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EFFECTIVE MANAGEMENT OF FINANCIAL SUSTAINABILITY AS FACTOR OF SOCIAL AND ECONOMIC WELFARE

Natal'ya R. Balynskaya (a), Anastasiya G. Vasil'yeva (b), Vasilya M. Gafurova (c),
Nina V. Kuznetsova (d), Liliya M. Rakhimova (e)*

* Corresponding author

(a) Nosov Magnitogorsk State Technical University, 24 Lenin Av., Magnitogorsk,Chelyabinsk region, Russia,
balynskaya@list.ru, 8(919)343-82-40
(b) Nosov Magnitogorsk State Technical University, 24 Lenin Av., Magnitogorsk,Chelyabinsk region, Russia,
agvasileva@inbox.ru, 8(902)617-66-62
(c) Nosov Magnitogorsk State Technical University, 24 Lenin Av., Magnitogorsk,Chelyabinsk region, Russia,
gvm_65@mail.ru, 8(919)315-63-60
(d) Nosov Magnitogorsk State Technical University, 24 Lenin Av., Magnitogorsk,Chelyabinsk region, Russia, nina-
kw@mail.ru,8(902)618-84-03
(e) Nosov Magnitogorsk State Technical University24 Lenin Av., Magnitogorsk,Chelyabinsk region, Russia,
rahimova68@list.ru, 8(982)277-40-68

Abstract

In modern conditions, when the economic reality has become very multifaceted, changeable and less favorable, the problem of the effectiveness of management of financial stability of the Russian Federation takes on special significance. The high efficiency of management of financial stability of development of some regions at the non-equilibrium state of other territorial units causes problems of non-uniformity of the process of social and economic welfare of the country in general, and may cause series of macroeconomic cyclical fluctuations. In this context, it is important more than ever to expose the effectiveness of management of financial stability of the Russian Federation subjects to the economic and statistical analysis, which allows us to compare the integral index of financial stability, and the possibility of the modern territory to get the most out of their own economic space.
The article presents a systematic mathematical algorithm and the results of the development and theoretical foundation of the complex methodological and instrumentality approach to assessing the effectiveness of management of the financial stability of the Russian Federation subjects by comparing the integral index of financial stability and the values of the indicators of socio-economic welfare. The expediency of practical application of the proposed criteria and a presented mathematical algorithm in the evaluation of the efficiency of management of financial stability of the Russian Federation subjects as a part of the Urals Federal District is investigated.

1. Introduction

1.1. Actuality of the problem

The economic situation that prevailed at present in the Russian Federation shows a hard asymmetry in the regional evolution exactly from the viewpoint of financial stability. The state uses the tools of horizontal and vertical alignment of the level of socio-economic development of the modern territories that are focused first of all on providing macro manageability of the regional system, which to a certain extent led to the resource dependence at a higher level, to the strengthening of social injustice, to the reduced interest on the part of governments in the Russian Federation subjects, to the increase of the financial resource supply. Let us note that «many fiscally decentralized economies rely heavily on transfers from upper to lower-level governments as well as on equalizing transfers between lower-level governments» (Lundqvist, 2015).

Achievement of financial stability of the region and its socio-economic welfare requires, first of all, the development and implementation of incentive mechanisms motivating the modern territories efforts to increase the total resource base, the formation and strengthening of their financial potential. Without a doubt, the stated problem is understood and discussed at different levels of government. However, in our opinion, without objective modernization of existing and development of new universal methods and tools, designed not only to assess the financial sustainability of the regions, but also to study the effectiveness of its management, as well as without cooperation with the scientific community, with the community of journalists working in the area of Internet blogs, the problem cannot be solved at the qualitative level (Balynskaya, 2013). Presently, the existing mechanism of assessing the financial position of the region is based solely on the qualitative analysis of management of the budget resources, which does not reflect the real resourcefulness of the territory and distorts the rating of its socio-economic dynamics (Zenchenko, 2009).

The values of indicators characterizing the socio-economic welfare of the Russian Federation subjects are used as indicators that identify the reaction of the economy to make management decisions, and their positive change indicates the effectiveness of territorial policy, competitiveness and financial stability in the region. Therefore, a priority of our scientific research is to substantiate a comprehensive approach to the economic and statistical study of the effectiveness of management of financial stability of modern areas, allows comparing the integral index of financial stability and effectiveness of the implementation of expenditure obligations of governments in the region.

Thus, improving the methodology for assessing the effectiveness of the management process of formation and the use of regional financial potential is an actual scientific problem having theoretical and practical significance.

1.2. The degree of the problem elaboration

The analysis of the degree of elaboration of the investigated problem revealed that by now, there are practically no publications on complex methods of assessing the effectiveness of management of the region financial stability as a factor in the increase of its social and economic welfare. Most of the works are based on the analysis of individual control of quality criteria of financial soundness of territories and do not affect the question of a consolidated assessment. These include the works E.A.Verbinenko, R.V

Badylevicha (Verbinenko, & Badylevich, 2013), S.V. Zenchenko (Zenchenko, 2009), A.V. Kizeeva (Kizeev, 2011), P. Liberati, A. Sacchi (Liberati, & Sacchi, 2013), H. Lundqvist (Lundqvist, 2015) and others. Thus, appreciating the results obtained in the works of these authors, we consider it necessary to note that there are still many aspects that require in-depth analysis of revisions and improvements.

1.3. Purpose and objectives of the study

The purpose of the study is to improve the existing methodological approaches to the assessment of efficiency of management of an important factor of socio-economic welfare of the Russian Federation subjects - financial stability.

The designated purpose of our research has identified objectives:

- to develop and substantiate theoretically a comprehensive and methodological instrumentality approach to assessing effectiveness of management the financial stability of the Russian Federation;

- to propose criteria for «integral indicator of financial stability» and «growth rate of indicators of socio-economic welfare of» to perform a comprehensive assessing the effectiveness of management of financial stability of regions, present the mathematical algorithm for its implementation;

- to explore appropriateness of practical application of the proposed criteria and the presented mathematical algorithm in assessing the effectiveness of management of financial stability of the Russian Federation subjects as a part of the Urals Federal District.

2. Methods of study

The proposed methodology of economic and statistical assessment of the action of the level of financial resource which supplies the Russian Federation subjects, as a factor of socio-economic welfare of modern areas, involves three stages.

In the first phase, with the help of statistical research identifies and analyzes the relationship between the level of financial stability in the region and the values of social and economic welfare of the modern territory, specifically: population, real income of the population, real consumer spending of the population, real the accrued wages, gross regional product, the volume of industrial production, putting into operation the total area of apartment houses, the retail trade turnover, the level of labor productivity, the balanced financial result activity of the organizations and investments in fixed assets. Note that it is in the process of statistical research of dependencies causal relationships between phenomena are revealed – «Connection of phenomena and processes, when a change in one of them - the reason - leads to changes in the other - the investigation» (Vasil'yeva, 2010).

In the economic reality, the cause and effect must be consider as contiguous phenomena, the appearance of which is caused by a complex of accompanying more simple causes and effects. Between the complicated groups of causes and effects, multivalued relations are possible, when one cause will be followed by one or another effect, or single effect has a number of different reasons. In order to establish an unambiguous causal relationship between phenomena or to predict the possible consequences of a particular cause, a complete abstraction from all other phenomena in the studied spatial and temporal environment is necessary. Therefore, a feature of the causal relationships in economic phenomena is their transitivity, i.e., the cause and effect is X is Y, and they are related by $X \rightarrow X' \rightarrow X'' \rightarrow Y$, and are not directly $X \rightarrow Y$. However, the intermediate factors are usually are removed in the analysis.

For identify the presence of Communications, its nature and direction between the level of financial stability of the Russian Federation subjects and the values of indicators of socio-economic welfare is proposed to allocate two groups of signs, which are necessary for the study:

- Factorial signs (factors) - these «signs, which cause changes in other related signs» (Vasilyeva, 2010);

- Resultative signs - these «signs, which change under the influence of factor signs» (Vasilyeva, 2010).

It is recommended to take the level of financial regions stability, described by the integral indicator, as a factor signs for the purposes of analysis, because «financing structures are at the heart of asset-building processes; and these structures pose challenges for any development effort, whether in upper-income suburban or lower-income inner-core areas» (Dymski, 2009).

Taking into account the fact that the socio-economic development is regarded by the authors as a process of increasing the potential of the modern area and the results of its usage, it is advisable to take the growth rate values of the indicators that characterize the socio-economic welfare for the period 2010-2015 as efficient signs, taking into account the calculation of cost values to the level of 2010 from factual into comparable values.

Modern statistics has developed many methods for studying the communications. In order to identify a connection between the integral indicator of financial stability and between efficiency of realization of expenditure obligations in the regional government. Correlation connection is where interconnected phenomena are characterized only by the random variables. In this connection, the average value of random variable Y of the resultant sign logically changes depending on the change of another value X. This indicates that the interrelations of phenomena, which statistics studies, are of correlation character and are analytically expressed by the function of form $\overline{y}_x = f(x)$. The closeness of interrelations is qualitatively expressed by the value of the correlation coefficients, including closeness of correlation between the integral indicator of financial stability and the ability to the modern territory get the most from own economic space can be measured by the coefficient of determination. The determination coefficient - a measure representing a relative value, characterizing the proportion of inter-group variance in the total variance of the resultant sign and reflecting the power of the influence of the factor variable in the formation of a common variation of the resultant sign (Vasilyeva, 2010):

$$R^2 = \frac{\delta^2}{\sigma^2} \tag{1}$$

where δ^2 is the mean square deviation of aligned values of resultant sign;

σ^2 - mean square deviation of the actual values of resultant sign.

For qualitative assessment of interrelation closeness based on the index coefficient of determination, it is customary to use the ratio of Chaddock presented in Table 1.

Table 1. Ratio of Chaddock

R^2	0,1-0,3	0,3-0,5	0,5-0,7	0,7-0,9	0,9-0,99
The strength of connection	weak	moderate	perceptible	close	closer

At the second stage, we propose the calculation of the optimal values of the integral index, which characterizes the financial stability of the regions, in case of which there is maximum growth of indicators characterizing people's socio-economic welfare by means of the weighted arithmetic mean, which is defined by the formula:

$$\bar{x} = \frac{x_1 f_1 + x_2 f_2 + \ldots + x_n f_n}{f_1 + f_2 + \ldots + f_n} = \frac{\sum xf}{\sum f} \qquad (2)$$

where $f_1, f_2, \ldots f_n$ is the weight (frequency of repetition of identical signs);

$\sum xf$ is the sum of the products of the signs value and their frequency;

$\sum f$ is the aggregate number of units of population.

However, we cannot focus only on the calculation of a single average value in this case, because the average value gives a summarized characteristics of the sign of the aggregate under consideration without revealing the structure the aggregate, which is very important for understanding of the value. Therefore, it will be rational to complement the identification of the optimal value of the integral index, which characterizes the financial stability of the Russian Federation subjects with the help of weighted normal, with the calculation of the average linear deviation, representing the arithmetic mean of the absolute values of deviations of individual options from their arithmetic average:

$$\bar{d} = \frac{\sum |x - \bar{x}| f}{\sum f} \qquad (3)$$

The third stage of the proposed methodology involves the assessment of the effectiveness of the control process of the formation and use of regional financial capacity by detecting the values of the integral index of financial stability of the territories to date and comparison with the optimal value.

3. Results

Within the article, the authors attempted to assess the feasibility of practical application of the proposed criteria and the represented mathematical algorithm in the assessment of the effectiveness of management of financial stability of the Russian Federation subjects as a part of Ural Federal District, most of which is inherent the status of dependence on one or a few. On this occasion, N.A. Kharitonova, E.N. Kharitonova and N.L. Levinson note: «Economic restructuring within the Russian Federation has considerably reduced the number of industrial giants, many of which proved unviable in the new economic conditions. However, those that remain are leaders in Russian industry, and their success determines the life not only of the local municipalities but often also of the whole region where they are located; as before, they continue to determine the economic and industrial potential of the region» (Kharitonova, & Kharitonova, & Levinson, 2007).

Of course, at the same time, it is necessary to accept the fact that in an attempt of this or that assessment of complex systems, there is a risk not to cover fully the entire spectrum of socio-economic indicators, which reflect the efficiency of the territorial fiscal policy.

Results of the first phase, which involves identifying the relationship between the level of the region's financial stability and the values of social and economic welfare of the modern territory using the coefficient of determination are shown in Table 2.

Table 2. Degree of connection level of financial stability and growth of the socio-economic welfare the Russian Federation subjects

Factor X	Result, Y	The association	
		R^2	Strength of connection
The level of financial stability in the region,%	The rate of population growth in the region, %	0,8918	close
	The growth rate of real income of the population, %	0,99	closer
	The growth rate of real consumer spending,%	0,7247	close
	The growth rate of real the accrued wages, %	0,9817	closer
	The growth rate of gross regional product, %	0,9733	closer
	The growth rate of the volume of industrial production, %	0,7769	close
	The growth rate of putting into operation the total area of apartment houses %	0,9955	closer
	The growth rate of retail trade turnover, %	0,7079	close
	The growth rate of the level of labor productivity, %	0,7859	close
	The growth rate of the balanced financial result activity of the organizations	0,7999	close
	The growth rate of investments in fixed assets, %	0,9399	closer

Since the coefficient of determination shows the proportion of variation of resultant sign Y under the influence of factor sign X, the analysis of the calculated values of the determination coefficient indicates the presence of close functional relationship between the level of financial stability of the Russian Federation subjects and the values of indicators of their socio-economic welfare. In particular:

- By 99,0%, variation in the rate of growth of real consumer spending of population in the region caused by changes in the level of financial stability, and 1,0% other factors;

- By 98,17%, variation in growth rate of real accrued wages in the region caused by change in the level of financial stability and 1,83% other factors;

- By 97,33%, variation in growth rate of the region's gross regional product caused by changes in the level of financial stability and 2,67% other factors;

- By 99,55%, variation in growth rate of commissioning of putting into operation the total area of apartment houses in the region caused by change in the level of financial stability and 0,45% other factors;

- By 93,99% variation in growth rate of investment in fixed assets in the region caused by change in the level of financial stability and to 6,01% by other factors.

In other words, between the level of financial stability of the Russian Federation subjects in the composition of the Urals Federal District and the growth rate of indicators characterizing the socio-economic welfare of the territory, there is a sufficiently close connection.

Summary results of the second stage, involving the identification of the integral index of financial stability of the point where there is maximum growth of indicators characterizing socio-economic welfare of the region, using a weighted arithmetic average, as well as the initial data necessary for the calculation are presented in Tables 3 and 4.

Table 3. Degree of compliance with the financial stability with the requirements of the level of socio-economic welfare the Russian Federation subjects.

The growth rate of the socio-economic welfare	The optimal level of financial stability %
The rate of the population growth in the region, %	78,60

The growth rate of real income of the population, %	82,50
The growth rate of real consumer spending,%	77,0
The growth rate of real the accrued wages, %	82,50
The growth rate of gross regional product, %	82,50
The growth rate of the volume of industrial production, %	78,60
The growth rate of putting into operation the total area of apartment houses	82,50
The growth rate of retail trade turnover, %	77,0
The growth rate of the level of labor productivity, %	78,60
The growth rate of the balanced financial result activity of the organizations , %	77,0
The growth rate of investments in fixed assets, %	82,50

Table 4. The results of the calculation of the optimal level of financial stability to improve the social and economic welfare the Russian Federation subjects.

The level of financial stability	Sum of products of magnitude of signs to their frequency
77,0	21,00
78,60	21,44
82,50	37,50
$\bar{x} = 79,93\%$	

The calculation results indicate that the optimal level of financial stability calculated for the Russian Federation subjects in the composition of the Urals Federal District, which stimulates the growth of social and economic wellfare, on average, should be at the level of 79,93%.

Identification of the optimal value of the integral index, which characterizes the financial stability of the Russian Federation subjects with the help of an arithmetic average weighted must be supplemented by calculating the mean linear deviation. Results are presented in Table 5.

Table 5. Calculation of the mean linear deviation of the optimal level of financial stability to increase the socio-economic welfare the Russian Federation subjects

The level of financial stability	$\left| x - \bar{x} \right| f$
77,0	0,80
78,60	15,95
82,50	19,29
$\bar{d} = \pm 9,11\%$	

Practical application of the proposed criteria and the represented mathematical algorithm in the assessment of management efficiency of financial stability of the Russian Federation subjects comprising Urals Federal District has shown that the optimal value of the integral index of financial resourcefulness stimulating the growth of social and economic welfare of the territory ranges from 70,82 to 89,04% today.

Beyond it begins the process of reducing investment in the regional economy, also significantly weakened the incentives for entrepreneurial initiative and to expand production. The third step allows you to analyze the effectiveness of the control process of the formation and use of regional financial potential by identifying the values of integral index of financial stability of the area of the current date and comparison with the optimal value. As of 2015, an integrated indicator of the financial stability of the Russian Federation subjects comprising the Urals Federal District amounted to 67,50% and was in a restricted area for which the decrease of rates of social-economic development of territories is typical. Furthermore, the above aspects of our studies show that «… the revealed tendencies have generally a negative influence on the social and economic development of our country, which is supposed to be socially-oriented according to our constitution» (Tarasova, &Vasil'eva, &Sushko, 2009).

4. Conclusion

Thus, as a result of the undertaken study, the authors:

- have proposed a methodical approach to assessing the effectiveness of management of financial stability the Russian Federation subjects, taking into account the integral index of financial stability and the value of social and economic welfare, which together form the territorial potential of sustainable development;

- have found that the proposed tools for assessing management effectiveness of the financial stability of the Russian Federation subjects will allow for regular monitoring of compliance with the actual performance indicators of territorial financial policy optimal value, increase the interest of regional authorities in reducing the dependence on a higher level;

- have revealed a disincentive character of the currently existing mechanisms of financial capacity formation of the Russian Federation subjects, which not only hinder the process of increasing social and economic welfare of the territories, but also have a negative impact on business activity, often putting economic entities to the brink of survival.

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