Development of methodological tools assessment of financial stability of enterprise

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Abstract.-**Under modern conditions of economic instability, the risk of bankruptcy of economic entities as the result of their increasing inability to resist negative effect of external and internal factors increased significantly. Even large and successful companies need to form of a new management mechanism, aimed to the growth of shareholders' equity under the condition of the target level of financial stability. In this connection the problem of sustainable functioning of economic entities is extremely relevant today.**

With respect to the real sector of economy, this problem becomes even more important due to some peculiarities of their functioning. These features include a complex organizational structure; great amount of reserves; long production cycle; high capital intensity; the significant amount of the investments to the renewal of fixed assets and, as a consequence, high level of borrowing. This makes an objective necessity for scientific evaluation of the development issues and the insurance of the financial stability of the enterprises.

The subject of this research is the methodological tools for assessing the financial stability of the enterprise.

Objective: To assess the improvement of methodological tools of financial stability through the development of the author's methodical approach.

The methodological basis of the given research were such methods as categorical, logical and structural analysis and synthesis, detailing and summarizing, grouping and comparison of methods of economic analysis of statistical information.

The main results: 1. Modern methodological approaches to the assessment of financial stability were considered. A number of significant disadvantages which restrict their effectiveness and practical use were found; 2. The author methodical approach to the assessment of financial stability using the integral indicator and a numerical score was elaborated; 3. The author testing technique used for the assessment of financial soundness of ten largest companies in Russian iron industry was tested; 4. The main tendencies and factors of changes of the level of financial stability of Russian iron ore companies in the period 2012-2017 were found out.

Key findings from the study: 1. The financial stability of the enterprise is considered to be the synthesis of three structural components: financial stability, financial flexibility and financial capacity, which determines the logical-structural and methodological basis of the author's methods of its evaluation. 2. Successful testing methodology proposed by the authors for assessing the financial stability on the example of ten largest iron enterprises of Russia confirms the high efficiency of its practical application.

Keywords - financial sustainability of the enterprise; methodical approach; evaluation; scorecard.

I. INTRODUCTION

According to the majority of Russian and foreign scientists, economists, financial stability is the necessary condition, and even the key to the stable functioning of economic entities. If the enterprise is financially stable, it is less dependent on changes of the market factors, commodity and financial markets, has a number of advantages in obtaining credit, attracting investors, is the choice of counteragents.

Taking into account the role of corporate Finance in public corporate reproduction process the problem is relevant of management of financial stability of enterprises are relevant at the macro level. Socio-economic welfare of the country and its economic growth is greatly dependent on the efficiency and stability of the enterprises working on the territory of the country. Financially stable enterprises generate jobs, providing a constant source of public revenue; at the expense of the tax and insurance deductions companies form budgets of various levels often with the direct involvement of financially sound enterprises and the development of the regions - areas of their location takes place. Thus, it is financially stable enterprises that are the backbone of the national wealth, strengthening the state's position on the international level.

In this respect, methodological tools allowing qualitatively and objectively evaluate the financial stability of the company is of the particular importance and urgency, as well as the opportunity to take on the basis of this assessment effective administrative decisions in the system of financial management.

II. LITERATURE REVIEW

Issues of forecasting the probability of bankruptcy, the diagnosis of the financial condition of enterprises were considered by many foreign economists: E. Altman, W. Beaver, R. Taffler, J. Hudson, R. Brealey, S. Storey, D.

Ellerman, R. Ling, W. Keaten, R. Walters, J. Collard et al Works foreign authors, mainly applied to the identification of signs of bankruptcy and the formation of multi-factor (typically linear) models to predict the probability of it [2].

In the Russian literature the problem of accession the financial stability of the enterprise is described widely enough. The works by : VR Bank VV Bocharov, LS Vasilyeva, LT Gilyarovskogo AV Grachev, AV Endovitsky, VV Kovalev, IA Lisovska, EV Negasheva, TS Novashinoy, MV Petrovskaya, MV Romanovsky, RS Saifulina, NN Selezneva, AD Sharamet were devoted to the problems of formation the approaches of accessing and forecasting the financial stabilities of the company.

Analyzing the corresponding methodological tools the authors investigated more than forty works and as the result there are groups of approaches (Figure 1).

Methodological approaches to the evaluation of financial stability of the enterprises		

Approaches with the application of absolute indicators		Approaches with the application of relative indicators		Mixed indicators

comparative		Integral evaluations		Rating

Fig. 1. Modern methodical approaches to the assessment of financial stability

Critical analysis of the given approaches allowed to identify a number of significant disadvantages which restrict their effectiveness and the practical application [3].

The main drawback of the approaches using the absolute indicators of financial stability is the fact that the assessment of companies according to the type of financial stability makes it difficult to compare the financial state of one enterprise to another. It would seem that this problem can be solved using the coefficient methods for assessing the financial stability of the enterprise. However, even here there are some significant disadvantages of accessing stability of the enterprize.

They are:

• the static nature of the indicators used;

• inability to identify the types of financial stability;

• The high degree of cross-correlation of a number of indicators;

• the use of uniform regulatory coefficient values do not taking into account the industry-specific companies analyzed;

• Discrete calculation results, often reinforced by mixed trends of financial stability coefficient values don't allow forming a holistic vision of financial stability and the financial state of the company.

When using an integral approach of financial stability assessment and also rating approaches greatest doubt the first case is caused by the justification of composition and significance of some indicators, and in the second - the approach to the definition of the rating coefficient factors or reference enterprise.

Identified deficiencies of modern methical approaches to the assessment of financial stability objectively testify the need to improve the relevant methodological tools and that is the goal of this study.

III. RESEARCH METHODOLOGY

Based on the results of the research "Financial Business stability" category with the system approach [4], structural studies of its content the authors developed the method of evaluation of financial stability with the integral indicator and a numerical score (hereinafter - technique). Methodological basis of this method is the set of principles and methods presented in Figure 2.

The theoretical basis of the author's method is the positioning of the financial stability of the company as a synthesis of three structural components: financial stability, financial flexibility and financial capacity. These structural components of financial stability are interrelated and interdependent, but, each of them separately discloses its specific side.

methodological basis of formation of the author's methodology for assessing the financial stability of the enterprise	

methodological principles of assessment of financial stability of the enterprise		Methods used to assess the financial stability of the enterprise
adequacy, consistency, adaptability, science, labor saving, reliability, complexity, comparability, specificity, regularity, possibility of practical application		method of developing a system of indicators, the method of using absolute, relative and average values, the method of financial ratios, horizontal analysis, normative method, comparison method, the method of the sum of points

Fig. 2. The methodological basis of the developed technique of the assessment of financial stability

So, for example, financial stability reflects current and strategic solvency of the company. Financial flexibility is characteristic of the adaptive abilities of functioning of the enterprise in the conditions of the external environment of uncertainty (from the perspective of operational money rise or minimization of debt load). Financial potential, describing the current and future financial capacity of the enterprise reveals the role of financial sustainability for business development.

In this connection the assessment of the financial stability is supposed to perform by eighteen figures differentiated in three units: indicators of financial stability, financial flexibility and financial capacity (see Table 1).

TABLE I.   PROPOSED SCORECARD FOR ASSESSMENT OF FINANCIAL STABILITY

component indicators financial stability and their standard values	component indicators financial flexibility and their standard values	component indicators financial capacity and their standard values
Coefficient of current liquidity > 2.0	Coefficient security liabilities of current cash flow $\geq 0,4$	Coefficient Growth factor excess net working capital> 1.0
Coefficient of Quick liquidity ratio> 1.0	Coefficient Effectiveness ratio of cash flow from operating activities> 0	Coefficient Growth factor excess pure term capital> 1.0
Coefficient absolute liquidity ratio $\geq 0,2$	Coefficient	Coefficient ROA growth factor> 1.0

Coefficient The financial independence ≥ 0,5	Coefficient reinvested Cash Flow > 0.08	Coefficient Growth rate of return on equity> 1.0
Coefficient Financial stability ratio ≥ 0,8	Coefficient Growth factor receivable turnover ≥ 1,0	Coefficient Profitability growth factor production> 1.0
Coefficient Production ratio of working capital own means ≥ 0,1	Coefficient of Growth rate of .payable turnover	Coefficient Revenue growth factor (more than asset growth factor greater than one, but less than the net profit growth factor)

The selection of indicators for the assessment of financial stability was carried out by checking their compliance with certain requirements. These requirements (selection criteria) include: relevance; comparability; permissible multicollinearity; preferential use of relative values; the possibility of verification and transparency; tree structure parameters of the system (presence of partial and general indicators); Timeliness and regularity of the initial information in the form of the objective financial statements; the availability of objective normative values of the indicators. The last criterion is the necessary and fundamental condition for the selection of indicators, as verification of compliance of the actual values of some indicators with their standards is the basis of the of assessment of general indicator of financial stability . In establishing the normative values of the indicators the authors were guided by the Russian regulatory documents governing the analysis of the financial condition of the organization [5,6], the relevant sources of educational literature [7,8,9]. However, when applying of the proposed methodology to the specific industrial enterprises it is advisable to adjust the recommended guideline and take into account sectoral and regional business specifics.

According to the author's methodology, evaluation of financial stability comprises the following steps:

Step 1: Calculation of the actual values of particular indicators used to assess the financial stability, financial flexibility and financial capacity of the enterprise, based on the data of its annual financial statements;

Step 2. Comparison of the values of partial indicators with their standard values;

Step 3. The scoring assessment of composite financial stability indicators, i.e. financial stability, financial flexibility and financial capacity is supposed to implement by the following criteria. In connection with the fact that the indicator of financial stability in the assessment of financial stability plays the main and priority role the conformity of the actual value to normative value is estimated at two scores. With regard to indicators of financial flexibility and financial capacity - that condition of conformity of the actual value of the private exponent of its normative value estimated at one score. Thus, the numerical score indicator of financial stability varies from zero to twelve, the score indicator of financial flexibility and the indicator of the financial potential changes from zero to six.

Step 4: Calculation of the integral index of financial stability of the company as the amount of scores of indicators of financial stability, financial flexibility and financial capacity. The maximum value of the integral index is 24 scoress. Depending on the obtained value of the integral parameter the type of the enterprise financial stability is

determined. The authors consider appropriate separation guided by the following intervals of values of integral index of financial stability (FU): $0 \leq\ \leq 8$ scores FU - low financial stability; $8 <FU \leq 16$ points - permissible (satisfactory) financial stability; $16 <FU \leq 24$ points - high financial stability (Table 2).

TABLE II. CHARACTERISTICS DIAGNOSED TYPE THE FINANCIAL STABILITY OF THE ENTERPRISE

type of financial soundness (the interval values integral index scores)	The characteristics of type financial stability
Poor financial (0 ≤ ≤ 8 FU)	The company is not able to function in the target trajectory in a disturbance of external and internal factors. If the value of the integral index of financial stability is closer to the lower boundary of the designated range, the potential to increase the financial stability of the enterprise is practically absent. Compliance with the upper boundary of the interval indicates the possibility of increasing the degree of financial stability to the average level through the implementation of methods and procedures for crisis management.
Permissible financial stability (8 <FU ≤ 16)	The company has a satisfactory financial condition characterized by, as a rule, fairly balanced structure of assets and liabilities, the current solvency but the lack of growth in business performance. Levels of financial flexibility and financial capacity are such that allow for the current functioning of the enterprise, but not sufficient to ensure a sustainable development of the enterprise in the long term, in the path of realization of strategic goals.
High financial stability (16 <FU ≤ 24)	The company has a stable financial position, higher financial flexibility and financial strength. Most of the actual values of the financial and economic indicators corresponding to standard values, in addition, there is a positive dynamics. The company is able to stably operate and develop.

It is advisable to assess the financial stability of the enterprise with the help of the proposed methodological approach on a regular basis in order to monitor its level of dynamics, design and implementation of management solutions in order to achieve and maintain a target (the level) of financial stability, under the permanent negative impact of environmental factors. In this regard, of special significance is the integration of financial stability assessment methodology in the system of internal financial control and financial management of the enterprise.

IV. RESULTS

In the framework of the given research Russian enterprises of iron and ore industry are the objects of the author's testing

methodology for assessing the financial stability of the company. The choice is due to the significant role of these enterprises in the national and global economy. Iron ore, being the main raw material for steel production, the share of which in the world accounts for up to 95% of the consumption of metals, plays the role of the most important raw material commodity on the global and domestic markets.

Currently, Russia ranks fifth in the world for the production of commodity iron ore production and seventh in terms of its exports. [10] Over 90% of the volume of production of iron ore products in Russia accounted for ten of the largest mining and processing enterprises: JSC «Mikhailovsky GOK», JSC «Stoilensky", JSC "EVRAZ KGOK", JSC "Lebedinsky GOK", JSC "Karelian Pellet", JSC " OLKON ", JSC" Kovdor GOK "JSC," Korshunov Mining Plant ", JSC" KMA Ruda ", JSC" Evrazrudy ". These companies acted as testing facilities of author methodology for assessing financial stability. The evaluation period covers six calendar years (2012-2017 gg.).

It should be noted that the numerical score of the indicator of financial stability and, consequently, an integral indicator of the financial stability of the investigated companies was carried out in two ways - using both standardized and industry standards of a number of indicators of financial stability. We mean such indicators as the current ratio with, quick ratio, the financial independence ratio and the ratio of working capital with own sources. With respect to these indicators should use it is advisable to use the standard values, adjusted for industry-specific activity of iron ore enterprises. Such features include, for example, a long period of the operating cycle; and consequence, high capital intensity;

The obtained results of the assessment of financial stability of Russian iron ore companies for the period 2012-2017. Are shown in Figures 3,4. These figures reflect the value of the integral index of financial stability of the enterprises studied, calculated with the use of industry standards.
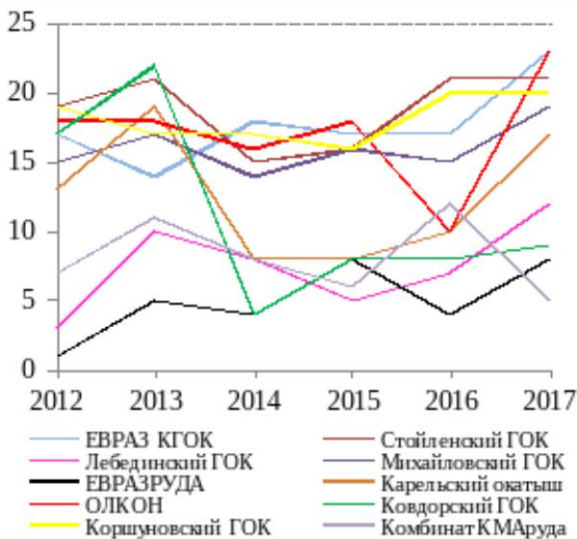

Fig. 3. Dynamics of the integral index of Russian iron ore companies financial stability for the period 2012-2017., Points
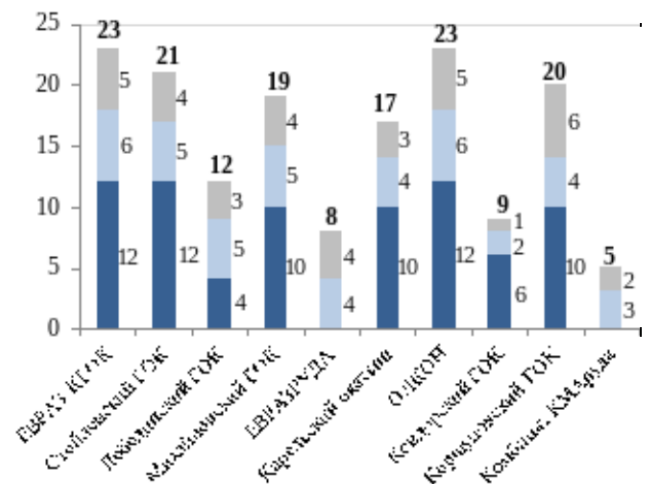

Fig. 4. "Structure" integral indicator of the financial stability of Russian iron ore companies in 2017, points

Figure 4 shows that on the basis of financial stability assessment for 2017 ten investigated companies were distributed in three groups:

but). Group number 1 - the company with high financial stability. This group is composed of six companies including JSC "EVRAZ KGOK", JSC "OLKON", JSC "Stoilensky", JSC "Korshunov Mining Plant", JSC "Mikhailovsky GOK", JSC "Karelian Pellet" (with the values of the integral index of 23, 23 , 21, 20, 19, 17 points, respectively).

b). Group number 2 - the enterprise with a valid (satisfactory) financial stability. As a part of this group of two companies: JSC "Lebedinsky GOK", JSC "Kovdor GOK» (with the values of the integral index of 12 and 9 points, respectively).

at). Group number 3 - companies with low financial stability. In this group, there are two companies: JSC "Evrazrudy", JSC "KMA Ruda" (with the values of the integral index of 8 and 5 points, respectively).

V. CONCLUSIONS

On the basis of financial stability assessment the results of (with the industry standards) of Russian iron ore companies for the period 2012-2017. It is possible to make the following conclusions:

1. The value of the integral index of financial stability jointly investigated companies in the analyzed period are in the range from 1 to 23 points, which indicates a high degree of variability.

2. In the dynamics of change of integral index of Russian iron ore companies financial stability for the period 2012-2017.there is no definite orientation vector. For most businesses, the interval of fluctuations in the integral index value on the average from five to nineteen points. The general trend of the reducing the financial stability of enterprises in 2014 compared to 2013 (with the exception of "EVRAZ KGOK")is observed, due to the following factors:

a) unfavorable market conditions (in 2014 on the Russian due to market price on iron ore decreased on the average of 25%, on the world market - on average by 30%);

b) a significant increase in the cost of borrowed resources in the Russian Federation (mind that the Bank of Russia's key rate has increased from 5.5% in 2014 to 17%).

c) Introduction of sanctions and trade barriers to Russian companies of ferrous and metallurgy steel industry which include enterprises in question.

The most negative event in 2014 affected the financial condition of JSC "Kovdor GOK". The value of integral indicator of its financial stability in 2014 amounted from 4 points to 22 points down to 29.6% in 2013. For 2014 the profit from sales of Kovdor, net profit - by 30.4%. As a result, the value of the net assets decreased by 50.4%.

VI. THE DISCUSSION OF THE RESULTS

According to the authors, methods of assessment of financial stability have the following advantages:

1. The basis of the method is not a set, but the system of indicators to measure the financial stability of the enterprise. These figures do not contradict, do not duplicate each other, do not leave gaps in the assessment of financial stability. On the contrary, altogether they provide a complete picture of the financial stability by means of assesment of its major structural components: financial stability, financial flexibility and financial potential of the enterprise.

2. The most important advantage of the technique is not only static, but also dynamic indicators to financial stability assessment (growth factors) characterizing the ability of the enterprise in a volatile external environment to comply with specified target trajectory of its development.

3. The methodology under discussion can be easily adapted to the specifics of a particular company. Normative values of the partial indicators for assessing financial stability can be independently established by the company management on the basis of the economic development strategy, financial policy, as well as the industry-specific business.

4. Comparative analysis values of the integrated index of financial stability over several periods of time allows to obtain an objective picture of its vector changes even within one and the same diagnosed type. Due to the comparison in the dynamics of the corresponding values of the indicators of financial stability, financial flexibility and financial capacity it identifies changes in the key factors of financial stability.

5. A unified approach to the assessment of financial stability allows not only making comparative analysis not only of individual economic subject but also between several companies, holding industry, and region.

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