



Formation of Method for Assessing the Impact of Economic Sanctions on the Stability of the Russian Banking System

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(Received 05 May 2019, Revised 16 July 2019 Accepted 25 July 2019)

(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: The article discusses the formation of a methodology for assessing the impact of economic sanctions on the stability of the Russian banking system through the index method, in particular, it proposes a model of the financial stability index of the banking system under the influence of economic sanctions, defines a system of private model indices (capacity index of credit organizations of the Russian Federation, and bank profitability index, an index of their international activity, a competitiveness index of banks from the position of placed and involved funds, index of normative state of the Russian banking sector) and internal indicators characterizing them. This technique has been tested on the example of the banking sector of the Russian Federation from 01.01.2014 to 01.01.2019, covering the period of economic sanctions by the United States and the European Union, the financial stability index was also calculated for individual credit institutions under sanctioned pressure (VTB PJSC, Gazprom JSC), and for banks not included in the sanctions list (Alfa Bank JSC, Otkrytie FC PJSC). As a result, it was proved that the impact of economic sanctions on the financial stability of the banking sector of the Russian Federation at present, due to its adaptation to the measures taken by the European Community and the United States, is not significant.

Keywords: banking sector, financial stability of the banking sector, financial stability index, credit organizations, economic sanctions, index method.

I. INTRODUCTION

In the modern world, one of the main institutions of a market economy is the banking system, the effectiveness of the state economy as a whole depends on its development and competitiveness. The banking sector provides management of the system of payments and settlements, redistribution of funds, and the implementation of monetary policy.

However, significant changes have taken place in the financial markets over the past few years. As you know, in 2014, the Russian banking system for the first time in its modern history faced a whole series of quite large-scale, severe in nature economic sanctions from the United States, the European Union, which were joined by Canada, Australia, Japan, Norway, Switzerland and several other countries, among which should be noted the freezing of assets, the restriction on the provision of loans and investment services, the ban on the purchase of debt obligations of sanctions banks with maturities of more than 30 days, and on the issuance of loans with a maturity of more her 30 days and so on.

The imposed sanctions against systemically important and strategically important credit organizations for the financial market and the economy of the Russian Federation as a whole led to imbalances in the resources being formed.

However, how significant was the effect of economic sanctions on the financial stability of the banking sector of the Russian Federation? To answer this question, it seems appropriate to formulate and calculate as a whole the index of financial stability of the banking system of the Russian Federation, as well as in the context of credit organizations affected by economic sanctions, and banks that were not included in this list for the period from 01.01.2015 to 01.01.2019.

II. METHODS

The methodological base of the research was based on the works of foreign and domestic scientists on the impact of economic sanctions on the stability of the banking system [1-5], studies on the problems of ensuring financial stability of the banking sector of the Russian Federation [6-8]. Special attention is paid by economists to the issues of assessing and ensuring the financial stability of credit organizations [4, 5, 9, 10, 11] to the problems of increasing the financial stability of banks in a recession [12], etc. However, despite a large number of studies on this topic, the question of assessing the impact of economic sanctions on financial stability is not well developed and requires additional research.

The main methods of this study were the index method, statistical methods, the method of comparative analysis, the method of graphic images.

III. RESULTS AND DISCUSSION

In order to create an index of financial stability of the banking system of the Russian Federation, the following stages of the study were outlined:

1. Determine the system of private indices and their internal indicators characterizing data collection. Thus, based on an analysis of the economic literature, the capacity index of the banking sector of the Russian Federation (bank balance currency, bank capital, number of structural entities of credit organizations, profit), the profitability index of the banking sector of the Russian Federation (return on assets, return on equity) were included in the system of private indices, index of international activity of the banking sector of the Russian Federation (net international investment position of banks, balance of financial operations of banks), indexes of banks' competitiveness from the standpoint of placed and attracted funds (average growth rate of the volume of credit investments, level of overdue debt of the loan portfolio, average growth rate of attracted funds, average growth rate of the volume of investments in securities, volumes of funds received from the Bank of Russia), index of the normative state of banks (Bank capital adequacy ratio (H1.0), current liquidity ratio (H3), long-term liquidity ratio (H4). An important aspect of applying the index method to assessing the financial stability of the banking sector of the Russian Federation is the ability of experts and analysts to expand the range of internal indicators of private indices in order to disclose aspects of the likelihood of financial risks;

2. Calculation of "normalized indices" for each of the indicators according to one of the following two formulas, depending on what kind of influence they have on the final result:

(a) in case of positive influence:

$$\frac{(\text{Actual value} - \text{Minimum})}{(\text{Maximum} - \text{Minimum})} \quad (1)$$

(b) in case of negative influence:

$$\frac{(\text{Maximum} - \text{Actual value})}{(\text{Maximum} - \text{Minimum})} \quad (2)$$

3. Calculation of private indices according to the arithmetic mean formula:

$$X_{av} = \frac{X_1 + \dots + X_n}{n} \quad (3)$$

where:

X_{av} - the value of the corresponding private index;

X_1, \dots, X_n - are the values of "normalized indices" characterizing the corresponding private index in each time period;

n - is the number of "normalized indices" characterizing the corresponding private index.

4. Determination of the significance of private indices that make up the financial stability index. In order to exclude the subjectivity characteristic of the expert method, a measure of chaos, disorder of a process or phenomenon is used as a weighting factor, since "the

larger the measure of disorder of elements (attributes), the more difficult it is to perform, the greater its "weight" or significance at this stage of the functioning of the systems, the more attention should be paid to it by the governing body in order to reduce disorder. If the entropy of a feature is small, then it follows that its significance in the total set of features is also small" [13].

To estimate the "weight" of private indices, the information entropy formula proposed by the American scientist C. Shannon was used:

$$H = \sum p_i * \ln \left(\frac{1}{p_i} \right) \quad (4)$$

where:

H - is the coefficient of significance (a measure of entropy, a measure of chaos, a measure of the disorder of a process or phenomenon);

P_i - is the frequency of occurrence of the value of the private index among the studied objects.

The specific gravities (significance) of the private indices obtained as a result of the calculations are presented in the Table 1.

To clarify changes in the index of financial stability of the banking sector, it is advisable to present the data in a graphical interpretation (Fig. 1).

5. Calculation of the index of financial stability of the banking sector by weighing each private index on its specific gravity and summing up the data obtained in each time period.

$$I_y = \sum (X_{av} * f) \quad (5)$$

where:

I_y - is the financial stability index;

X_{av} - the value of the corresponding private index;

f - the proportion of the private index in the financial stability index.

The results of applying this methodology to assess the financial stability of the banking sector of the Russian Federation for the period from 01/01/2015 to 01/01/2019 are presented in the Table 2.

As follows from Fig. 1, after the growth of the financial stability of the banking sector of the Russian Federation during 2015-2016, due, inter alia, to the support by the Central Bank of the Russian Federation of systemically important banks that were under sanction pressure, there was a slight decrease in 2017, primarily due to emergence of liquidity problems in the top 30 banks: BIN BANK PJSC, Promsvyazbank PJSC, Otkrytie PJSC, Moscow Credit Bank PJSC. However, due to the fact that the Bank of Russia reorganized BIN BANK PJSC, Promsvyazbank PJSC, Otkrytie PJSC managed to avoid a systemic banking crisis through the Banking Consolidation Fund of the Banking Sector, and in 2018 the banking sector showed an increase in financial stability.

To complete the assessment of the impact of economic sanctions on the financial stability of the banking sector, financial stability indices were calculated for individual credit institutions that came under sanction pressure (VTB PJSC, Gazprombank JSC), and banks not included in this list (JSC "Unicredit Bank", Alfa-Bank JSC), therefore, one of the largest credit institutions with the largest impact on the banking system of the Russian Federation was included in the relevant samples.

Table 1: The importance of private indices in the financial stability index of the banking system.

Private index	Ratio (f)
Russian Banking Sector Capacity Index	0,25
Banking Sector Profitability Index of the Russian Federation	0,2
Russian Banking Sector International Activity Index	0,1
The Competitiveness Index of banks from the position of placed and attracted funds	0,25
Banking Regulatory Index	0,2

Table 2: Determination of the financial stability index of the banking system of the Russian Federation.

Private Index	01.01.2015	01.01.2016	01.01.2017	01.01.2018	01.01.2019	f
Russian Banking Sector Capacity Index	0,478970	0,494992	0,490156	0,503439	0,530859	0,25
Banking Sector Profitability Index of the Russian Federation	0,326087	0,072464	0,398551	0,326087	0,554348	0,2
Russian Banking Sector International Activity Index	0,120429	0,500232	0,295386	0,299555	0,453155	0,1
The competitiveness index of banks from the position of placed and attracted funds	0,334150	0,368208	0,396164	0,290595	0,386039	0,25
BankingRegulatoryIndex	0,166639	0,442207	0,302715	0,347799	0,420880	0,2
Russian Banking Sector Financial Stability Index	0,335626	0,344896	0,387300	0,377540	0,488377	1

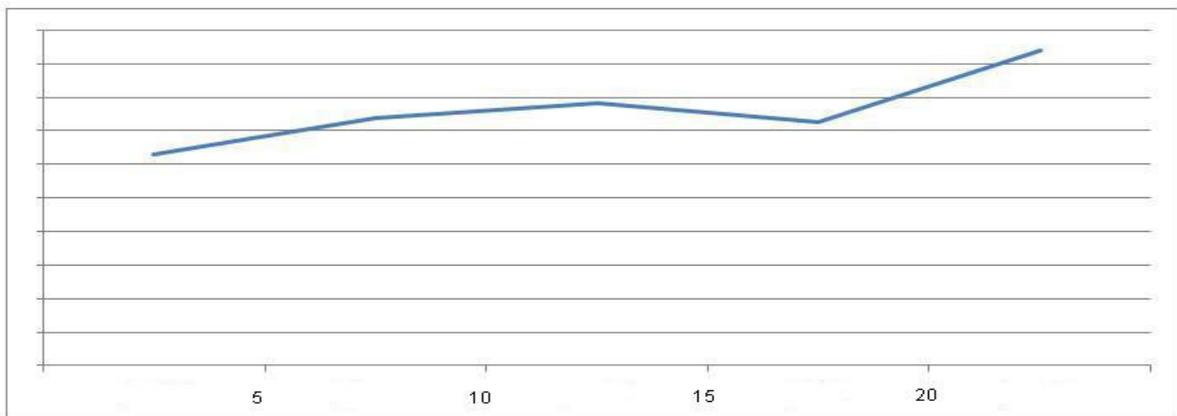


Fig. 1. Dynamics of the financial stability index of the banking system of the Russian Federation for 2014-2018.

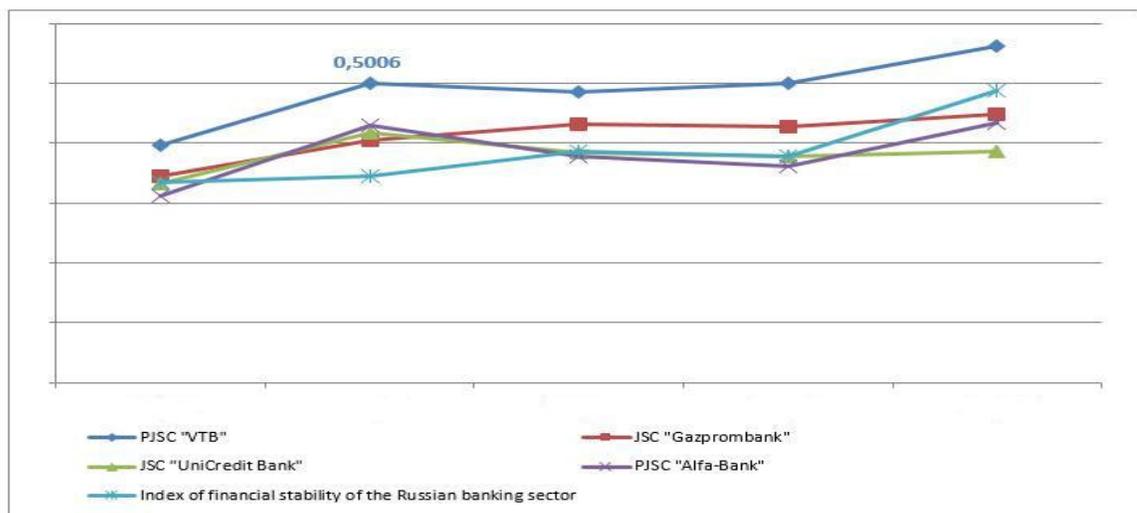


Fig. 2. Comparison of values of financial stability indices of credit institutions of the sample and the general index of financial stability of the banking sector of the Russian Federation.

For a more objective comparative analysis, the calculated indices of financial stability of credit organizations were compared with the index of financial stability of the banking sector as a whole (Fig. 2).

Fig. 2 shows that the financial stability index of both credit institutions that have fallen under sanction pressure and banks that are not included in the corresponding list generally show the same trends over the study period, which implies that the introduced economic sanctions on the one hand made it difficult for sanctions to function banks, but due to the effective management and scope of the sanctions banks, their financial stability has not decreased.

IV. SUMMARY

Thus, in the framework of this study, a model of the financial stability index of the banking system of the Russian Federation was formed, which can be applicable both to assess the stability of the banking sector under the influence of economic sanctions in general, and individual credit organizations.

This index allows, based on a specific set of statistical data, to judge the presence / absence of the likelihood of financial risk. Testing of this model for the period from 01/01/2015 to 01/01/2019 showed after a certain decrease in financial stability in 2017, against the backdrop of problems that arose in some top 30 banks (PJSC BIN BANK, PJSC Promsvyazbank, PJSC "Discovery", PJSC "Moscow Credit Bank" a tendency to increase financial stability. Analysis of the financial stability index by sanctions (PJSC VTB, Gazprombank JSC) and non-sanctioned banks (Unicredit Bank JSC, Alfa Bank JSC) indicates the same trends throughout the study period, which implies that the introduced economic sanctions due to the effective management and scope of activities of sanctions banks, their financial stability has not decreased.

V. CONCLUSIONS

The results of the study can be applied:

- credit organizations in managing financial risks in order to increase the financial stability of the bank. In this regard, it is important to know the system of factors that influence the change in the level of financial stability index;
- The Central Bank of the Russian Federation in monitoring the level of financial risk of the banking sector of the Russian Federation and developing methods to increase the financial stability of the country's banking system;
- economists, financiers in order to expand and deepen the subject areas of scientific research.

ACKNOWLEDGEMENTS

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

REFERENCES

- [1]. Zakirova D.F., Zakirova E.F. (2018). Assessment of the impact of economic sanctions on the banking system of the Russian Federation. *Actual problems of Economics and law*. Vol. 12. No. 1. P. 19-32 (In Russia).
- [2]. Gurchich E., Prilepskiy I. (Dec. 2015). The impact of financial sanctions on the Russian economy. *Russian Journal of Economics*. Vol. 1. Issue 4. p. 359-385.
- [3]. Eberhardt A. (2015). The economic and financial crisis in Russia: background, symptoms and prospects for the future. Warsaw: OSW Report. 423 p.
- [4]. Kuznetsova A., Pogorelenko N. (2018). Assessment of the banking system financial stability based on the differential approach. *Banks and Bank Systems*. Vol. 13. Issue 3, p. 120-133.
- [5]. Kolodiziev O., Chmutova I., Lesik V. (2018). Use the causal analysis to improve the monitoring of the banking system stability. *Banks and Bank Systems*. Vol. 13. Issue 2. p. 62-76.
- [6]. Rubtsova V.L. (2018). Problems of financial stability of commercial banks of the Russian Federation. *Young scientist*. No. 47 (233). – p. 280-284. URL <https://moluch.ru/archive/233/54164/> (accessed: 06.06.2019) (in Russia).
- [7]. Kairova F. A., Karsanova Z.K. (2015). Problems of financial stability of the banking system in Russia. *Modern problems of science and education*. No. 1. p. 445-456 (in Russia).
- [8]. Zakirova D.F., Panteleev D.S., & Zakirova E.F. (2018). Estimating bankruptcy probability of credit organizations. *International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies*. Vol. 9(1). p.307-315.
- [9]. Chetverikova E.A., Bibikova E.A., Valinurova A. (2017). A Method of assessing the financial stability of the regional banking system. *Finance and credit*. Vol. 23. issue. 20, p. 1154-1172 (in Russia).
- [10]. Popova K.A. (2018). Foreign practice of assessment of financial stability of the banking sector. Trends and prospects of development of the banking system in modern economic conditions. *Materials of the international scientific-practical conference*. P. 303-308 (In Russia).
- [11]. Vagizova V., Klaas J., Batorshina A. (2013). Financial stability assessment of regional banking sector under modern conditions by means of operating procedures of its determination. *Investment Management and Financial Innovation*. Vol. 10. Issue 3. p. 112-120.
- [12]. Lanets S. (2015). Financial stability of banks in times of crisis. *Baltic Journal of Economic Studies*. Vol. 1.
- [13]. Ryabkova S. N. (2002). Methods of calculation of integrated assessment of the regional sector of the economy. *Management: theory and practice*. No. 3-4. P. 107-112 (in Russia).