

MANAGING THE FINANCIAL STABILITY POTENTIAL OF CRISIS ENTERPRISES

Georgii Korepanov

Department of Management and Administration,
V. N. Karazin Kharkiv National University, Kharkov, Ukraine

Inna Yatskevych

Department of Organization Management, Odessa Regional Institute of Public Administration
of the National Academy of Public Administration under the President of Ukraine, Odessa,
Ukraine

Olha Popova

Department of Management and Financial and Economic Security,
Donetsk National Technical University, Pokrovsk, Ukraine

Liubov Shevtsiv

Department of Accounting and Auditing,
Ivan Franko National University of Lviv, Lviv, Ukraine

Maksym Marych

Department of Public, Corporate Finances and Financial Mediation, Yuriy Fedkovych
Chernivtsi National University, Chernivtsi, Ukraine

Olga Purtskhvanidze

Department of Management and Logistic,
Odessa National Academy of Food Technologies, Odessa, Ukraine

ABSTRACT

The article deals with the fundamental aspects of managing the financial stability of crisis enterprises. It is revealed that financial stability is an integral element of the financial stability of the enterprise. It is established that the assessment of financial stability potential (rehabilitation potential) is one of the priority tasks of commercial diagnostics of crisis enterprises, the state of which is characterized by the increased probability of bankruptcy and tends to absolute insolvency. In the article, the method of correlation analysis determines the predictive value of the financial stability ratio, which can be used to develop the business strategy of the company or corrective anti-crisis management decisions. It is established that the object of management influence of the crisis enterprise should be the potential of financial stability, the settlement of which ensures a positive financial balance of the enterprise.

Keywords: Crisis Enterprise, Crisis Management, Financial Stability Potential, Financial Stability

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1. INTRODUCTION

The basis of financial and economic stability of the enterprise is financial stability. Determining the limits of financial stability is one of the most pressing problems in managing the financial condition in general and financial stability in particular. This is especially important in times of crisis since it is important for an enterprise to determine the potential for financial stability [1-5].

As practice shows, insufficient financial stability leads to the lack of resources to finance the enterprise of the main activity, to its insolvency. Financial sustainability is the most important indicator of an enterprise's ability to function successfully in times of economic instability, ensuring its development at a certain level of risk. All of the above actualizes the problem of effective management of the financial stability of enterprises in times of crisis.

2. OBJECTIVES OF THE STUDY

The following issues are highlighted in this study:

- to identify the main factors and signs of crisis in manufacturing enterprises;
- to highlight the potential of financial stability as the main object of managerial influence to ensure the financial stability of the enterprise.

3. THEORETICAL SECTION

3.1. The Concept of Financial Stability of the Enterprise

An important indicator of an enterprise's viability is sustainability, which is an integrated indicator and includes a number of important areas of enterprise functioning. The subject of this study is financial stability. Figure 1 presents the model of financial stability of the enterprise; its components are highlighted: financial stability, financial flexibility and financial potential of the enterprise.

Financial sustainability is the ability, in a changing business environment, to function and develop, meeting the set goals with a set interval of possible deviations, and to fulfil its obligations based on the effective formation, distribution and use of financial resources [6-7].

Financial stability characterizes the stability of the financial position of an enterprise in the short and long term, that is, its current and strategic solvency. Current solvency has traditionally been estimated by ratios of current, rapid and absolute liquidity. The strategic financial stability of an enterprise is characterized by the coefficients of the capital structure (financial independence; financial stability), as well as the ratio of working capital to its own sources of financing. The coefficient of financial independence indicates the degree of financial independence of the enterprise. The financial sustainability ratio reflects how much of the property is financed by sustainable sources (that is, the proportion of those sources that an entity can use for a long time). Finally, the working capital security ratio describes what part of an enterprise's current assets is financed from its own sources. The assessment of the financial

stability indicator is complemented by an assessment of the indicators of financial flexibility and financial potential [8-9].

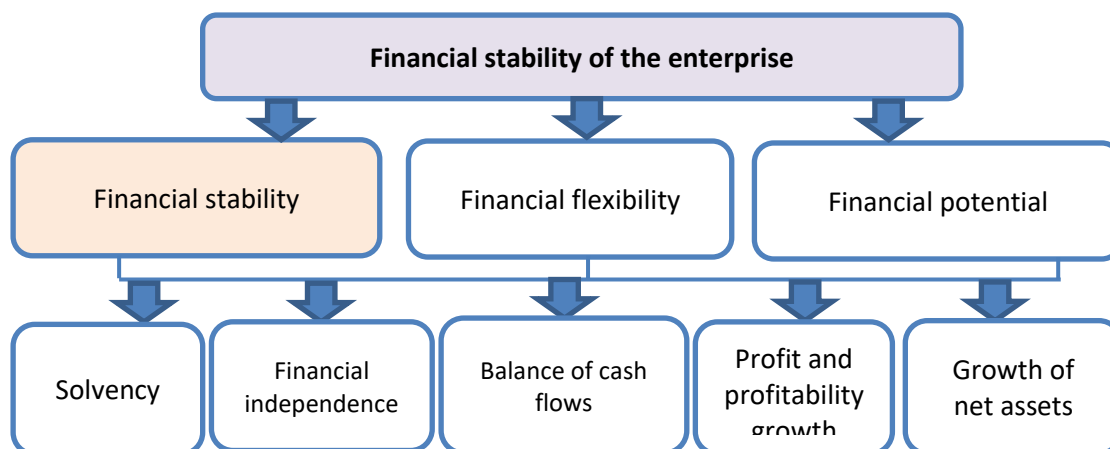


Figure 1 The place of financial stability in the model of financial stability

3.2. The Concept of the Financial Crisis in the Enterprise and Methods of its Assessment

Crises of enterprises, as well as any socio-economic systems, should be considered in connection with the general signs of crisis situation:

- duality: crisis is a process (dynamic nature); the crisis is a state (static nature as a phenomenon);
- financial instability is a manifestation of the crisis;
- the characteristic feature is the lack of reaction time;
- causes of crisis phenomena, as a rule, are a violation of the equilibrium of the system;
- crises carry threats to the realization of the goals of the enterprise;
- crises require the introduction of specific management tools.

The financial crisis means the phase of unbalanced activity enterprise and its limited impact on financial relations. In practice, the crisis usually identifies the threat of insolvency and bankruptcy of the enterprise, its activity in the non-profit zone or the lack of capacity for the firm to operate successfully. The main factors that can cause a financial crisis in an enterprise include: external or exogenous (which do not depend on the activity of the enterprise), and internal or endogenous (dependent on the enterprise). The main exogenous factors of a financial crisis in an enterprise may be:

- recession in the economy as a whole;
- a significant level of inflation;
- instability of economic and tax legislation;
- instability of financial and currency markets;
- increased competition in the industry and the crisis of individual industries;
- strengthening of market monopoly;
- discrimination of the enterprise by the authorities and management;
- political instability in the country.

The main endogenous factors of the financial crisis are:

- lack of a well-defined enterprise development strategy;
- deficits in the organizational structure;
- low level of management;
- low level of marketing and loss of product markets;
- unsatisfactory use of production resources;
- unproductive retention of unnecessary jobs.

On the whole, all these causes of the crisis are quite closely interconnected and create a complex set of cause and effect relationships. Of course, researching a particular company, one case or another of a financial crisis, we can identify specific causes of financial insolvency, but all of them, as a rule, boil down to those already listed. Typical effects of the above causes and factors on the financial and economic condition of the enterprise are:

- loss of customers and buyers of finished products;
- reducing the number of sales orders and contracts;
- increase in cost and a sharp decrease in labour productivity;
- increase in the size of illiquid working capital and availability of excess stocks;
- increasing pressure on prices;
- significant reduction in sales volumes and, as a consequence, under-production.

There are the following types of crisis:

- strategic crisis (when the enterprise is destroyed production potential and lacks long-term success factors);
- crisis of profitability (permanent losses "eat up" equity, and this leads to unsatisfactory balance sheet structure);
- liquidity crisis (when the company is insolvent, or there is a real threat of solvency).

There are close cause and effect relationships between these types of crises: a strategic crisis causes a crisis in profitability, which in turn leads to the illiquidity of the enterprise. An important prerequisite for applying the right anti-crisis measures is to identify the depth of the financial crisis. There are three phases of the crisis:

- a) a phase of crisis that does not directly threaten the functioning of the enterprise (provided it is transferred to the crisis management regime);
- b) a phase that threatens the continued existence of the enterprise and requires immediate financial rehabilitation;
- c) a crisis situation that is incompatible with the continued existence of the enterprise and leads to its elimination.

The identification of the financial crisis phase is a necessary prerequisite for a proper response to it. To prevent the onset of the financial crisis, it is necessary to conduct a comprehensive analysis of the financial condition of the enterprise. The availability and sufficiency of economic resources mean whether an enterprise is able to get out of the crisis, taking into account all material, financial, labour, innovation, information resources available to it. The vector of change means their orientation, taking into account the causes (internal and external) of the crisis.

4. METHODOLOGY

In substantiating the methodology for assessing the potential of financial stability of crisis enterprises, it is important to distinguish the stages and typical features of the development of

the corporate crisis in the worst-case scenario, that is, the realization of the threat of financial failure. It is necessary to distinguish in which case the company is subject to bankruptcy proceedings and in the presence of which signs it is recognized as completely insolvent and liquidated. For this purpose, two areas of financial diagnostics of crisis enterprises are distinguished: assessment of signs of bankruptcy, in the presence of which external, first of all, judicial, interference in debt settlement is necessary, as well as an assessment of the possibility of restoration of financial stability in order to solve the key issue of the feasibility of rehabilitation and further business continuation. There are three main relevant groups of features: external and internal, insolvency and insolvency, the main and additional. The content of signs of the bankruptcy of the enterprise from the point of financial diagnostics is investigated.

An integral part of the research methodology is the concept of functional and structural finance (from the point of view of neoclassical, behavioural and institutional aspects of ensuring the financial stability of crisis enterprises). Applied aspect of the study is the methods of financial analysis and forecasting of the bankruptcy of enterprises, including statistical and expert approaches to solving problems, the method of correlation-regression analysis.

5. EVALUATION AND ANALYSIS OF RESULTS

5.1. Analysis of Financial Stability and Assessment of Bankruptcy Propensity of the Enterprise

To diagnose the current state and key problems of an enterprise, it is important to evaluate its financial status. Financial stability of the enterprise is one of the most important characteristics of the financial condition of the enterprise, it is related to the overall financial structure of the enterprise, with the degree of its dependence on creditors and investors. Financial stability characterizes the stability of the enterprise in the long run.

Analysis of financial stability allows us to assess the rationality of the capital structure from the standpoint of maintaining financial independence, solvency and creditworthiness, to identify the limits of change of various sources of financing. Financial soundness indicators are able to show the degree of potential bankruptcy risk associated with the use of borrowed financial resources. The crisis or pre-crisis situation of enterprises confirmed the results of determining the degree of financial stability, for which the following indicators were used:

± EC - surplus (+) or lack (-) of own working capital to create inventories and offset costs of business activities of the enterprise;

± Et - excess (+) or shortage (-) of own working capital (funds), medium- and long-term loans and loans;

± It is the excess (+) or lack (-) of the total turnover.

These indicators correspond to the indicators of the stock and cost sources of their formation. They are calculated using the following formulas:

$$\pm E_c = E_c - Z \quad (1)$$

$$\pm E_m = (E_c + K_m) - Z \quad (2)$$

$$\pm E_n = (E_c + K_m + K_t) - Z \quad (3)$$

where Z – the sum of inventories and expenses; E_c – the sum of the enterprise's own working capital; E_m – the sum of own current and long-term loan sources; E_n – the total value of the major sources of inventory formation; K_m – medium-term and long-term loans and loans; K_t – short-term loans and loans.

Depending on the values of valuation, five areas of financial stability (or risk areas) are removed. They can be compared to five levels of financial security: absolute, normal, unstable, critical and crisis security.

Absolute financial sustainability and absolute security correspond to the case when the activity of the enterprise provides its own working capital:

$$\pm E_c \geq 0, \pm E_T \geq 0, \pm E_n \geq 0, \quad (4)$$

Normal financial sustainability and normal security are diagnosed when an entity provides its own sources of inventory and costs:

$$\pm E_c \approx 0, \pm E_T \approx 0, \pm E_n \approx 0, \quad (5)$$

An unstable financial condition and a level of security are diagnosed in the event that the enterprise does not have enough working capital and is approaching the need for medium-term and long-term loans and credits:

$$\pm E_c < 0, \pm E_T \geq 0, \pm E_n \geq 0, \quad (6)$$

A critical financial position and a critical level of security are diagnosed when an enterprise approaches its continuing need for short-term loans to finance its activities:

$$\pm E_c < 0, \pm E_T < 0, \pm E_n \geq 0, \quad (7)$$

Crisis and crisis level of security are diagnosed in the case when the enterprise does not provide financing of its activity by any means, approaching bankruptcy:

$$\pm E_c < 0, \pm E_T < 0, \pm E_n < 0, \quad (8)$$

According to the results of the assessment of the level of financial stability (Table 1), it was concluded that the investigated enterprise was in a crisis state, i.e. it sorely lacked sources of financing.

Table 1 Assessment of the level of financial stability of the enterprise

Indicators	Years		
	2015	2016	2017
Availability of own working capital, Es	-100585	-128951	-113163
The value of own working capital and long-term debt sources Em	-122541	-202380	-249432
The total value of the main sources of formation of stocks En	64208	59109	116119
$\pm E_c = E_c - Z$	-159086	-202380	-249432
$\pm E_m = (E_c + K_m) - Z$	-122541	-202380	-249432
$\pm E_n = (E_c + K_m + K_l) - Z$	64208	59109	116119
Type of financial stability	Crisis	Crisis	Crisis

Since the working capital is negative, it can be argued that the own enterprise funds to invest in the current (liquid) assets is not enough, or they are absent at all, and the company operates at the expense of short-term liabilities. Considering the dynamics of changes in the enterprise, it can be summarized that not all indicators have changed for the better. The analysis data indicate that the company has lost financial independence, and the financial situation is a crisis. Considering all these factors, it is advisable to assess the likelihood of bankruptcy. In order to confirm bankruptcy propensity, an analysis based on E. Altman's multifactor model was

performed. To calculate, we use the Altman five-factor model, which is a modified version, the five-factor model has the form:

$$Z = 1,2 \times x_1 + 1,4 \times x_2 + 3,3 \times x_3 + 0,6 \times x_4 + x_5 \tag{9}$$

where x_1 – working capital up to the sum of the assets of the enterprise, the indicator estimates the amount of the net liquid assets of the enterprise in relation to the total assets; x_2 – retained earnings to the number of assets of the enterprise, reflects the level of financial leverage of the enterprise; x_3 – profit before tax to the total value of assets, the indicator reflects the efficiency of the operating activities of the enterprise; x_4 – the market value of equity/book value (balance sheet) of all liabilities; x_5 – sales volume up to the total assets of the enterprise characterizes the return on assets of the enterprise.

The calculation of Z-indicator for a particular company concludes:

If $Z < 1,81$ – the probability of bankruptcy is from 80 to 100%;

If $Z = 1,81-2,77$ – average probability of company collapse from 35 to 50%;

If $Z = 2,77-2,99$ – bankruptcy probability is not large from 15 to 20%;

If $Z > 2.99$ – the situation in the enterprise is stable, the risk of insolvency over the next two years is quite insignificant.

The prediction accuracy of this model on the horizon of one year is 95%, for two years – 83%, which is its merit. The disadvantage of this model is that it can essentially be considered only for large enterprises. The calculations are presented in Table 2.

Table 2 Prediction of the bankruptcy of the enterprise

Indicators	Years		
	2015	2016	2017
x_1	0,739	0,766	0,840
x_2	-0,464	-0,674	-0,310
x_3	-0,423	-0,229	0,078
x_4	-0,256	-0,338	-0,178
x_5	1,042	1,871	1,755
Z	-0,270	0,883	2,480
Bankruptcy probability predicted	very high	very high	average

Throughout the study period, the enterprise understudy had a very high and average probability of bankruptcy. In general, this is due to a set of problems related to both factors of the internal environment of the enterprise and significant dynamic changes occurring in the external environment.

Thus, nowadays, enterprises face such problems as low liquidity and solvency, lack of working capital and own funds, high dependence on borrowed sources.

5.2. Model of Optimization of Financial Stability of the Enterprise

To develop a model of optimization of the financial stability of the company, we use the method of correlation-regression analysis. The correlation represents a probable relationship between non-functional indicators. This method is used to determine the close relationship between financial soundness indicators.

For this purpose, we introduce the following notation: x_1 - coefficient of autonomy; x_2 is the coefficient of financial risk; x_3 - debt ratio; x_4 - coefficient of financial stability; x_5 - coefficient of manoeuvrability; x_6 - the ratio of the security of own working capital. We make an economic model of multiple regression in the form of:

$$\hat{y} = a_0 + a_1x_1 + \dots + a_nx_n \quad (10)$$

Determine the estimates of a_0, a_1, \dots, a_n least-squares parameters.

The coefficients a_n show how much the result will change if you change the factor by one. We identify the main targets for the financial stability of the studied enterprise, which will be taken into account when building a forecasting model. We take the necessary input from Table 3 and calculate the parameters of the regression equation.

Table 3 Parameters of the regression equation

Year	Financial stability Ratio	Financial Risk Ratio	Debt ratio	Autonomy ratio	Manoeuvrability ratio	Stability of mobile vehicles ratio	Defence capital provision ratio
	y	x_1	x_2	x_3	x_4	x_5	x_6
2011	0,812	0,404	0,287	0,714	-0,032	0,071	-0,087
2012	0,322	0,671	2,013	0,012	0,5	0,408	0,321
2013	0,363	0,512	2,412	0,124	1,102	0,523	0,302
2014	0,414	0,532	2,312	0,155	1,452	0,641	0,247
2015	0,589	0,522	2,418	0,164	1,341	0,608	0,330
2016	0,303	0,621	2,178	0,011	0,536	0,413	0,314
2017	0,348	0,541	2,123	0,122	1,128	0,556	0,317

We make an economic model according to table 3. We have a system of multifactor models:

$$\begin{cases} y = a_0 + x_2a_1 \\ x_2 = a_0 + x_1a_1 + x_6a_2 \\ x_1 = a_0 + x_3a_1 \\ x_6 = a_0 + x_4a_1 + x_5a_2 \end{cases} \quad (11)$$

The regression equation looks like this:

$$\hat{y} = 0,807 - 0,189x_2 \quad (12)$$

Table 4 summarizes the financial stability of an enterprise through its financial stability ratio.

Table 4 Predictive values of the coefficient of financial stability of the enterprise

Factor	Year	Forecast	Characteristics of the equation
Financial stability ratio			$\hat{y} = 0,807 - 0,189x_2$
	2018	0,263	$R^2=0,7248 \quad F_r = 15,0321$
	2019	0,187	$S_y=0,4523 \quad F_t = 5,3200$
	2020	0,112	$t_{kr}=2,54 \quad t_0 = 8,1039$
	2021	0,104	$t_1 = 3,7721$

Equation $(y) 0 = 0.807-0.189x_2$ indicates that the financial stability ratio tends to decrease (by 0.189 units).

The predicted value of the financial sustainability ratio can be used to develop an entity's financial strategy or corrective anti-crisis management decisions. Fig. 2 presents the trend of financial stability of the enterprise.

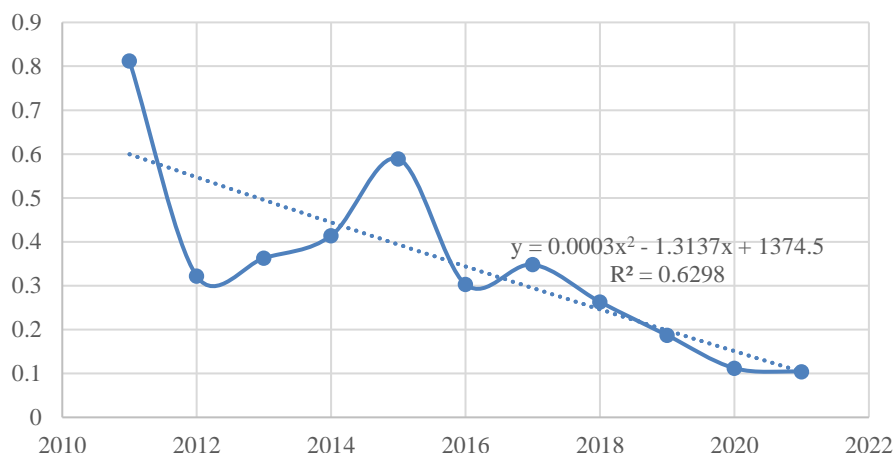


Figure 2 The trend of financial stability of the enterprise (polynomial trend line)

To study and predict the level of financial stability of an enterprise through the coefficient of financial stability with the help of trend models, it is advisable to use a polynomial trend line, since this model more accurately shows and compares the actual and theoretical values of the inflation rate and has a coefficient of determination $R^2 = 0,6298$, indicating the quality of the selected model. If we forecast for the next period, this model can be effectively used to analyze this process.

5.3. Assessing the Financial Stability Potential of Crisis Enterprises

Assessment of financial stability potential (rehabilitation potential) is one of the priority tasks of financial diagnostics of crisis enterprises, the state of which is characterized by a high probability of bankruptcy and tends to absolute insolvency. It is important to distinguish between features that reflect the inability to service debt (insolvency and excessive business risk) and those that relate to the insecurity of claims on the entity under the assumption of liquidation or further continuation of activity (insolvency and insolvency). The steps of assessing financial stability (rehabilitation potential) of crisis enterprises are presented in Fig. 3.

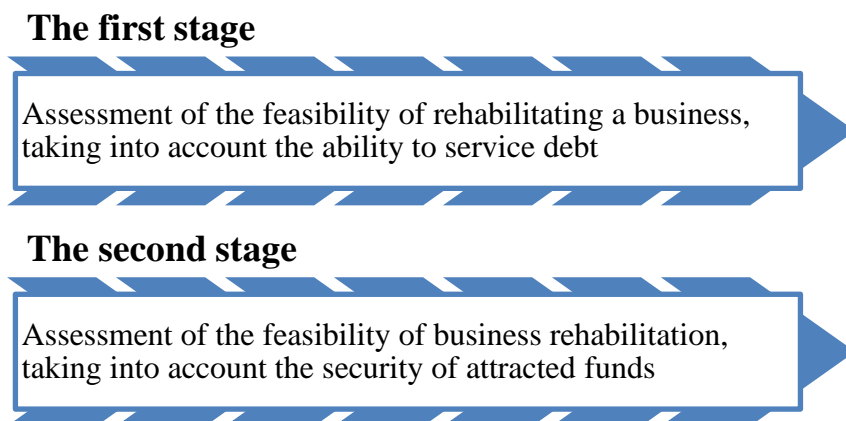


Figure 3 Stages of assessment of financial stability (rehabilitation potential) of crisis enterprises

If it is found that a crisis enterprise consistently demonstrates insolvency and excessive business risk, it is logical to state the absence of rehabilitation potential and, therefore, the inappropriateness of crisis management.

If the financial stability of the enterprise is a form of maintaining the financial equilibrium at a certain point in time, then the financial stability of the enterprise is financial stability that is maintained in the dynamics of its development. In other words, financial stability is essentially a set of stable states of an enterprise's financial equilibrium. This leads to the logical conclusion that the financial stability of the enterprise is a form of its positive dynamic financial equilibrium. At the stage of positive dynamic financial equilibrium, there is active financing of own development, incl. innovation. The latter, through the action of positive feedback, opens the possibility of achieving a qualitatively new financial equilibrium - a state with enriched resource potential. The positive financial equilibrium of an enterprise may be disturbed by the influence of bifurcations, which give rise to a certain uncertainty in the prospects for the development of its activities. However, through the passage of the bifurcation stage, it becomes possible for the enterprise to reduce the path to achieving a qualitatively new financial equilibrium. At the same time, the bifurcation financial condition of the company hides the threat of early signs of the financial crisis. In order to prevent the development of the financial equilibrium scenario, financial security safeguards based on the actions of not only negative but also positive feedback should be activated at the enterprise. The latter has the ability to direct the use of the accumulated financial potential of the enterprise in the direction of positive transformations of its activity and achieve a qualitatively higher level of financial equilibrium. If the pessimistic scenario of exiting the bifurcation stage is implemented, a negative dynamic financial equilibrium develops at the enterprise, which takes the form of a financial crisis. Entry into the crisis is most likely due to the lack of adequate financial security measures in the bifurcation period.

5.4. Algorithm of Adjustment of Managerial Influences on the Financial State of the Enterprise Depending on the Destructive Factors of Influence

Management tools and models for ensuring financial stabilization of an enterprise are directly dependent on a set of destructive factors. It is possible to distinguish such stages of management of the financial condition of the enterprise, depending on the stage of detection and development of the crisis in the enterprise (Fig. 4).

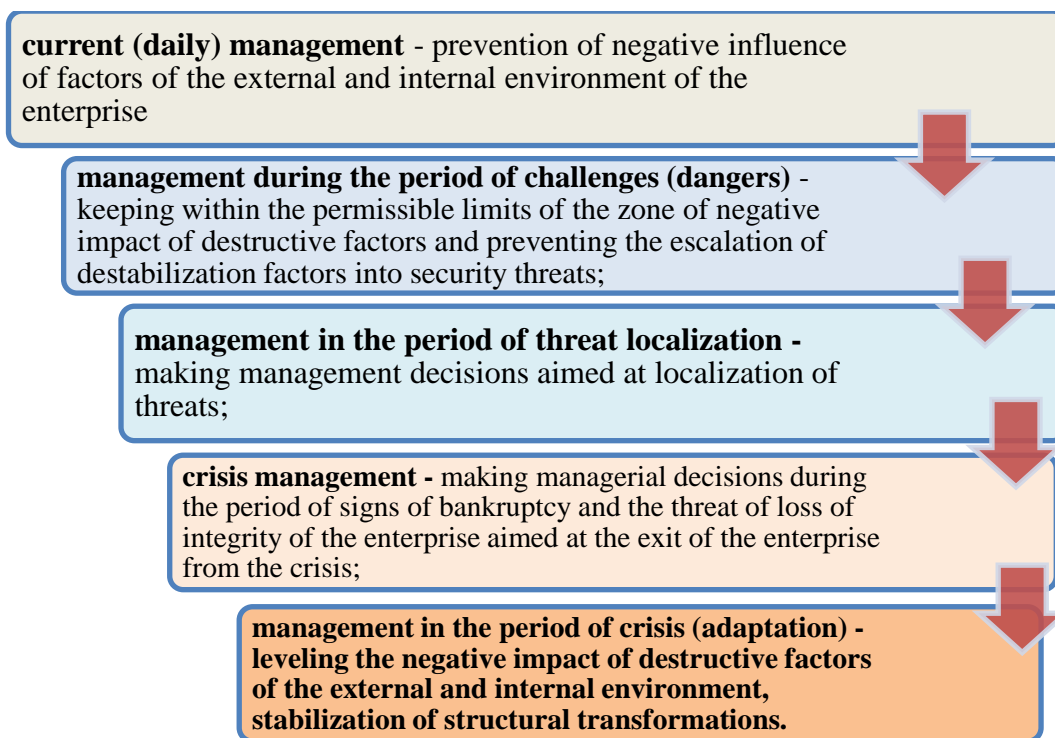


Figure 4 Stages of managing the financial condition of the enterprise, depending on the stage of crisis detection and development

At each stage, there are specific tools for managing influences.

During current (daily) management:

- the basic activity management system is organized in such a way as to respond promptly to external and internal factors;
- frequency of monitoring of indicators of the financial condition of the enterprise;
- management decisions on correction of insignificant deviations are made and implemented by heads of "Responsibility Centers" (units of the enterprise);
- the systemic complex of preventive and preventive measures to counteract destructive factors of the external and internal environment.

During the period of calls (dangers):

- control of executed decisions is carried out in the regular mode;
- management is carried out by the method of accounting for "weak signals", with adequate management response to emerging environmental changes;
- monitoring mode introduces "background surveillance" of sources of danger;
- set of measures is being taken to prevent the spread of danger and the transition of crisis phenomena to a more active phase.

During the localization of threats:

- system of control measures is being strengthened (operational monitoring of sources of threats is introduced, operational meetings are being held to develop collective decisions, and operational reports on the measures taken are heard);
- nature of decision making is taken to the highest level of management of the enterprise. The most important and urgent tasks are referred for deeper and more comprehensive study;

- indicators that characterize the threat of bankruptcy are observed with greater frequency, daily observation of "crisis development indicators" is introduced - current liquidity ratio, turnover ratio;
- an adequate system of measures to prevent the bankruptcy of the enterprise, defined by the limit values of indicators of financial stability, is formed.

In times of crisis:

- management is characterized by a high degree of uncertainty;
- a comprehensive program of decommissioning is being developed in the form of two alternative documents: a targeted program of measures for decommissioning or an investment project of financial rehabilitation;
- hard centralization of management decisions is introduced;
- introduce austerity regimes for financial and material resources aimed at reducing current needs and increasing liabilities;
- measures are taken to eliminate the illiquid part of the current assets (bad accounts receivable), to reduce the illiquid stocks of materials, finished goods to the level of the price of demand with the possibility of their realization;
- measures are taken to raise funds for repayment of current liabilities to restore solvency through the collection of receivables, sale of part of assets;
- with the growth of accounts payable, its restructuring is carried out;
- there is no possibility of repayment of liabilities with current assets, funds from the reserve, additional, authorized fund are attracted.

During the crisis (adaptation):

- a set of measures is being carried out aimed at eliminating the negative effects of destructive factors of the external and internal environment;
- current control (monitoring) of adaptation results of management decisions is introduced.

6. CONCLUSIONS

Thus, the basis of managing an enterprise in crisis is to assess the current financial status, the level of financial stability of the enterprise. For identifying trends and causes of changes in financial stability, it is important to use factor analysis to identify the reasons for the changes and to develop sound recommendations for improving the financial stability of the enterprise. In assessing the likelihood of bankruptcy, it becomes possible to predict the development of events and take steps in advance to improve the financial stability of the enterprise. Increasing the financial stability of the enterprise is an important moment for the crisis, which can be related to both organizational and management measures, as well as to the improvement of the current assets and resource efficiency.

Strategic management of the financial stability of the enterprise is a direction of further researches.

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