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Abstract

This article deals with the problem of an adequate assessment of commercial banks financial stability. In the framework of the article methodology for assessing financial stability on the example of regional banks of the Republic of Tatarstan, as well as conclusions about the sustainability of the regional banking system in a slowing global economic growth, worsening debt crisis and the increasing volatility in global financial markets are drawn. The methodological basis of the study is general scientific methods and other methods (economic and statistical, computational and structural). The study uses economic and statistical techniques, namely: grouping, ranking, a probabilistic assessment, analysis of volume indicators. Despite the use of different valuation techniques to determine the financial stability of regional banks of the Republic of Tatarstan, the paper have produced similar results, indicating that there are problems in the activities of the regional banks that undermine stability of the regional banking system, in the event of a crisis will lead to a loss of stability of the Russian banking sector.

Keywords: financial stability, commercial bank, assessment methodology, regional banking system.
JEL Classification: G21.

Introduction

With the globalization of the world economy growing role of its financial component, reflected in a significant increase in poverty, the strengthening of the unity and the role of the global financial markets can clearly be seen. The growth of global financial assets, the flow of foreign investment − one of the best examples of financial globalization. At the present stage of development in the global financial markets a high level of instability that is associated with both economic and political risks remains. Against the backdrop of the global economic slowdown the authorities of the countries and leading central banks take action to support economic growth and the fight against the debt crisis, international organizations working on measures to strengthen the financial system. The Russian economy is strong enough to expose to the impact of slowing global economic growth, worsening debt crisis and the increasing volatility in global financial markets. Because of the specific structure of the Russian economy, and a large share of oil and gas revenues in total export earnings, drop in energy prices, the outflow of capital on the presence of a high proportion of non-residents in the stock market and, as a consequence, the weakening of the balance of payments are the most significant factors in the deterioration of the situation in the Russian financial sector. However, the implementation of large-scale external shock such events in 2008, is unlikely in view of the fact that the major central banks continue to boost the economy, regulators and supervisors are better informed about the links between financial markets participants. And still, in

case of an adverse event (e.g. a sharp increase in the debt crisis), the Russian financial system would face with a number of adverse effects in the short and medium term. First and foremost, this consequences would concern the Russian banking system, which the most important part are regional banks that perform an important social function, meeting the needs of the population and enterprises in banking services, smoothing significant disproportions in the provision of banking services in the regions of Russia with a total backlog of the indicator by global standards. In this regard, the assessment of the financial sustainability of the regional banks in relation to external shocks and the possible upcoming crises is rather important.

Currently, there are a great variety of methods of commercial banks financial stability assessment, allows to make high-quality and reasonably accurate conclusions. The current methodology for assessing the financial stability of commercial bank are divided into two groups, namely, foreign and Russian, which is clearly shown in Figure 1 (see Appendix).

To solve the problem by evaluating the financial stability of regional banks in relation to external shocks, financial stability of 22 regional banks of the Republic of Tatarstan is analyzed.

1. Object of investigation

The banking sector of the Republic of Tatarstan is one of the most developed in Russia, conceding only to Moscow and St. Petersburg in term of banks number. In the republic there was a good system of small, medium and large banks. Local independent banks dominate. There are 22 local independent banks, which is about 60% of all commercial banks operating in the region. The ratio of small, medium

and large independent banks is clearly shown in Table 1. Under article names of the banks are alphabetically replaced by symbols. A characteristic feature of the republic banking sector is working closely with local power structures in support of regional business. Historically, even in the nineties the republic's leadership has paid considerable attention to development of local banking. As a result, now the republic banking system has become one of the most powerful in the country. It is an effective interaction between the two institutions − government and business − helped banks of the republic to become the leader of the market and maintain their best quality, even in tough competition among themselves and with the branches of the largest banks in the country. In addition, none region of the Volga region can boast of such a degree of involvement of the banking business in the regional programs.

Table 1. The ratio of small, medium and large banks of the Republic of Tatarstan [19]

Large banks	Medium banks	Small banks
Bank 4, Bank 21	Bank 1, Bank 5, Bank 8, Bank 10, Bank 12, Bank 13, Bank 17, Bank 22	Bank 2, Bank 3, Bank 6, Bank 7, Bank 9, Bank 11, Bank 14, Bank 15, Bank 16, Bank 18, Bank 19, Bank 20

2. Advantages and disadvantages of techniques

To assess the financial stability of regional banks of Tatarstan the following methods were used:

1. Methods of rating agency "Expert".
2. V. Kromonov's technique.
3. Foreign technique CAMEL.

Selection of the techniques to analyze financial stability is caused by their inherent advantages, presented in Table 2.

Table 2. Advantages and disadvantages of assessment techniques
of the financial stability of commercial banks

Techniques	Advantages	Disadvantages
CAMEL	♦ a standardized method for assessing banks; ♦ ratings for each indicator indicate directions for their increase; ♦ summary score expresses the degree of intervention required to be undertaken in relation to the bank from the regulatory authorities.	♦ is largely based on expert (subjective) estimates, so the quality of the final result will depend largely on the professionalism of supervisors.
ORAP	♦ high speed of analysis, due to the small amount of performance and ease of obtaining baseline data.	♦ designed only to assess the current state of the bank.
BAKIS	♦ standardization technique that speeds up examination of the bank and allows to use its wide range of customers; ♦ a significant number of factors used makes it possible to analyze all aspects of the activities of the bank; ♦ study of a group of banks allows to identify common trends in a particular sector or in the banking system as a whole.	♦ the use of methods is hampered define a significant number of factors; ♦ the investigation of banks, their selection is made based on the size or activity that leads to the accounting system can not shift the whole group; ♦ the use of techniques is limited to the identification of those aspects of the credit institution which need the special attention from regulatory bodies.
PATROL	♦ the speed of analysis, so as to determine the coefficients used standardized reports; ♦ efficiency of evaluation of the current state of the bank.	♦ the result of the analysis fairly reflects only the current state of the bank.
SAABA	♦ longer forecast.	♦ definition of probability of default for each issued credit is costly labor.
The method of "Kommersant"	♦ ease of implementation of the algorithm and the interpretation of results ranking.	♦ selected comparison criteria are not independent, so that most of the relative indicators are formed on the basis of the absolute, which also appears in the study; ♦ the technique presents some advantages of large banks, as compared with widely varying in size banks substantially understates the final results of a relatively small but well-performing banks; ♦ the methodology is not expected to consider criteria such as asset quality, capital adequacy and reserves, etc.
V. Kromonov procedure	♦ openness methodology; ♦ its constant improvement; ♦ reliability and simplicity; ♦ logical consistency and solidity.	♦ sufficient controversial normalization factors; ♦ it is unclear on what basis these reliability criteria were taken and weigh coefficients were defined.
Methodology of Analytical center of financial Information	♦ evaluation of quality indicators (including the quality of bank assets), which, of course, adjust the results obtained on the basis of absolute figures and financial ratios.	♦ requires maintenance of a powerful apparatus of gathering information and conducting continuous monitoring of the study population, which increases the cost of the rating.
The technique of "Orgbank"	♦ initial construction of evaluation system is made and corrected by an expert of statistical information.	♦ a particularly sensitive place when using these techniques is to obtain the correct expert information on group of banks, which largely depends on the accuracy of the resulting.

Table 2 (cont.). Advantages and disadvantages of assessment techniques
of the financial stability of commercial banks

Techniques	Advantages	Disadvantages
Methods of agency "Expert"	♦ the study of the bank in two directions using two-criteria statistical analysis, rather than building a unified evaluation system.	♦ do not take into account non-quantitative indicators.
Method according to the Directive of the Central Bank of the Russian Federation № 1379-U on January 16, 2004	♦ determination of the synthesis result, characterizing the degree of stability of the bank as a whole; ♦ to add new criteria to be used to draw conclusions about the financial stability of the bank.	♦ assessment is static; ♦ does not provide predictive values; ♦ may be a lagging indicator in relation to financial problems; ♦ does not exclude subjective approach to the assessment of credit institutions by the Bank of Russia.
Method according to the Directive of the Central Bank of the Russian Federation № 2005-U on April 30, 2008	♦ more detailed guidance regarding valuation techniques of risk management procedures; ♦ a new record − assessment of strategic risk management; ♦ provides for the calculation of predictive values of estimates of capital and profitability.	♦ the method used in the ranking values of the indicators on points and weights is extremely expert; ♦ there is no clear description of the over / under the influence of an indicator in a group performance; ♦ is not excluded a subjective approach to the assessment of credit institutions by the Bank of Russia.

3. Methodology

The approach used in the rating of the rating agency "Expert" is a bit different from other Russian techniques. This technique is an attempt to create a comprehensive comparative ranking. Procedure consists of two main parts. The first (static) part involves the comparison of the banks in the coordinate system of "profitability-reliability". The rate of profitability is calculated as the ratio of the balance sheet profit to net assets. As an indicator of the reliability the ratio of own capital and borrowed funds is used. The results of two-criterion analysis of the current condition of the banks are put on a plane with the *x-ax* is corresponds to the index of reliability, and the *y-ax* is corresponds to the indicator of profitability, as a result the coordinate space is divided into four segments [10]. The coordinate system of "profitability-reliability" is presented in Figure 2.
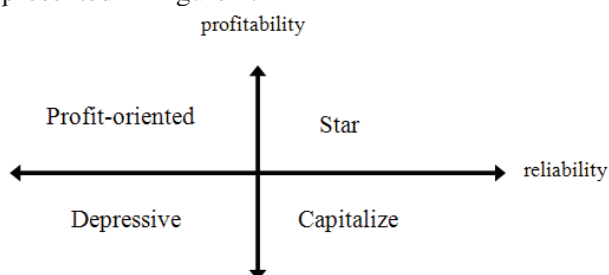

**Fig. 2. The coordinate system of
"profitability-reliability" [14]**

The second part is to analyze the dynamics of changes in the parameters of profitability and reliability over time.

"Reliability formula" is put on a basis of the calculation by the method of ranking V. Kromonov, which is the sum of the six individual criteria [14]:

$$N = 45 \times k_1 + 20 \times k_2 + 10/3 \times k_3 + \\ + 15 \times k_4 + 5 \times k_5 + 5/3 \times k_6, \qquad (1)$$

where k_1 − general safety factor equal to the ratio of equity to total risky assets; k_2 − instant liquidity ratio, which is calculated as the ratio of liquid assets to demand liabilities; k_3 − cross-coefficient equal to the ratio of total liabilities of the bank to the amount of risky assets; k_4 − general liquidity ratio equal to the ratio of liquid assets, capital protected and required reserves to total liabilities of the bank; k_5 − the ratio of capital protection equal to the ratio protected the bank's capital to equity; k_6 − the coefficient of stock capitalization of profits equal to the ratio of equity capital and the size of the authorized capital.

The final rating number (N) characterizes the degree of reliability of the bank. For "optimal" bank the final rating number is 100.

The most famous ranking system for assessing the stability of commercial banks in the world − CAMEL used by American organizations exercising control over banking activities. CAMEL is formed of five integral components [14]:

♦ capital adequancy;
♦ asset quality;
♦ managements factors;
♦ earnings;
♦ liguidity.

Each integral component in turn is divided into smaller components that are measured on a five point scale. A summary description reference in each group of the reliability is made depending on the status of all its components. An important feature of CAMEL rating is its constant modernization. In middle of 1980s from its abbreviation attempted to exclude the component "M" (management factors) that was very difficult to identify distantly. In 1996, the rating was added to the abbreviation components "S" − sensitivity to market risk.

4. Approbation

According to the methodology of rating agency "Expert" the financial stability of 22 regional banks of the republic as of January 1, 2013 is analyzed. The results of two-criterion analysis of the current status of the rating agency "Expert" procedure are shown in Figure 3.

As we see in Figure 3, the majority of the regional banks are in the category of "depressed" banks whose reliability is below average, and thus there is low profitability of use of significant amounts of funds and the category "profit-oriented" banks with a highly profitable use of relatively large amounts of funds. Approximately the same numbers of banks are in the second and third segment, namely in the segment "capitalized' banks, characterized by high capital adequacy ratio at a low profitability of use of resources and in the segment of "star" banks, which profitability and reliability is above average.
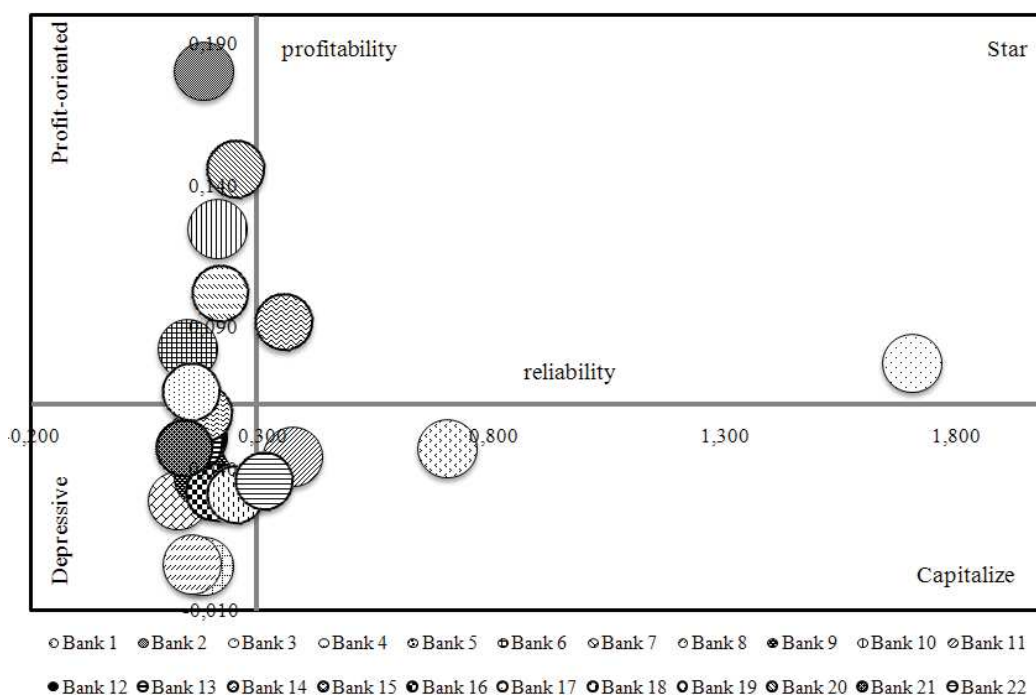

Fig. 3. Location of regional banks in the coordinate system of "profitability-reliability" [19]

The presence of 50% of the "depressed" banks in the regional banking system does not allow drawing conclusions about its sustainability. One of the main factors that caused the dominance of "depressed" banks is the low profitability of active operations held by banks, which varies for the "depressed" banks from 0.6% to 6%, while for the "star" and "profit-oriented" banks the level of profitability is 9% and 18%, respectively. These significant differences in profitability associated with the structure of both outstanding and borrowed funds. In this case, certain features of both the location and bringing in "depressed' banks are not available.

Reliability index of the bank which determines the degree of coverage of funds equity is no less important. The value of this index is in the range of 12% to 24% for the "depressed" banks, due to their substantial undercapitalization, given the fact that the profit is one of the most reliable sources of capital expansion, and "depressed" banks are characterized by low profitability, the current situation of data banks could worsen in the medium term.

At the same time, a number of positive perspectives include the likely transition "profit-oriented" banks in the category of "star", with the subject to increase their capitalization, due to the proximity of "profit-oriented" banks to the border of categories. "Capitalized" banks in front tend to group "depressed" in this context it is important to make efforts to prevent this transition, and the "star" banks to use every opportunity to maintain their positions.

Thus, the current situation indicates a need for a stabilizing measures to help to improve the sustainability of commercial banks and ultimately the formation of a stable regional banking system of the Republic of Tatarstan, consisting of "star" and "profit-oriented" banks, which currently accounts are only 36% of analyzed regional banks.

By results of an assessment of financial stability of 22 regional banks according to the V. Kromonov-procedure, reliability indexes were calculated on January 1, 2013, as reflected in Table 3.

Table 3. The criteria for the reliability index V. Kromonov [19] in shares

Factors	General safety factor	Instant liquidity ratio	Cross-factor	General liquidity ratio	Capital protection factor	Coefficient of stock capitalization of profits	Reliability index
Designation	k_1	k_2	k_3	k_4	k_5	k_6	N
Bank 1	0.502	1.788	0.719	0.810	0.020	1.224	75.041
Bank 2	0.192	1.030	1.118	0.393	0.485	16.657	69.054
Bank 3	0.747	1.744	0.439	0.760	0.001	1.234	83.421
Bank 4	0.221	1.276	1.283	0.306	0.091	1.800	47.805
Bank 5	0.172	0.885	1.078	0.380	0.470	1.223	39.134
Bank 6	0.260	1.025	1.895	0.348	0.278	2.808	49.821
Bank 7	0.137	1.043	1.175	0.460	0.399	1.946	43.082
Bank 8	0.166	0.685	1.135	0.264	0.120	1.491	31.991
Bank 9	0.202	1.371	1.182	0.456	0.279	1.099	50.510
Bank 10	0.237	0.909	1.176	0.528	0.133	4.326	48.580
Bank 11	0.452	0.595	1.242	0.529	0.338	1.106	47.828
Bank 12	0.176	1.443	1.108	0.295	0.270	1.140	48.158
Bank 13	0.159	0.715	1.051	0.235	0.179	2.770	34.009
Bank 14	0.176	0.743	1.012	0.226	0.456	2.894	36.629
Bank 15	0.283	0.776	0.819	0.246	0.122	1.193	37.274
Bank 16	0.178	0.911	0.914	0.433	0.032	3.632	41.974
Bank 17	0.154	1.063	1.054	0.313	0.184	2.634	41.700
Bank 18	0.254	0.986	1.049	0.380	0.786	1.447	46.664
Bank 19	0.260	0.428	1.248	0.396	0.415	1.377	34.705
Bank 20	0.249	0.769	1.030	0.365	0.167	1.488	38.809
Bank 21	0.165	1.064	1.266	0.192	0.068	1.396	38.483
Bank 22	0.276	0.757	0.912	0.243	0.037	1.545	37.029

Starting from the resulting final rating number characterizing the degree of reliability of the bank, it is obvious that only the Bank 1, Bank 2 and Bank 3 can be attributed to a group of reliable banks, the reliability of the remaining 19 banks is low. Analysis of all the factors included in the final reliability index showed the following characteristic features of reliable and unreliable banks.

Reliable banks have:

♦ high degree of working capital assets protection;
♦ excess liquidity, in case of all clients present their requirements, reliable bank will be able to return in time about 80% of the data requirements;
♦ conservative policy of disposing of the assets, reliable banknot all borrowings places in the operating assets, which has a positive effect on its reliability, but are negative from a position of profitability, so Bank 1 only 70%, while the Bank 3 only 40% of the proceeds placed in the assets, which are bringing income;
♦ lack of investment in the bank, which in the long-term has negative impact on the stability of the bank;

Unreliable banks are characterized by:

♦ insufficient protection of working capital assets related to undercapitalization of banks;
♦ lack of liquidity, when all the clients making demands the bank is able to meet only 30% of the claims;

♦ aggressive policy of resources allocation, unreliable bank runs the risk of not only all involved, but part of its own resources, which is negative in terms of sustainability;
♦ the significant amount of investment in the bank, which serves as an indirect measure of the solidity of the bank, because banks are designed for short-term activities, is not investing in their own development.

Thus, the testing of V. Kromonov's methods to assess the sustainability of regional banks confirms the conclusions drawn from the results of the methods of rating agency "Expert". More than 80% of regional banks of the republic within the framework of the regional banking system are unreliable, primarily due to the undercapitalization and lack of liquidity, and it is these factors, based on the weight coefficients in the formula V. Kromonov are crucial for the stability of the banks, so the first priority for banks is a search tool for solving these problems.

In determining the financial stability through CAMEL method coefficients to assess capital adequacy, asset quality, business activity, profitability, liquidity of all independent commercial banks of the Republic of Tatarstan were calculated. Results of calculation of the coefficients are presented in Table 4.

Based on the results obtained in the calculation of these ratios and their subsequent expert assessment 2 banks were classified as "durable", 4 banks "satisfactory", 2 banks − "middling", 6 banks − "critical" and 8 banks − "unsatisfactory".

In this case, each category has both strengths and weaknesses. So the "durable" regional banks are characterized by resistance to external economic and financial shocks, the main determinants of their stability, are the excess liquidity, high quality of capital, assets and bank management system, however, the weakness of the banks is profitable. For the category of "satisfactory" banks the problem areas include management quality and profitability, and stability is provided by the excess liquidity, quality of asset and capital. As for the "middling" banks which are vulnerable to adverse changes in economic conditions and requiring the intervention of the supervisory bodies, the strengths of these banks can be considered excess liquidity and control system, and weaknesses − the quality of assets and capital, low level of profitability. The stability of "critical" banks that have serious financial problems and require close supervision and control, as well as a specific plan of activities

adversely affected by such factors as under-capitalization, low profitability, lack of liquidity, and positively − high quality assets and management. And finally, "unsatisfactory" banks, which probability of bankruptcy in the medium term is large enough and who need urgent support of shareholders, all positions except of business activity are at an extremely low level.

Summarizing the assessment of financial stability of regional banks of the Republic of Tatarstan according to CAMEL procedure, obviously, there are serious problems in a number of banks that require immediate solutions in order to neutralize them and to achieve stability of the banking system in the region.

Aggregating the results of aprobations of all three methods of assessing the financial stability of regional banks of the Republic of Tatarstan, we obtained the following results clearly reflected in Table 5.

Table 5. The aggregated results of testing methodologies for assessing financial stability of regional banks

Banks	The method of "Expert"	V. Kromonov's technique	CAMEL method
Bank 1	Capitalized	High reliability	Satisfactory
Bank 2	Profit-oriented	The relatively high reliability	Satisfactory
Bank 3	Star	High reliability	Durable
Bank 4	Depressive	Low reliability	Unsatisfactory
Bank 5	Depressive	Low reliability	Unsatisfactory
Bank 6	Profit-oriented	Low reliability	Critical
Bank 7	Depressive	Low reliability	Unsatisfactory
Bank 8	Depressive	Low reliability	Unsatisfactory
Bank 9	Depressive	Low reliability	Critical
Bank 10	Profit-oriented	Low reliability	Middling
Bank 11	Capitalized	Low reliability	Satisfactory
Bank 12	Depressive	Low reliability	Critical
Bank 13	Depressive	Low reliability	Unsatisfactory
Bank 14	Depressive	Low reliability	Unsatisfactory
Bank 15	Star	Low reliability	Satisfactory
Bank 16	Depressive	Low reliability	Critical
Bank 17	Profit-oriented	Low reliability	Unsatisfactory
Bank 18	Depressive	Low reliability	Critical
Bank 19	Profit-oriented	Low reliability	Middling
Bank 20	Profit-oriented	Low reliability	Durable
Bank 21	Depressive	Low reliability	Unsatisfactory
Bank 22	Capitalized	Low reliability	Critical

Summary and conclusion

Thus, despite the use of different methods to determine the financial stability of regional banks of the Republic of Tatarstan, which have distinct evaluation criteria, obtained identical results, showing that there were problems in the regional banks that undermine stability of the regional banking system, which in the case of a crisis will lead to a loss of stability of Russian banking sector. In this case, the distinguishing feature is that the

greatest resistance to the negative factors has small banks, while large banks in the event of destabilizing tendencies may eventually lose its stability. In this regard, first of all large and medium-sized banks need to develop a system of measures aimed at ensuring financial stability, as well as the timely prevention of destructive tendencies, which helps to maintain not only their sustainability, but also the regional banking system as a whole.

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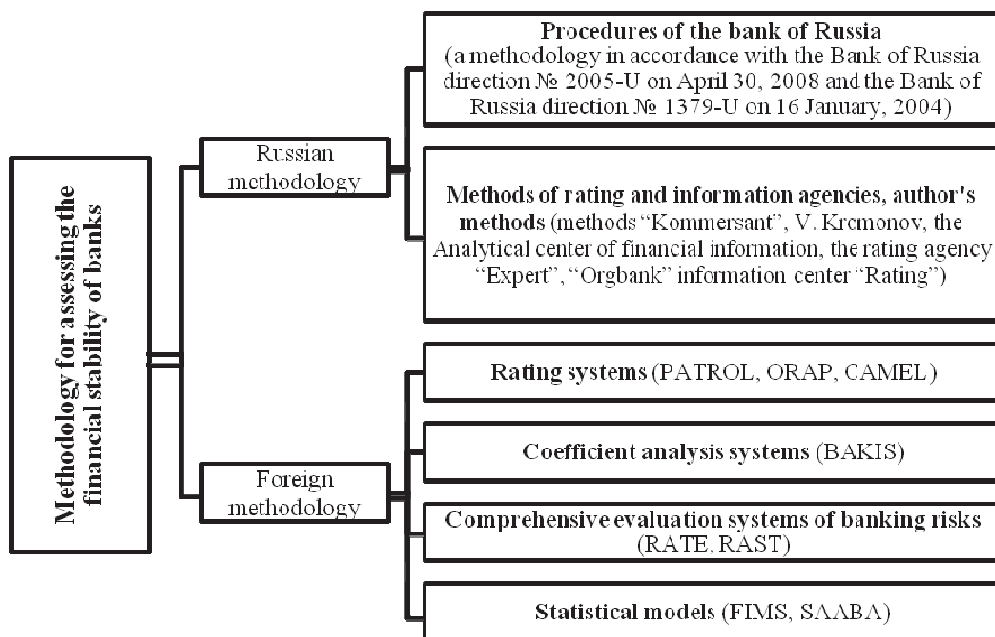
Appendix

Fig. 1. Methodologies for assessing the financial soundness of banks

Table 4a. CAMEL methodology for regional banks [19]

Name of indicators	The formula for calculating	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bank 9	Bank 10	Bank 11
Factors for assessing the capital adequacy												
Capital adequacy ratios	C1= Capital / Liabilities	0,431	0,147	0,679	0,153	0,136	0,123	0,107	0,130	0,146	0,174	0,264
	C2 = Capital / Total liabilities	0,698	0,172	1,703	0,173	0,160	0,137	0,117	0,146	0,171	0,202	0,364
	C3 =Capital / Earning assets	0,502	0,192	0,747	0,221	0,172	0,260	0,137	0,166	0,202	0,237	0,452
	C4 = Authorized capital / Capital	0,817	0,060	0,810	0,556	0,817	0,356	0,514	0,671	0,910	0,231	0,904
	C5 = Capital / Means of individuals	1,520	0,256	5,810	0,846	0,337	0,349	0,304	0,227	0,275	0,387	1,246
Factors for assessing the quality of assets												
The level of earning assets	A1 = Earning assets / Assets	0,859	0,765	0,909	0,691	0,791	0,474	0,784	0,784	0,723	0,732	0,584
The ratio of protection from the risk	A2 = (Profit + Provisions + Reserve fund) / Earning assets	0,024	0,097	0,141	0,062	0,050	0,111	0,062	0,040	0,021	0,050	0,060
The level of assets with an increased risk	A3 = The assets at risk / Assets	0,179	0,023	0,028	0,123	0,118	0,182	0,147	0,190	0,100	0,209	0,027
The level of bad debts	A4 = Past due debt / (Loan indebtedness + Provided interbank loans)	0,000	0,017	0,027	0,040	0,027	0,069	0,044	0,033	0,002	0,012	0,000
The level of receivables	A5 = Receivables / The assets which aren't bringing in the income	0,001	0,018	0,049	0,017	0,022	0,006	0,051	0,012	0,133	0,005	0,145
Factors for the evaluation of business activity												
General credit activity	M1 = (Loan indebtedness + Provided interbank loans) / Assets	1,152	0,781	1,062	0,608	0,761	0,327	0,787	0,636	0,764	0,532	0,660
Investment activity	M2 = (Investments in securities + Participation of bank in other organizations) / Assets	0,179	0,010	0,000	0,098	0,097	0,159	0,112	0,170	0,099	0,202	0,027
The utilization of funds	M3 = (Loan indebtedness + Provided interbank loans) / Total liabilities	1,863	0,914	2,662	0,686	0,892	0,364	0,854	0,716	0,895	0,618	0,910
The coefficient of refinancing	M4 = Interbank loans / Provided interbank loans	0,071	1,171	0,300	10,055	0,048	4,736	0,269	0,255	0,553	0,011	1,212
Factor placements	M5 = Total liabilities / Earning assets	0,719	1,118	0,439	1,283	1,078	1,895	1,175	1,135	1,182	1,176	1,242
Availability factor of the bank to external sources of financing	M6 = Interbank loans / Total liabilities	0,054	0,036	0,115	0,124	0,003	0,063	0,034	0,006	0,091	0,000	0,126
Capacity factor	M7 = Costs / Earnings	0,916	0,919	0,819	0,999	0,968	0,988	0,994	0,998	0,967	0,945	0,974
Factors for assessing the profitability												
Return on assets	E1 = Profit / Assets	0,018	0,026	0,047	0,001	0,006	0,008	0,002	0,001	0,005	0,017	0,012
The rate of return on the authorized fund	E2 = Profit / Authorized capital	0,051	2,981	0,085	0,008	0,053	0,192	0,041	0,008	0,041	0,430	0,051
Profitability of credit operations	E3 = Earnings / (Loan indebtedness + Provided interbank loans)	0,187	0,415	0,243	0,788	0,245	2,083	0,473	0,725	0,212	0,586	0,722
The level of interest income	E4 = (Interest received - Interest paid) / Assets	0,018	0,049	0,100	0,020	0,040	0,164	0,045	0,029	0,046	0,038	0,043
Factors for the evaluation of liquidity												
Level "of the first phase of the reserves"	L1 = (Cash + Correspondent account in the Bank of Russia) / (Time deposits + Demand deposits + Interbank loans)	0,045	0,119	0,182	0,064	0,076	0,048	0,076	0,072	0,127	0,069	0,022
The level of liquid assets	L2 = Highly liquid assets / Assets	0,109	0,124	0,073	0,080	0,095	0,104	0,139	0,077	0,184	0,183	0,223
-	L3 = Highly liquid assets / Total liabilities	0,176	0,145	0,182	0,090	0,111	0,116	0,150	0,087	0,215	0,212	0,307
-	L4 = Current assets / Current liabilities	1,151	1,007	2,472	0,738	0,905	0,402	0,817	0,775	0,862	0,679	0,859

Table 4b. CAMEL methodology for regional banks [19]

Name of indicators	The formula for calculating	Bank 12	Bank 13	Bank 14	Bank 15	Bank 16	Bank 17	Bank 18	Bank 19	Bank 20	Bank 21	Bank 22
Factors for assessing the capital adequacy												
Capital adequacy ratios	C1= Capital / Liabilities	0,137	0,132	0,148	0,257	0,163	0,131	0,195	0,174	0,195	0,118	0,241
	C2 = Capital / Total liabilities	0,159	0,151	0,173	0,345	0,195	0,146	0,242	0,208	0,242	0,130	0,303
	C3 = Capital / Earning assets	0,176	0,159	0,176	0,283	0,178	0,154	0,254	0,260	0,249	0,165	0,276
	C4 = Authorized capital / Capital	0,877	0,361	0,346	0,838	0,275	0,380	0,691	0,726	0,672	0,716	0,647
	C5 = Capital / Means of individuals	0,277	0,258	0,317	1,255	2,090	0,398	0,521	0,768	0,739	0,292	0,629
Factors for assessing the quality of assets												
The level of earning assets	A1 = Earning assets / Assets	0,777	0,826	0,842	0,907	0,916	0,853	0,768	0,672	0,782	0,711	0,872
The ratio of protection from the risk	A2 = (Profit + Provisions + Reserve fund) / Earning assets	0,092	0,056	0,061	0,036	0,099	0,025	0,055	0,098	0,046	0,099	0,342
The level of assets with an increased risk	A3 = The assets at risk / Assets	0,142	0,213	0,030	0,048	0,023	0,125	0,157	0,148	0,000	0,109	0,075
The level of bad debts	A4 = Past due debt / (Loan indebtedness + Provided interbank loans)	0,018	0,006	0,024	0,011	0,017	0,019	0,010	0,039	0,000	0,040	0,030
The level of receivables	A5 = Receivables / The assets which aren't bringing in the income	0,009	0,043	0,086	0,007	0,019	0,018	0,007	0,006	0,002	0,011	0,040
Factors for the evaluation of business activity												
General credit activity	M1 = (Loan indebtedness + Provided interbank loans) / Assets	0,664	0,617	0,860	0,869	1,384	0,824	0,710	0,925	0,843	0,647	0,836
Investment activity	M2 = (Investments in securities + Participation of bank in other organizations) / Assets	0,130	0,210	0,009	0,039	0,000	0,110	0,150	0,112	0,000	0,083	0,050
The utilization of funds	M3 = (Loan indebtedness + Provided interbank loans) / Total liabilities	0,771	0,711	1,010	1,169	1,653	0,918	0,881	1,104	1,048	0,718	1,050
The coefficient of refinancing	M4 = Interbank loans / Provided interbank loans	6,591	207,137	1,535	0,000	0,000	3,422	1,038	0,154	1,020	7,067	0,000
Factor placements	M5 = Total liabilities / Earning assets	1,108	1,051	1,012	0,819	0,914	1,054	1,049	1,248	1,030	1,266	0,912
Availability factor of the bank to external sources of financing	M6 = Interbank loans / Total liabilities	0,123	0,137	0,050	0,000	0,000	0,310	0,104	0,067	0,078	0,134	0,000
Capacity factor	M7 = Costs / Earnings	0,971	0,973	0,959	0,859	0,981	0,979	0,969	0,932	0,844	0,985	0,993
Factors for assessing the profitability												
Return on assets	E1 = Profit / Assets	0,007	0,006	0,009	0,024	0,005	0,007	0,006	0,016	0,028	0,005	0,007
The rate of return on the authorized fund	E2 = Profit / Authorized capital	0,059	0,136	0,172	0,110	0,116	0,137	0,045	0,130	0,217	0,056	0,047
Profitability of credit operations	E3 = Earnings / (Loan indebtedness + Provided interbank loans)	0,370	0,380	0,252	0,192	0,194	0,399	0,275	0,260	0,216	0,476	1,312
The level of interest income	E4 = (Interest received - Interest paid) / Assets	0,032	0,026	0,050	0,074	0,059	0,043	0,037	0,035	0,048	0,011	0,080
Factors for the evaluation of liquidity												
Level "of the first phase of the reserves"	L1 = (Cash + Correspondent account in the Bank of Russia) / (Time deposits + Demand deposits + Interbank loans)	0,069	0,047	0,042	0,007	0,102	0,038	0,067	0,220	0,205	0,070	0,052
The level of liquid assets	L2 = Highly liquid assets / Assets	0,083	0,085	0,047	0,048	0,072	0,088	0,054	0,213	0,175	0,062	0,075
-	L3 = Highly liquid assets / Total liabilities	0,096	0,098	0,056	0,064	0,086	0,098	0,068	0,254	0,217	0,069	0,094
-	L4 = Current assets / Current liabilities	0,610	0,763	1,031	1,217	1,188	0,868	0,866	0,889	1,159	0,761	1,093