

A COMPREHENSIVE APPROACH TO THE DIAGNOSIS OF CRISIS STATUS OF BUSINESS ENTITIES IN A PANDEMIC CONDITION

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Стаття отримана редакцією 25.07.2021 р.

The article was received by editorial board on 25.07.2021

Introduction. The negative impact of the COVID-19 pandemic impacted not only health care system, but also caused the global economic crisis. The openness of national economies as a result of active globalization processes has become a catalyst for the "domino effect", when a change in the first element of the chain of financial, economic or political events leads changes in the next element, etc. As a result, world GDP in 2020 fell by 3.5% [1]. The International Monetary Fund estimates that the global economy will lose \$ 12.5 trillion in 2020 due to the COVID-19 pandemic [2]. Quarantine restrictions, as a reaction of countries on the spread of coronavirus, have led to a reduction of working time in 2020 by 8.8%, that are equivalent to 255 million full jobs. This is four times more than have lost during the financial crisis of 2008-2009 [3]. World trade was also hard hit, falling by 3.5% in the first quarter of 2020. In general, for the year the decline was almost 12% [2].

Ukraine, in the context of the COVID-19 pandemic and related quarantine restrictions, has a significant decline in economic activity. The business processes of the national economy were accompanied by such factors as: increase in receivables, non-fulfillment of contractual obligations by contractors, forced dismissal of staff, increase in cybercrime, etc. This, in turn, has led to a crisis in many businesses.

The COVID-19 pandemic showed that the viability of economic entities depends on the speed of their adaptation to the unstable economic situation in the country, the adequacy of responding to changes in the external and internal environment, the timeliness of identifying the threat of crisis. In this aspect, the issue of crisis diagnosis as a basis for early detection of problems in the activities of economic entities is undeniably relevant.

Overview of recent researches and publications. Research of the impact of the COVID-19 pandemic on economic processes at the global and national levels, the financial condition of economic entities are actively conducted by both foreign and Ukrainian scientists and scientific organizations. At the same time, the methodological aspects of diagnosing the crisis and the threat of bankruptcy are reflected in the works of E. Altman, R. Lis, J. Fomin, L. Ligonenko, O. Tereshchenko, Springgate and other scientists. Noticing the role and importance of existing research on the diagnosis of the financial condition of economic entities, it is clear that in a pandemic, one of the most pressing issues is the problem of in-time detection of the threat of crisis in the enterprise.

The purpose of the paper. The purpose of the article is to substantiate the role and importance of timely diagnosis of the crisis of economic entities in a pandemic and to develop a comprehensive approach to its implementation, which involves assessing the depth of certain crises and the threat of bankruptcy.

The main body and results of the research. The consequences of the COVID-19 pandemic were a reduction in GDP, complete or partial cessation of economic activities, rising unemployment, rising inflation, declining incomes and economic activity [4]. This, in turn, has led to a crisis situation for many businesses. The negative impact of the pandemic on the activities and financial condition of economic entities is confirmed by statistics (Tab. 1). In particular, in 2020 there was a reduction in the total number of businesses by 65 thousand units. At the same time, the decrease occurred in all constituent elements: both part of natural persons-entrepreneurs and enterprises-legal entities ceased their activity.

Table 1

Dynamics of the number of business entities in Ukraine in 2010-2020

Years	Number of business entities						The share of unprofitable enterprises, %
	total, units	including					
		natural entities-entrepreneurs, units	enterprise, units	including			
				large enterprise	medium enterprise	small enterprise	
2010	2183928	1805118	378810	586	20983	357241	42,7
2011	1701620	1325925	375695	659	20753	354283	36,5
2012	1600127	1235192	364935	698	20189	344048	37,0
2013	1722070	1328743	393327	659	18859	373809	35,0
2014	1932161	1591160	341001	497	15906	324598	34,5
2015	1974318	1630878	343440	423	15203	327814	26,7
2016	1865530	1559161	306369	383	14832	291154	27,0
2017	1805059	1466803	338256	399	14937	322920	27,6
2018	1839593	1483716	355877	446	16057	339374	26,1
2019	1941625	1561028	380597	518	17751	362328	26,4
2020	1876604	1502788	373816	512	17604	355700	29,2

Source: compiled by the authors according to the data [5]

One of the criteria that indicates the crisis of the enterprise and the threat of bankruptcy is the indicator of "loss". In a pandemic, the national economy shows a steady trend to increase the number of unprofitable enterprises (Fig. 1).

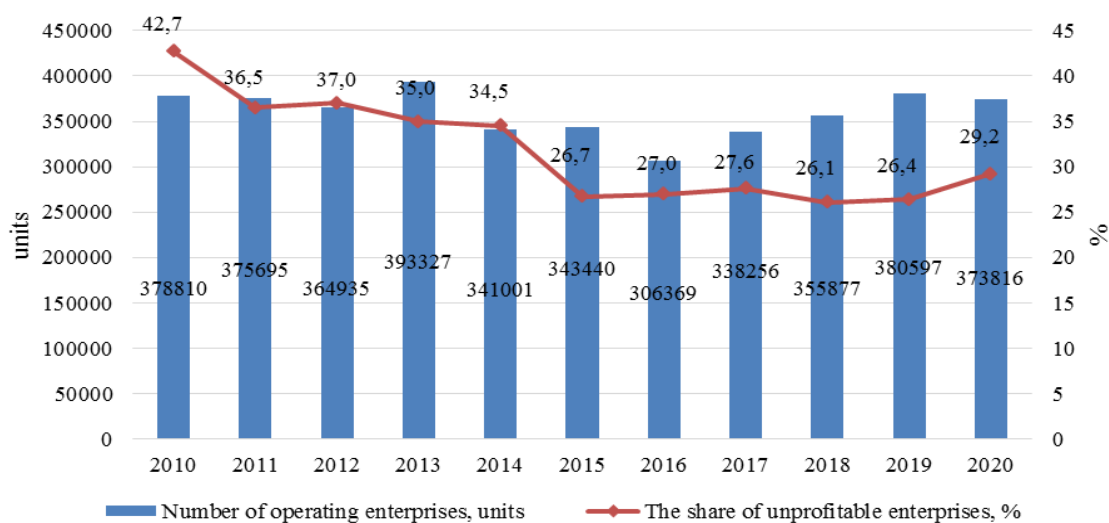


Fig. 1. Dynamics of change in the number of enterprises in Ukraine in 2010-2020

Source: compiled by the authors according to the data [5]

The share of unprofitable enterprises in 2020 was 29.2%, which is 2.8% more than in 2019 (with the share determined only on the basis of the number of large and medium-sized enterprises). This is caused by the COVID-19 pandemic and forced quarantine measures, which have significantly worsened the situation for businesses and the country as a whole.

The current economic situation in Ukraine is characterized by signs of gradual resumption of business activity as a result of adaptation of economic entities. The share of unprofitable enterprises in January-March 2021 amounted 27.8%, while for the same period in 2020 it's size was 40.8%. However, given the positive trend, it should be set in mind that a crisis can lead to further bankruptcy. The decisive place in the system of measures to prevent bankruptcy should belong to the constant monitoring of the financial condition and the system of bankruptcy diagnostics in order to quickly identify crisis phenomena and implement timely anti-crisis measures.

Businesses operate on a cyclical basis. After all, a characteristic feature of the national economy is the cyclical nature, the multidimensional manifestation of which exists in fluctuations in market conditions,

economic imbalances, financial crises. Under these conditions, the rational methodological basis for the study of crisis phenomena in the activities of economic entities is the doctrine of cyclical fluctuations [6]. According to this approach, it is legitimate to distinguish the phases of decline and rise in the activities of economic entities. Periodic crises are an integral part of their life cycle.

The threat of a crisis always exists: the company can survive it as the final stage of the life cycle (liquidation) and as an intermediate crisis, the occurrence of which is possible at any stage of activity. The increase in the probability of crisis of the business entity is observed in the transitional stages of its development – between the phases of the life cycle [7]. Timely diagnosis and preventive measures are the basis for preventing bankruptcy.

Crisis diagnosis is a system of retrospective, operational and long-term analysis measures aimed at identifying the problems of the enterprise, assessing the threat of its bankruptcy and possible ways to overcome them.

A study of the works of national and foreign scientists has shown that the imbalance of the financial balance of the enterprise, due to the cyclical development, leads to the formation of interconnected and interdependent crises. There are liquidity crisis, solvency crisis, profitability crisis, threat of loss of financial stability and bankruptcy. Each of the selected types of crises in the absence of adequate measures to combat crisis processes causes the following.

In connection with the above, the diagnosis of the crisis of economic entities should be comprehensive and take into account the need to diagnose different types of crises. The sequence of determining the crisis at the enterprise is shown in the Fig. 2.

According to the presented comprehensive approach to the diagnosis of the crisis of economic entities, it is advisable to assess the depth of development of different types of crises, as the company may have their simultaneous occurrence. The system of criteria for assessing the depth of crises belongs to the category of rapid diagnostics, because the calculation is based on the financial statements of the enterprise. This system can be supplemented by other absolute and relative indicators.

The first stage is to determine the liquidity crisis. It should be noted that the liquidity crisis is characterized by a violation of the rational ratio of non-current and current assets, a low share of working capital, overproduction. The irrational structure of assets is also accompanied by a decrease in non-current and current assets, accompanied by a reduction in revenue. To calm the crisis of overproduction, it is necessary to reduce the finished products in warehouses by opening new markets, its partial write-off, processing and disposal. At the same time, it is advisable to implement measures to harmonize the financial and production potential of the enterprise with market needs.

The second stage involves assessing the depth of the solvency crisis. This type of crisis is characterized by a decrease in revenue growth with a stable growth of accounts payable, an increase in current financial surplus, cash deficit to ensure optimal operation of the enterprise. There is a gradual transition from static insolvency to dynamic, then from monetary insolvency to property and from debt to general.

To calm the solvency crisis, it is advisable to implement measures aimed at reducing the current financial surplus of accounts payable; formation of the amount of funds released from circulation as a result of accelerating their turnover; changes in the negative value of the current financial need in the previous period to a positive one in the reporting period due to the reduction of accounts payable.

The third stage of a comprehensive diagnosis of the crisis of economic entities involves determining the crisis of profitability. The profitability of the enterprise is a generalizing indicator that allows you to assess the absolute and relative efficiency of its activities. The main criterion for the development of the crisis of profitability is the loss of the entity. Initially, there is a decrease in gross return on assets (reduction in gross profit), which leads to lower profitability and unprofitability. An increase in the crisis occurs if in the reporting period the company made a profit, and in the following period received a loss.

Elimination of the crisis of profitability requires measures aimed at increasing gross profit and operating profit; accelerating the turnover of working capital; increase in the amount of working capital released from circulation.

The fourth stage is the identification of the crisis of financial stability. The main characteristics of the crisis are: the growth of the company's liabilities at a faster rate than the amount of equity; the duration of the current loss forms an uncovered loss in the balance sheet, a decrease in equity; deficit of net assets due to the excess of uncovered loss over the total amount of equity components.

In order to overcome the crisis of financial stability, it is necessary to take measures aimed at reducing the deficit of working capital by obtaining rehabilitation profits; increase in current assets due to increased activity; achieving a positive value of working capital.

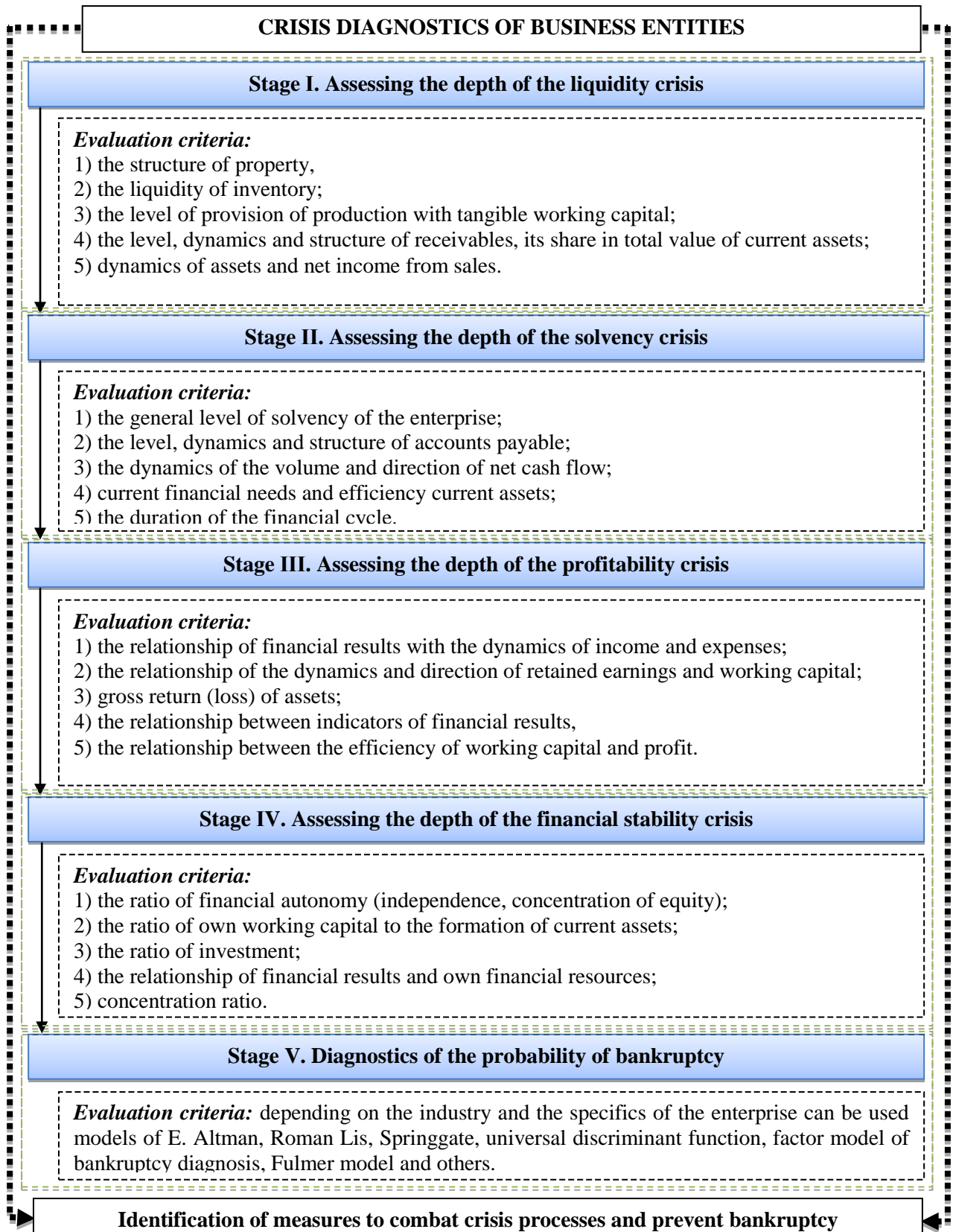


Fig. 2. The procedure for diagnosing the crisis of business entities

Source: compiled by the authors

Along with the diagnosis of the crisis, it is necessary to assess the threat of bankruptcy. To this end, in the fifth stage, a model is selected that will take into account the specifics of the enterprise and ensure the most accurate results. To date, the most common are economic models of E. Altman, Roman Lisz model, Springgate model, universal discriminant function, factor model of bankruptcy diagnosis, Fulmer model [8].

The analysis of researches of national and foreign scientists allowed to define the basic methodical approaches to detection of threat of bankruptcy. The advantages and disadvantages of the most common models of bankruptcy prediction are presented in Tab. 2.

Thus, depending on the results of a comprehensive diagnosis of the crisis, businesses have the opportunity to establish the ability of the organization to recover to develop adequate measures to combat crisis processes and prevent bankruptcy. It should be remembered that post-crisis changes in the development of the organization are long-term, short-term, qualitative, quantitative, reversible and irreversible. At the same time, they can be positive and negative both for the enterprise itself and for the environment [9].

Timely detection of the crisis will allow not only to continue the activities of the entity, but also to identify its weaknesses, the elimination of which will increase the efficiency and profitability of the enterprise. Improper detection of the crisis and its deepening can lead to bankruptcy.

Conclusions. The study allows us to draw the following conclusions.

1. The COVID-19 pandemic has been the biggest challenge to the resilience of national economies in decades. Its negative effects have led to a reduction in GDP, complete or partial cessation of economic activity, rising unemployment, rising inflation, declining incomes and economic activity in Ukraine and in the world as a whole. This has caused a crisis for many businesses.

2. Businesses operate on a cyclical basis. Under these conditions, the doctrine of cyclical fluctuations is rightly defined as a rational methodological basis for the study of crisis phenomena in the activities of economic entities. It is substantiated that according to this approach the crisis state of enterprises is an unconditional component of their life cycle.

3. A comprehensive approach to assessing the crisis of economic entities, which takes into account the diagnosis of different types of crises based on a system of criteria and allows you to assess the depth of their development. This approach is the basis for the development of timely and adequate measures to combat crisis processes and prevent bankruptcy.

REFERENCES:

1. Special Report of International Rating Agency «Fitch Ratings» Global Economic Outlook: Crisis Update May 2020. Coronavirus Shock Broadens. Access mode: <https://www.fitchratings.com/research/sovereigns/global-economic-outlook-crisis-update-may-2020-coronavirus-shock-broadens-26-05-2020>.
2. International Monetary Fund. COVID-19 Financial Assistance and Debt Service Relief. Access mode: <https://www.imf.org/en/Topics/imf-and-covid19/COVID-Lending-Tracker>
3. International Labour Organization. Uncertain and uneven recovery expected following unprecedented labour market crisis. Access mode: https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_766949/lang--en/index.htm
4. Onyshchenko S., Hlushko A. (2020). The impact of the COVID-19 pandemic on the socio-economic security of Ukraine. *Academic and University Science – Results and Prospects: materials of XIII International Scientific and Practical Conference* (December 10, 2020). Poltava: NUPP. P. 47–49.
5. Official website of State Statistics Service of Ukraine. Access mode: <http://www.ukrstat.gov.ua/>
6. Dubishhev V., Hlushko A. (2014). Methodological content of the study of the process of formation of state regulatory policy in Ukraine in the conditions of deepening market relations. *Economy and region. Scientific Bulletin of Poltava National Technical University*. Poltava: PNTU. Vol. 45. № 2. P. 82–89. [in Ukrainian]
7. Gudzh T.P. (2007). *The system of early detection and overcoming the financial crisis of enterprises: a monograph*. Poltava. 166 p. [in Ukrainian]
8. Hlushko A., Solod V. (2021). Application of models for assessing the bankruptcy of the enterprise on the example of PJSC "Firm" Poltavpivo". *Economic development of the state and its social stability: materials of International Scientific-Practical Internet Conference* (June 14, 2021). Poltava: NUPP. P. 138–140 (404 p.). [in Ukrainian]
9. Chornovil I. (2011). The essential characteristics of the crisis of the enterprise and the causes of its occurrence. *Bulletin of Khmelnytsky National University*. № 2. T.1 P. 13–20. [in Ukrainian].

Table 2
Estimation of the most common quantitative models of bankruptcy forecasting

Name	Advantages	Disadvantages	Features of application in Ukraine
Model R	<ul style="list-style-type: none"> – a simple calculation mechanism that is sufficiently covered; – for companies whose shares are not listed on the stock exchange 	<ul style="list-style-type: none"> based on practical research, some scientists suggest that the technique is suitable only for the existing signs of crisis 	the model is suitable for national enterprises
Two-factor model	the easiest to calculate	designed exclusively for the United States and does not fully take into account national economic conditions; lack of indicators	
Springgate's model	<ul style="list-style-type: none"> – in general, the forecasting error does not exceed 10%; – does not take into account the market capitalization, the range of enterprises is not limited to joint stock companies 	<ul style="list-style-type: none"> – prediction accuracy decreases with time, – the model is a modification of the Altman model of the 1968 version, and the latter is not suitable for modern use 	non-economic factors are not taken into account
Altman's model	<ul style="list-style-type: none"> – in a number of countries, the forecasting accuracy was 95%; – the availability of several formulas for companies whose shares are quoted and not quoted on the stock exchange 	<ul style="list-style-type: none"> – is empirical, has no independent theoretical basis; – coefficients calculated on the basis of performance statistics of US enterprises, – coefficients for each industry are calculated separately 	<ul style="list-style-type: none"> – the maximum number of Z-indicator due to certain features of the national economy is inflated, – the coefficient X4 is unacceptable due to lack of information about the market value of shares; – non-economic factors are not taken into account
Beaver's model	statistical methods in combination with financial ratios were used for the first time	regulatory values of financial indicators do not take into account the industry specifics of enterprises	<ul style="list-style-type: none"> – the efficiency of capital use at enterprises (turnover, profitability) is not taken into account; – the calculation of the coefficient is performed in statics
Taffler's and Tishaw's model	involves the use of computer technology	does not take into account the market valuation of the business (ie stock quotes)	in Ukraine can exist only as a parallel model, because the values of the coefficients are not related to the industry
O. Tereshchenko's model	the calculation of the integral quantity is based on six indicators	insufficient theoretical, empirical substantiation of critical points for certain financial indicators	<ul style="list-style-type: none"> – not adapted for Ukrainian enterprises; – ambiguity of estimates

УДК 336:330.33.01

JEL: G33

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Ключові слова: кризовий стан, банкрутство, пандемія COVID-19, діагностика.

УДК 336:330.33.01

JEL: G33

Alina Hlushko, PhD (Economics), Assistant Professor. **Vitaliia Skryl**, PhD (Economics), Assistant Professor. National University Yuri Kondratyuk Poltava Polytechnic. **A comprehensive approach to the diagnosis of crisis status of business entities in a pandemic condition**. The article actualizes the issue of crisis diagnosis as a basis for timely detection of problems in the activities of business entities. It is substantiated that in the conditions of the COVID-19 pandemic and related quarantine restrictions, there was a significant decline in economic activity of the population, which caused a crisis in many businesses. The impact of the pandemic on the activities and financial condition of enterprises in Ukraine has been studied. A comprehensive approach to assessing the crisis of economic entities, which takes into account the diagnosis of different types of crises based on a system of criteria and allows you to assess the depth of their development. This approach is the basis for the development of timely and adequate measures to combat crisis processes and prevent bankruptcy.

Key words: crisis state, bankruptcy, pandemic COVID-19, diagnostics.