METHODS OF BANKRUPTCY PREDICTION AT THE ENTERPRISES UNDER CONDITIONS OF QUARANTINE RESTRICTIONS DUE TO THE COVID-19 PANDEMIC

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Abstract. The problem of bankruptcy prevention is growing in importance under conditions of the decline of economic growth and quarantine restrictions caused by the COVID-19 pandemic, which has significantly affected the domestic economy. In the second reading, the Ukrainian Parliament adopted amendments to the Code of Ukraine on the Bankruptcy Procedure, which banned moratorium on bankruptcy initiation by the creditors. Thus, there was approved "Draft Law on Amendments to Certain Legislative Acts to Regulate Certain Issues of Bankruptcy Procedures for the Period of Implementation of the Measures Aimed at Preventing the Emergence and Spread of the COVID-19 Pandemic" No 4220. This moratorium was introduced in the framework of measures for business support due to the COVID-19 pandemic. Quarantine restrictions caused by the COVID-19 pandemic have affected many businesses throughout the world. First of all, this is due to strict quarantine measures imposed by the governments of many countries: closure of shopping and entertainment centers, a ban on all public events, restrictions on the movement both within the country and when crossing its borders, reduction of production (due to the establishment of limits for the simultaneous stay of workers in one room), etc. Quarantine has ruined consumer sentiment and almost halted several industries including retail, hotel and restaurant business, air travel. The amount of budget revenues has decreased. As a result of quarantine, Ukrainian companies have frozen investments and production chains, and some of them are on the verge of bankruptcy. The main economic sign of bankruptcy is reduced to a single point. It is inability of the enterprise to meet the requirements of creditors. However, in order

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to avoid numerous bankruptcies on insignificant debts, the minimum amount of debt is determined, at which a bankruptcy case can be initiated. Macroeconomic efficiency of the institution of bankruptcy directly depends on the systemic nature of the relevant fragment of the national legislation, availability of the detailed representative economic statistics and the level of conceptual development of effective anti-crisis regulation. At the level of microeconomics, bankruptcy means not just stopping the local production process, i.e. the loss of a sustainable source of permanent income and social security. And at the level of macroeconomics there is the opposite situation; bankruptcy means rehabilitation of production from inefficient forms of its organization and inefficient management, overcoming cyclical recession and modernization of the technological base of production. A modern approach to the study of bankruptcy is associated with the definition of objective economic signs of corporate bankruptcy and specific signs of financial insolvency of the enterprise, assessment of the effectiveness of basic legal procedures for bankruptcy (supervision, external management, bankruptcy proceedings, and amicable settlement). Financial preconditions for insolvency and bankruptcy of the enterprise are analyzed in accordance with Methodical recommendations on detection of signs of insolvency of the enterprise and signs of concealment of bankruptcy, fictitious bankruptcy or bringing to bankruptcy; Methodology of in-depth analysis of the financial and economic condition of insolvent enterprises and organizations. Financial statements are the sources of information for analysis and detection of signs of bankruptcy. To predict the risk of bankruptcy, it is necessary to be guided by regulatory sources, data of accounting, statistical, operational accounting and reporting. Necessary information can also be obtained from documentary inspections, audits, orders, directives, economic and legal materials (contracts). To study the results of financial and economic activities of the object of study there can be used accounting data, which contains extensive analytical information. According to primary documents, it is possible to establish the causes of overspending, payment of fines, perpetrators, determine the legality and appropriateness of business transactions.

The main sign of bankruptcy is inability of the company to comply with creditors' claims within three months from the date of payment. After this period, creditors have the right to apply to the arbitral tribunal to declare

the debtor company a bankrupt. Bankruptcy is the result of interaction of internal and external factors. Due to the limitations of the COVID-19 pandemic, 1/3 of the business destruction is associated with internal factors and 2/3 with external factors. Bankruptcy characterizes realization of catastrophic risks of the enterprise in the course of its financial activity, as a result of which it is unable to meet the requirements set by creditors and meet obligations to the budget.

Among a wide range of methods used to determine the characteristics of various phenomena and processes, to identify the features of development, to study the dynamics of changes at the enterprises under conditions of the threat and development of crisis, there can be distinguished the main ones: expert (expert assessments); research and statistical; analytical; method of analogues. The whole set of methods for assessing the state of the enterprise is based on three main approaches, which include: the use of a system of indicators and informal indicators (criteria and features); setting the maximum number of indicators in different areas of the enterprise; creation of a separate system of integrated indicators. In the practice of analysis and assessment of the enterprise state the most common approach is the one that involves the use of a system of indicators and informal indicators. Integrated factor models developed using multidimensional multiplicative analysis are often used to assess the probability of bankruptcy and the level of creditworthiness of the enterprise. Bankruptcy forecasting methods based on the use of financial ratios are as follows: Two- and five-factor models for estimating the probability of bankruptcy based on Altman's "Z-score"; Model of Roman Lis, W. Beaver; Method of rating assessment of financial condition (rating number); R – bankruptcy risk prediction; Taffler's prediction model; Fulmer's model; Springgate model; Generalized model developed on the basis of discriminant function; PAS-ratio. Integrated factor models of E. Altman, Lis, Taffler, Tishau and others are often used to assess the probability of bankruptcy and the level of creditworthiness of the enterprise (Table 1), developed using multidimensional multiplicative analysis.

1. Introduction

The problem of bankruptcy prevention is growing in importance under conditions of the decline of economic growth and quarantine restrictions caused by the COVID-19 pandemic, which has significantly affected the

domestic economy. It should also be considered that since 1991 the existing financial and economic ties of enterprises that were operating at that time have been destroyed, new ones have not been formed yet, while the state's leadership has been minimal. Financial crises of 2007–2010 and 2014–2018, reduction of the activities of enterprises due to the pandemic beginning from 2020 provoked the transition of domestic businesses to the raw material model of economic development, which in turn led to an increase in the export component in commodity markets, and affected the economic downturn. However, economic policy, which provides compensation for the decline in market activity due to the growth of raw materials in the structure of the economy when creating regulatory state institutions, currently does not meet the requirements of the economic system. In this regard, new vectors have emerged as state priorities, including scientific and technological development, innovation and modernization of enterprises, accordance to which new mechanisms and tools are used to regulate economic relations, state support is provided to enterprises.

Recently, a new approach to the formation of economic policy has become a priority one, and the need to establish new institutions and build economic relations on a fundamentally new basis has been recognized. The Draft "Sustainable Development Strategy of Ukraine 2030" No 9015/2018, the Decree of the President of Ukraine "On the Goals of Ukraine's Sustainable Development 2030" No722/2019, regional development strategies by 2027 have been adopted.

In addition, in the second reading, the Ukrainian Parliament adopted amendments to the Code of Ukraine on the Bankruptcy Procedure, which banned moratorium on bankruptcy initiation by the creditors. Thus, there was approved "Draft Law on Amendments to Certain Legislative Acts to Regulate Certain Issues of Bankruptcy Procedures for the Period of Implementation of the Measures Aimed at Preventing the Emergence and Spread of the COVID-19 Pandemic" No 4220. This moratorium was introduced in the framework of measures for business support due to the COVID-19 pandemic.

According to the innovations in the current legislation:

– creditors' meetings can be held by videoconference;

– creditors' meetings can be conducted through surveys.

Immunity has been determined for the arbitral trustee concerning disciplinary liability for the failure to preform actions, if their performance is

prevented by the quarantine requirements. This is possible if the arbitration trustees has notified the creditors of the committee or "creditors' committee, in particular those whose claims are secured by the debtor's property.

It is expected that the court at the request of the creditors' committee, creditor, arbitration trustee or on its own initiative may extend the terms while:

– holding a preliminary court hearing in the case of bankruptcy (insolvency);

– applying for invalidation of transactions committed by the debtor, moratorium on satisfaction of creditors' claims within the bankruptcy proceedings (insolvency);

– announcing the first, repeated or second repeated auction;

– implementing the plan of rehabilitation or restructuring of debtor's debts, procedures for disposition of property, liquidation, restructuring and repayment of debtor's debts.

Amendments exclude the provisions according to which:

– it is not allowed to open bankruptcy proceedings against debtors – legal entities at the request of creditors on the claims against the debtor, which arose since March 12, 2020;

– a one-month period for filing an application for bankruptcy with the debtor's manager due to the spread of the COVID-19 pandemic or measures to control the spread of this disease is extended;

– the creditors' committee and the secured creditor (in respect of the property that is the subject of security) have the right to decide whether to suspend the auctions for the sale of the debtor's property.

However, the norm will remain in force, which ensures the following points:

– the accrual of interest on the debtor's obligations to creditors, which are restructured by the plan of reorganization or restructuring of the debtor's debts, is stopped;

– penalties for non-fulfillment of such obligations by the debtor are not accrued;

– overdue obligations provided in the plan of rehabilitation or restructuring of the debtor's debts are subject to installments for the period of execution of the plan of rehabilitation or restructuring of the debtor's debts.

However, the measures applied today in the framework of the economic development program, especially in the field of mechanisms on

the enterprise bankruptcy prevention, are aimed at solving certain local problems and are not effective enough, and the position of enterprises is not significantly improved.

Quarantine restrictions caused by the COVID-19 pandemic have affected many businesses throughout the world. First of all, this is due to strict quarantine measures imposed by the governments of many countries: closure of shopping and entertainment centers, a ban on all public events, restrictions on the movement both within the country and when crossing its borders, reduction of production (due to the establishment of limits for the simultaneous stay of workers in one room), etc. Some companies have orgnized distance work, while others are forced to start vacation for their employees. At the same time, there are cases of abuse and violation by some employers of the terms of the employment contract, which require employees to write applications for dismissal on their own volition or to take vocation at their own expense. All this has a negative impact on the welfare of the population, their financial situation and in the near future will reduce their demand for a number of goods and services.

2. Bankruptcy in modern economic conditions

Quarantine has ruined consumer sentiment and almost halted several industries including retail, hotel and restaurant business, air travel. The amount of budget revenues has decreased. As a result of quarantine, Ukrainian companies have frozen investments and production chains, and some of them are on the verge of bankruptcy. Bankruptcy characterizes realization of catastrophic risks of the enterprise in the course of its financial activity, as a result of which it is unable to meet the requirements set by creditors and meet obligations to the budget.

Bankruptcy (i.e. financial failure) is the documented inability of an enterprise to pay its liabilities and finance its current activities due to the lack of funds. This state of the enterprise indicates deterioration of all indicators that determine financial stability.

The main economic sign of bankruptcy is reduced to a single point. It is inability of the enterprise to meet the requirements of creditors. However, in order to avoid numerous bankruptcies on insignificant debts, the minimum amount of debt is determined, at which a bankruptcy case can be initiated.

According to domestic economists [1, p. 232; 2, p. 220; 3, p. 208; 4; 5, p. 246–250], solvency of the enterprise depends on the relationship of the following factors:

– the needs of buyers to regularly buy and fully pay for goods and services;

– the quality of the legal regime of the business environment;

– level and volatility of prices for goods and services;

– consistency and rationality of financial policy measures;

– the amount of tax deductions;

– completeness and timeliness of fulfillment of obligations by budgetary institutions.

Macroeconomic crises that have a cross-sectoral system-wide nature and cover macroeconomics in general should be distinguished from a single act of bankruptcy. There can be revealed the following dependence: local bankruptcy is not the cause of macroeconomic crisis, while macroeconomic crisis is always the cause of a series of local bankruptcies. That is why, when analyzing the pace of development of the national macroeconomy, it is necessary to highlight the amount of debt caused by bankruptcy.

External (macroeconomic) causes that can provoke the emergence and spread of bankruptcy are such objective processes as recession in the economy as a whole (or in this industry), reduction in sales, which is a key condition for optimizing the ratio between aggregate demand and aggregate supply), as well as difficulties with the mass repayment of previously issued loans. In the institution of bankruptcy there is a contradiction between its macroeconomic nature and microeconomic effect.

Macroeconomic efficiency of the institution of bankruptcy directly depends on the systemic nature of the relevant fragment of the national legislation, availability of the detailed representative economic statistics and the level of conceptual development of effective anti-crisis regulation. Operation of special state control bodies that prevent corruption and shady activities, fictitious and counterfeit transactions, i.e. those types of illegal business that act as independent factors of real bankruptcy are of special importance.

At the level of microeconomics, bankruptcy means not just stopping the local production process, i.e. the loss of a sustainable source of permanent income and social security. And at the level of macroeconomics there is

the opposite situation; bankruptcy means rehabilitation of production from inefficient forms of its organization and inefficient management, overcoming cyclical recession and modernization of the technological base of production. In other words, in the macroeconomic aspect, bankruptcy is an opportunity to transform a particular enterprise.

Nowadays, there can be stated a change in the ratio of importance of macroeconomic (global) and microeconomic (local) factors of bankruptcy. While macroeconomic factors (inflation, intra-industry crisis, production recession, extensive methods) were dominating during the industrial era, during the post-industrial era the determining causes of bankruptcy were quarantine restrictions associated with the COVID-19 pandemic, as well as inefficiency of the enterprise management.

Thus, bankruptcy is becoming a special tool of progressive dynamics of the management system in this chain of social production. For the theoretical characteristics of bankruptcy from the point of view of the economy, economic analysis of the process of providing credit resources, taking into account the growth of financial assets of the enterprise is of special importance. In this regard, the development and introduction of credit risk models based on long-term representative dynamics of accounting data of the leading industrial enterprises and market prices for the relevant products is of priority significance.

The effect of the study of bankruptcy patterns is achieved by shifting to credit risk models based on forecasting the share price of enterprises, as well as financial models. When analyzing the bankruptcy process, considerable attention is paid to testing and use of credit risk models, default ratings.

In conditions of the world production globalization, credit risk, which forces to change portfolio approaches to credit assessments and adjust the planned short-term profit taking into account financial risks and irrational distribution of the enterprise capital, is getting the status of a key factor in economic dynamics. Precautionary analysis aimed to prevent bankruptcy involves the creation of a generalized model of crisis management based on the fixation of the hallmarks of “crisis” management from the usual administrative management of the day-to-day operation of the corporation. An important macroeconomic indicator of the success of anti-bankruptcy policy is the ratio between primary and repeated bankruptcy. In this regard, it is necessary to overcome the independence of the growth of management

income of the bankrupt enterprise from the economic condition of the whole corporation. This is facilitated in particular by the transformation of the bankrupt corporation into the status of "debtor in possession", which allows the corporation's management to maintain control over business, but with sanctions. This is especially important at the stage of the domestic economy development.

In the long-term prospect, the risk of new shocks in the financial sector of the credit market is associated not so much with high-tech corporations, but with corporations representing the traditional economy (often the so-called resource economy). For "resource" corporations working in the consumer sector, which are usually in a difficult financial position due to stable final demand and low interest rates, it is especially difficult to prevent pre-bankruptcy situations when the prices changes.

Financial insolvency of enterprises is a theoretically and practically relevant issue of economic research for many economists. The studies, which allow to build an economic model of the bankruptcy situation, are aimed at developing a common methodology for predicting corporate bankruptcies, and thus prevent and reduce the total number of bankruptcies. A modern approach to the study of bankruptcy is associated with the definition of objective economic signs of corporate bankruptcy and specific signs of financial insolvency of the enterprise, assessment of the effectiveness of basic legal procedures for bankruptcy (supervision, external management, bankruptcy proceedings and amicable settlement). Appropriate economic analysis can form the basis for conceptual improvement of changes in the legal regulation of corporate bankruptcy including such norms as the grounds for bankruptcy, the level of professional competence of arbitral trustees, the procedure for their appointment and control over their activities, rehabilitation procedure for financial recovery of the debtor, the order of satisfaction of creditors in bankruptcy proceedings, insolvency (bankruptcy) of organizations and subjects of natural monopolies.

The scale, intensity and potential danger of corporate bankruptcy largely depends on the interaction between government and business. Obviously, coordination of public (primarily state) and private (primarily corporate) interests forms the economic basis of all conceptual programs for sustainable growth of the national economy. It can be argued that the frequency and scale of corporate bankruptcy in the national economic

system is a kind of objective indicator of the degree of mutually beneficial cooperation between government and business (large, medium, small). In fact, such mutual benefit means that the state shares and protects inevitable risks of long-term strategic investments with large corporations.

Insolvency (or, in the common language of the conceptual apparatus of economic science – "bankruptcy") is the inability of the debtor to satisfy creditors' claims. The market mechanism of transformation of a corporate debtor into a "bankrupt" and a creditor into a loss-making financial agent is the main problem when analyzing the mechanism of formation of the institutional nature of corporate bankruptcy. Since in most cases this applies to financial requirements, situations that arise as a result of long-term excess of cash costs of the enterprise over its cash income are usually considered. Therefore, at first glance, bankruptcy is a fact of unbalanced financial technology, i.e. a phenomenon that has a purely financial origin, financial nature and financial consequences.

However, a "narrow-sectoral" interpretation of bankruptcy as "financial bankruptcy" only is not correct. As fairly noted in the literature [6, p. 57–60; 7, p. 224; 8, p. 209; 9, p. 227; 10, p. 25; 11], "structural optimization of capital, aimed at financial recovery and restoring the solvency of the enterprise, is a strategy bringing its capital, individual units and property complex as a whole to such proportions that help minimize debt, increase incomes and save outgoing financial flows". The content of the problems studied by economics is generally social: in any period it involves analysis of production efficiency, conditions of full employment, minimization of transaction costs, fair differentiation of income distribution, dominated by factors of economic growth. The problem arises from the fact that the mechanism of their implementation has a spatial specificity and temporal dynamics. These specifics and dynamics form problematic nature of the national economy.

The analysis of financial preconditions of bankruptcy of the enterprise is carried out according to:

– methodical recommendations on detection of signs of insolvency of the enterprise and signs of actions with concealment of bankruptcy, fictitious bankruptcy or bringing to bankruptcy;

– methods of conducting an in-depth analysis of the financial and economic condition of insolvent enterprises and organizations.

Financial statements are the sources of information for analysis and detection of signs of bankruptcy.

To predict the risk of bankruptcy, it is necessary to be guided by regulatory sources, data of accounting, statistical, operational accounting and reporting. Necessary information can also be obtained from documentary inspections, audits, orders, directives, economic and legal materials (contracts).

First of all, it is necessary to study data of the annual report: Income statement, Statement on on the aggregate income). In addition, it is necessary to study the notes to the financial statements.

To study the results of financial and economic activities of the object of study there can be used accounting data, which contains extensive analytical information. According to primary documents, it is possible to establish the causes of overspending, payment of fines, perpetrators, determine the legality and appropriateness of business transactions.

The main sign of bankruptcy is inability of the company to comply with creditors' claims within three months from the date of payment. After this period, creditors have the right to apply to the arbitral tribunal to declare the debtor company a bankrupt.

Economic performance of any business entity is subject to fluctuations and depends on many factors. Most businesses are in the ups and downs, and some are almost bankrupts. The causes of ups and downs in the activities of enterprise are considered as the effect of a number of factors: external (the company cannot influence them or its influence may be weak) and internal (depending on the organization of the enterprise itself). It is impossible to prioritize these factors. External factors are the main ones, including the constraints caused by the COVID-19 pandemic, political, economic and financial instability, leading to business insecurity and insolvency in general.

Bankruptcy is the result of interaction of internal and external factors. Due to the limitations of the COVID-19 pandemic, 1/3 of the business destruction is associated with internal factors and 2/3 with external factors [12, p. 136; 13; 14, p. 87; 15, p. 553–558; 16, p. 65; 17, p. 244–250].

Thus, bankruptcy characterizes realization of catastrophic risks of the enterprise in the process of its financial activities, as a result of which it is inconvenient to meet the requirements set by creditors in a timely manner and fulfill obligations to the budget.

The main reasons are as follows:

1. Serious violation of financial stability of the enterprise, which impedes its normal economic activities.

2. Significant imbalance within a relatively long period of its cash flows.

3. Prolonged insolvency of the enterprise caused by low liquidity of its assets.

Features of bankruptcy can be divided into two groups:

1. The first group includes indicators that reveal possible financial difficulties and the likelihood of bankruptcy in the near future: decline in production, reduced sales, chronic losses; presence of bad debts and receivables; low values of liquidity ratios and a steady tendency to their further reduction; equity deficit; growth to the dangerous limit of the share of borrowed capital in its total amount; adverse changes in the order book; decrease in the market value of the company's shares; reduction of production capacity.

2. The second group includes indicators, negative values of which only signal the possibility of a sharp deterioration of the financial situation in the future in case of failure to take effective measures: excessive dependence of the company on a particular project, type of equipment, market; loss of key contractors or experienced employees of the management staff; forced downtime, irregular work; ineffective long-term agreements; deficit of capital investments [18, p. 86–90; 19, p. 101–103].

The reasons for the ups and downs of the company during the COVID-19 pandemic are considered as the effect of a number of factors:

– external factors: crisis of the economy, general decline in production, inflation, instability of the financial system, changing market conditions, insolvency or bankruptcy of partners, political instability of the state, imperfection of legislation in economic law and antitrust policy, tax oppression, increased international competition, the level of welfare of the population, changes in production technology, development of science and technology, etc.;

– internal factors: competence of the company's management, high production costs, unprofitable production, insufficient sales due to unsatisfactory marketing services of the enterprise, lack of working capital, low level of equipment, technology and organization of production, creation of excessive balances, unsatisfactory payment discipline, insufficiently considered credit policy of the compny, etc.

External factors are the main ones, and the main of them is political, economic and financial instability, which leads to uncertainty and insolvency in general, to the bankruptcy of business entities. The decline in profitability is caused by various reasons both internal and external.

External causes include:

1. Economic: the crisis of the economy: inflation, general decline in production, instability of the financial system, rising resource prices; change in market conditions, insolvency and bankruptcy of partners; strict fiscal policy of the state (high level of taxes).

2. Political: unstable political situation in the country; change in the foreign economic policy of the state; antitrust policy of the state; imperfection of legislation, etc.

3. Demographic: change in population number and composition; level and structure of consumption; living standards and solvency of the population.

4. Natural: COVID-19, flood; natural disaster, etc.

Internal causes include:

– low level of equipment, technology that does not contribute to the production of competitive products;

– low level of organization of production, which leads to reduced efficiency of production resources, production capacity, creation of excess balances and results in slowing down the turnover of capital, creating its deficit, forcing the company to take loans;

– the use of loans on unfavorable terms, which leads to increased financial costs, reduced profitability;

– poor clientele of the company that pays late or does not pay and leads to chain bankruptcy;

– lack of a portfolio of orders, which leads to a decrease in sales, cash flow, increase in accounts payable;

– rapid and unplanned expansion of economic activity, which leads to a deficit of working capital, as the growth of inventories and costs is faster than sales.

The main internal reasons involve, first of all, imperfect management, because of which, for example, the company might have made inefficient long-term financial investments that did not ensure the growth of its income in the expected period; the enterprise is burdened with excessive production

stocks that do not increase production and cash inflows; the company produces finished products that are not sold; maintains a disproportionate socio-cultural sphere or an excessive number of staff, etc. Such reasons in modern conditions include ineffective marketing strategy and tactics when there is a significant number of intermediaries between producers and consumers, in which the vast majority of revenue settles.

External reasons for non-fulfillment of obligations may be, in particular, situations when the market reduces the overall demand for the company's products due to the lack of demand for it, high prices, reduced solvency, the emergence of substitute goods, etc. Such situations may arise when unscrupulous consumers do not make payments for shipped products or services. In these cases, the company, having no revenue, cannot fulfill its obligations to other entities of its economic relations and activities.

There may be situations of abrupt changes in tax policy, introduction of increased customs tariffs, direct bans on exports or imports, which also leads to the inability of the company to meet its obligations [20, p. 19; 21, p. 83; 22, p. 120].

External factors can be international and national. International factors are formed under the influence of the dynamics of general economic indicators of the leading countries of the world financial system, stability of international trade, customs policy, level of international competition, movement of international capital, etc.

It is the unjustified economic policy of the government, uncontrolled inflation, total economic crisis, political instability of society, decline of business activity in the economy that most affect the performance of enterprises primarily due to imperfect legal framework. At the present stage, the development of science and technology has slowed down due the deep crisis in the investment sphere.

One of the first signs of bankruptcy is a decrease in the profitability of the enterprise (in this case, profitability is the share of profits of the enterprise after paying taxes on annual revenue).

Under relative decline in profitability of the enterprise, there are difficulties with cash and possible difficulties with payment. Although lenders receive fixed amounts specified in loan agreements, they may consider it dangerous to resume lending, even at higher interest rates, because the risk of repayment increases when the value of the company's

equity decreases. Then the company will have to pay the amount of principal, in addition to interest.

To prevent business bankruptcy, financial preconditions for insolvency and bankruptcy of the enterprise are analyzed in accordance with Methodical recommendations on detection of signs of insolvency of the enterprise and signs of concealment of bankruptcy, fictitious bankruptcy or bringing to bankruptcy; Methodology of in-depth analysis of the financial and economic condition of insolvent enterprises and organizations.

3. Bankruptcy prediction methods

Among a wide range of methods used to determine the characteristics of various phenomena and processes, to identify the features of development, to study the dynamics of changes at the enterprises under conditions of the threat and development of crisis, there can be distinguished the main ones:

– expert (expert assessments);
– research and statistical;
– analytical;
– method of analogues.

The whole set of methods for assessing the state of the enterprise is based on three main approaches, which include:

– the use of a system of indicators and informal indicators (criteria and features);

– setting the maximum number of indicators in different areas of the enterprise;

– creation of a separate system of integrated indicators.

In the practice of analysis and assessment of the enterprise state the most common approach is the one that involves the use of a system of indicators and informal indicators.

Integrated factor models developed using multidimensional multiplicative analysis are often used to assess the probability of bankruptcy and the level of creditworthiness of the enterprise.

Bankruptcy forecasting methods based on the use of financial ratios are as follows [20, p. 21; 21, p. 90; 22, p. 121; 23, p. 18–22; 24]: Two- and five-factor models for estimating the probability of bankruptcy based on Altman's "Z-score"; Model of Roman Lis, W. Beaver; Method of rating assessment of financial condition (rating number); R – bankruptcy risk prediction; Taffler's

prediction model; Fulmer's model; Springgate model; Generalized model developed on the basis of discriminant function; PAS-ratio.

Integrated factor models by E. Altman, Lis, Taffler, Tishau and others are used to assess the probability of bankruptcy and the level of creditworthiness of the enterprise (Table 1), developed using multidimensional multiplicative analysis.

Table 1

Integrated models for assessing bankruptcy probability

Model name	Field of activity	Basic formula	Components of formula	Limit value
Altman model (1968)	Trade	$Z = -0.3877 - 1.0736R_c + 0.0579R_a$	R_c – coverage ratio R_a – ratio of autonomy	< 0
Altman model (1968)	Trade	$Z = 1.2K_1 + 1.4K_2 + 3.3K_3 + 0.6K_4 + 0.999K_5$	K_1 - Owned working capital / Balance sheet currency; K_2 – Retained earnings / Balance sheet currency; K_3 – Net profit / Balance sheet currency; K_4 – Market value of equity / Raised capital; K_5 – Revenue from sales / Balance sheet currency.	2.675
Alman model (1983 p.)	Trade	$Z_c = 0.717K_1 + 0.847K_2 + 3.107K_3 + 0.42K_4 + 0.995K_5$	All components are similar, except K4 K_4 – Balance sheet reporting of equity / raised capital;	1.23
Lis model (1972 p.)	Hotel and restaurant business	$L = 0{,}063\ X_1 + 0{,}092\ X_2 + 0{,}057X_3 + 0{,}001\ X_4$	X_1 – working capital / amount of assets; X_2 – operating profit / amount of assets; X_3 – retained earnings / amount of assets; X_4 – equity / debt capital;	0.037

(End of Table 1)

Model name	Field of activity	Basic formula	Components of formula	Limit value
Taffler model (1997)	Air transportation	$Z=0.03\ X_1 + 0.13\ X_2 + 0.18\ X_3 + 0.16\ X_4$	X_1 – operating profit / short-term liabilities; X_2 – current assets / amount of liabilities; X_3 – short-term liabilities / amount of assets; X_4 – revenue / amount of assets.	0.2
R-model	Wholesale and retail trade	$R = 8.38\ K_1 + 1.0K_2 + 0.054K_3 + 0.63\ K_4$	K_1 – working capital / asset; K_2 – net profit / equity; K_3 – sales revenue / assets; K_4 – net profit / integrated costs	0.32
French-Copan and Golder model	Air transportation, trade	$Z_{cg}= 0.16X_1 – 0.22X_2 + 0.87X_3 + 0.10X_4 \pm 0.24X_5$	X_1 – (Accounts receivable + cash and cash equivalents) / Balance sheet currency; X_2 – Fixed capital / Balance sheet currency; X_3 – Financial expenses / Revenue from sales; X_4 – Staff costs / Value added; X_5 – Gross profit / Raised capital.	- 0.068

One of the simplest models for predicting of bankruptcy probability is a double-factor model for assessing bankruptcy probability. It is based on two key indicators: current liquidity and the share of borrowed funds, which depends on the bankruptcy probability.

If the result of Z is negative, bankruptcy probability is low. If Z = 0, then bankruptcy probability is 50%, and a positive value of this indicator indicates high bankruptcy probability. The greater the value of Z is, the greater bankruptcy probability is. This model can be shown as follows [20, p. 21; 21, p. 90; 22, p. 121; 23, p. 18–22; 24]:

$$Z = – 0.3877 – 1.0736\ R_c + 0.0579\ R_a, \quad (1)$$

where R_c – ratio of coverage or coverage ratio,

R_a – ratio of autonomy

To obtain a more accurate forecast, American practice recommends taking into account the level and trend of changes in profitability of products sold, as this indicator significantly affects the financial stability of the enterprise. This allows you to compare simultaneously the risk of bankruptcy Z and the level of profitability of sales. If the first indicator is within safe limits and the level of profitability is quite high, bankruptcy probability is very low.

Altman model developed in 1968 and also known as "Z-calculation" is an integrated indicator of the level of the bankruptcy threat. This method was proposed by the famous Western economist Altman. The index of creditworthiness is built using the apparatus of multiplicative discriminant analysis. It allows in the first approximation to divide economic entities into potential bankrupt and non-bankrupt.

When constructing the index, Altman surveyed 66 companies, half of which went bankrupt between 1946 and 1965, and half of them were successful, and 22 analytical ratios that could be useful for predicting bankruptcy probability. Among these indicators, he selected five most significant and built a multivariate regression equation

$$Z = 1.2\ K_1 + 1.4\ K_2 + 3.3\ K_3 + 0.6\ K_4 + 1.0\ K_5 \quad (2)$$

This is a five-factor model, where the factors are individual indicators of the financial condition of the enterprise:

K_1 – Owned working capital / Balance sheet currency;

K_2 – Reinvested (retained earnings) / Balance sheet currency;

K_3 – Net profit / Currency of the balance;

K_4 – Market value of equity / Raised capital;

K_5 – Revenue from sales / Balance sheet currency.

Value of "Z" is related to bankruptcy probability:

$Z \leq 1.8$ – very high;
$1.81 \leq Z \leq 2{,}70$ – high;
$2.71 \leq Z \leq 2{,}99$ – possible;
$Z \geq 3.0$ – very low.

According to some sources, the accuracy of bankruptcy prediction according to this model is 95%.

To assess the financial position of the enterprise, in 1972 Roman Lis suggested the following formula [20, p. 21; 21, p. 90; 22, p. 121; 23, p. 18–22; 24]:

$$L = 0.063\ X_1 + 0.092\ X_2 + 0.057\ X_3 + 0.001\ X_4 \quad (3)$$

where: X_1 – working capital / amount of assets;
X_2 – operating profit / amount of assets;
X_3 – retained earnings / amount of assets;
X_4 – equity / debt capital.

The limit value for this model is 0.037.

The method of rating assessment of the financial condition of the enterprise (rating number). R.S. Saifulin and G.G. Kadykov suggested using a rating number to quickly assess the financial condition of the company:

$$R = 2K_o + 0.1\ K_{cl} + 0.08K_i + 0.45K_m + K_r \quad (4)$$

where: K_o – ratio of provision with the owned funds;
K_{cl} – current liquidity ratio;
K_i – intensity of the turnover of advanced capital, which characterizes the volume of sales per one monetary unit of funds invested in the enterprise;
K_m – management ratio characterized by the ratio of profit from sales to the amount of sales revenue;
K_r – return on equity.

If the rating number R for the enterprise has a value that exceeds 1, the enterprise is in satisfactory condition. If this value is less than 1, it is characterized as unsatisfactory. Rating assessment of financial condition can be used to classify enterprises according to the level of risk, the relationship with them, banks, investment companies, partners. Prediction of insolvency on the basis of the rating number, however, does not allow us to assess the causes of the falling into "the zone of insolvency" by the enterprise. In addition, normative content of the ratios used for rating also does not take into account sectoral characteristics of enterprises.

R–model of bankruptcy risk prediction [20, p. 21; 21, p. 90; 22, p. 121; 23, p. 18-22; 24]. Scientists have proposed a four-factor model of bankruptcy riskprediction (R-model), which is as follows:

$$R = 8.38\ K_1 + 1.0K_2 + 0.054\ K_3 + 0.63\ K_4 \quad (5)$$

where: K_1 – working capital / asset;

K_2 – net profit / equity;

K_3 – sales revenue / assets;

K_4 – net profit / integrated costs.

The probability of bankruptcy of the enterprise in accordance with the value of the model is determined by:

Value R (Ratio of bankruptcy probability)	Bankruptcy probability
Lower than 0	Maximum (90 – 100)
0 – 0.18	High (60 – 80)
0.18 – 0.32	Medium (35 – 50)
0.32 – 0.42	Low (15 – 20)
More than 0.42	Minimal (up to 10)

The advantages of this model include the fact that the mechanism of its development and all the main stages of calculations are quite simple and can be explained in detail and justified.

In 1977, British scientist Taffler proposed a four-factor prediction model using the following approach in its development. When using computer technology in the first stage, 80 relationships are calculated according to the data of solvent companies and bankrupt companies. Then, using a statistical method known as multidimensional discriminant analysis, you can build a solvency model by determining the private ratios that best distinguish two groups of companies and their ratios. Such a selective ratio calculation is typical for determining some key dimensions of a corporation's performance, such as profitability, return on capital, financial risk, and liquidity. A typical model for the analysis of companies whose shares are listed on stock exchanges takes the following form:

$$Z = 0.3\ X_1 + 0.13\ X_2 + 0.18\ X_3 + 0.16\ X_4 \quad (6)$$

where: X_1 – operating profit / current liabilities;

X_2 – current assets / amount of liabilities;

X_3 – short-term liabilities / amount of assets;

X_4 – revenue / amount of assets.

If the value of Z-score is more than 0.3, this indicates that the company has good long-term prospects and if it is less than 0.2, bankruptcy is more than likely.

Fulmer's model [20, p. 21; 21, p. 90; 22, p. 121; 23, p. 18-22; 24]. The average size of the total assets of firms in Fulmer's sample is 455 thousand dollars. The initial version of the model included 40 ratios. The model predicts exactly 98% of cases per year before bankruptcy, in 18% of cases two years before.

General view of the model:

$$H = 5.528\ K_1 - 0.212\ K_2 + 0.073\ K_3 + 1.270\ K_4 - 0.120\ K_5 - 2.335\ K_6 + \\ + 0.575\ K_7 + 1.083\ K_8 + 0.894\ K_9 - 6.075 \quad (7)$$

where: K_1 – retained earnings of previous years / total assets;

K_2 – sales volume / total assets;

K_3 – pre-tax profit / total assets;

K_4 – cash flow / amount of liabilities;

K_5 – debt / total assets;

K_6 – liabilities / total assets;

K_7 – log (tangible assets);

K_8 – working capital / aggregate liabilities;

K_9 – profit before interest and taxes / interest paid.

According to the results of the model, you can get the following forecast:

– loss of solvency is inevitable when H is less than 0;

– when H is more than 0, the enterprise functions normally, with the subsequent gradation.

Springgate model [20, p. 21; 21, p. 90; 22, p. 121; 23, p. 18–22; 24]. This model is as follows:

$$Z = 1.03\ A + 3.07\ B + 0.33\ C + 0.4\ D \quad (8)$$

where: A – working capital / total asset value;

B – profit before taxes and interest / total value of assets;

C – pre-tax profit / short-term debt;

D – sales volume / total asset value.

It is estimated that the accuracy of bankruptcy prediction according to this model is 92%, but over time this figure decreases.

If $Z < 0.862$, the company is potentially bankrupt.

According to several methods of bankruptcy prediction, a universal discriminant function has been built:

$$Z = 1.5\ X_1 + 0.08\ X_2 + 10\ X_3 + 5\ X_4 + 0.3\ X_5 + 0.1\ X_6 \quad (9)$$

where X_1 – cash-flow / liability;

X_2 – balance sheet currency / liability;

X_3 – profit / balance sheet currency;

X_4 – profit / revenue from sales;

X_5 – inventories / sales revenue;

X_6 –turnover of fixed capital (sales revenue / balance sheet currency).

The obtained values of Z – indicator can be interpreted as follows:

$Z > 2$ – the company is considered financially stable, and it is not threatened with bankruptcy;

$1 < Z < 2$ – financial balance (financial stability) of the company is disturbed, but in case of its transitions to anti-crisis management, it is not threatened with bankruptcy;

$0 < Z < 1$ – the company is threatened with bankruptcy if it does not take remedial action;

$Z < 0$ – the company is semi-bankrupt.

To strengthen the predictive role of models, Z-ratio can be transformed into PAS-ratio, which allows you to track the company's activities over time. When studying PAS-ratio both above and below the critical level, it is easy to determine the moments of decline and revival of the company. PAS-ratio is a relative level of the company's activity, derived on the basis of its Z-ratio for a certain year and expressed as a percentage from 1 to 100 [20, p. 21; 21, p. 90; 22, p. 121; 23, p. 18–22; 24]. For example, PAS-ratio of 50 indicates that the company's performance is assessed as satisfactory, while PAS-ratio of 10% indicates that only 10% of companies are in a worse position (unsatisfactory situation). Therefore, when calculating PAS-ratio for the company, you can then transform the absolute measure of financial condition into a relative measure of financial activity. In other words, if Z-ratio can indicate that the company is at risk, PAS-ratio reflects the historical trend and current activities in the future.

The strength of this approach is its ability to combine key characteristics of the income statement in a single representative ratio. Thus, a company that

makes big profits but is weak in terms of balance sheet can be compared to a less profitable one which balance sheet is balanced. Thus, having calculated the PAS-ratio, you can quickly assess the financial risk associated with the company. So, the approach is based on the principle that the whole is more valuable than the sum of its components.

An additional feature of this approach is the use of "risk rating" for further identification of the hidden risk. This rating is statistically determined only if the company has a negative Z-ratio and the number of years during which the company was in a risky financial situation. Using a five-point scale, in which 1 indicates "risk but a small probability of immediate trouble" and 5 means "absolute impossibility of maintaining the status quo", the manager operates ready-made tools to assess the overall balance of risks associated with customer loans. Focusing on one criterion, even a very attractive one from the point of view of theory, is not always justified in practice. Therefore, many audit firms and other companies engaged in analytical reviews, forecasting and consulting, use a system of criteria for analytical assessments, i.e. a variety of comparative qualitative methods of bankruptcy assessment. With these techniques, one can analyze those processes that cannot be described by the methods that work with a single assessment. There are the following qualitative prediction methods [20, p. 21; 21, p. 90; 22, p. 121; 23, p. 18–22; 24]: Methods by V.V. Kovalov, Argenti method (A-score), ERNST Method, and WHINNEY, Scone Method.

Methods of qualitative analysis by V.V. Kovalov. An example is the recommendations of the Auditing Committee (UK), which contain a list of critical indicators for assessing possible bankruptcy. V.V. Kovalov proposed the following two-tier system of indicators, based on the developments of the Western audit firms and adapting these developments to the domestic specifics of business.

The first group includes criteria and indicators, unfavorable current values or dynamics of change of which indicate financial complications, including bankruptcy, that are possible in the future. They include:

– significant costs that are repeated in the main production activities;

– exceed of some critical level of overdue accounts payable;

– excessive use of short-term loans as a source of financing long-term investments;

– consistently low values of liquidity ratios;

– chronic lack of return funds;

– a stable share of borrowed funds, which increases to a dangerous limit in the total amount of sources of funds, etc.

The second group includes criteria and indicators, unfavorable values of which do not give grounds to consider the current financial condition as critical. However, they point out that under certain conditions or failure to take effective action, the situation could deteriorate sharply. They include:

– loss of key employees of the management staff;

– forced stops, as well as violations of the production and technological process;

– insufficient diversification of the enterprise, i.e. excessive dependence of financial results on any specific project, type, equipment, type of assets, etc.;

– excessive bet on the expected success and profitability of the new project;

– participation of the enterprise in court proceedings with unpredictable outcome;

– loss of key counterparties;

– underestimation of technical and technological renewal of the enterprise;

– ineffective long-term agreements;

– political risk associated with the enterprise as a whole or its key units.

As for the critical values of these criteria, they should be detailed by industry, and their development can be performed after the accumulation of certain statistics.

Argenti method (A-score). According to this methodology, research begins with the assumption that there is a process that leads to bankruptcy; this process takes several years to complete.

The process can be divided into three parts:

Disadvantages. Bankrupt companies have been experiencing a number of shortcomings for years, evident long before the actual bankruptcy.

Mistakes. As a result of the accumulation of these shortcomings, the company may make a mistake that leads to bankruptcy.

Symptoms. Mistakes made by the company are starting to reveal all the known symptoms of insolvency, the impending deterioration (hidden by "creative" calculations), signs of the lack of money. These symptoms appear

in the last two or three years of bankruptcy, which leads to bankruptcy and often lasts for five-ten years. When calculating the A-score of a particular company, it is necessary to set either the number of points according to Argenti, or 0-intermediate values are not allowed. Each factor of each stage is assigned a certain number of points and calculate the addressed indicator A-score.

The practice of applying these methods using data of Ukrainian enterprises and analysis of expert opinions in this context have shown that the most popular valuation methods are based on the analysis of financial ratios. This is primarily due to the fact that comparative methods involve extensive use of expertise, and national companies either do not have free money for such research, or do not want to show their real position.

In domestic practice, these models are used little, because they do not take into account sectoral characteristics of the enterprise development and their inherent forms of business organization and features of the domestic economy in general. This is a purely theoretical nature of approaches to predicting bankruptcy. In domestic conditions, the data of such forecasts are biased and do not give grounds for practical conclusions. Similar domestic models for prediction should be developed, taking into account specifics of the industry.

Bankruptcy prediction can be performed by the employees of the enterprise itself, as well as the representatives of consulting enterprises and other specialists.

The main provisions of Methodical recommendations are aimed to identify the signs of actions on bankruptcy concealing, fictitious bankruptcy or activities that led to bankruptcy.

Methodical recommendations have been developed to provide unambiguous approaches to assessing the financial and economic condition of enterprises, identify signs of current, critical or supercritical insolvency and signs of action under the articles of the Criminal Code of Ukraine, concealment of bankruptcy, fictitious bankruptcy or bankruptcy, as well as for the timely formation of an unsatisfactory structure of the balance sheet for the implementation of preventive measures to prevent bankruptcy of enterprises.

In accordance with Methodical recommendations, the degree of insolvency of the enterprise and the moment of the solvency recovery is established. The latter is especially important, because according to the law,

rehabilitation is considered to be completed if the company has restored its solvency.

Methodical recommendations define 3 types of insolvency (or level of insolvency) [20, p. 21; 21, p. 90; 22, p. 121; 23, p. 18–22; 24]: current; critical; supercritical.

Sources of information for the calculation of economic indicators and detection of signs of insolvency or bankruptcy are the sample indicators from the financial statements of the enterprise, which are displayed in tabular form.

Financial condition of any enterprise can be characterized by current insolvency if at the moment due coincidence there is temporarily the amount of available funds, and highly liquid assets are not enough to repay current debt. This situation corresponds to the legal definition of the inability of a business entity to fulfill monetary obligations to creditors after the arranged date of their payment, including wages, as well as to fulfill obligations to pay taxes and fees (mandatory payments) through the solvency restoration.

Economic indicator of the signs of current solvency (Cs) under the presence of overdue accounts payable is the difference between the amount of cash available to the company, their equivalents and other highly liquid assets and its current liabilities, determined according to the formula:

$$C_s = F_{in} + C_{fi} + C_f - C_l \quad (10)$$

where F_{in} – long-term financial investments; C_{fi} – current financial investments; C_f – cash funds and cash equivalents; C_l – current liabilities.

A negative result of the algebraic sum of these balance sheet items indicates the current insolvency of the business entity.

Financial condition of the company, which at the beginning and end of the reporting quarter shows signs of current insolvency, corresponds to the legal definition of the debtor who is unable to meet its monetary obligations to creditors, including obligations to pay taxes and fees (mandatory payments), within three months after the deadline for their payment.

The signs of critical insolvency, which correspond to the financial state of potential bankruptcy, occur if at the beginning and the end of the reporting quarter preceding the filing of the bankruptcy case, there are signs of current insolvency, and the ratio of coverage (R_c) and ratio of provision of the owned funds (R_p) at the end of the reporting quarter are less than their regulatory values – 1.5 and 0.1, respectively.

The coverage ratio characterizes the sufficiency of working capital of the enterprise for the repayment of its debts and it is defined as the ratio of the amount of working capital to the total amount of current liabilities on bank loans, other borrowed funds and settlements with creditors:

$$R_c = \text{Current assets} / \text{Current liabilities} \quad (11)$$

The ratio of provision with the owned funds characterizes the availability of working capital of the enterprise required for its financial stability, and it is defined as the ratio of the difference between the volume of sources of the owned non-current assets to the value of current assets and equivalent assets, and the actual value of fixed assets and other productive assets stocks, unfinished construction, finished products, cash funds, receivables and other current assets.

$$R_p = (\text{Current assets} - \text{Current liabilities}) / \text{Current assets} \quad (12)$$

If at the end of the reporting quarter at least one of these ratios (R_c or R_p) exceeds its normative value or their growth has been observed during the reporting quarter, preference should be given to extrajudicial measures to restore the debtor's solvency or reorganize it in bankruptcy proceedings.

If during the period established by the debtor's rehabilitation plan, a positive indicator of current solvency and exceeding the normative value of the coverage ratio ($R_c > 1.5$) is provided under the presence of increasing profitability, the debtor's solvency can be considered restored (there are no signs of potential bankruptcy).

Return on assets is calculated as the ratio of net income to assets, the normative value is 6-8%.

Financial leverage is the ratio of the sum of long-term liabilities and short-term liabilities to assets, the normative value is less than or equal to 37, for sustainable companies [20, p. 21; 21, p. 90; 22, p. 121; 23, p. 18–22; 24].

If by the end of the year the coverage ratio is less than 1 and the enterprise has not made a profit, then its financial condition is characterized by supercritical insolvency when satisfaction of creditors' claims is possible only through the liquidation procedure.

Presence of signs of supercritical insolvency (by the end of the year $R_c < 1$ under the absence of profit) corresponds to the financial position of the debtor, when he, according to the law, must apply to the arbitral tribunal within one month to file for bankruptcy, i.e. when when satisfaction of the claims of one or more creditors leads to impossibility of fulfilling monetary obligations to other creditors.

If at the beginning of the reporting period that preceded the filing of an application to the arbitral tribunal for bankruptcy, there were no signs of supercritical insolvency, i.e. the actual coverage ratio exceeded at zero or positive profitability, this may indicate signs of fictitious bankruptcy.

Economic signs of actions leading to bankruptcy can involve such financial position of the debtor, in which the company showed no signs of supercritical insolvency before the execution of agreements entered into for selfish reasons, or other actions that may be classified as intentional, leading to persistent financial insolvency of business activity.

There may be signs of the bankruptcy concealment if at certain stages of the bankruptcy proceedings it is established that the debtor has provided inaccurate information about his property in the balance sheet or other documents indicating his financial assets, which are actually characterized by supercritical insolvency.

In order to timely reveal the tendency towards unsatisfactory balance sheet structure in a profitable business entity and take precautionary measures to prevent bankruptcy, a systematic rapid analysis of the financial position of the enterprise (financial monitoring) using Beaver ratio is carried out.

In order to predict bankruptcy, W. Beaver recommended to assess some indicators of the Beaver's system and their value for the bankruptcy prediction. They are as follows:

– Beaver ratio;
– Return on assets;
– Financial leverage;
– Ratio of the asset coverage with net working capital;
– Coverage ratio.

Normative values of Beaver ratio are divided into three groups, i.e. for sustainable companies, 5 years before bankruptcy, 1 year before bankruptcy (Table 2).

This methodology also does not reflect all aspects of the company's activities and is not a universal method for predicting bankruptcy probability. Beaver ratio is calculated as the ratio of the difference between net profit and accrued depreciation to the sum of long-term and current liabilities, according to the formula:

$$R_b = (\text{Net profit} - \text{Depreciation}) / \text{Liabilities} \quad (13)$$

Table 2

The system of indicators for bankruptcy prediction according to Beaver model

Indictor	Indicator calculation	Value of indicators		
		good condition	5 years before bankruptcy	1 year before bankruptcy
Beaver ratio	$\frac{\text{Net profit} - \text{Depreciation}}{\text{Liabilities}}$	0.4 – 0.45	0.17	- 0.15
Return on assets	$\frac{\text{Net profit}}{\text{Assets}} * 100$	6 – 8	4	- 22
Financial leverage	$\frac{\text{Liabilities}}{\text{Assets}}$	≥ 37	≥ 50	≥ 80
Maneuverability ratio	$\frac{\text{Owner' working capital current assets equity}}{\text{Assets}}$	0.4	≥ 0.3	0.06
Ratio of coverage (total solvency)	$\frac{\text{Current assets}}{}$	≥ 3.2	≥ 2	≥ 1

The feature of forming unsatisfactory balance sheet structure is the financial position of the enterprise, at which Beaver ratio has not exceed 0.2 for a long time (1.5-2 years), which reflects undesirable reduction in the share of profits intended for the development of production. This trend ultimately leads to unsatisfactory balance sheet structure, when the company begins to be in the red and its ratio of internal funds is becoming less than 0.1.

Thus, the use of methods for predicting bankruptcy in the activities of enterprises is caused by the need for specialized anti-crisis management.

The possibility of crisis management is based on the following above-mentioned points of crisis theory:

– crisis phenomenon can be managed in certain way, i.e. crises can be predicted, expected, caused, accelerated, prevented, delayed; their external manifestation and consequences can be mitigated;

– it is possible and necessary to get ready before crises;

– crisis management requires the use of special approaches, special knowledge and skills.

Implementation of the policy of anti-crisis financial management of the enterprise when there is the threat of bankruptcy involves:

1. Constant monitoring of the financial condition of the enterprise in order to identify early signs of its crisis development.

2. Determination of the scale of crisis at the enterprise.

3. Research of the main factors that have caused crisis development of the enterprise.

4. Formation of the system of goals for crisis overcoming by the enterprise, which correspond its scale.

5. Selection and use of the current internal mechanisms of financial stabilization of the enterprise, corresponding to the scale of its crisis financial condition.

6. Selection of effective forms for the enterprise rehabilitation.

7. Control over the results of measures developed to withdraw the company from the financial crisis.

4. Conclusions

Considering the essence and objectives of bankruptcy prevention, most economists share the idea of its specificity. The main differences inherent in the prevention of bankruptcy are as follows:

– specificity of the purpose of implementation, i.e. preservation of the enterprise as a business entity and restoration of its viability;

– the use of specific management tools, i.e. tools and techniques of managerial influence; management cannot be reduced, e.g. to searching for reserves to increase labour productivity, reduce costs, find new markets, restructure assets and liabilities. These measures must be carried out constantly, regardless of the state of the enterprise, although in conditions of a crisis they become anti-crisis by their direction; achievement of certain tasks requires the use of non-standard, as well as unacceptable, in normal conditions, composition of management tools;

– separation of subjects of implementation who have the appropriate professional training, powers, knowledge and skills, take responsibility for the results of their activities;

– significant resource constraints related to impossibility or difficulty of obtaining additional resources, primarily financial, as attracting financial resources in conditions of low (even negative) creditworthiness and investment attractiveness is an extremely difficult management task;

– significant time constraints due to possible aggressive actions of the company's creditors and the threat of initiating bankruptcy and limiting the capacity of the current company's management;

– focus of management efforts not only on the external manifestations of complications and problems, but also on their deep roots (causes), which is an obstacle to the crisis recurrence;

– increased riskiness of management decisions made and implemented due to a high degree of instability (stress) of the economic system;

– increase in the importance of information and analytical support for management decisions, compared to relatively greater use of analytical-and-calculation and forecasting procedures;

– focus on minimizing losses of all stakeholders, including owners, staff, creditors, the state;

– implementation of innovative solutions, a creative approach to determining the type of behavior in a crisis situation and finding the ways out;

– ensuring high efficiency of managerial influence requires higher financial and intellectual costs, and therefore it has a higher cost compared to normal condition of business operation.

Bankruptcy prevention policy is part of the overall financial strategy of the company, which involves development of the system of methods for preliminary diagnosis of the bankruptcy threat and starting the mechanisms for the company's financial recovery to ensure crisis overcoming.

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