

**ФИНАНСЫ
FINANCE**

УДК : 336.71

DOI: 10.18413/2409-1634-2018-4-4-0-8

**Alhassan Abdul-Mumin,
Solovjeva N.E.,
Bykanova N.I.**

**THE ANALYSIS OF THE SYSTEM OF MONITORING
AND FORECASTING OF BANKING RISKS**

Belgorod state national research University
st. Pobedy, 85, Belgorod, 308015, Russia

e-mail: solovjeva@bsu.edu.ru, bykanova@bsu.edu.ru

Аннотация

Credit risk is recognized as the most common type of risk that has a significant impact on the stability of both individual commercial banks and the banking system as a whole. The activity of commercial banks in modern conditions is associated with the emergence of a large number of risks and the interrelation of various types of banking risks within a separate commercial bank. The scale of risk throughout the banking sector has also become more intense. Due to the potentially dangerous effects of credit risk, it is important to constantly conduct a comprehensive assessment.

The article describes the types of risks and describes the main goals and objectives of the bank's risk management system. Bringing banking risks into the system and analyzing coefficients and indicators of credit risk make it possible to better structure the bank's work to minimize risk.

Ключевые слова: credit risk, credit risk management, monitoring credit risks, bank, market, Basel committee.

**Алхассан Абдул Мумин,
Соловьева Н.Е.,
Быканова Н.И.**

**АНАЛИЗ СИСТЕМЫ МОНИТОРИНГА
И ПРОГНОЗИРОВАНИЯ БАНКОВСКИХ РИСКОВ**

Белгородский государственный национальный исследовательский университет
ул. Победы, 85, г. Белгород, 308015, Россия

e-mail: solovjeva@bsu.edu.ru, bykanova@bsu.edu.ru

Abstract

Кредитный риск признается наиболее распространенным видом риска, оказывающим существенное влияние на устойчивость, как отдельных коммерческих банков, так и банковской системы в целом. Деятельность коммерческих банков в современных условиях связана с возникновением большого количества рисков и взаимосвязью различных видов банковских рисков в рамках отдельного коммерческого банка. Масштаб рисков во всем банковском секторе также стал

более интенсивным. В связи с потенциально опасными последствиями кредитного риска важно постоянно проводить комплексную оценку.

В статье рассмотрены виды рисков и описаны основные цели и задачи системы управления рисками банка. Приведение в систему банковских рисков и анализ коэффициентов и индикаторов кредитного риска позволяют лучше выстроить работу банка по минимизации риска.

Key words: Кредитный риск, Управление кредитными рисками, мониторинг кредитных рисков, рыночный риск, Базельский комитет.

Введение

The purpose of this article is to study the main causes of changes in the level of risk of Sberbank, where the probability of risks in the financial market in recent years has increased significantly due to the unstable economic situation. The relevance and need to study the process of occurrence of risks allows to take into account the peculiarities of Sberbank, to make changes in the management process in relation to Finance, to make timely decisions on financial policy. Materials and methods of research. The research methodology is based on the theoretical aspects and practices of Russian economists on the topic, which includes a number of methods: statistical analysis, mathematical, monographic, graphic.

The article analyzes the modern financial market on the example of Sberbank in the conditions of international sanctions, which identified the actual problems and identified the main risks. This work is the result of studies based on an analytical review of the risks of the Russian banking sector, as well as the calculations of the authors, allowing to draw conclusions and propose a set of measures to reduce their regulatory nature. As a result of the conducted research the actual directions of increasing the competitiveness of domestic state-owned banks in order to strengthen their positions in the in-

ternational financial markets are proposed [Solovjeva N.E., 2018].

Основная часть.

PJSC Sberbank manages all significant risks for the bank, which are determined as a result of annual assessment of the significance of risks and procedures for their identification. In recent times, the following types of risks are considered significant to the bank: credit risk, market risk, operational risk, liquidity risk and others (compliance risk, tax risk, strategic risk, business risk, regulatory risk, model risk and reputation risk). The main goals and objectives of the risk management system of the bank are:

- providing a common understanding of risks at the group level and strategic planning taking into account the level of risks accepted.
- identification, assessment, aggregation and forecasting of the level of significant risks of the bank as well as control over their level;
- ensuring and maintaining an acceptable level of risk and capital adequacy ratio to cover significant risks;
- ensuring efficient allocation of resources to optimize the risk factor or profitability of the bank [Systematic approach to comprehensive monitoring of Bank risks, 2018].

The dynamics of the main types of risks of Sberbank in 2015-2017 are presented in table 1.

Table 1
The dynamics of the main types of risks of Sberbank of Russia in the years 2015-2017
In billion rubles

Таблица 1

Динамика основных видов рисков Сбербанка России в 2015-2017 годах в млрд. рублей

Type of risk	Period			2017/2016	
	2015	2016	2017	absolute deviation	Growth rate, %
Credit risk	17929	16426	15739	-687	95,8
Operational risk	163	182	213	31	117,0
Market risk including;	240	205	368	163	179,5
Interest risk	11,0	16,0	13,0	-3,0	81,3
Stock risk	0,0	0,3	0,0	-0,3	0,0
Currency risk	99,0	0,0	8,8	8,8	-
Commodity risk	0,0	0,5	7,0	6,5	1400,0

The Bank's credit risk decreased in 2016 and 2017 with a negative growth rate of 8.4% and 4.7% respectively. From the table above, it is noticeable that the growth rate of operational and interest risk declined in 2016

and 2017 (117.0% and 179% respectively at the end of 2017). A clearer picture of the analysis in the table above is illustrated in the chart below [Public joint-stock company Sberbank, 2018].

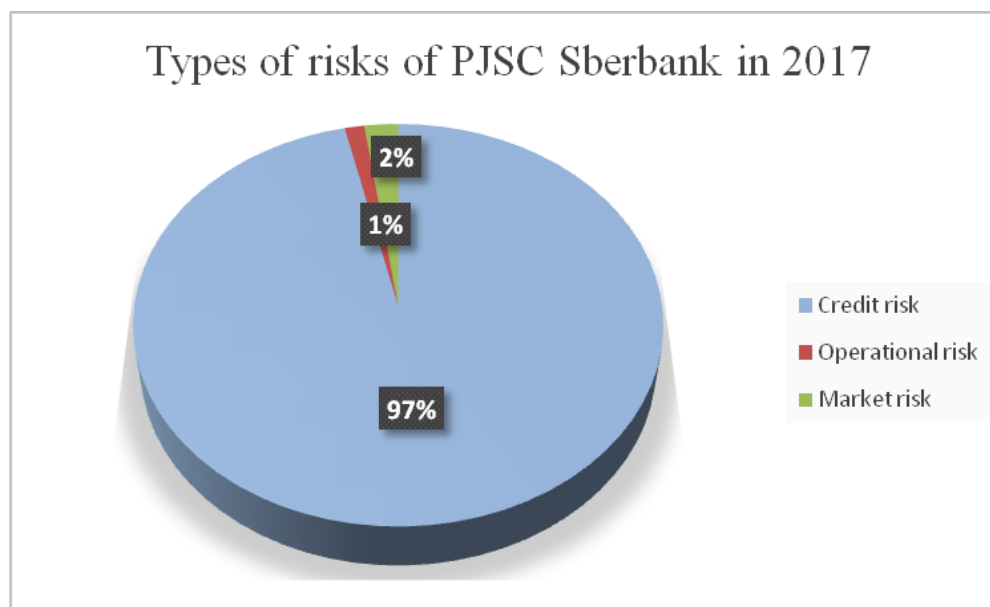


Figure 1. Structure of the main types of risks of Sberbank in 2017
Рисунок 1. Структура основных видов рисков Сбербанка в 2017 году

Referring to the figure illustrated above, one can conclude that the Bank's risk structure is quite simple. The main type of risk of Sberbank is credit risk, which accounts for 96.4% of

the Bank's risks. One can also conclude that credit risk is the main type of risk in most commercial banks. In light of this, we conducted a comprehensive analysis of credit risk of

the bank for a 4 year period [Управление рисками и эффективность бизнеса в условиях кризиса, 2018]. The structure and Dynamics

of loans and credit risks of Sberbank in 2014-2017 are presented in the table.2.

Table 2

Dynamics of bank loans and credit risks of Sberbank Russia for the period of 2014-2017 In millions

Таблица 2

Динамика банковских кредитов и кредитных рисков Сбербанка России за период в 2014-2017 млн.

Activities	At the end of the period				Decline , +/-	
	2014	2015	2016	2017	2016 к 2015	2017 к 2016
Total loans including:	16690583	17880623	17260343	18235656	-620280	975313
Debts overdue (arrears)	700540	871424	626278	615071	-245146	-11207
Share of loans in assets, %, %	76.70%	78.70%	79.50%	78.70%	0.01	-0.01
Loans to legal entities including:	11648210	12248763	11327452	11769864	-921311	442412
Overdue debts	442418	567974	331593	302500	-236381	-29093
Loans to individuals including:	4069937	4134771	4337385	4925822	202614	588437
Overdue debts	253007	303386	282275	257938	-21111	-24337
Loans to banks including:	972436	1497089	1595506	1539970	98417	-55536
Overdue debts	5315	64	12410	54633	12346	42223
Share of overdue debts, %						
loans in total	4,2	4,9	3,6	3,4	-1,2	-0,3
loans to legal entities	3,8	4,6	2,9	2,6	-1,7	-0,4
loans to individuals	6,2	7,3	6,5	5,2	-0,8	-1,3
loans to banks	0,5	0	0,8	3,5	0,8	2,8
Provisions for possible losses on loans	801204	1010819	1038721	1094186	27902	55465
% to loans	4,80	5,65	6,02	6,00	0,36	-0,02

The tendency to improve the quality of assets and minimize risks has become one of the main tasks of the Bank. The financial and economic sanctions in 2014 led to an increase in credit risks hence an increase in the share of overdue debt in this period. The Bank is forced

to significantly increase reserves for possible loan losses, which negatively affected the financial results of their activities. Since 2015, there has been an increase in credit risks and a fall in the share of the Bank's overdue debt.

An asset is recognized as overdue in full in case of violation of the terms established by the Agreement on payment of at least one payment on the principal debt and (or) interest. As of the end of 2017, the share of overdue loans in total assets amounted to 2.7% (as of January 1, 2017 – 2.9%) [Risk management and business performance in crisis, 2018].

Restructuring – is making changes to the original essential conditions of the loan agreement concluded with the debtor in a more favorable way for him not provided by the original essential terms of the loan agreement.

In the course of settlement of problematic or overdue debts of legal entities and individuals, the Bank sells assets previously taken to the Bank's balance sheet as collateral. During 2017, property was sold for 707 million rubles, in 2016 – for about 569 million rubles. The vast majority of realized objects are in the real estate sector (apartments, land plots, non-residential premises).

In 2015, the volume of restructured loans of legal entities amounted to 2,907.5 billion rubles, their share in assets was 12.8% (2014 – 2,212.0 billion rubles and 10.2%, respectively). As of January 1, 2018, the amount of restructured loans to legal entities amounted to 3 402 584.0 million rubles, their share in the assets of the balance sheet was 14.7% (January 1, 2017: 3 285 711,8 million RUB and 15.1%, respectively).

At the beginning of 2016, the volume of restructured loans to individuals in the loan portfolio amounted to 149.2 billion rubles, their share in assets – 0.7% (January 1, 2015 – 72.5 billion rubles and 0.3%, respectively). As of January 1, 2018, the volume of restructured loans of individuals in the loan portfolio amounted to 277 943.0 million rubles, their share in assets – 1.19% (as of January 1, 2017: 204 042.9 million rubles and 0.9%, respectively). Typical options for restructuring involve an increase in the term of use of credit, change in the order of repayment of debt on a loan, re-

fusal of charging penalties in whole or in part, change of the currency of credit.

The bank pays close attention to controlling the concentration of large credit risks. In accordance with internal regulatory documents, the Bank has implemented the procedure for monitoring of major credit risks and forecasting compliance with the requirements set forth in the standards of H6 "maximum risk amount per borrower or Group of related borrowers" and H7 "maximum size of major credit risks". For this purpose the list of the bank's large and related borrowers is monitored.

We will calculate the main coefficients (key ratios), which allow us to determine the degree of risk activity of the bank in 2015-2017 (table 3). Calculations used in the process of determining the degree of credit risk of the Bank include;

- Reserve ratio- allows you to determine the degree of protection of the Bank from non-repayment (return) of loans.

- Risk ratio- allows you to assess the quality of the bank's loan portfolio in terms of credit risk.

- Ratio of default or overdue debt- shows the share of problematic loans in the total amount of debt owed the bank.

Based on the data in table 3, all credit risk ratios of Sberbank are within acceptable limits for the entire period under review. The decreasing reserve ratio in 2017 means that the Bank's degree of protection against possible loan defaults has decreased at the reporting date. In terms of repayment, the quality of the loan portfolio is closer to the optimal in 2017 – this shows a risk factor of 0.94. The ratio of problematic loans decreased in 2017, which indicates a decrease in the share of problematic loans in the total amount of debt. In general, the structure of the loan portfolio does not exceed the permissible level of default loans [Systematic approach to comprehensive monitoring of Bank risks, 2018].

Table 3

Credit risk ratios of Sberbank of Russia for 2015-2017

Таблица 3

Коэффициенты кредитного риска Сбербанка России на 2015-2017 годы

Coefficient	Significance				Correspondence to the optimal
	2015	2016	2017	Optimal	
Reserve ratio	5,75	6,14	6,13	Not higher than 15	Correspond
Risk ratio	0,94	0,93	0,94	Should strive towards 1	Correspond
Ratio of default or overdue debt	5,62	4,38	4,21	Not higher than 10	Correspond

One of the main methods of market risk assessment in recent times is the Value at Risk (VaR) method. This method is an estimate of the maximum portfolio loss over a given period of time with a given probability (confidence level) in a "normal" market. "Normal" market is recognized as the dynamics of market factors (interest rates and currency quotations) in the absence of a systemic crisis in the banking sector or the economy of the country or a group of countries or negative facts that can cause a significant change in market factors, and, as a consequence, the value of positions in financial instruments.

The Bank uses the Value at Risk (VaR) method to calculate interest rate risk on trading positions, stock and currency risks. This technique allows us to estimate the maximum amount of expected financial losses for a certain period of time with a given level of confidence [Frolova, N.E., 2009]. The Bank estimates VaR with a confidence level of 99%, the holding period is assumed to be equal to 10 working days.

It should be noted that the Basel Committee on banking supervision (within the framework of the internal models approach) does not allow banks to use models with a short-term (less than 250 days) observation period to calculate capital adequacy. Based on the covariance method, the VaR calculation model (in accordance with the criteria of the Basel Committee on banking supervision) is insufficient to estimate the expected losses in the conditions of sustainable market development and in the periods of crisis. Another advantage of the new approaches to risk assessment (especially operational risk) is their ability to provide accurate probabilistic estimates even in the absence of statistical data.

Taking into account the shortcomings of the VaR method, in order to obtain more complete and accurate information on the amount of market risk, the Bank supplements the calculation of VaR with market risk assessments using scenario analysis and stress testing methodology.

The results of calculations by types of risk using the VaR method at the end of 2015-2017 are given in the table below:

Table 4

Market risk indicators using the VaR method from 2015 to 2017

Таблица 4

Индикаторы рыночного риска по методу VaR с 2015 по 2017 год

Types of risks	The value of Market risk, In billion rubles			Effect on net profit, %		
	2015	2016	2017	2015	2016	2017
Interest risk on debt securities	85	37,5	24,8	36,00%	6,90%	3,30%
Stock risk	0,3	0,1	0,2	0,10%	0,00%	0,00%
Currency risk	11,7	3,3	5,8	4,90%	0,60%	0,80%
Commodity risk	0,2	0,1	0,2	0,10%	0,00%	0,00%
Market risk (taking into account diversification)	96,4	40,1	29,6	40,80%	7,60%	4,00%
The effect of diversification	0,6	0,9	1,4	0,20%	0,20%	0,20%

The table above shows that in 2015 the Bank's net profit was strongly affected by the level of interest and market risk. Subsequently, the effect on the bank's net profit reduced in 2016 and 2017. The most dangerous type of risk for the Bank in terms of its impact on the Bank's net profit are interest and market risks. In its risk management strategy, the Bank should pay special attention to their minimization, of course, along with other risks, because each of them worsens the financial condition of the Bank upon occurrence.

Заключение

Thus, feature of development of a banking system of the Russian Federation is recently the increased instability which is followed by sanctions regimes which significantly influence development of economy in certain directions of minimization of risks of a banking system of Russia and in its stable functioning and regulation.

Список литературы

1. Быканова Н.И., 2017. Пути минимизации рисков банковской системы России и особенности их регулирования в условиях экономических санкций/ Н.И. Быканова, Н.Е. Соловьева, М.С. Зинченко // Современная экономика: проблемы и решения. – 2017. – № 8 (92). – С. 54-63.
2. Киреева, Т.С., 2010. Ссудные операции коммерческого банка / Киреева Т.С. – Москва : Лаборатория книги, 2010. – 81 с.

3. Лобач И.С., 2016. Банковские риски: теория и существенные характеристики.// Новые технологии.- 2016. <https://cyberleninka.ru/article/n/bankovskie-riski-teoriya-i-suschnostnye-harakteristiki>

4. Панова, Е. П., 2018. Формирование кредитной политики коммерческого банка [Электронный ресурс]. Режим доступа: www.library.ru

5. Публичное акционерное общество ПАО Сбербанк, 2018. [Электронный ресурс] / "Банк России": [сайт]. – Режим доступа: <http://www.cbr.ru/credit/coinfo.asp>

6. Системный подход к комплексному мониторингу банковских рисков, 2018. [Электронный ресурс.] Режим доступа: <https://cyberleninka.ru/article/n/sistemnyy-podhod-pri-provedenii-kompleksnogo-monitoringa-bankovskih-riskov.pdf>

7. Рождественская, Т. Э., 2010. Банковское право : учеб. пособие / Т. Э. Рождественская; Гос. ун-т – Высшая школа экономики. – М. : Изд. дом Гос. ун-та – Высшей школы экономики, 2010. – 420 с.

8. Соловьева Н.Е., 2018. Пути повышения конкурентоспособности банков с государственным участием на национальном рынке банковских услуг/ Н.Е. Соловьева, Н.И. Быканова, Альнакула Мажд // Научные ведомости Белгородского государственного университета» серии Экономика.

Информатика, № 2 Т. 46, июнь 2018 г.: Белгород: «Белгород».- С. -273-281.

9. Управление рисками и эффективность бизнеса в условиях кризиса, 2018. [Электронный ресурс.] Режим доступа: <http://www.iso.ru/rus> ААА.

10. Фролова, Н.Е., 2009. Банковские риски: пути минимизации/ Н.Е. Фролова – М.: Дело ЛТД, 2009 – 300 с.

References

1. Bykanova N. And., 2017. Ways of minimization of risks of the Russian banking system and features of their regulation in the conditions of economic sanctions/ N. And. Bykanova, N. E. Solovjeva, M. S. Zinchenko // *Modern economy: problems and solutions.* – 2017. – № 8 (92). – P. 54-63.

2. Kireeva, T. S., 2010. Loan operations of a commercial Bank / T. S. Kireeva-Moscow: laboratory of books, 2010. – 81 p.

3. Lobach, I. S., 2016. Bank risks: theory and essential characteristics.// *New technology.* 2016. <https://cyberleninka.ru/article/n/bankovskie-riski-teoriya-i-suschnostnye-harakteristiki>

4. Panova, E. P., 2018. Formation of credit policy of commercial Bank [Electronic resource]. Mode of access: www.library.ru

5. Public joint-stock company Sberbank, 2018. [Electronic resource] / Bank of Russia: [website]. – Mode of access: <http://www.cbr.ru/credit/coinfo.asp>

6. Systematic approach to comprehensive monitoring of Bank risks, 2018. [Electronic resource.] Mode of access:

<https://cyberleninka.ru/article/n/sistemnyy-podhod-pri-provedenii-kompleksnogo-monitoringa-bankovskih-riskov.pdf>

7. Christmas, T. E., 2010. Banking law: studies. allowance / Ie Christmas; State. UN-t-Higher school of Economics. – М.: Ed. GOS house. UN-TA-Higher school of Economics, 2010. – 420 p.

8. Solovjeva N. E. 2018. Ways to improve the competitiveness of banks with state participation in the national market of banking services/ N. E. Solovjeva, N. And. Bykanova, Alnakula Majd / scientific Bulletin of the Belgorod state University " series Economics. Informatics, № 2 Vol. 46, June 2018: Belgorod:"Belgorod". – P. – 273-281.

9. Risk management and business performance in crisis, 2018. [Electronic resource.] Mode of access: <http://www.iso.ru/rus> ААА.

10. Frolova, N. E., 2009. Banking risks: ways to minimize/ N. E. Frolova, M.: Delo LTD, 2009 – 300 С.

Информация о конфликте интересов: авторы не имеют конфликта интересов для декларации.

Conflicts of Interest: the authors have no conflict of interest to declare.

Алхассан Абдул Мумин – магистр института экономики и управления Белгородского государственного национального исследовательского университета,

Alhassan A.-M – master of the Institute of Economics and management of Belgorod state national research University