

## Methods of Company Financial Stability Monitoring

<sup>1</sup>Irina A. Slabinskaya, <sup>1</sup>Olga B. Benderskaya, <sup>1</sup>Alexander A. Mitrokhin and  
<sup>2</sup>Alexander S. Truhin  
<sup>1</sup>Belgorod State Technological University Named After V.G. Shukhov,  
Kostyukova Street 46, 308012 Belgorod, Russia  
<sup>2</sup>Department of Foreign Affairs, Russian Academy of National Economy and  
Public Service under the Russian Federation President, Moscow, Russia

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**Abstract:** The study substantiates the urgency of continuous monitoring concerning the financial stability of companies during an economic instability and two methods of monitoring are proposed, including the evaluation indicator system, the description of the analysis information, the procedure of initial data preparation, the methods of their analytical processing and the interpretation of obtained results. The study proposed the system of 23 monitoring indicators representing all main aspects of a company financial stability and two trends of monitoring: the comparative monitoring of a company concerning, its main competitors or the leading companies of the industry; the monitoring of a company financial stability in dynamics. The peculiarities of evaluation indicators calculation are specified for each monitoring area. The methods for the integrated assessment calculation (the modified method of the amount of points and the method of compliance) are proposed to summarize the results of monitoring and quantifying the level of a company financial stability. The methods described in this study are versatile and easy to use for the continuous managing of a company financial stability.

**Key words:** Company management, financial stability, financial analysis, financial stability analysis techniques, integrated assessment calculation methods

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### INTRODUCTION

We are currently witnessing the complication of the economic situation in Russia. It is expected that in the short term this dynamics will be continued and Russian industrial companies are interested if they are ready for this and what shocks they are able to withstand. The answer to this question largely depends on the achieved level of financial stability which is the financial system ability to operate and ensure the achievement of the stated objectives in terms of negative effects of external and internal environment (Kravchenko, 2013).

The availability and the adequate level of financial stability are determined by a competent management, the most important function of which is the stability analysis (Buhonova *et al.*, 2004). Depending on the purpose of the analysis, it may be a one-time assessment of stability level, its constant monitoring or periodically conducted forecasts and planning (Benderskaya and Slabinskaya, 2011).

### MATERIALS AND METHODS

#### Main part

**Two areas of financial stability monitoring:** In the context of an unstable economic situation, the stability monitoring that would enable it to identify its weakening and take appropriate measures becomes particularly relevant. We propose to perform it in two ways:

- The comparative monitoring of a company stability with respect to its main competitors and leading companies in the industry
- The monitoring of financial stability in dynamics

The information base for the first trend of monitoring is the public financial statements of companies (Arskaya *et al.*, 2013) and the information of issuers reporting. The second trend of monitoring involves the use of all internal company information. The difference between the original data affects the composition and the calculation of financial stability assessment indicators for each area of monitoring.

**The composition of financial stability monitoring indicators:** Due to the complexity of financial stability economic category the evaluation of it should use a system of indicators that characterizes all major aspects of an industrial company financial system stability. In Buhonova *et al.* (2004), we proved the list of financial stability problems analysis. Let's identify the following aspects of sustainability on its basis:

- The sufficiency of net assets
- The provision of assets with a net working capital
- The optimal structure of capital and assets
- Solvency
- The balance of cash flows
- The rate of turnover
- Technical condition of fixed assets
- The efficiency of resource use
- The reserve of main activity make out
- A company profitability
- The ability to increase equity capital

Let's make the system of indicators (Buhonova *et al.*, 2004) as the basis and develop a system of indicators for the monitoring of a company financial stability, reflecting all mentioned sustainability aspects (Table 1).

The normal level is not established for some Table 1 values. Based on the economic substance of these indicators, their high value and growth is more preferable. That is these values have the following vector: "the more, the better".

In Buhonova *et al.* (2004), we proposed to establish regulatory requirements for the coefficient K2, based on the value of the so-called required reserves. These reserves mean the optimum volume of reserves which is calculated on the basis of production needs. The actual value of company reserves may deviate from the required one (the surplus and the lack of resources may take place). In order to ensure the financial stability a complete coverage of required reserves by net working capital is necessary:

Table 1: The system of indicators for the monitoring of a company financial stability

Symbol	Indicator name, un. of measur.	Calculation formula	Normal level
<b>Sufficiency of net assets</b>			
K1	Contingency factor for net assets and authorized capital	Net assets\authorized capital	--
<b>Provision of reserves with net working capital</b>			
K2	Coefficient of reserve provision with net working capital	Net working capital\actual reserves Net working capital\necessary reserves	≥0.6 2≥1
<b>Optimal structure of capital and assets</b>			
K3	Autonomy ratio	Own capital\Total capital	≥0.5
K4	Sustainable funding ratio	Fixed capital\Total capital	>0.5
K5	The ratio of long-term sources	Own capital\Long-term borrowed capital	--
K6	Loan capital structure ratio	Long-term borrowed capital\Borrowed capital	--
K7	Loan payable factor	Borrowed capital\Loan payable	--
K8	Constant capital maneuverability ratio	Net working capital\fixed capital	--
K9	Mobility factor	Working assets\total capital	--
<b>Solvency</b>			
K10	Most urgent obligation coverage ratio	Most liquid assets\loan payable	≥1
K11	Short-term liability coverage ratio	Most liquid assets\Loan payable -D Liquid assets\Short-term liabilities	≥1
K12	Long-term liability coverage ratio	Liquid assets\Short-term liabilities +D Non liquid assets\Long-term liabilities	≥1
<b>The balance of cash flows</b>			
K13	Balance ratio of all cash flows	Cash inflow\cash outflow	≥1
K14	Balance ratio of cash flows from current operating activities	Cash inflow\cash outflow	≥1
<b>Turnover rate</b>			
K15	Turnover ratio of total capital	Total income\Total capital	--
<b>The technical condition of fixed assets</b>			
K16	Suitability coefficient	Remaining value of fixed assets\Initial value of fixed assets	≥0.5
<b>The efficiency of resource use</b>			
K17	Return on assets (rub.\rub.)	Income\initial cost of fixed assets	--
K18	Return on materials (rub.\rub.)	Income\Material costs	--
K19	Producton rate per worker (thous. rubles/man)	Income\Amount of staff	--
K20	Income per 1 rub. of costs (rub.)	Income\Total cost of sales	--
<b>Main activity break-even reserve</b>			
K21	Break-even reserve (%)	Actual income-Income without loss\Actual income×100	≥50
<b>Company profit</b>			
K22	Profit of total assets (%)	Profit prior to taxation\Total capital×100	--
<b>The ability of own capital development</b>			
K23	Own capital index increase	Own capital at the end of the year\Own capital at the beginning of the year	≥1

$$K2 = \frac{\text{Net working capital}}{\text{Necessary reserves}} = 1 \quad (1)$$

However, the calculation of required reserves is possible only at a second monitoring trend. It is proposed to perform the comparative monitoring of a company stability using the factor K2, the denominator of which is the actual value of the reserves. The requirements used in common Russian practice for the level of this indicator:  $0.6 = K2 = 0.8$ . The violation of the upper limit is not related to the deteriorating conditions of financial stability (this limit is established for the reasons of company benefit compliance). Therefore, let's leave only the lower threshold of this parameter values for the purposes of stability monitoring.

We propose to use the coverage ratios of external liabilities K10-12 (Slabinskaya *et al.*, 2014; Benderskaya and Anisimov, 2013) for a detailed assessment of a company solvency with different maturity periods. Their calculation formulas presented by most liquid assets is cash and cash equivalents and short-term investments; liquid assets is a receivable with the maturities up to 1 year and other current assets; non-liquid assets are presented by stocks, the value added tax on acquired assets and the accounts receivable with the maturities >1 year. The most urgent obligations are the accounts payable. At the second trend of monitoring one should take into account that the amounts payable in the Russian balance include the amounts due to the participants concerning the payment of dividends (let's denote it by D), the maturity of which under the laws is more than for other kinds of accounts payable, so if you have inside information about the amount of D it must be subtracted from the total amount payable and referred to short-term liabilities.

Short-term liabilities are the loans with the maturities of up to 1 year, the estimated liabilities and other current liabilities. At the second trend of monitoring, the debt of the participants concerning the payment of dividends D is added. Long-term liabilities are the company liabilities with the maturities over 1 year.

To assess the balance of cash flows, we suggest to use the relative indicators of net cash flow K13 and 14. They are calculated according to the statement of cash flows circulation (Slabinskaya, 2014). To maintain a normal financial condition, it is important to cover the company cash payment with general remittances and especially by current operations and therefore two indicators are suggested for calculation. Indicator K13 accepts the cash inflow and outflow for the calculation of all transaction funds (current, financial and investment ones) while the indicator K14 is only the inflow and outflow of cash means from current operations.

The rate of a company turnover is proposed to estimate using the turnover ratio of total capital K15. In Russian practice, it is usually calculated according to revenue. However, the assessment according to company total revenue is more complete one.

To evaluate the technical condition of fixed assets it is proposed to use the coefficient of suitability K16. It's calculation demands the residual value of fixed assets showed on its balance sheet and the initial value of fixed assets which shall be mentioned in the notes to the balance sheet or an issuer statement. An acceptable level of fixed assets technical state is the following one: the depreciation is accrued within the amount not exceeding 50% of fixed assets original value.

The system includes the monitoring indicators of basic productive resources of an industrial company (fixed assets, labor and material resources) K17-19 as the indicators of resource use efficiency. The calculation of return on assets is suggested to perform according to the original value of fixed assets to make the index not to be influenced by the depreciation over time. The data on the initial cost of fixed assets on the number of personnel and material costs of a company for at first request monitoring may be obtained either from the disclosures of a balance or from the issuer's statements.

At the comparative monitoring of companies the values K17-19 are calculated in current prices and at the monitoring of the dynamics the values are calculated in comparable prices.

The most general indicator concerning the use of all company resources efficiency is the cost per 1 ruble of production, the ratio of total cost of sales to revenues (Chizhova and Shevchenko, 2011). This value has the following trend: "the less the better". To ensure the trend of all system indicators instead of costs per 1 ruble of products we will use its inverse ratio K20, the revenue per 1 ruble of expenses.

The breakeven reserve (K21) is an important criterion for the assessment of financial stability. It reflects the risk of loss from the main activity (and accordingly, the deterioration of financial condition) in the case of sales volume decrease. The indicator is calculated on the basis of the actual and break-even company revenue. The calculation of break-even earnings, requires the data on the amounts of variables and fixed costs (Slabinskaya *et al.*, 2013):

$$\text{Break-even earning} = \frac{\text{Constant costs}}{1 - \frac{\text{Occasional costs}}{\text{actual profit}}} \quad (2)$$

For the purposes of monitoring the stability in dynamics the sums of variables and fixed costs in the cost

of production may be obtained from the management accounts of a company. At the comparative monitoring of companies the indicator (Eq. 2) calculation is possible only if a separate reflection in the income statement of sales costs, commercial and administrative expenses takes place (Benderskaya and Slabinskaya, 2011). A break-even stock of 50% or more shall be considered as a sufficient one.

We offer to evaluate the ability of equity increase by the growth of equity index K23 per year (or by other evaluation period).

## RESULTS AND DISCUSSION

**Calculation of a comprehensive assessment concerning the level of financial stability at the comparative monitoring of companies:** To summarize the calculation results of 23 indicators measuring certain aspects of financial stability we suggest using a comprehensive assessment calculated by the method developed by us with a modified total score method (Benderskaya, 2015).

The values are replaced by scores on the principle of best value (let's denote it  $a_{best, j}$ ) the highest score, the worst value (let's denote it  $a_{worst, j}$ ) the lowest score. The system of financial stability monitoring indicators is presented by oriented indicators the more, the better". Hence, the minimum value of  $j$ th indicator should be put in line with the minimum scoring ( $b_{min}$ ) and the maximum value of all  $j$ -index values is the maximum scoring ( $b_{max}$ ). The  $b_{min}$  and  $b_{max}$  may be set by almost any values (but the same for all 23 in compliance with the condition  $b_{max} > b_{min}$ ). The remaining scores are calculated by the formula:

$$b_{ij} = b_{min} + \frac{a_{ij} - a_{worst, j}}{a_{best, j} - a_{worst, j}}(b_{max} - b_{min}), i = \overline{1, n}; j = \overline{1, m} \quad (3)$$

Where:

- $n$  = The number of comparable companies
- $m$  = The number of indicators describing the companies (where  $m = 23$ )
- $a_{ij}$  = The value of the  $j$ th index of the  $i$ th company:  
 $i = \overline{1, n}; j = \overline{1, m}$
- $CA_i$  = A comprehensive assessment of the  $i$ th company,  
 $i = \overline{1, n}$

The comprehensive assessment is calculated by the following formula:

$$CA_i = \sum_{j=1}^m \frac{b_{ij}}{m}, i = \overline{1, n} \quad (4)$$

It is easy to calculate that if the compared companies have the ones that will be better than others according to

all indicators, its comprehensive assessment will be equal to  $b_{max}$  and the comprehensive assessment of the company which is worse than others by all indicators will be equal to  $b_{min}$ . It is easy to position the company and compare their level of financial stability in the range of these values.

As you see, this method of comparison monitoring suggests the comparison of company valuations among themselves rather than by standard values. Although, an additional compliance regulation to the standard level according to the indicators for which this level is set is not excluded and even necessary.

Some of Table 1 indicators are the torque ones while others are the period ones. For the calculation of a comprehensive assessment all indicators included in it should be reduced to the same period of time. The torque figures (in Table 1 these are the values K1-12 and K16) should be calculated on the average by a period according to the formula of a simple arithmetic average based on their values according to the statement data at the beginning and at end of the period. During calculations it should also be remembered that in period values K15, 17 and 22 the denominator has the values of torque which also need to be averaged during the evaluation period.

### The calculation of a comprehensive assessment during the monitoring of financial stability level in the dynamics:

In Table 1 the standard level is set only by the values K2-4, K10-14, K16, 21 and 23. Other indicators in its meaning are such that the sign of the financial sustainability reinforcement is their growth and the sign of stability weakening is the decrease. In this trend of monitoring for convenience evaluation as in (Buhonova *et al.*, 2004), we propose to replace the values of Table 1 that do not have a regulatory level by the growth rates of these indicators (Table 2).

At this monitoring trend the value of a comprehensive assessment for an investigated company is calculated during the reporting period which is then compared with CA values of the prior periods. We suggest you use this method to calculate the integrated assessment. We call this method as the method of compliance (Benderskaya, 2015):

$$CA = \frac{100}{m} \sum_{j=1}^m X_j \quad (5)$$

where,  $X_j$  is the indicator:

$$\begin{cases} X_j = 1 & \text{if } a_j, \\ X_j = 0 & \text{if } a_j \end{cases} \quad (6)$$

Table 2: The system of monitoring indicators for the dynamics of a company financial stability

Symbols	Indicator name, units of measurement	Normal level
<b>The sufficiency of net assets</b>		
K1	The growth rate of the ratio which exceeds the net assets over the authorized capital (%)	≥100
<b>The provision of resources with clean working capital</b>		
K2	Coefficient of provision with reserves by net working capital (an average value for the period)	≥1
<b>Optimal structure of capital and assets</b>		
K3	Autonomy ratio (average period value)	≥0.5
K4	Sustainable funding ratio (an average period value)	>0.5
K5	The growth rate factor for long-term sources (%)	≥100
K6	Growth rate ratio of borrowed capital structure (%)	≥100
K7	Growth rate ratio of accounts payable (%)	≥100
K8	The growth rate of the constant capital maneuverability coefficient (%)	≥100
K9	The growth rate of the mobility factor (%)	≥100
<b>Solvency</b>		
K10	The coverage ratio of the most urgent liabilities (average period value)	≥1
K11	The coverage ratio of short-term liabilities (average period value)	≥1
K12	The coverage ratio of long-term liabilities (average period value)	≥1
<b>The balance of cash flows</b>		
K13	Balance ratio of all cash flows	≥1
K14	Balance ratio of cash flows from current operations	≥1
<b>Turnover rate</b>		
K15	The ratio growth rate of total capital (%)	≥100
<b>The technical condition of fixed assets</b>		
K16	Suitability coefficient (average period value)	≥0.5
<b>Resource use efficiency</b>		
K17	The growth rate of return on assets (%)	≥100
K18	The growth rate of return on materials (%)	≥100
K19	The production growth rates per 1 employee (%)	≥100
K20	Revenue growth rate per 1 rub. of costs (%)	≥100
<b>Breakeven reserve from main activity</b>		
K21	Breakeven reserve (%)	≥50
<b>The company profitability</b>		
K22	Total assets profitability growth rate (%)	≥100
<b>The ability on equity development</b>		
K23	Equity growth index	≥1

If  $a_j$  corresponds the standard. It is easy to check that the values of integrated assessment (Eq. 5) may vary from 0-100. The integrated assessment is equal to 100 if the values of all assessment indicators are within the standards set for them that is all conditions of financial stability are observed. This level of financial stability may be considered as an absolute financial stability. If the value of an integral index is <100, it indicates the non-fulfillment of some stability conditions that is a certain lack of stability, the reasons of which should be clarified analyzing individual evaluation values. If a comprehensive assessment makes 0, the financial stability is completely absent.

**Summary:** The monitoring methods proposed in the study concerning the financial stability level include the system of 23 evaluation indicators, the description of the analysis information base, the initial data preparation order, the methods of their analytical processing and the interpretation of obtained results. The described techniques are proposed to use, depending on the trend of monitoring:

- Comparative monitoring of a company in respect to its main competitors or the leading companies in the industry
- The monitoring of a company financial stability in dynamics

The features of an estimate evaluation calculation for each of the monitoring areas are described. To summarize the monitoring results and quantify the level of a company financial stability the complex evaluation calculation method was offered by the researchers a modified method of the score and the method of compliance. These methods allow us to make an accurate objective assessment of financial stability and set readable scale values in respect of stability level.

## CONCLUSION

The proposed techniques are convenient and easy to use for the managing of a company financial stability. They are quite versatile and may be used not only by industrial companies but also by the companies from

other sectors of the economy not only by Russian but also by Foreign entities drawing up the reports on similar standards.

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