THEORETICAL AND METHODOLOGICAL FUNDAMENTALS OF INTEGRAL ASSESSMENT OF FINANCIAL SUSTAINABILITY OF THE ENTERPRISE

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Abstract. The urgency of improving the financial security of Ukrainian enterprises in the current unstable economic conditions of their operation is one of the most important tasks of both the state and the business entities themselves. The search for opportunities to strengthen the financial situation should be facilitated by a systematic and objective analysis of the activities of any enterprise, the results of which allow you to respond quickly to changes in external and internal business environment, make sound management decisions on financial regulation.

The paper conducts a thorough study of existing theoretical and methodological approaches to determining the financial stability of the enterprise. It is proved that in determining the financial stability of the enterprise it is impossible to ignore social and environmental factors, so the definition of financial stability should cover all factors that shape it and the results of financially stable enterprise. The author's vision of the essence of the category "financial stability of the enterprise" was formed taking into account the above factors.

It is established that the financial stability of the enterprise plays an important role in ensuring expanded reproduction and profitability in the future. This is a complex category that studies the resource potential of the enterprise, its financial condition, dependence on the influence of internal

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and external factors and the ability to ensure effective operation while maintaining solvency. Financial stability is a key guideline in business planning, the introduction of innovative technologies in the enterprise, in general, its indicators reflect the level of risk of operation. Financial stability is a key guideline in business planning, the introduction of innovative technologies in the enterprise, in general, its indicators reflect the level of risk of operation.

The main factors that determine the financial stability of the enterprise and risk management of its loss are considered. The existing approaches to the methodology of diagnostics, assessment and forecasting of financial stability of the enterprise are given.

It is proved that the assessment of the financial stability of an agricultural enterprise should be generalized, integrated and give an unambiguous answer about the level of financial stability of the enterprise. It must accumulate all the main aspects of the operation of the enterprise, ie take into account the importance of the most important indicators of financial and economic activities of economic entities.

It is emphasized that the integrated method of assessment is the most objective for such an analysis, as it allows you to quantify and evaluate the relationship between the main factors and predict their level in the future.

The study of existing models of assessment of financial stability of Ukrainian enterprises, indicated their disadvantages. Modern approaches to assessing the risk of bankruptcy using discriminant models are analyzed. The essence of the national model for assessing the financial condition of the beneficiary, its advantages and disadvantages are considered. The analysis of various methods of calculation of integrated indicators of the level of financial stability proposed by Ukrainian scientists is carried out. The urgency of the issue of developing a modern factor model of the integrated indicator, which needs to be improved and adapted to modern conditions of functioning of Ukrainian enterprises of the agricultural sector, is proved.

1. Introduction

Effective management of any enterprise is impossible without identifying risks that may adversely affect its future activities. It is not enough just to identify threats, it is necessary to make quality management decisions,

which are the basis for ensuring financial stability and continuity of the business entity.

The success of overcoming the crisis depends on the timely detection and use of effective methods to resolve it. The dynamics of the Ukrainian economy market requires further research to improve the scientific and methodological framework for identifying and assessing the financial crisis, its prevention and the formation of economic mechanisms and tools for business management in case of bankruptcy.

Financial and economic security is the main element and factor in creating economic security of the enterprise. Therefore, such concepts as "economic security" and "crisis management" are quite closely intertwined both substantively and functionally [1].

Anti-crisis management of the company begins with the birth of the idea of its creation. It is at this point that the initiator of entrepreneurial activity must be aware of the potential opportunities and threats that may arise during the operation of the firm [2].

The main characteristics of crisis management in modern conditions are:

– ensuring a stable financial condition of the enterprise in any economic, political or social changes;

– instant and effective response to changes in the external environment;

– the use of such management and financial mechanisms that would overcome the difficulties with the least losses for the company;

– timely diagnosis, which allows to identify and eliminate the negative effects of external and internal factors on the business entity;

– the choice of promising areas of development and strategic concept [3].

The essence of crisis management is expressed in the fact that crises can be: anticipate, expect, cause, accelerate, anticipate, postpone, mitigate, it is controlled, to a certain extent, the process to which you can and should prepare with special approaches, special knowledge, experience and art. The effectiveness of anti-crisis financial management of the enterprise is possible only when managers will be able to predict and forecast complex economic phenomena. Resources should be allocated according to anti-crisis priorities. The development of anti-crisis strategy should be based on the principles determined by the peculiarities of strategic planning, taking into account changes in business conditions and criteria for effective operation [4].

The main problems of management are low professionalism of managers and lack of practice of organizing teamwork for the result. For effective management and successful overcoming of crisis phenomena, it is necessary to increase the level of training, which is focused on the use of preventive rather than reactive methods of crisis management.

Thus, for the practical solution of problems of an estimation of efficiency of functioning of the enterprise careful studying of a situation on all its components is necessary. This allows only the method of integrated assessment of the effectiveness of the enterprise for all its groups of indicators. The system of indicators should be quite clear and reasonable, as it reflects the effectiveness of the enterprise from different angles and allows you to see what you need to pay attention to in the first place. Indicators and methods of evaluation should be specified depending on the activities of the enterprise and its industry.

2. Conceptual approaches to defining the essence financial stability of the enterprise

In the current conditions of agrarian crisis, a complete and objective analysis of the activities of agricultural enterprises is of particular importance, which allows to respond quickly to changes (especially negative) in both external and internal environment of the enterprise.

Therefore, the financial condition of economic entities requires constant assessment and control by managers of enterprises of all forms of ownership. It also attracts a lot of attention of Ukrainian economists, scientists who study the state, trends in agricultural production, the impact of various micro- and macro-level factors on the performance of agricultural producers.

One of the important factors for the successful operation of enterprises is the objective diagnosis and rapid assessment of financial condition, which allow timely development and implementation of effective measures to rehabilitate enterprises, prevent bankruptcy, increase their competitiveness and financial stability.

Only under conditions of stable financial condition of the enterprise can occupy a stable position in the region, effectively carry out modernization and reconstruction of production, to produce competitive products.

It should be noted that in the modern scientific literature such economic categories as “financial condition”, “financial stability” and “financial

stability" are not always unambiguously interpreted by the authors, and sometimes, their essence and interpretation differ significantly.

In particular, the concept of "financial stability" is often identified with "financial stability", and in dictionary definitions there is an intertwining of the words "stable" and "sustainable".

Also, most Ukrainian authors give a rather narrow and incomplete definition of financial stability, without revealing the essence of this complex and multifaceted economic category.

Thus, in [5] it is noted that the financial stability of the enterprise is characterized by the ratio of equity and borrowed capital, which cannot be agreed with, because only this ratio cannot conclude about the stable or unstable financial condition of the enterprise.

Petrovich Y.M. calls the financial stability of the firm's independence from external borrowing. He believes that in order to assess the financial condition of a company, it is necessary to know how its assets are formed: from its own funds or from external liabilities. Therefore, an important analytical characteristic of the firm is its financial independence from external loan sources. According to this author, the stock of own funds is the stock of financial stability of the firm, provided that own funds exceed borrowed [6].

However, this definition is rather one-sided, as raising loan capital is a normal phenomenon and the opinion that the company's refusal to use loans indicates its high financial stability is wrong, because raising loans within reasonable limits allows the company to use its financial resources more efficiently. resource. Thus, long-term loans help to expand the possibilities of faster renewal of material and technical base than can be done only at the expense of their own, often limited funds.

In particular, in [7] the author notes that financial stability is the result of activities that indicate the availability of the company's own financial resources, the level of their use and directions of placement. But it is also impossible to agree with this definition, because the financial stability of the enterprise, although the result of activity, but characterizes the financial condition of the enterprise, on the other hand, using qualitative features that will provide the necessary conditions for enterprise activity.

In [8] it is noted that financial stability is a certain state of the enterprise's calculations, which guarantees its constant solvency. This interpretation can

also be called incomplete and unclear, which blurs the line between the concepts of stability and solvency.

Instead, in the works of Korobov M.Ya., Lyakha L.M., Sveshnikova M.S., Savitsa G.V., Lakhtionova L.A. a fuller and more thorough definition of this category is proposed. In particular, Korobov M.Ya. characterizes financial stability as a state of financial resources in which the company would maintain the ability to continuously fulfill its financial obligations to its business partners, government, owners, employees. The author believes that companies are able to achieve stability of their finances only with strict adherence to the principles of commercial calculation, the main of which is the comparison of costs and results, obtaining maximum profits at minimum cost. If the parameters of the enterprise and the location of its financial resources meet the criteria of a positive characterization of the financial condition, it speaks of the financial stability of the enterprise [9].

In the scientific literature there are various conceptual theoretical and methodological approaches to determining the essence of financial stability of the enterprise, which can be divided into four groups:

– classic, which determines the financial stability in the narrow sense due to the excess of income of the entity over its costs;

– financial, based on which financial stability is identified with the solvency of the enterprise, so solvency is defined as one of its most important components, and financial stability is a necessary condition for sustainable and efficient development of the trading company;

– adaptive, in the context of which financial stability is equated to the ability of the enterprise to function, develop and adapt within a constantly changing environment;

– comprehensive, which summarizes the above approaches and determines that financial stability should be understood as the state and quality of financial resources of the entity, in which the company remains solvent, able to fully and timely fulfill its obligations under adverse effects internal and external factors of the environment and has a margin of safety, which ensures the preservation of the values of financial indicators at a stable level in the event of increasing negative factors and promotes rapid growth – in a favorable period of the economic cycle.

Gerega O.V. emphasizes such four components of the potential of financial and economic stability of enterprises as: (1) financial condition

and stability; (2) resource support; (3) resource efficiency; (4) capacity building and development [10].

In particular, according to the system-cost approach of S.M. Zhukevich [11, p. 208] the financial and economic stability of the enterprise is measured because of its ability to carry out systemic resistance to a changing environment, while maintaining an optimal functional structure that allows smooth and efficient engage in the main entrepreneurial activity. Therefore, the scientist quite rightly concludes that financial and economic stability is a necessary condition for financial stability and balance.

Some scientists highlight another type of enterprise resilience, such as the financial security limit [12]. It is determined by the presence of a certain reserve of financial strength achieved by the enterprise during the previous period of activity and protects against the effects of adverse destabilizing factors.

Such factors, in addition to purely economic, should include social – the level of wages, safety and labor protection, the state of social infrastructure of the village, etc., as well as the greening of enterprises.

Environmental management, development and implementation of measures to protect the environment, improve existing technological processes and take into account environmental factors as a result of the introduction of scientific and technological progress, should become mandatory elements of new management policy, especially in agriculture.

Scientists dealing with environmental issues have been emphasizing for many years that the characteristic feature of modern economic development is the global environmental crisis, the scale of which is growing rapidly in the context of scientific and technological progress. They note that the rate of environmental degradation is accelerating: 85% of the country's territory is polluted [13], 80% is affected by erosion, 17% of land has begun flooding, about 20% of land is contaminated with heavy metals. Great damage to the environment is caused by production and household waste.

Regarding agriculture, scientists note that in general only one in ten hectares of agricultural land has a normal ecological status [14].

Of course, the environmental strategy of the enterprise should not conflict with economic strategies. That is, when forming an economic strategy, it is necessary to take into account environmental factors. In particular, in the near future to introduce the obligation to measure the environmental

potential of each agricultural enterprise. Namely, the calculation of at least such basic indicators as the coefficient of resource conservation (by type of resource); coefficient of production output, certified according to environmental parameters; an indicator of the level of environmental pollution (possibly with their inclusion in the notes to the annual financial statements).

Based on the above considerations and priorities of today, in determining the financial stability of the enterprise cannot ignore social and environmental factors, ie the definition of financial stability should cover all factors that shape it and the results of financially stable enterprise.

Thus, based on the principles of complexity and balance of socio-economic and environmental activities, the financial stability of the enterprise should be considered as a state of accumulation, distribution and use of financial resources, in which the enterprise, freely maneuvering them, using the latest resource-saving and environmentally friendly continuous process of production and sale of products, its expansion and renewal, aimed at increasing the competitiveness of the enterprise and improving the socio-economic development of the team and the countryside.

3. The main factors determining the financial stability of the enterprise

The whole set of factors that affect the financial stability of the enterprise is divided into external and internal. External factors are factors that do not depend on the activities of the enterprise and at the same time have different strengths of influence on it. These are factors in the entity's external environment. Internal factors depend on the activities of the enterprise. The negative or positive impact of these factors is mainly determined by the literacy of management and marketing policy.

To achieve financial stability requires the optimal ratio of both internal and external factors.

Note that in the economic literature, the factor is understood as the cause, the driving force of a process that determines its nature (content) or its individual features. Factors are interrelated and interdependent in dynamic motion in both time and space [15]. If any of them fall out of the analysis, the assessment of the influence of other factors, as well as conclusions may be distorted and not relevant to the real situation.

Closely related, some factors affect the performance of enterprises in different ways, and therefore, it is very important to successfully assess and prevent the impact of these factors (especially – external). The effect of some factors may immediately worsen the financial condition of the enterprise (including unexpectedly lead to bankruptcy), others may have a gradual impact on the activities of the entity.

In countries with unstable economies, the financial condition of enterprises depends more on the influence of external factors that reflect the economic and political situation. For developed countries, the bankruptcy of enterprises is only a third due to external factors and two thirds due to internal. Therefore, in a relatively stable external environment, any business entity should pay more attention to the internal environment, analyze the factors that can be managed.

In modern economic literature, the external environment of the enterprise is considered as a complex multi-stage structure in which there are two main levels: macro- and micro-environment.

1) Macro environment (general environment), includes economic, political, social, legal, technological and environmental factors that reflect the socio-economic relations in the country and society as a whole.

2) Micro environment, covers the factors that have a direct impact on a particular enterprise. These are factors such as consumers, suppliers, creditors, competitors, employees, government agencies and others.

The macro environment determines the general conditions of economic activity, influences the factors of the microenvironment and through them – the development of the enterprise. Thus, various changes in the external environment will inevitably affect the financial results of the enterprise.

Therefore, it is especially important when planning any type of enterprise activity is a constant analysis of the external environment, forecasting its changes at least in the near future.

The classification of the main external factors that most affect the financial condition of the agricultural enterprise is shown in Figure 1.

Most often, methods of deduction and induction are used to assess the impact of external factors on the results of the enterprise; mathematical modeling; forecasting methods; expert methods and others. But, with the constant dynamic change of the environment, it is difficult to determine the most effective method of analysis, and therefore analysts have to combine

several methods depending on the specifics of the studied factor and access to the necessary information.

External factors influencing the financial condition of an agricultural enterprise	Economic: the level of economic development of Ukraine; level of state regulation of agriculture; inflation rate in the country; disparity in prices for industrial and agricultural products; current taxation system; credit policy in the agro-industrial complex; effective consumer demand and income level; the degree of development of the market infrastructure of the agro-industrial complex, insurance services, foreign economic relations, the financial market of the agro-industrial complex; state of money turnover, forms of payment; level of Ukrainian and foreign competition; level of investment in agriculture.
	Political: political situation in Ukraine; the role and place of agriculture in the overall set of political programs of the government and the most influential parties.
	Legal: stability of legislation; level of antitrust policy; policy of state protectionism.
	Technological and innovative: the general level of scientific and technical condition of the country and type of activity; scientific support of technological processes in agro-industrial complex; development of innovative activity in the state.
	Ecological: depletion of land fertility, reduction of raw materials and material resources; climate change; pollution of territories with waste; land erosion; inefficient use of natural resources.
	Socio-cultural: living standards of the population (life traditions, cultural values of the people, mentality); working conditions; demographic processes in the country.
	Soil and climatic: seasonality of agricultural production; climate, meteorological conditions each year, natural disasters; relief, soil quality; set of water bodies.

Figure 1. External factors influencing the financial condition agricultural enterprise

But, unfortunately, only a small number of farm managers can assess the degree of risk of losing financial stability due to various external factors using mathematical methods, as collecting and processing large amounts of information needed for such analysis is difficult, especially in the absence of professional skills. Therefore, it is customary to trust more experience and intuition, or professionally trained professionals in these matters. It is more realistic to use an expert method of risk analysis in modern conditions.

Simultaneously with the analysis of external, it is impossible to underestimate the negative impact of internal factors on the life of the enterprise. Often, a company's financial problems are due to management incompetence, lack of management experience in dynamic market conditions, illiterate strategic planning, and so on. Due to inefficient management of the enterprise, significant errors can lead to deterioration of the financial condition of the entity, reduce its financial stability.

Internal factors affecting the financial stability of agricultural enterprises are shown in Figure 2.

Internal factors affecting the financial stability of agricultural enterprises	*Financial and economic:* the structure of financial capital of the enterprise; composition and structure of current assets and their turnover; price and cost of products, their dynamics; the ratio of costs and revenues of the enterprise, the dynamics of profitability; efficiency of profit distribution; size and dynamics of receivables and payables; the amount of reserve funds of the enterprise (the share of venture capital).
	Production (operational): industry affiliation of the enterprise, local location; the size of the entity; specialization and concentration of production; state of technical equipment, level of mechanization and automation of production; innovation activity (possibility of using new production technologies at the enterprise); material and resource potential of the enterprise, efficient use of resources; organization of the production cycle, the relationship of all parts of production.
	Commercial and sales: development of marketing services at the enterprise, the effectiveness of marketing research; range and quality of products.
	Entrepreneurial (managerial): system and methods of enterprise management (professional abilities and competence of management, focus on the laws of market economy); effectiveness of strategic planning; state of accounting; environmental factor in management decisions.
	Social: working conditions and living standards of employees; level of material stimulation of labor.

Figure 2. Internal factors influencing the financial condition agricultural enterprise

Note that there is a close connection and interdependence between the financial and sales aspects of the enterprise. Yes, financial success is usually the result of better performance. The growth of production, improving the quality and range of products, rhythmic production and shipment of products contributes to the timely and sometimes early receipt of funds

on the current account. This is one area of influence. However, there is another that is due to changes in the efficiency of production processes. For example, increasing production efficiency always reduces the need for resources and, consequently, reduces the cost of funds.

Normal financial activity, in turn, creates appropriate conditions for production, provides additional opportunities for its unplanned increase.

To analyze the internal environment of the enterprise (using financial statements), most authors suggest using the following basic methods:

1. Factor analysis – assessment of the impact of individual factors on the performance indicator, for example, changes in financial results due to changes in sales, cost and selling price.

2. Comparative analysis – temporal-spatial comparison of homogeneous indicators – between different enterprises, average data, optimal values, for different divisions of the enterprise and so on.

3. Horizontal analysis – a comparison of absolute and relative indicators in the dynamics (for example, determining the dynamics of changes in the solvency of the enterprise by year).

4. Vertical analysis – determination of the share of individual indicators in their totality (for example, the share of equity in the total amount of sources of financing of the enterprise).

5. Analysis of coefficients (relative indicators) – the ratio of individual reporting indicators.

From the listed methodical approaches, it is most expedient to use a method of coefficients. This is due to the fact that relative indicators more objectively characterize the trends of comparative indicators, and therefore more suitable for assessing trends and forecasting their change.

The methodological structure and sequence of formation of the potential of financial stability of the domestic enterprise is shown in Figure 3.

Thus, the uncertainty of market conditions, a number of negative and heterogeneous in nature economic and social factors in the synergistic effect cause the emergence of various and unexpected risks in the activities of modern economic entities. Their neutralization (minimization) to maintain business efficiency is considered in the context of management aspects of ensuring the sustainability of the enterprise. The financial stability management subsystem of an entity is present in any management concept.

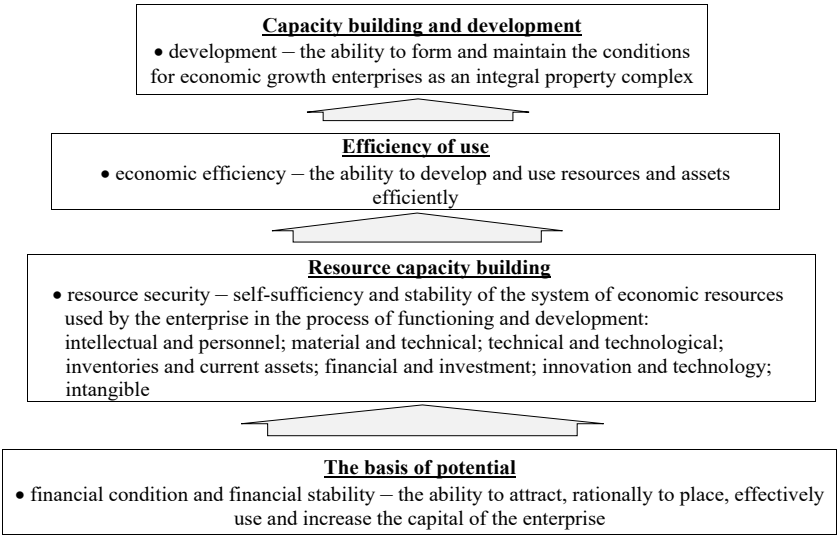

Figure 3. Conceptual structure and sequence of formation of potential of financial stability of the enterprise

4. Methodology for diagnosing, assessing and forecasting financial stability

According to the analysis of literature sources, there is currently no single methodology for determining the financial stability of the enterprise.

In addition, Ukrainian and foreign authors offer a large list of indicators with different methods of calculation and determination of the type of financial stability of the enterprise. But in general, we can identify two main approaches to the study of this issue:

The first approach involves the analysis of absolute indicators in the first stage and the analysis of relative indicators in the second stage of the study. A significant disadvantage of this most common approach is that scientists usually do not link these stages together, and the results of calculations of the relative indicators themselves are also unrelated.

The second approach is determined by the choice of a whole system of indicators, which is due to different interpretations of the essence of the

concept of financial stability. Obviously, the choice of a system of indicators is a determining factor in the analysis. Taking into account such factors as different sizes of farms and the impact of inflation, the main role in the study of financial stability is given to relative indicators.

The calculation of absolute indicators that characterize the degree of security of sources of their funding, with subsequent determination of the type of financial stability is quite common in economic sources and scientific articles [16–19].

The calculation method involves assessing the availability (surplus or deficit) of own funds; own and long-term borrowed funds and general funds according to the formulas:

$Д_в$ = own working capital – stocks;

$Д_{в+д}$ = (own working capital + long-term liabilities) – inventories;

$Д_з$ = the total value of sources – stocks.

Based on the calculations, a three-component indicator is formed, which allows to determine the type of financial stability of the enterprise (Table 1):

$$\overline{S} = \left\{ S(Д_в),\ S(Д_{в+д}),\ S(Д_з) \right\},$$

as

$$S(x) = \begin{cases} 1, & if \quad x \geq 0, \\ 0, & If \quad x < 0. \end{cases}$$

Table 1

Indicators of stocks with sources of their formation by types of financial stability

Indicators	Type of financial stability			
	Absolute financial stability	Normal financial stability	Unstable financial situation	Crisis financial situation
$Д_в$	≥ 0	< 0	< 0	< 0
$Д_{в+д}$	≥ 0	≥ 0	< 0	< 0
$Д_з$	≥ 0	≥ 0	≥ 0	< 0
Indicator of the type of financial stability	(1,1,1)	(0,1,1)	(0,0,1)	(0,0,0)

Absolute financial stability is characterized by the fact that all the company's reserves are covered by its own funds, the company is not dependent on external creditors, which is extremely rare. Moreover, absolute financial stability can hardly be considered ideal, as it means that the company's management does not use external sources of funding for its core business.

An enterprise with normal financial stability uses long-term borrowed funds to cover inventories in addition to its own funds. This type of inventory financing is "normal" from the point of view of financial management and is the most desirable for the company.

In the case of unstable (pre-crisis) financial condition, there is a violation of solvency, but there is a possibility of restoring the balance due to replenishment of sources of own funds, reduction of receivables, accelerating the turnover of inventories. Financial instability is considered normal (permissible) if the amount of short-term loans and borrowings raised to finance stocks does not exceed the total value of raw materials and finished products. Our calculations show that a rather small share (less than 10%) of agricultural enterprises in Vinnytsia have an unstable crisis, while the rest are on the verge of bankruptcy, as their cash, short-term securities and receivables do not cover even accounts payable and overdue loans.

However, it should be noted that the above method gives an idea only of the qualitative characteristics of the object of study, and the analyst cannot provide any quantitative conclusions, deepen the analysis of factors that shape the level of financial stability, develop recommendations.

Therefore, a more thorough study of financial stability should be based on the calculation and analysis of relative indicators. However, it should be noted the lack of a single methodology for assessing the financial stability of the enterprise. Ukrainian and foreign scientists offer a fairly large list of relative indicators with different calculation methods. But, as a rule, when assessing financial stability are limited to about 3-6 of the most common in theory and practice relative indicators. Only a small number of authors, considering the analysis of financial stability as the main and comprehensive stage of assessing the financial condition of the enterprise, structure the indicators of financial stability into separate groups.

Kalyshenko V.O., Moskalets K.M. [16], Yasinovska I.F. [17, p. 172] systematizing the methods of assessing financial stability, identified such

as: aggregate, coefficient, margin, point, balance, integral, factor and matrix. Each of them plays a role in the study of various aspects of financial stability. Thus, the aggregate method is the basis for determining the type of financial stability, margin – the margin of financial strength, matrix – calculating the structure and determining the quality of balance sheet assets and their financing adequacy, and integrated – the degree of financial stability.

Hryniv B.V. [18, p. 124–125] distinguishes the necessary and ancillary ratios of financial stability, including the main ratios: financial independence (autonomy, concentration of equity), maneuverability of equity, self-financing of current assets, liquidity, total coverage. Among the auxiliary, he singles out the coefficients: borrowing, investing, self-financing of stocks. The researcher emphasizes that additional coefficients should be used to avoid duplication only if the basic ones are clarified and supplemented.

Instead, Ionin E.E. [19, p. 17], pointing to the significant progress in the development of methodological foundations of research on financial stability, justifies the importance of analyzing financial indicators for early diagnosis of bankruptcy and the list of key indicators includes coefficients: financial independence, financial dependence, debt, liabilities and own capital, the ratio of equity and liabilities.

Thus, some scientists to assess the stability of the financial condition of the enterprise propose to use a system of indicators that characterize changes: the structure of capital of the enterprise, its location and sources of education; efficiency and intensity of its formation; solvency and creditworthiness; stock of its financial stability.

Izmaylova K.V., using absolute and relative indicators, assesses the financial stability of the enterprise according to the following criteria:

– the level of coverage of tangible working capital (stocks) with stable sources of funding;

– solvency of the enterprise (its potential ability to cover term liabilities with mobile assets);

– share of own or stable sources in total sources of financing [20].

For enterprises with financial crisis (the fourth type of financial stability), the following set of indicators of financial stability is recommended to assess the probability of bankruptcy: return on capital for “net profit”; product profitability; turnover of funds invested in current assets; coefficient of financial independence; liquidity (coverage ratio of current liabilities).

Based on these parameters, an integrated indicator is built, which is based on the comparison of each parameter for a long period of operation of the enterprise with the highest achievements of the enterprise on these parameters during the analyzed period.

Another method of financial stability analysis mentioned in the literature includes the following stages:

1. Analysis of the composition and placement of assets.

2. Analysis of the dynamics and structure of sources of financial resources (calculation of indicators of capital structure; calculation of indicators of the state of fixed assets.

3. Characteristics of the availability and structure of working capital.

4. Characteristics of the availability of working capital: determining the characteristics of the formation of inventories and costs; determination of indicators of providing stocks and costs with sources of their formation; identification of the type of financial situation: (calculation of indicators of working capital).

5. Analysis of accounts payable and receivable.

6. Analysis of solvency [21].

In our opinion, the above technique has a number of disadvantages:

– when analyzing the financial stability of agricultural enterprises, it is not so important for us to have an idea of the availability, structure of working capital, as indicators of efficiency of their use;

– there are no indicators of profitability (payback) of invested capital.

The literature offers two approaches to solving the problem of quantifying financial stability:

1. To assess the financial condition it is necessary to focus exclusively on data on sources of funding, capital. In this case, the assessment of the financial stability of the enterprise is carried out only on the basis of balance sheet liabilities.

2. To assess the financial stability of the enterprise it is necessary to analyze the relationship between assets and liabilities of the balance sheet, to monitor the use of funds.

And although the author considers the second approach more complete and justified, we cannot agree with the analysis of financial stability only using the balance sheet. After all, some authors rightly, in our opinion, supplement the above analysis with indicators of profitability (profitability) of enterprise capital.

Regarding the second approach to analysis, when assessing the optimal ratio of equity and borrowed capital of the enterprise, the indicators are divided into two blocks:

1. Capitalization ratios (which characterize the financial condition of the enterprise from the standpoint of the structure of sources of funds).

2. Coverage ratios (which characterize the financial stability from the standpoint of costs associated with the maintenance of external sources of borrowed funds).

Assessment of the level of financial and economic stability of the enterprise should: be generalized, integrated, give an unambiguous answer about the level of financial and economic stability of the enterprise in relation to comparison; accumulate all major aspects of the enterprise; take into account the possibility of short-term deterioration of certain indicators of financial and economic activity of the enterprise, which, however, are not characteristic of deteriorating stability of the enterprise – for example, implementation of marketing strategy, which involves the development of new markets.

5. Integral assessment of the financial stability of the enterprise

Given the fact that financial stability is a complex multifaceted concept that includes a large number of indicators with different critical limits and areas of optimization, it is advisable to use deterministic factor analysis, namely – an integrated method for diagnosing financial stability of economic entities.

The use of this technique allows to obtain more accurate results of the influence of factors compared to the methods of chain substitutions, absolute and relative differences and to prevent ambiguous assessment of the influence of factors, because in this case the results do not depend on the location of factors in the model. factors that decompose between them in proportion to their isolated impact on performance.

The advantages of this method are that it is not necessary to establish the order of change of factors, it is possible to study not only the relationship between individual factors and the overall result, but also the nature of inter factor relationships.

The main purpose of using the above method is to try to find the key factors that most influence (or have influenced) the level of financial

stability of agricultural enterprises in order to manage them. Under other conditions, the content of such an analysis is lost.

In economically developed countries, an integrated assessment of the level of financial stability of the enterprise (bankruptcy risk) is carried out on the basis of generally accepted methods [5; 6; 12; 15], among which the most famous are factor models of Altman, Beaver, Conan and Golder, Lusy, Toffler, Springgate. However, it should be noted that the use of these models, as shown by studies of Ukrainian economists [26; 29–32; 35] have no practical value and do not provide reliable results. Approbation of the above models at Ukrainian enterprises showed a significant inconsistency in the assessment of bankruptcy risk due to different methods of reflecting inflation factors, different capital structure, as well as due to differences in legislation and information base.

Ukrainian enterprises, especially agro-industrial ones, where there are specific features of the production cycle, need an individually developed modern model of assessing financial condition, including the probability of bankruptcy, which will take into account primarily the specifics of activities and national economy, legislation, etc. Such attempts were made by Ukrainian scientists in [22–26; 28–30; 32– 35]. Note also that the two proposed models [22; 23] were developed by the authors specifically for the agro-industrial sector, which in this case is of particular value.

Consider these techniques in more detail:

1. The model of bankruptcy for agricultural enterprises proposed in [23] was developed on the basis of the well-known two-factor model of E. Altman. The author proposes to calculate the integrated indicator of bankruptcy risk according to the formula:

$$Z = -1{,}3496 - 0{,}6183\, x_1 + 0{,}6867\, x_2, \qquad (1)$$

where: Z – integrated indicator of the risk of bankruptcy of agricultural enterprises; x_1 – coefficient of the working capital ratio (ratio of current assets to short-term liabilities); x_2 – coefficient of financial dependence (the ratio of borrowed and borrowed funds to total assets).

At $Z = 0$ we have the equation of the discriminant boundary. For companies where $Z = 0$ the probability of bankruptcy is 50%. If $Z < 0$, then the probability of bankruptcy is less than 50% and then decreases as Z decreases. If $Z > 0$, the probability of bankruptcy is more than 50% and increases with increasing Z.

However, the disadvantage of the two-factor model of bankruptcy is that it does not provide a comprehensive assessment of the financial condition of the enterprise, there may be significant deviations from the actual indicators. Although the authors propose to take into account the trend of changing profitability of sales, it should be noted that the methodology does not correlate the above additional indicator with the integrated.

2. Discriminant factor model for diagnosing the risk of bankruptcy of agricultural enterprises [22] is as follows:

$$Z = 0{,}111\ x_1 + 13{,}239\ x_2 + 1{,}676\ x_3 + 0{,}515\ x_4 + 3{,}80\ x_5; \quad (2)$$

where x_1 – the share of working capital in the formation of current assets; x_2 – working capital per unit of currency; x_3 – turnover ratio of total capital; x_4 – return on assets of the enterprise, %; x_5 – coefficient of financial independence (share of equity in the total balance sheet currency).

The comparative constant is the number 8. If the value of Z is greater than 8, then the risk of bankruptcy is insignificant or non-existent. If the value of Z is less than 8, there is a risk of bankruptcy: from 8 to 5 – the risk is small, from 5 to 3 – medium, if the value is less than 3 – large, less than 1 – one hundred percent financial insolvency.

3. In [24] a universal discriminant function is proposed, which is calculated by the formula:

$$Z = 1{,}5\ x_1 + 0{,}08\ x_2 + 10\ x_3 + 5\ x_4 + 0{,}3\ x_5 + 0{,}1\ x_6; \quad (3)$$

where x_1 – cash-flow / commitment; x_2 – currency balance / commitment; x_3 – profit / currency balance; x_4 – profit / sales revenue; x_5 – production stocks / sales revenue; x_6 – sales revenue / currency balance.

The authors propose to interpret the obtained values of Z – indicator as follows: if $Z > 2$ then the company is considered financially stable and it is not threatened with bankruptcy; in the case when $1 < Z < 2$ – financial balance (financial stability) of the enterprise is violated, but under the condition of transition to anti-crisis management it is not threatened with bankruptcy; at $0 < Z < 2$ – the company is threatened with bankruptcy if it does not take remedial action and if $Z < 0$ – the company is semi-bankrupt.

4. The coefficient of probability of bankruptcy proposed in [25] is calculated by the formula:

$$Z = 8{,}38\ x_1 + x_2 + 0{,}054\ x_3 + 0{,}63\ x_4; \quad (4)$$

where x_1 – working capital / average annual value of assets; x_2 – undivided profit / equity; x_3 – sales revenue / average annual value of assets; x_4 – undivided profit / general expenses. Interpretation of the obtained results is performed using Table 2.

Table 2

Determining the probability of bankruptcy of the enterprise according to the method

Bankruptcy risk, Z	Probability of bankruptcy, %
Less than0	maximum (90 – 100)
from 0 to 0.18	high (60 – 80)
from 0,18 to 0,32	average (35 – 50)
from 0,32 to 0,42	low (15 – 20)
More than 0.42	minimal (до 10)

Source: [25]

5. In [26] the integrated indicator of financial stability of the enterprise is proposed to be calculated by the formulas:

$$Z = \sqrt[\alpha_1+\alpha_2+\alpha_3]{x_1^{\alpha_1} \cdot x_2^{\alpha_2} \cdot x_3^{\alpha_3}}, \quad (5)$$

or

$$Z = \frac{\alpha_1 \cdot x_1 + \alpha_2 \cdot x_2 + \alpha_3 \cdot x_3}{\alpha_1 + \alpha_2 + \alpha_3}, \quad (6)$$

where x_1 – the level of solvency of the enterprise; x_2 – the level of financial independence of the enterprise; x_3 – level of asset quality; $\alpha_1, \alpha_2, \alpha_3$ – weighting factors of the relevant summary indicators.

In 2016, Ukraine issued an order of the Ministry of Finance "On approval of the Procedure for assessing the financial condition of a potential beneficiary of an investment project, the implementation of which is provided for financial self-sufficiency, as well as determining the type of collateral for servicing and repaying loans provided by international financial organizations. which will be carried out at the expense of the beneficiary", which defines the procedure for assessing the financial stability (inverse concept of bankruptcy risk) of Ukrainian enterprises.

This legal document proposes the use of different models to assess the financial condition of enterprises depending on the industry and their size (Table 3).

Table 3

Models for calculating the integrated indicator of the financial condition of the beneficiary (large and medium enterprises)

№	Groups of economic activities	Formulas
1	Agriculture, forestry and fisheries	$Z = 1{,}3\ K_3 + 0{,}03\ K_4 + 0{,}001\ K_5 + 0{,}61\ K_6 + 0{,}75\ K_7 + 2{,}5\ K_8 + 0{,}04\ K_9 - 0{,}2$
2	Manufacture of food products, beverages and tobacco	$Z = 0{,}035\ K_1 + 0{,}04\ K_2 + 2{,}7\ K_3 + 0{,}1\ K_6 + 1{,}1\ K_7 + 1{,}2\ K_8 + 0{,}05\ K_9 - 0{,}8$
3	Manufacturing industry	$Z = 0{,}95\ K_3 + 0{,}03\ K_4 + 1{,}1\ K_6 + 1{,}4\ K_7 + 3{,}1\ K_8 + 0{,}04\ K_9 + 0{,}03\ K_{10} - 0{,}45$
4	Mining and quarrying; processing industry; electricity and gas supply; water supply, sewerage	$Z = 0{,}025\ K_1 + 1{,}9\ K_3 + 0{,}45\ K_6 + 1{,}5\ K_8 + 0{,}03\ K_9 - 0{,}5$
5	Construction	$Z = 0{,}02\ K_1 + 1{,}7\ K_3 + 0{,}01\ K_4 + 0{,}3\ K_6 + 0{,}4\ K_7 + 2{,}9\ K_8 - 0{,}1$
6	Wholesale and retail trade, repair of motor vehicles; temporary accommodation and catering	$Z = 1{,}03\ K_3 + 0{,}001\ K_4 + 0{,}16\ K_6 + 0{,}6\ K_7 + 2{,}9\ K_8 + 0{,}08\ K_9 - 0{,}14$
7	Transport, warehousing, postal and courier activities; telecommunications	$Z = 0{,}07\ K_2 + 1{,}27\ K_3 + 0{,}32\ K_6 + 1{,}98\ K_8 + 0{,}04\ K_9 + 0{,}04\ K_{10} - 0{,}15$
8	Financial and insurance activities (except banks)	$Z = 0{,}025\ K_1 + 2{,}7\ K_3 + 0{,}005\ K_4 + 0{,}13\ K_7 + 2{,}4\ K_8 - 0{,}93$
9	Information and telecommunications; other operations and services	$Z = 0{,}03\ K_1 + 0{,}9\ K_3 + 0{,}01\ K_4 + 0{,}002\ K_5 + 0{,}15\ K_6 + 0{,}5\ K_7 + 2{,}9\ K_8 - 0{,}05$

Source: [35]

Thus, two groups of enterprises were identified by size – large and small enterprises and nine groups by branches of economic activity of the company. The following ten financial ratios are used to build models: K_1 – coverage ratio (liquidity of the third degree); K_2 – intermediate coverage factor; K_3 – coefficient of financial independence; K_4 – ratio of non-current assets to equity; K_5 – return on equity; K_6 – coefficient of profitability of sales by financial results from operating activities (EBIT); K_7 – EBITDA margin; K_8 – return on assets for net income; K_9 – turnover ratio of current assets; K_{10} – turnover ratio of loan capital by financial results before tax, financial expenses and depreciation [27].

The financial ratios used to build models depend on the industry. Without exception, all models use the financial independence ratio and the

return on assets (ROA) ratio. These indicators are the basis for the financial analysis of any enterprise, as they reflect the efficiency of the company's resources (ROA) and the independence of the enterprise from the influence of creditors and debt capital, which characterizes the ability to cover own liabilities.

For each type of economic activity and size of the enterprise there is a corresponding table of interpretation of results.

The above-mentioned national system for assessing the financial condition of the entity eliminates national and sectoral factors influencing the quality of the results obtained (compared to classical models for assessing the risk of bankruptcy). However, the results obtained from the use of the national model do not fully reflect the real situation in the enterprise and do not allow to accurately predict its financial condition in the future.

As it turned out, in the course of the study, these methods give mixed results regarding the level of financial stability of agricultural enterprises in the Vinnytsia region. Comparing the actual data of calculations with the criteria for evaluating the integrated indicators for each method, a sharp contrast of the results of the analysis was obtained, and in some cases even their opposite. In particular, if according to the first method, it turned out that almost all enterprises in the region have a minimum (or average) probability of bankruptcy, and, consequently, financial stability at the appropriate level, the latter – all enterprises (except one) are on the brink of financial crisis bankruptcy. It should be noted that a similar crisis situation has been recorded before, when calculating absolute indicators and determining on their basis a three-component indicator of financial stability. Thus, the latter method better than others assesses the financial position of the enterprise, but it also has certain shortcomings:

1. Including theoretically in the summary indicators in addition to the coefficients of solvency and financial independence coefficients of the third group of indicators characterizing the level of asset quality (share of highly liquid assets, receivables quality ratio and net current assets ratio), the authors do not specify the values groups and weights that were determined by the expert method for the other two analytical areas. Which in turn complicates the practical use of this group of indicators in this method of calculating the integrated indicator of financial stability.

2. After calculating the actual values of integrated indicators, we do not get an answer to the question of interpretation of its negative values. In particular, further actions in the analysis are unknown when obtaining a negative (worst) result for all analyzed enterprises (when both actual and regulatory values are less than one), because the methodology does not detail the analysis of the results. Having received one ambiguous conclusion, which confirms the difficult financial situation, which the authors described as "the financial stability of the company is unsatisfactory", it is impossible to compare different companies and analyze the degree of influence of key factors on the financial stability of each facility. The specifics of different types of economic activity and their segments are also not taken into account.

6. Conclusion

One of the important factors for the successful operation of enterprises is the rapid assessment of the level of financial stability, which allows timely development and implementation of effective measures for the rehabilitation of enterprises, prevent bankruptcy, increase their competitiveness. Methodological approaches to assessing the sustainability of Ukrainian enterprises are constantly being improved by scientists and transformed in accordance with the industry direction and modern economic conditions. However, in the economic literature there is a lack of specificity and unambiguity in the interpretation of some concepts that characterize the field of research, including vagueness in the definition of such categories as: "financial stability", "stability", "solvency", "stable financial condition".

Based on the principles of complexity and balance of socio-economic and environmental activities, financial stability of the enterprise should be considered as a state of accumulation, distribution and use of financial resources, in which the company, freely maneuvering them, using the latest resource-saving and environmentally friendly technologies continuous process of production and sale of products, its expansion and renewal, aimed at increasing the competitiveness of the enterprise and improving the socio-economic development of the team and the countryside.

Analyzing the financial stability of the enterprise, foreign and Ukrainian scientists use different approaches and techniques. Their diversity emphasizes the lack of a single methodology for assessing the

level of financial stability, which would objectively reflect the financial situation in the company. The analysis of various methods of calculating integrated indicators of financial stability, proposed by Ukrainian scientists, indicates that the issue of developing a modern factor model of the integrated indicator is quite relevant, needs improvement and adaptation to modern conditions of domestic agricultural enterprises. At the same time, this model should not only determine the level of financial stability of agricultural enterprises, but also provide an in-depth analysis of the formation of the results obtained; conduct research on inter factor relationships and determine the impact of each coefficient on the level of the aggregate indicator of both the individual analytical group and the overall integrated indicator.

Given the fact that the scientific literature offers a significant number of relative indicators of financial stability and a variety of approaches to determining its level, it is advisable to use the method of expert assessments, which will be discussed in the next section of the monograph.

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