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MONITORING AND CONTROLLING BANKING SYSTEM VIA FINANCIAL STABILITY ASSESSMENT

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ABSTRACT

This article presents the results of a structural-dynamic analysis of the Russian Federation's banking system's current state and its exposure to financial risks. The results of the study confirm the feasibility of using the financial sustainability indicator as a tool for monitoring and controlling the Russian Federation's banking system's current state. In the course of the study, the financial sustainability index was calculated both for the banking system as a whole and for specific banks selected by the criterion "is or is not under sanctions", which is a relevant aspect in the context of financial sanctions risks when determining flexibility, sustainability and ability level the adverse effects of commercial banks. With regular calculation of financial stability indexes, timely detection of the banking system financially successful participants with effective risk management is possible, which for commercial banks themselves is a significant competitive indicator, since the concentration of the main customer base occurs among the most successful market participants. With the decline in the number of operating credit institutions, risk management ongoing modernization, banking under various economic complications, political, financial and other shocks, commercial banks have needed to identify their competitive potential and identify aspects of the development of the bank's future strategy.

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1. INTRODUCTION

The existing realities of the development of financial relations between the participants of various sectors of the economy lead to the need for careful control and management of risks arising in the course of their activities. The Russian banking system, at the moment, is undergoing significant changes in the form of increasing competition between existing credit institutions in the framework of the policy pursued by the Bank of Russia to optimize the number of participants in the country's banking system; the introduction in 2014 of foreign economic restrictions in the form of sanctions

against systemically important banks of the Russian Federation; rapid development of financial technologies, etc. Each of these aspects, both individually and in aggregate, may cause the likelihood of financial loss or deviation of the expected financial result of the credit institution from the planned amount, which is a financial risk.

Since financial risk accompanies all the activities of commercial banks, an integral part of the banking business is the implementation of effective risk management in the form of a competent combination of liquidity, risk, and profitability. In the case of increased income, the role of financial risk increases, which can have a negative impact on such a parameter as the financial stability of a commercial Bank.

Troshin [2] defines financial stability as one of the fundamental parts of the financial condition of the organization, characterized as a capacious, concentrating indicator that shows the degree of security of investments in the company. [2, p.112].

Shershneva [3] considers the commercial Bank financial stability as a complex phenomenon that reflects the state of financial resources and ensures the preservation of liquidity, profitability, and solvency of the Bank. [3, p.7].

Financial stability is a broader concept than financial risk. As a result of the financial risk implementation, the financial stability volatility index occurs. It is the commercial Bank financial stability that is the criterion for identifying problem areas by the Bank of Russia. Commercial banks' financial stability control and supervision are carried out at all stages of the commercial bank's life cycle: from control in the process of its activity, to financial recovery and possible revocation of the license.

2. METHOD

The state of the Russian Federation banking system was studied using the following methods: tabulation, indexation, graphical analysis, structural-dynamic analysis, system analysis, induction, deduction, correlation analysis, in particular, methods of scientific knowledge.

3. RESULTS AND DISCUSSION

As part of the structural and dynamic analysis of the Russian Federation banking system current state and its exposure to financial risks, it was found that a significant proportion of participants in the banking system "reduce their risk appetite" and adhere to conservative policy, making more investments in low-yield instruments (Figure 1).

Half of the credit institutions adhere to an increased share of low-income investments. In 2015-2018, the number of commercial banks with excess liquidity almost doubled, and their share in the total number of credit institutions tripled.

At the same time, the above aspect characterizes not only the excessive volume of liquidity of the banking system but also the excessive management of this type of risk (liquidity risk), also becoming a factor limiting overall economic growth.
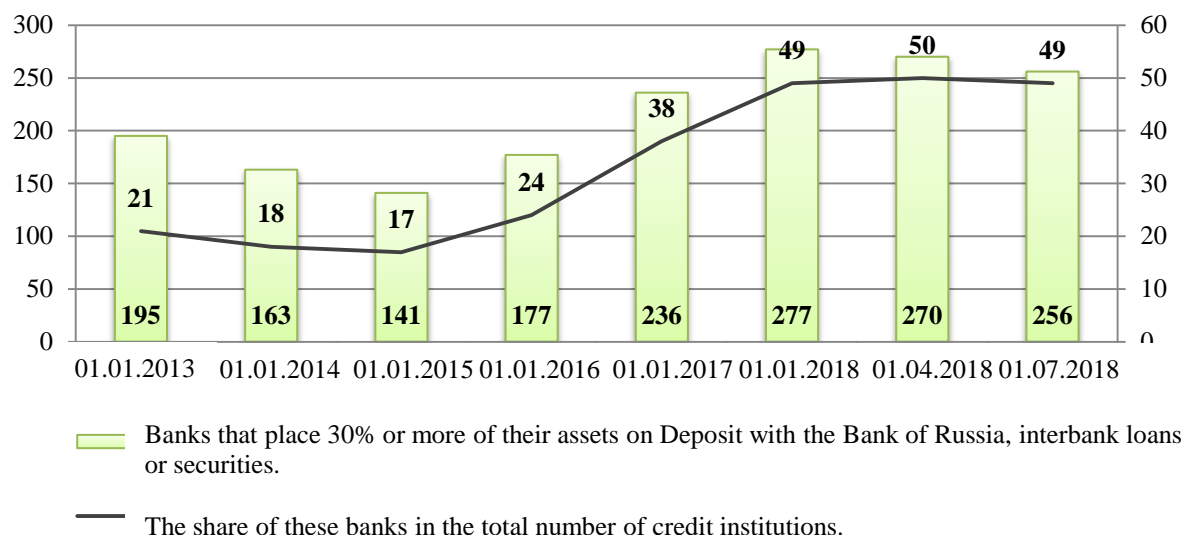
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Figure 1: Share of low-income investments of commercial banks of the Russian Federation in dynamics, % [4].

Considering the credit risk on the scale of the banking system of the country, there is no provision for possible losses on loans of loans of the fourth and fifth categories of quality (figure 2), which can be a prerequisite for an increase in financial risk and, as a consequence, a deterioration in the financial stability of participants in the banking sector.
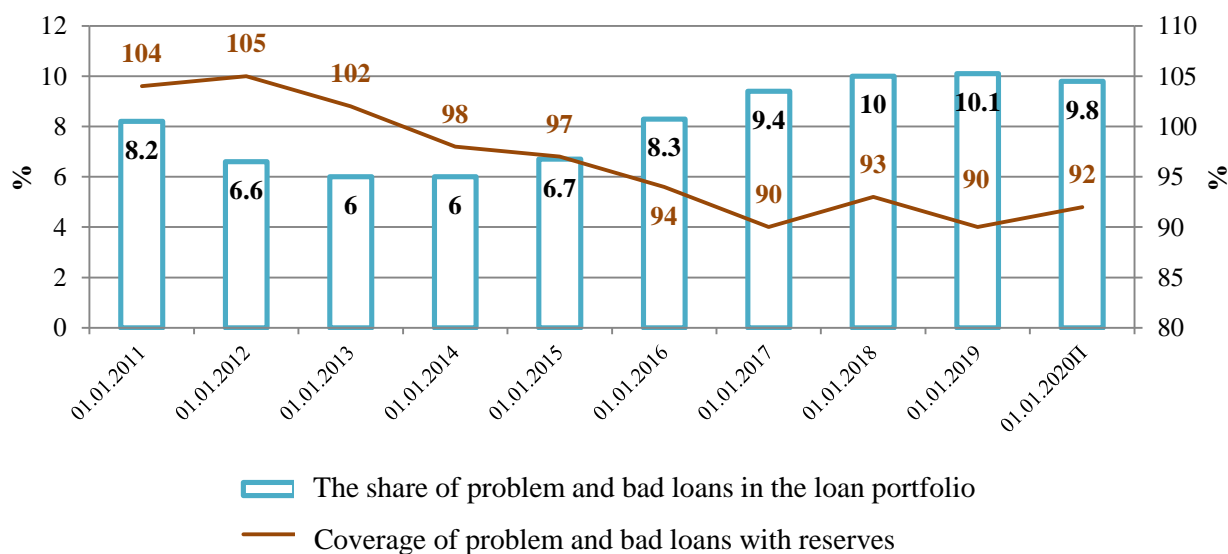

Figure 2: Coverage of reserves for possible losses on loans of the fourth and fifth categories of quality in Russia, in% [6].

The sanctions imposed and the deterioration of the overall economic situation in the Russian Federation also affected the state of the banking system in the form of the expected decline in the share of retail lending in GDP by 2021 and a small increase in this indicator for the corporate block (Figure 3).
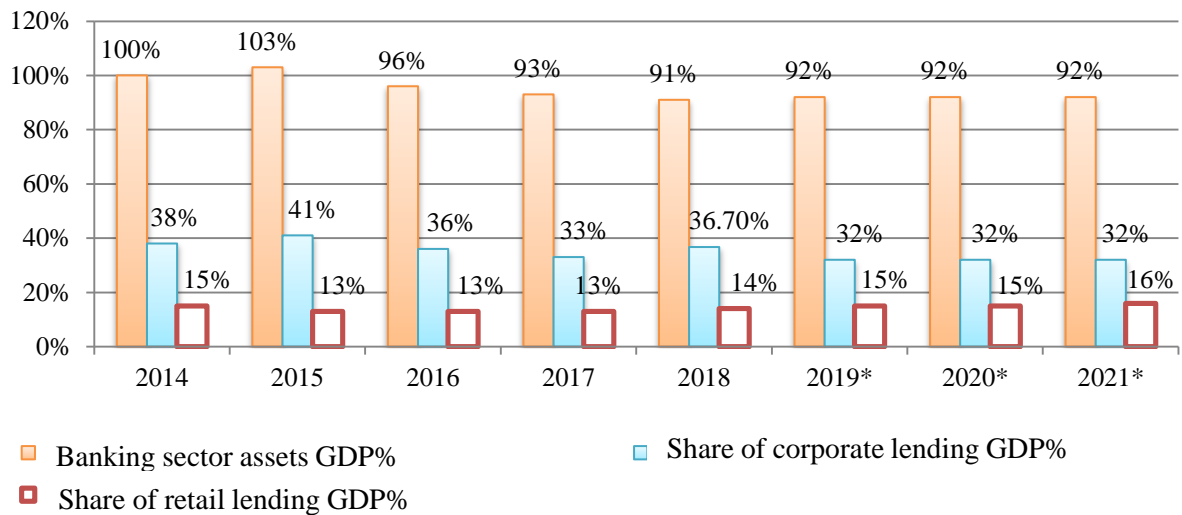
Figure 3: Dynamics of assets of the banking sector and the share of lending to the retail and corporate sectors to GDP [1]

At the same time, the expected decline in the volume of assets of the banking sector in GDP can be associated not only with certain imbalances in the overall state of the economy but also with the departure from the market of inefficient financial and credit institutions.

The sanctions also had an impact on the volume of foreign debt of Russian commercial banks, the decrease of which, to a greater extent, was associated with a decrease in the volume of funds in current accounts and deposits (Figure 4).
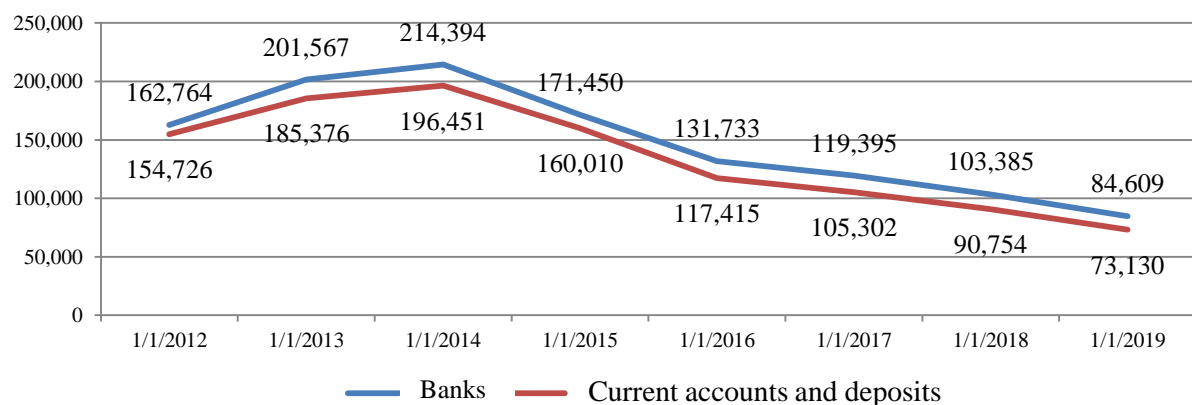

Figure 4: External debt of Russian commercial banks in the dynamics of current accounts, mln.USD [7]

Equally important is the emergence of investments between sister enterprises in the debt obligations of Russian commercial banks (Figure 5), which was not observed until the beginning of 2016.

The above-mentioned aspects actualize the need to create a new indicator that can collectively demonstrate the existing realities of the banking system of the Russian Federation in terms of their financial stability in ever-changing external and internal market conditions. The index of financial stability, which is based on a comparative analysis of the average market index and the index for commercial banks in the conditions of clustering, can be an indicator that can reflect these realities.
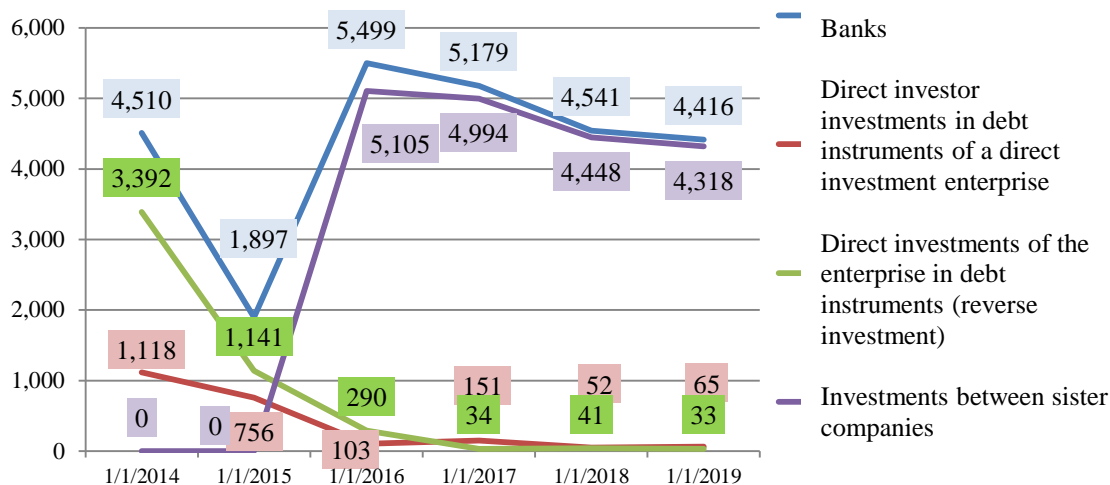
Figure 5: Debt obligations to direct investors and enterprises of direct investment of Russian commercial banks, mln.USD [7]

The formation of the financial stability index of the Russian banking system involves the implementation of the following stages:

1. Carrying out structural and dynamic analysis by collecting statistical data on the performance of credit institutions.

Data collection involves the accumulation of data characterizing the state of the banking system for a number of indicators that are formed in private indexes with the assignment of each of them with specific weights according to the expert evaluation (Table 1).

An important condition for the formation of the financial stability index of the banking sector of the economy of the Russian Federation is the possibility of expanding the range of both internal indicators of private indices and changes in the number of private indices themselves, which is necessary for a wider disclosure of aspects of the likelihood of both financial risks and the impact of sanctions processes on the financial stability of the system.

This determines the minimum and maximum values for each of the private indexes in the entire time range.

Table 1: Financial stability index of the banking system of the Russian Federation [5,7,10,11]

Private index	Indicators	Unit weight
Capacity Index of the Russian Banking Sector	Assets / Liabilities of credit institutions (total), mln rub.	0,3
	Capital credit organizations, mln.	
	Number of credit institutions	
	Profit of credit institutions, million rubles	
Profitability Index of the Russian Banking Sector	Return on assets,%	0,3
	Return on equity,%	
Index of international activities of the banking sector of the Russian Federation	Net international investment position of banks, mln. USD	0,1
	Balance of financial operations of banks (net lending (+) / net borrowing (-)), billion USD (external sector)	
Foreign Currency Volatility Index	Chinese Yuan, for 10 units.	0,1
	US dollar per unit	
	Euro rate, per unit	
Banking Sector Participation Index	Investments in debt securities, million rubles	0,2
	Investments in equity securities, million rubles	
	Participation in subsidiary and affiliated joint-stock companies, mln rub.	

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

For factors that have a positive impact on the final result, Formula (1) is used,

$$\text{Normalized indices for factors with positive impact} = \frac{(\text{Actual Value} - \text{Minimum})}{(\text{Maximum} - \text{Minimum})} \qquad (1).$$

For factors that have a negative impact on the result, Formula (2) is used,

$$\text{Normalized indices for factors with negative impact} = \frac{(\text{Maximum} - \text{Actual Value})}{(\text{Maximum} - \text{Minimum})} \qquad (2).$$

Table 2: An example of calculated "normalized indices" on the capacity index of the banking sector of the Russian Federation

Indicators	01.01.2015	01.01.2016	01.01.2017	01.01.2018	01.01.2019
Assets / Liabilities of credit institutions (total), mln. Rub.	0.8254	0.8822	0.8510	0.9055	1
Capital of credit organizations, mln. Rub.	0.0843	0.0957	0.0998	0.0999	0.1091
Number of credit institutions	0.9999	0.9999	0.9999	0.9999	1
Profit of credit institutions, mln. Rub.	0.0063	0.0020	0.0099	0.0084	0.0143

3. Calculation of partial indices on the basis of the data obtained at the second stage, by finding the arithmetic mean: all indicators in each time period of the "normalized index" are added and divided by their number (Table 3).

For example, the capacity Index of the Russian banking sector for 2015 = (Assets/Liabilities of credit institutions for 2015 + capital of credit institutions for 2015 + number of credit institutions for 2015 + profit of credit institutions for 2015).) / 4 = (0.8254 + 0.0843 + 0.9999 + 0.0063) / 4 = 0.4790.

Table 3: Private indices of the index of financial stability 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
Capacity Index of the Russian Banking Sector	0.4790	0.4950	0.4902	0.5034	0.5309
Profitability Index of the Russian Banking Sector	0.3261	0.0725	0.3986	0.3261	0.5543
Index of international activities of the banking sector of the Russian Federation	0.1204	0.5002	0.2954	0.2996	0.4532
Foreign Currency Volatility Index	0.2765	0.5717	0.2559	0.2747	0.4125
Banking Sector Participation Index	0.2721	0.3373	0.3278	0.3563	0.3812

4. Calculation of the financial stability index of the banking system of the Russian Federation by weighing each particular index by its share and summing the data obtained in each time period.

To illustrate the changes in this index, it is advisable to present the data obtained in a graphical interpretation (Figure 6).
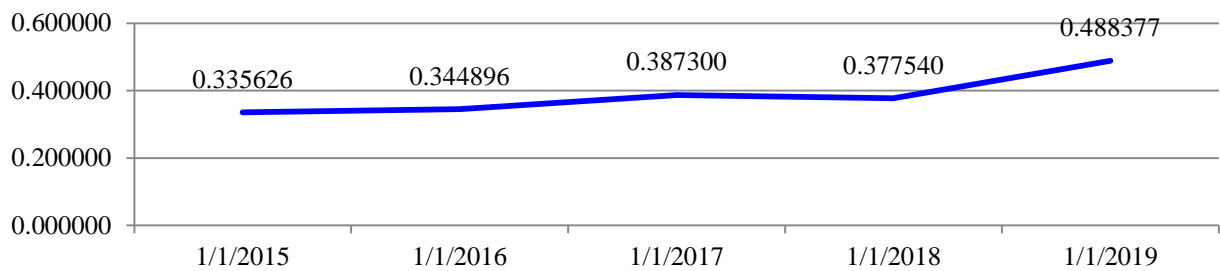
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Figure 6: Index of financial stability of the banking system of the Russian Federation in dynamics.

In the modern realities of the banking system, the use and analysis of the above-mentioned index can be misleading. For a complete definition of financial stability from the point of view of the probability of occurrence or existence of the banking institutions' financial risk, it is necessary to calculate the index of financial stability for each credit institution and to compare it with the rate of the General index of financial stability.

To calculate the financial stability index of specific banks, the following were determined: PJSC VTB as a systemically significant Bank, JSC Gazprombank as a Bank of an oil and gas company exposed to international sanctions, PJSC FC OTKRITIE as a Bank with the participation of the Agency for insurance of deposits in capital, JSC Alfa-Bank as a Bank with foreign capital.

These credit institutions can be classified according to the criterion of "caught/not caught" under the influence of sanctions, which is an important aspect in the context of sanctions financial risks in determining the flexibility, stability, and ability to neutralize the adverse consequences arising from these banks.

The calculation of this index for each Bank is made according to the above stages, however, private indexes have a wider range of indicators (Table 4).

Table 4: Financial Stability Index of Credit Institutions of the Russian Federation [8, 9, 10].

Private index	Indicators	Unit weight
The index of the balance sheet of banks that have fallen / not affected by the sanctions (all in thousands of rubles)	Bank assets	0.25
	Net profit of the bank	
	Bank capital	
Index of competitiveness of banks in terms of allocated/attracted funds (all in thousand rubles)	Bank loan portfolio	0.2
	Bank deposit portfolio (deposits of individuals)	
Index of competitiveness of banks in terms of allocated/attracted funds (all in thousand rubles)	Investment in securities	0.2
	IBC (interbank loans) received from the Bank of Russia	
Index of Regulatory (OH BR) condition of banks affected / not affected by sanctions	H1	0.25
	H2	
	H3	
Bank performance index	Return on net assets,%	0.3
	Return on equity,%	
	The level of overdue debt on the loan portfolio	
	Reserve portfolio by loan portfolio	

For a more accurate comparative analysis of the results on the index of financial stability of commercial banks, it is necessary to compare with the index of financial stability of the entire banking system.

An important aspect of this financial stability index is the clustering of the results in the form of

identifying the deviation of the data on the financial stability index for commercial banks from the index for the banking system as a whole. This aspect is important and can become a basis for determining the state of commercial banks both for the Bank of Russia as a mega-regulator and for the credit institutions themselves in determining the problem areas affecting their financial stability and competitive potential in determining the future strategy of their activities.

To identify the position of a commercial Bank, clustering is carried out in the form of a zone for determining the deviation of the financial stability index from the average market value with the formation of certain recommendations (Table 5).

Table 5: The color zone for determining the deviation of the indicator, in %

Deviation	Color	Name	Recommendation
14 and above		Success zone	Work on a revolutionary leap
From 7 to 14		High	
From 0 to 7		Average	Search for new methods of improving the strategy
From -7 to 0		Below the average	
From -7 to -14		Risk zone	Search for classic methods of modernization of the existing strategy
From -14 and below			

Table 6 shows the deviation of the obtained values of the financial stability index of commercial banks from the market average to determine the hit in a given time period in a particular cluster and identify certain recommendations to preserve not only their financial stability but also the competitive potential in General.

Table 6: Deviation of the index of financial stability index for commercial banks from the average market (for the banking system), in %

Name of the bank	2015	2016	2017	2018	2019
VTB	6.0897	15.5694	9.9507	12.2517	17.4705
Gazprombank	1.0112	6.0361	4.4560	5.0072	-3.9504
FC "Discovery"	-0.2606	7.2652	-0.3713	-10.0189	-10.1501
Alfa Bank	-2.3281	8.5438	-0.8736	-1.5485	-5.3689
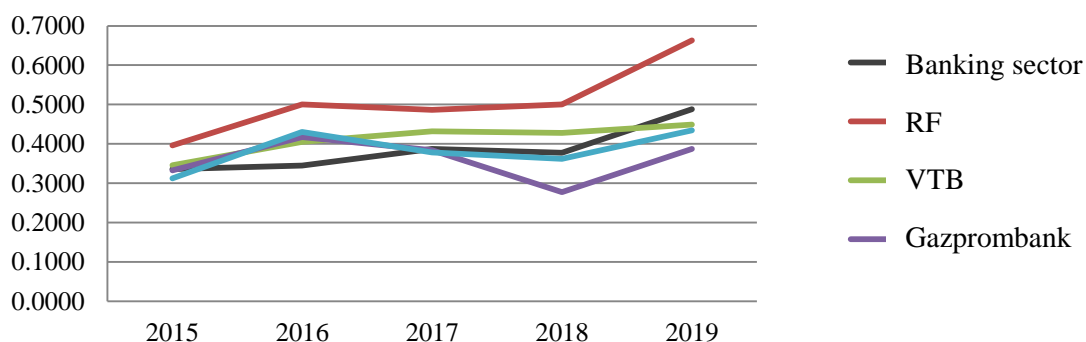
Indicators	2015	2016	2017	2018	2019
Russian banking sector	0.3356	0.3449	0.3873	0.3775	0.4884
VTB	0.3965	0.5006	0.4868	0.5001	0.6631
Gazprombank	0.3457	0.4053	0.4319	0.4276	0.4489
FC "Otkrytie"	0.3330	0.4175	0.3836	0.2774	0.3869
Alfa-Bank	0.3123	0.4303	0.3786	0.3621	0.4347

Figure 7: The results of the comparison of the index of financial stability of the banking system of the Russian Federation and commercial banks in the dynamics

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According to the calculations, the graphical interpretation of the comparison of the index value for each Bank with the overall index of the entire banking system, taking into account the clustering, revealed the following results (Figure 7).

VTB PJSC demonstrates high financial stability, especially in comparison with the average market indicator. This aspect is confirmed by the fact that it is a systemically important Bank for Russia. At the same time, this Bank demonstrates flexibility in relation to its activities and improving financial stability throughout the analyzed period in the conditions of falling under sanctions.

The cluster approach also revealed a certain disproportion in the Bank of PJSC "VTB" at the beginning of 2015 in the form of a "middle" zone, which characterizes the impact of sanctions processes on this commercial Bank, but also demonstrates a well-built strategy to improve its financial stability in connection with the impact of foreign economic imbalances on its activities in the entire future analyzed period.

PJSC "FC Otkrytie" has seen a deterioration in financial stability since the beginning of 2017, which is due to the ongoing financial recovery of this financial and credit institution and a decrease in confidence on the part of customers to this Bank.

4. SUMMARY

The above approach in determining the financial stability of Russian commercial banks and the banking system as a whole can become an indicator, monitoring and control of which will allow the Bank of Russia to determine the existing realities of the development of both the system itself and individual credit institutions, the sample of which can be carried out according to various criteria: systemically significant, TOP 10, TOP 30, large, cluster, with the participation of foreign capital, with the participation of the state in the capital of the Bank, regional and so on.

5. CONCLUSION

As a result, with a regular calculation of financial stability indices, it is possible to timely identify the most financially successful and effective participant in the banking system, which is also an important indicator for commercial banks themselves.   the concentration of the main customer base among the largest market participants, the reduction in the number of existing credit institutions, the constant modernization of risk management, strategy and flexibility in conducting activities in the conditions of various economic, political, financial and other shocks leads to the need to identify its competitive potential and develop certain aspects of the Bank's future strategy.

6. DATA AND MATERIAL AVAILABILITY

Information regarding this study can be requested to the corresponding author.

7. ACKNOWLEDGEMENT

8. REFERENCES

[1] Bulatova, E.I., Syurkova, S.M., Aliakberova, L.Z., Nurmukhamedov, E.R. (2017). Financial strategy for establishing leasing company. Proceedings of the international conference on trends of technologies and innovations in economic and social studies, 38: 87-92.

[2] Troshin, V.A. (2014). Problems of assessing the financial stability of a commercial Bank. Young scientist, 10: 263-266.

[3] Shershneva, E.G. (2017). Diagnostics of financial condition of commercial banks: textbook / E. G. Shershnev. — Ekaterinburg: Publishing house Ural. UN-TA: 112 p.

[4] Overview of the banking sector for the 1st half of 2018: risks retail / Research: Banks // the Rating Agency "Expert RA" – M – 2018 - URL – https://asros.ru/public/files/19/18241-obzorbankovskogosektoraza1polugodie2018godaekspertra.pdf

[5] Performance indicators of credit institutions / Banking sector // Official website of the Bank of Russia – URL: http://www.cbr.ru/statistics/?PrtId=pdko_sub

[6] Forecast of banking sector development in 2019: on a positive note / Research: Banks //Expert RA rating Agency - 2018 – URL –https://raexpert.ru/researches/banks/bank_sector_forecast2019

[7] External sector statistics / Macroeconomic financial statistics // Official website of the Bank of Russia – URL: https://www.cbr.ru/statistics/?PrtId=svs

[8] Statistics of commercial banks and the banking system of Russia // Analytical portal – URL: https://analizbankov.ru/index.php

[9] The statistical base for commercial banks // news Agency "Banks.ru" - URL: https://banki.ru

[10] Statistical data on the banking system of the Russian Federation / Statistics // Official website of the Bank of Russia – URL: http://www.cbr.ru/statistics/

[11] Financial markets / Statistics // Official website of the Bank of Russia – URL: http://www.cbr.ru/statistics/?PrtId=finr

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