

# *The modern paradigm of the methodology for assessing the financial stability of the Russian banking system in the digital economy*

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**Abstract** – Subject of this research are the economic relations arising in the course of assessment of financial stability of banking system of Russia. The banking system has a key impact on the functioning of the entire economic system as a whole under current unstable conditions of economic development. Banks will regularly mobilize and redistribute huge number of money, for the purpose of increase in efficiency of their use. Violations in processes of their operation often lead to destabilization of implementation of financial transactions for the majority of economic subjects that promotes blasting economic relations between them and, as the result, to emergence of threats of economic safety of the country. Signs of instability of the banking system begin to manifest heavily in crises, where the following trends are observed: the total quantity of the operating credit institutions rapidly decreases; their indicators of capital adequacy worsen; liquidity level decreases; the quality of assets worsens; the share of back payments raises, as a result, the banks receive the money untimely, they have their profitability reduced and there are losses, and, finally, the unstable banks stop the activity.

**Purpose of the study:** identification of problems of assessment of financial stability of banking system of Russia, and development of the possible practical measures directed to their decision.

The methodological basis of this research includes such methods of scientific research, as comparative analysis, induction, deduction, the analysis and synthesis, the logical, economical and statistical methods of scientific perception and scientific abstraction.

**Keywords** – methodology, assessment, financial stability, banking system.

## I. INTRODUCTION

The problem of assessment of financial stability of banking systems for the last years is met even more often in the works of modern famous researchers, among which the most interesting researches are the ones of Larionova I.V.,

Valentseva N.I. Earlier, the problem of ensuring financial stability of banking system was examined in the most detailed manner in the works of: L.I. Abalkin, N.G. Antonov, L.P. Belykh, G.N. Beloglazova, Ye.F. Zhukov, N.A. Kovalyova, V.I. Kolesnikova, O.I. Lavrushyna, A.B. Leontyev, T.V. Panov, N.A. Savinskaya, A.L. Tarasevich, G.G. Fetisov et al.

At the macro-level, this problem was considered by only few scientists, such as I.V. Larionova, N.A. Savinskaya and G.G. Fetisov, while others mentioned it only from the position of specific commercial banks [9]. In the field of forming of stability of banking systems, the important place is occupied by works of foreign economists, such as F. Gouillart, J. Kelly, T. Copeland, T. Koller, the scientists of the Institute of Economics of the Russian Academy of Sciences also worked on this problem, in particular, K.S. Tikhonov [9].

Despite the availability of set of the conducted researches, the offered author's techniques and ways of increase in stability of banking system, this problem is still not solved, therefore, it did not lose the relevance. In particular, there is no created current uniform technique, capable of estimating the level of stability of banking system in general, and, as the result, to take timely the measures directed to elimination of the revealed problems and increase in financial stability of banking system.

Among the problems connected with creation of conditions on protection of bank activity against dangers and threats of external and internal character, the development and improvement of the mechanism of providing economic safety of banks is. Despite the fact that this problem was announced in the scientific researches, it was not developed sufficiently in relation to the banking sphere.

## II. RESEARCH METHODOLOGY

Numerous approaches to assessment of the bank financial stability can be divided into two main groups: the regulatory and the rating-based ones.

Regulatory approach is applied mainly by the banking sector regulatory bodies. It is caused by existence at them of powers and functions on establishment of the requirements

obligatory for observance by commercial banks. This approach consists in establishment of control values on number of the indicators determined by the regulator, which the banks are obliged to observe. Failure to meet requirements can lead to negative effects for commercial banks up to the license deprivation. Currently, the establishment of obligatory standards for commercial banks is the integral part of bank regulation. Control of observance by banks of obligatory standards allows to speak about existence of certain level of financial stability of banking system in general.

Herewith, one of the main shortcomings of normative system is the universality of standards, as values of indicators, as a rule, do not consider individual specifics of separate banks that brings to distortion of results.

Along with normative approach in the international practice, the rating approach to assessment of financial stability of banks is applied widely as well. Following techniques are among the most known ones within this approach: various techniques of popular rating agencies (in Russia mainly Expert RA), technique of CAMEL (S) (USA), CAEL (USA), ORAP (France), PATROL (Italy), CALYPSO (Russia), SAABA (France) and set of author's techniques, among which Vitaly Kromonov's technique is the most popular in Russia [8]. Each of them is characterized by its own specific features of sustainability indicators and criteria for their evaluation. The main drawback of this technique is that it does not allow to capture all major indicators of development of bank, for example, the profitability, and dictates certain restrictions that does it not applicable to assessment of number of banks. Restrictions deprive the methodology from the universality, which makes it imperfect.

Along with the Kromonov technique, there are other options of creation of bank reliability systems. Each of author's techniques has the advantages and drawbacks, so, some are based on the analysis of coefficients of stability of bank (A. K. Muravyov, Ye. A. Tarkhanova), the others - on econometric models of bank stability assessment (A. A. Peresetsky, O. P. Ovchinnikova A. Yu. Bets) [5]. But the main drawback of the specified techniques is incompleteness of the applied indicators, on the basis of which results about financial position of banks are distorted.

One more popular in Russia is the technique of CAMEL, which forms from five integrated indicators: Capital Adequacy, Asset Quality, Management factors, Earnings, Liquidity [6].

It represents the standardized method of assessment of banks where the ratings of indicators indicate the directions of development and elimination of shortcomings of activity of bank and also degree of need of intervention from supervisory authorities [6]. The technique of CAMEL is the basis for the requirements established within the instruction of the Bank of Russia of 03.04.2017 N 4336-U "On assessment of economic situation of banks".

The essence of the technique is the evaluation of the five major groups of indicators, characterizing: capital adequacy; asset quality; quality control; profitability (rate of return); liquidity. As separate group of indicators often "the sensitivity to risk" is also considered. By results of calculated values on each group of indicators, the mark on five-point scale where "1" is the best assessment, and "5" - the worst, is assigned. Assessment of indicators requires expert group, therefore, this

method gains the subjective character dependent on professionalism of experts. CAMELS is capable to estimate financial stability of group of the banks operating only in homogeneous economic conditions: a common financial market, interbank lending market, common law etc. [6].

The apparent defects of technique are:

- low degree of formalization of definitions and evaluation rules (e.g., which value can be regarded as critical, and which can be regarded as the strong);
- the resulting indicator of reliability of the bank consists of a simple sum of score reliability estimates, disregarding the degree of impact on the assessment;
- the subjective nature of the evaluation, dependent on the expert skills.

Herewith, there is a number of alternative methods for evaluating the results obtained. One of these approaches was described by O. V. Gorlovaya. It provides for the assignment of the binary marks by each indicator. If the value of indicators gets to the recommended range, the mark "0" is put, at discrepancy – mark "1" [5]. This approach is considered to be rather simple and convenient in implementation, but it has one essential drawback: the estimates do not consider the degree of deviation of the actual value from the target one. To eliminate this drawback, it is offered to vary the data depending on the deviation degree of the actual indicator value from the recommended one.

Following techniques are distinguished among the other known foreign ones: ORAP, BAKIS, PATROL, SAABA, to be considered by us in more detail [10.11].

The technique of ORAP is applied most often in France. It consists in calculation of prudential coefficients, the analysis of financial statements, where special attention is paid to assessment of market risk, income and research of systems of internal management and control. This technique has sufficiently easy way of calculation. But the main drawback consists in assessment only of current status of indicators of bank, dynamics being disregarded [2].

BAKIS was widely adopted in Germany since 1997 for assessment of the medium-sized organizations, it includes the coefficient analysis (about 50 coefficients) concerning market and credit risks, liquidity, profitability, assets etc. Following the results of the analysis, one of five categories (A-E) indicating risk of the "critical event", defined in advance, for example, the loss of considerable share of the capital, is determined. Thus, this technique works as the instrument of early warning and has to allow supervisory authorities to react and prevent timely possible risks [2].

The technique of PATROL takes place to be in Italy where it is applied by national bank of the country. It is based on calculation of five indicators: capital adequacy, profitability, quality of the credits, control system and liquidity. But she is also capable to estimate only current status of bank.

The SAABA method (France), turns on three diagnostic blocks. The first is based on quantification which investigates the loan portfolio of bank. In the second block the quality of shareholders of bank is investigated. The third block estimates the quality system of management, control over profitability and liquidity. Following the results of calculation of three blocks, reliability assessment is determined by five-point scale [2].

The technique of the Bank of Russia mainly differs from all other considered techniques, the fact that it is capable to capture big range of indicators of bank and to perform their quality standard. Its main advantage consists that it allows to achieve the generalizing result characterizing degree of stability of bank in general is constantly improved by introduction of new additional coefficients and criteria for evaluation of financial stability of banks according to the current conditions of environment in the country. Thereby it is best adapted to the system of work of the Russian banks that distinguishes it favorably among the foreign and other author's techniques. But this technique, as well as all others, is directed only to research

of stability of separate banks while it is not capable to estimate stability of banking system in general.

The technique of the Bank of Russia represents calculation of obligatory standards which the bank has to perform for ensuring stability of the activity.

### III. RESULTS OF THE RESEARCH

On the basis of initial information we will perform comparative analysis of the studied techniques following the results of which we will mark out advantages and shortcomings of each of them (table 1).

TABLE I. Comparative analysis of techniques of assessment of financial stability [3.4]

Technique	Database	Availability of quantitative indicators	Existence of quality indicators	Existence of expert assessment	Availability of
Bank of Russia's rating	Published reporting, field inspection data	+	+	+	+
V. Kromonova	Published reporting	+	-	+	+
Expert RA	Published reporting	+	+	-	+
BAKIS	Published reporting	+	-	-	-
CAMELS	The published reporting, data on bank from media	+	+	+	+
PATROL	Published reporting, field inspection data	+	-	-	+
ORAP		+	+	+	+

So, the main information for calculation of indicators of assessment of financial stability of banks are the published financial statements, at the same time the technique of the Bank of Russia and the international technique of CAMELS which cover not only quantitative, but also quality indicators are the most preferable. The main lack of all considered techniques is that they are directed to research of banks separately and do not allow to calculate forecast values that does them imperfect.

Thus, each of techniques has, both advantages, and shortcomings. The technique of the Bank of Russia which provides assessment on the basis of set of coefficients at the set criteria covering comprehensive approach to assessment of economic situation of banks possesses the most powerful pluses. This technique allows to estimate qualitatively financial stability, but at the same time its assessment is complicated by factor of unavailability of all information, necessary for calculations, to certain users and also lack of opportunity to make forecast values of indicators on perspective. Its shortcomings compensate many other techniques, but they are in turn also imperfect. For example, Kromonov's technique provides carrying out the analysis on the basis of integrated method of comparison with ideal indicators, but at the same time does not allow to include banks which have considerable deviations from the set ideal parameters in rating. The SAABA method unlike all other techniques allows to define the forecast of values that is very important in the conditions of modern economic processes.

The most successfully applicable foreign technique in Russia is the technique of CAMEL (S) which is been the basis for creation of technique of the Central Bank of Russia. It allows to reveal area of indicators which needs to be improved for increase in financial stability of bank and also to estimate degree of need of intervention of public authorities in activity of bank.

However it cannot be used for assessment of financial stability of all banking system.

Each of techniques is characterized by the features, definitions of indicators of financial stability of banks and criteria of their assessment. The carried-out comparative analysis of techniques revealed their common faults:

- 1) Lack of opportunity to give the forecast of stability of bank for perspective and to estimate indicators in dynamics.
- 2) Uniform indicators of assessment without specifics of separate banks.
- 3) Impossibility to estimate the level of stability of number of banks and all banking system in general as they are directed to research of separate banks.
- 4) The subjective nature of assessment of stability of bank which result depends on the level of competence of experts.

The main lack of all existing techniques is their orientation on studying of separate financial institutions, and as a result inability to estimate the level of stability of banking system of the country in general that complicates forming of effective financial policy of the state. As the decision the author given problems offers to create new universal technique of assessment of financial stability of banking system of the country, taking into account inclusion of advantages in it of the available techniques and exception of their shortcomings. It will allow to increase stability of development of banking system of Russia and to timely reveal problems on the basis of which solution the right policy of the Bank of Russia will be built. For basis of technique the technique of CAMEL (S) and technique of the Bank of Russia as they have the most clear advantages will be put and are more effective in operation.

As a result of the conducted research of theoretical base of methodology of assessment of financial stability of banks authors made attempt to develop the new technique of assessment of financial stability capable to estimate the level of

stability not only separate banks, but also all banking system in general. This situation is the innovation theoretical aspect of scientific research.

**IV. RESULTS OF THE STUDY**

Following the results of the carried-out calculations for all groups of indicators of assessment of financial stability of banks, determination of level of their deviation from the established normative values, on each of indicators is carried out. Further by expert method, to values, depending on degree of their deviation from normative value according to the 100th mark scale of author’s technique (Table 2) points taking into account the weight of each indicator are appropriated. The maximum number of points is the best assessment, and the minimum quantity - the worst.

TABLE II. Scale of assessment of indicators of the credit organizations for degree of their deviation [1]

Number of points	Evaluation criteria
from 0 to 20	It is appropriated to credit institutions in case of discrepancy of indicator to normative value more than for 90% for the worse
from 21 to 50	It is appropriated to credit institutions in case of deviation of settlement indicator from normative value on 60 up to 90%
from 51 to 70	It is appropriated to credit institutions in case of deviation of settlement indicator from normative value for 30-59%
from 71 to 99	It is appropriated to credit institutions in case of deviation of settlement indicator from normative value for 1-29%
100	It is appropriated to credit institutions in case of full compliance of settlement indicator to normative value or insignificant deviation to 1%

Thus, in case of full compliance of indicator to norm, the maximum number of points – 100 units is appropriated to it, further at increase of deviation from the set size the number of points decreases. Then calculation of the general indicators of weighted average for each group taking into account the weight of each of them is performed.

For the general assessment of indicators on each group the generalizing result on group of indicators of assessment of capital adequacy (further - RGK), liquidities (further - RGL), qualities of assets (further - RGA), business activity (further - RGD) and financial stability (further - RGS) which represent the average weighed value of the indicators calculated by formula is calculated:

$$PGX_i = \sum_{i=1}^n (\text{балл } i \times \text{вес } i) \div \sum_{i=1}^n \text{вес } i \quad (1)$$

where  $X_i$  – the designation of group of the estimated indicators;

$n$ -quantity of the estimated group indicators;

score  $i$  – the score of the corresponding indicators, ranging from 0 to 100;

weight  $i$  – weight assessment on scale of the relative importance, ranging from 1 to 100 [1].

This calculation is carried out for each bank of all group of the estimated banks or banking system. Further by calculation of average size of the sum of the general indicators the GPA characterizing the level of financial stability of banking system is determined by all banks. The more the received value of the generalizing average value, the is higher the level of financial stability of banks.

The generalizing result on each group of indicators of assessment characterizes condition of credit institution by criteria of scale (table 3). These criteria allow to estimate most precisely the level of financial stability, both separate banks, and all banking system in general. The expanded 100-mark scale allows to receive more reliable result, concerning the used five-point scales applied in the majority of other techniques.

The technique offered by group of authors unlike all others allows to estimate the level of financial stability of banking system or the chosen group of banks that confirms its uniqueness.

On the basis of final mark values stability level is determined by separate indicators of each studied bank. On the basis of which, the summary table of the generalizing indicators is formed and the average value on each group for certain span is calculated. Further by calculation of average value of the sum of the received values the final point characterizing the level of stability of banking system or the chosen set of banks is defined.

The technique allows to reveal more precisely problem groups of indicators, to influence timely them and to reach steadier condition of banking system in general. On the basis of indicators on which assessment is at the level below good the recommendations submitted on improvement of quality of these indicators for the purpose of increase in stability and stability of banking system are developed.

TABLE III. Criteria of determination of level of financial stability of credit institution within banking system

Number of points	Description
85-100	On this group of indicators at credit institution problems, its state very steadily (perfectly) are not observed
70-84	Indicators are brought closer to norm, but because of some deviations the credit institution has problems which need to be eliminated. In general the good level of financial stability is observed (well)
55-69	The condition of credit institution is characterized by average degree of stability, it is necessary to pay attention to this group of indicators and to normalize indicators
40-54	The condition is estimated as satisfactory, indicators of this group do not allow to reach sustainable development of credit institution owing to what it is necessary to fix problems
25-39	Indicators of this group have negative effect on stability of credit institution and require special attention for the purpose of elimination of weaknesses (state is doubtful)
0-24	This group of indicators negatively influences the level of financial stability of credit institution, the general condition is estimated as extremely unstable (unsatisfactory)

Thus, the overview of theoretical aspects of problem of financial stability allows to draw the following conclusions.

The concept of financial stability of banking system is the insufficiently developed category because most of authors consider it concerning separate banks. In communication with what authors formulated own author’s concept of financial stability of banking system under which the optimum ratio of quality and quantitative indices of all set of the banks providing its stable state and flexibility regardless of influence of external and internal factors and guaranteeing ability of its development in the long-term period according to the current requirements of the market that it favors to development of national economy in general is defined.

Within the research of approaches to assessment of financial stability of banks the lack of the technique capable to estimate banking system in general, from accounting of indicators for number of the periods was established. For the solution of this problem, on the basis of advantages of the most effective techniques and leveling of their shortcomings the author's model of technique directed to assessment of financial stability of banking system (group of banks) taking into account application of 100-mark system of scale of assessment of the received indicators estimated depending on degree of their deviation from normative values was developed.

Practical application of this technique will allow to estimate more precisely condition of indicators of stability of banks, to determine the level of financial stability of banking system in general and by impact on the established negative factors, to reach increase in its financial stability in general. The uniqueness of its development consists in ability to estimate the stability of group of banks or banking system in general, to reveal the problem groups of indicators and to develop the set of measures, aimed to increase the stability of banking system in general.

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