority).

Let's consider the justification of the maximum permissible risks for enterprises of the first group.

Depending on the company's financing policy (aggressive, conservative or moderate), an unacceptable event for the company is selected. For example, it is the

achieving a medium or high probability of bankruptcy of the enterprise, as well as the forced liquidation of the enterprise as a result of its bankruptcy.

Let's consider the events that determine the risks during the export of products for the enterprises of the first group.

Nowadays, comprehensive indicators and separate financial coefficients reduced to an integral form have become widely used in the diagnosis of assessing the probability of enterprises bankruptcy. Among the latter, the most famous foreign methods are the two-factor and five-factor models of E. Altman, the model of R. Lees, the evaluation based on the indicators of U. Beaver, the predictive model of Tuffler, the Fulmer model, and the Springate model. Ukrainian researchers also dealt with the development of similar models, namely: I. Blank, O. Zaitseva, A. Kovalev, G. Savytska, R. Saifullin, O. Tereshchenko, A. Sheremet, M. Ishchenko, V. Nusinov and others.

Let's consider the method of calculating the probability of bankruptcy of enterprises ("Z") based on the best-known model of E. Altman:

$$Z=1,2\times X_1+1,4\times X_2+3,3\times X_3+0,6\times X_4+X_5 \quad (1)$$

where "Z" is an estimate of the enterprise bankruptcy probability, determined according to the model of E. Altman.

The coefficients applied in E. Altman's model are calculated as follows:

$$X_1 = \frac{\text{current assets}}{\text{total assets}} ; \quad (2)$$

$$X_2 = \frac{\text{retained earnings}}{\text{total assets}} ; \quad (3)$$

$$X_3 = \frac{\text{profit from the operation}}{\text{total assets}} ; \quad (4)$$

$$X_4 = \frac{\text{market value of shares}}{\text{total amount of liabilities}} ; \quad (5)$$

$$X_5 = \frac{\text{sales revenue}}{\text{total assets}} . \quad (6)$$

As is known, the probability of the company bankruptcy is estimated according to E. Altman's model on the basis of the following scale:

$Z < 1.8$  - a very high probability of bankruptcy of the enterprise;

$1.8 \leq Z < 2.7$  – high probability of bankruptcy of the enterprise;

$2.7 \leq Z < 2.9$  – the average probability of bankruptcy of the enterprise;

$Z \geq 2.9$  – low probability of bankruptcy of the enterprise.

So, a possible risk-determining event boils down to the following:

- non-receipt, incomplete receipt and (or) untimely receipt of revenue for sold goods in foreign currency;
- decrease in the currency rate during the execution of currency transactions;
- non-receipt, incomplete receipt and/or untimely receipt of the value added tax (VAT) refund.

That is, as a result, the company will not receive a certain amount of cash flow.

At the same time, if we consider the "delay" of payments, then by discounting, this case is also reduced to non-compliance with the cash flow.

Let's assume that all the indicators used in the enterprise bankruptcy probability assessing will have planned values as a result of obtaining cash flow according to E. Altman's model (1).

If the cash flow is lost ( $\Delta D_{cf}$ ), an increase of this value in the amount of payables compared to its planned value is accepted, which compensates the lost cash flow.

We will use the method proposed by O. Nusinova [21] to set the desired value of the net financial result of the company's activity (or profit from operational activity, revenue from the sale of goods) to the cash flow of the company.

Let's denote the ratio of the increase of profit and revenue to the increase of cash flow with the previously mentioned indicators  $K_{fr}$ ,  $K_{op}$  and  $K_r$  respectively.

In addition, it is advisable to equate the value of  $Z$  with the limit value set by the economists of the enterprise, based on the equation for determining the limit value of the value  $\Delta D_{cf}$  - the maximum allowable value of the lost cash flow as a result of the failure to receive revenue in foreign currency and (or) the amount of the tax credit, and it is "delay" at the time of their receipt, fluctuations in the exchange rate (its decrease), which the company can "afford", the loss of which determines the maximum permissible risk.

Having performed the appropriate mathematical transformations with some assumptions, E. Altman's model (1) can be presented as follows:

$$\Delta D_{cf} = 1,2 \times \frac{A_{ca} - \Delta D_{cf}}{A_{\Sigma} - \Delta D_{cf}} + 1,4 \times \frac{RE - \Delta D_{cf} \times K_{fr}}{A_{\Sigma} - \Delta D_{cf}} + 3,3 \times \frac{OP - \Delta D_{cf} \times K_{op}}{A_{\Sigma} - \Delta D_{cf}} + 0,6 \times \frac{A_{\Sigma} - \Delta D_{cf}}{CL + \Delta D_{cf}} + \frac{NI - \Delta D_{cf} \times K_r}{A_{\Sigma} - \Delta D_{cf}} \quad (7)$$

where  $\Delta D_{cf}$  – the maximum allowable value of lost cash flow;  $A_{ca}$  – current assets of the enterprise, UAH;  $A_{\Sigma}$  – total assets of the enterprise, UAH;  $CL$  – current liabilities of the enterprise, UAH;  $RE$  – retained earnings of the enterprise, UAH;  $OP$  – profit of the company's operating activities, UAH;  $NI$  – net income (revenue) from the sale of goods, UAH;  $K_{fr}$  – coefficient characterizing the ratio of the financial result of the company's activity to the value of cash flow increase, UAH;  $K_{op}$  – coefficient characterizing the ratio of profit from the company's operating activities to the value of cash flow increase, UAH;  $K_r$  – the coefficient characterizing the ratio of net income (revenue) from the sale of goods to the value of cash flow increase, UAH.

If the enterprise is already in a state of bankruptcy, it is advisable to determine the probability of its liquidation. L. Burkova developed the methodical approaches to its assessment, which are detailed in works [4; 16].

Let's consider the second group of enterprises for which bankruptcy is generally unlikely.

In this case, other approaches should be developed taking into account the specifics of financial management of such enterprises. For example, the maximum amount of liabilities should not exceed the value of the EBITDA indicator, as emphasized by M. Ishchenko for mining and ore-dressing combines [9].

Proceeding from this, the marginal non-compliance with the amount of cash flow for enterprises of the second group can be determined from the equation:

$$L_{\Sigma pl} + \Delta D_{cf} = L \times (EBITDA - \Delta D_{cf} \times K_{EBITDA}) \quad (8)$$

where  $L_{\Sigma pl}$  – the total value of the company's planned liabilities, UAH;  $EBITDA$  (earnings before interest, tax and depreciation) – earnings before interest, taxes and depreciation;  $L$  – the ratio of the maximum permissible amount of liabilities to the indicator  $EBITDA$ ;  $K_{EBITDA}$  – coefficient characterizing the ratio of the amount of cash flow to the value  $EBITDA$ .

**Discussion.** Any enterprise carries risks related with its business activities, since risk is an inherent characteristic of a market economy, which is of particular importance in a dynamic and unstable environment. Foreign economic risks are higher than the risks of an enterprise in the domestic market, as the influence of environmental factors is added, so their timely detection and effective management is a priority factor during the implementation of foreign economic activities.

The difficulty of identifying risks in the foreign market consists in the instability of the economic and socio-political processes of the partner countries, the limited information base as well as the specificity of each foreign economic operation.

The sequence of risk management of the enterprise's foreign economic activity can be represented by the following stages:

1. Identification of risks.
2. Analysis and assessment of each type of risk.
3. Analysis and quantitative assessment of risks.
4. Determination of the maximum permissible risks for the enterprise.
5. Control and comparative assessment of risks relative to their maximum permissible value.
6. Making a decision regarding the acceptability or unacceptability of the obtained results during risk management.
7. Implementation of the risk management system.
8. Assessing the possibility of increasing risks.
9. Identifying the possibility of reducing risks and determining the necessary measures for this.
10. Development of algorithms for risk management business processes.
11. Development of a risk management system.

**Conclusions.** The sustainable development of the enterprise is determined by a set of possible changes in the economic, ecological and social subsystems. At the same time, the enterprise can move to different states of development under the influence of certain factors. We assume that the time range of the sustainable development of the enterprise cannot last forever, so it is limited. In general, development involves the possibility of unstable states. The unstable development of the enterprise is characterized by its financial failure, which is mostly identified with its bankruptcy.

The factors affecting the emergence of financial insolvency are external (economic, scientific and technical, political, legal, international, environmental, pandemic, infrastructural factors) and internal (poor management by the debtor's founders and its management). At the same time, internal factors are the main ones.

Bankruptcy is a consequence of the enterprise unsustainable development, which is related with the financial insolvency of the enterprise, which cannot be eliminated by applying in the course of court proceedings rehabilitation and restructuring.

An economic and legal means of preventing bankruptcy is a plan for the sustainable development of an enterprise, which should include a forecast and analysis of the development of negative trends in the early stages using economic analysis.

The research substantiates a methodical approach to the determining the maximum permissible risks during product export for enterprises whose economic activity takes place under normal operating conditions, as well as for those enterprises whose activity is burdened by certain extraordinary or extraordinary events.

We consider it expedient to create a risk management system at the enterprise. As part of this system, it is worth creating a risk management service, which is an important stage in risk management at enterprises. To do this, it is necessary to determine the place of such a service in the organizational structure of the enterprise, as well as to outline the scope of its tasks. In addition, it is advisable to develop recommendations for identifying and evaluating external risks of the enterprise's foreign economic activity. The development of these methodological aspects is the goal of the further research.

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### References:

1. Afanas'ev N.V., Rogozhin V.D., Rudyka V.I. Upravlenie razvitiem predpriyatija. Har'kov: INZhEK, 2003. 184 p.
2. Aseeva N.V. Obespechenie chastnyh i publicnyh interesov pri bankrotstve predpriyatija. Doneck: DonUJeP, 2013. 200 p.
3. Blank I.A. Slovar'-spravochnik finansovogo menedzhera. Kiev: Nika-Centr, 1998. 480 p.
4. Burkova, L., Shura, N. and Nusinov, V. (2020), "Estimating the Ukrainian companies' financial potential and the probability of forced liquidation", *Investment Management and Financial Innovations*, vol. 17 (2), pp. 26-39.
5. Cherkasov, V.V. (1996), *Delovoj risk v predprinimatel'skoj dejatel'nosti* [Business risk in business activities], Libra», Kyiv, Ukraine.
6. Deklaracija tysjacheletija Organizacii Ob#edinennyh Nacij: utverzhdena Rezoluciej 55/2 General'noj Assamblei ot 08.09.2000. *Ofitsiyni sait Verkhovnoi Rady Ukrainy*. URL: [http://zakon4.rada.gov.ua/laws/show/995\\_621](http://zakon4.rada.gov.ua/laws/show/995_621)
7. Demianenko T.I. Stalyi rozvytok vitchyznianskyh pidpriemstv v suchasnykh ekonomichnykh umovakh. *Vcheni zapysky TNU imeni V.I. Vernadskoho*. 2020. Vol. 31 (70). No. 2. <https://doi.org/10.32838/2523-4803/70-2-30>
8. Hrabovan L. Pravovyj status kredytoriv u Kodeksi Ukrainy z protsedur bankrutstva. *Zastosuvannia norm Kodeksu Ukrainy z protsedur bankrutstva: Zbirka naukovykh statei*. Za zah. red. S.V. Zhukova. Kyiv: Alerta, 2019. 216 s. URL: [https://supreme.court.gov.ua/userfiles/media/Jukov\\_Zbirka\\_Bankrut\\_v2\\_191007\\_out.pdf](https://supreme.court.gov.ua/userfiles/media/Jukov_Zbirka_Bankrut_v2_191007_out.pdf)
9. Ischenko, M.I. (2014), *Teoriia otsinky finansovo-ekonomichnykh rezul'tativ promyslovykh pidpriemstv* [Theory of assessment of financial and economic results in industrial enterprises], Vyd. R.A. Kozlov, Kriviy Rig, Ukraine.
10. Johannesburgskaja deklaracija po ustojchivomu razvitiju (Johannesburg, Juzhnaja Afrika, 26 avg. – 4 sent. 2002 g.). *Ofitsiyni sait Organizatsii Ob`ednanyh natsij*. URL: [http://www.un.org/ru/documents/decl\\_conv/declarations/decl\\_wssd.shtml](http://www.un.org/ru/documents/decl_conv/declarations/decl_wssd.shtml).
11. Konferencija OON po okružhajushhej srede v 1992 g. (Rio-de-Zhanejro). *Ofitsiyni sait Organizatsii Ob`ednanyh natsij*. URL: [https://www.un.org/ru/documents/decl\\_conv/declarations/riodecl.shtml](https://www.un.org/ru/documents/decl_conv/declarations/riodecl.shtml).
12. Kruhlova O.O. Dovedennia do bankrutstva subiektiv hospodariuvannia. *Porivnialno-analityчне pravo*. 2015. No. 5. URL: <http://www.pap.in.ua/index.php/arhiv-vidannja/581>
13. Kviatkovska L.A. Realizatsiia pryncypiv kontseptsii staloho rozvytku v diialnosti pidpriemstva. *Visnyk sotsialno-ekonomichnykh doslidzhen*. 2013. Iss. 1. P. 85-89. URL: [http://nbuv.gov.ua/UJRN/Vsed\\_2013\\_1\\_14](http://nbuv.gov.ua/UJRN/Vsed_2013_1_14)
14. Kyrych N.B., Melnyk L.M., Pohaidak O.B. Stalyi rozvytok subiektiv hospodariuvannia: sutnist ta faktory

- vplyvu (ievropeiski aktsenty). *Visnyk ekonomichnoi nauky Ukrainy*. 2015. No. 2. P. 151-155. URL: [http://nbuv.gov.ua/UJRN/Venu\\_2015\\_2\\_31](http://nbuv.gov.ua/UJRN/Venu_2015_2_31)
15. Nepyivoda V. Ukrainski terminy na oznachennia anhlomovnykh poniat "sustainable development" ta "sustainability". *Ukrainska naukova terminolohiia. Suspilni ta humanitarni nauky: materialy nauk.-prakt. konf.* (Kyiv, 12 lystop. 2010 r.). Kyiv, 2010. P. 134-139. URL: [http://ekmair.ukma.edu.ua/bitstream/handle/123456789/2129/Nepyivoda\\_Ukrainski%20terminy.pdf](http://ekmair.ukma.edu.ua/bitstream/handle/123456789/2129/Nepyivoda_Ukrainski%20terminy.pdf)
16. Nusinov, V. and Burkova, L. (2020), "Quantitative and qualitative assessment of the probability of forced liquidation of enterprises", *Efficient economy*, vol. 5. URL: <http://www.economy.nayka.com.ua/?op=1&z=7891>
17. Nusinov, V.Ja. (1998), *Prognozovanie i ocnka jekonomicheskikh rezul'tatov proizvodstva v uslovijah investirovaniia i prinjatija stabilizacionnykh mer v promyshlennosti* [Forecasting and assessment of economic results of production under conditions of investment and taking stabilizing measures in industry], Nauka i obrazovanie, Dnepropetrovsk, Ukraine.
18. Nusinov, V.Ja. (2016), "Assessment of the severity of the financial crisis in Ukrainian companies", *East European Scientific Journal*, vol. 14, no. 2, pp. 81-88.
19. Nusinov, V.Ja. Kruglaja, N.N. Nusinova, E.V. Mishhuk, C.V. Masak, Ju.A. and Lobov S.P. (2007), *Ocnka kreditospobnosti promyshlennykh predpriiatij* [Assessment of the creditworthiness of industrial enterprises], Izdatel'skij dom, Kriviy Rig, Ukraine.
20. Nusinov, V.Ya. (2016), *Finansovyj analiz promyslovykh pidpriemstv* [Financial analysis of industrial enterprises], Vyd. R.A. Kozlov, Kriviy Rig, Ukraine.
21. Nusinov, V.Ya. Burkova, L.A. and Nusinova, O.V. (2016), *Kompleksna otsinka ekonomichnykh rezul'tativ diial'nosti pidpriemstv z urakhuvanniam stupenia kryzy ikhn'oho finansovoho stanu* [Comprehensive assessment of the economic performance of enterprises, taking into account the degree of crisis of their financial condition], Vyd. R.A. Kozlov, Kriviy Rig, Ukraine.
22. Ocnka kreditospobnosti promyshlennykh predpriiatij: avtorskie metodiki. Pod red. V.Ja. Nusinova. Krivoj Rog: Izdatel'skij dom, 2007. 315 p.
23. Poliakov B. Pryntsyp domino, abo yak KzPB mozhe sprokovukaty lantsiuhove padinnia pidpriemstv krainy. *Zakon i Biznes*. 2019. 3-9 serp. No. 30 (1432). P. 13
24. Poliakov R. Pidstavy vidkryttia provadzhennia u spravi pro bankrutstvo (nespromozhnist) v Ukraini ta v Nimechchyni. *Pidpriemnytstvo, hospodarstvo i pravo*. 2020. No. 8. P. 87-94. <https://doi.org/10.32849/2663-5313/2020.8.14>
25. Prozorov D.V. Mekhanizm upravlinnia stalym rozvytkom pidpriemstv. *Modernizatsiia finansovo-kredytnoi systemy: dosvid ta perspektyvy: tezy dop. II mizhnar. nauk.-prakt. internet-konferentsii* (Sievierodonetsk, 27-29 kvit. 2015 r.). Sievierodonetsk, 2015. P. 111-114
26. Raievnjeva O.V. Upravlinnia rozvytkom pidpriemstva: metodolohiia, mekhanizmy, modeli. Kharkiv, 2006. 496 p.
27. Rajs, T. and Kojli, B. (1995), *Finansovye investicii i risk* [Financial investments and risk], Torgovo-izdatel'skoe bjuro BHV, Kyiv, Ukraine.
28. Savchuk, V.P. (2008), *Prakticheskaja jenciklopedija. Finansovyj menedzhment* [Practical encyclopedia. Financial Management], Companion group, Kyiv, Ukraine.
29. Suhorukova T.V. Jekonomicheskaja ustojchivost' predpriiatija. *Jekonomika Ukrainy*. 2001. No. 5. P. 48-52
30. Tereshchenko O.O. Finansova sanatsiia ta bankrutstvo pidpriemstv. Kyiv: KNEU, 2000. 412 p.
31. Vasilenko V.A. Organizacionno-ciklicheskaja i strukturno-funkcional'naja modeli razvitija organizacii. *Kul'tura narodov Prichernomor'ja*. 2004. No. 88. P. 100-107. URL: <http://dspace.nbuv.gov.ua/bitstream/handle/123456789/36229/26-Vasilenko.pdf?sequence=1>
32. Vasiutkina N.V. Teoretychni aspekty rozuminnia katehorii "rozvytok pidpriemstva". *Problemy ekonomiky*. 2014. No. 2. P. 236-242. URL: [https://www.problecon.com/export\\_pdf/problems-of-economy-2014-2\\_0-pages-236\\_242.pdf](https://www.problecon.com/export_pdf/problems-of-economy-2014-2_0-pages-236_242.pdf)
33. Vechirko I. Umovy vidkryttia provadzhennia u spravi pro bankrutstvo zghidno z normamy Kodeksu Ukrainy z protsedur bankrutstva. *Zastosuvannia norm Kodeksu Ukrainy z protsedur bankrutstva: Zbirka naukovykh statei*. Za zah. red. S.V. Zhukova. Kyiv: Alerta, 2019. 216 p. URL: [https://supreme.court.gov.ua/userfiles/media/Jukov\\_Zbirka\\_Bankrut\\_v2\\_191007\\_out.pdf](https://supreme.court.gov.ua/userfiles/media/Jukov_Zbirka_Bankrut_v2_191007_out.pdf)
34. Vetsko T.M. Stalyi rozvytok pidpriemstva: problemy ta perspektyvy. *Aktualni problemy ekonomiky ta upravlinnia: zbirnyknaukovykhpratsmolodykhvchenykh*. 2019. Iss. 13. URL: [https://ela.kpi.ua/bitstream/123456789/29380/1/2019-13\\_2-04.pdf](https://ela.kpi.ua/bitstream/123456789/29380/1/2019-13_2-04.pdf)
35. Vitlins'kyj, V.V. and Nakonechnyj, S.I. (1996), *Ryzik u menedzhmenti* [Risk in management], Borysfen – M, Kyiv, Ukraine.
36. Mihus, I., Andrienko, V., Molodets'kyy, S., & Blikhar, M. (2018). The process of forecasting bankruptcy and raiding as a tool of public monitoring financial security state of Ukraine. *Financial and Credit Activity Problems of Theory and Practice*, 1(24), 267–274. <https://doi.org/10.18371/fcaptive.v1i24.128545>