

## NEW TECHNOLOGIES OF RISK MANAGEMENT IN BANKING AT THE PRESENT STAGE

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**Abstract:** the article emphasizes the contemporary significance of the risk management along with revealing of the diversity of modern risk management technologies implemented in the banking sphere. The formation of the comprehensive scheme of principles, categories and procedures of risk management in the banking business, taking into account the world experience and specifics of doing business, is gaining new momentum of the development in Russia. The establishment and constant enhancement of a comprehensive and efficient system of risk management using modern technologies is one of the crucial objectives for the Russian banks.

**Keywords:** risk management, banking sphere, financial sustainability, VaR Method, information technology.

## НОВЫЕ ТЕХНОЛОГИИ УПРАВЛЕНИЯ БАНКОВСКИМИ РИСКАМИ НА СОВРЕМЕННОМ ЭТАПЕ

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**Аннотация:** в статье подчеркивается важность риск-менеджмента как неотъемлемой составляющей любой экономической деятельности, наряду с выявлением разнообразия современных технологий риск-менеджмента, внедряемых в банковской сфере. Формирование комплексного представления о принципах, категориях и процедурах управления рисками в бизнесе с учётом мирового опыта и специфики ведения предпринимательской деятельности набирает новые обороты развития в России. Создание и постоянное эффективное совершенствование комплексной системы управления рисками с использованием современных технологий является одной из важнейших задач для российских банков.

**Ключевые слова:** управление рисками, банковская сфера, финансовая устойчивость, метод Вар, информационные технологии.

Risk is a possibility of losses due to the random nature of the consequence of economic decisions or actions as well as the likelihood of losses as a result of capital investment. Nowadays, banking sector is one of the most interconnected with risk management primarily due to the naturally complex network of interbank financial and other interactions. The trend is not groundless: risks, especially after the both miscellaneous international financial “shocks” leading to the changeover in the worldwide financial priorities and transition to the digital era, to currently provide the strongest influence on the activities of credit institutions.

The clear understanding of the essence of risk is to be followed by the accepting of the fact of the impossibility of risk elimination. However, it becomes evident that risks’ outcomes can and should be controlled [1, 19]. Risk managers, the specialists managing risks of the financial and other organisations, strive to neutralize undesirable impacts of economic procedures in order to improve the overall effectiveness and profitability of their company that will accordingly improve the efficiency of the financial sector functioning in the economy in general. Their work basically involves deciding what’s the risk level of return volume is in order to maximize is and determine how much risk a company can take.

Presently, the foundation stone of the effectiveness of banking risk management is formed by the overall mastery of the financial analytics to provide prevention, rational control and effective risk identification, performance, efficiency of managerial decision-making and assessment based on the clear scientific framework in pair with the growing number of innovative high-tech IT-software tools that can automatize the processes and procedures of risk management and therefore to build a system of adequate and effective response to risks. Practically, the use specific measures, which allow one to predict the occurrence of risk events and apply appropriate measures to reduce risks, takes the major place in the action.

Since the early 1990-s risk management can be mentioned as a well-established new financial industry, with the significant stimulus given by the Basel Committee Agreement on capital adequacy for banks (1988) [1, 51]. Today, the establishment of a clear system of risk management is one of the most urgent problems of modern banking. The modern procedure of risk management can be interpreted the following way. First of all, the analysts formulate the strategy that actually reveals in setting the aims. Following this, the primary practical task is to identify the risks. It is often done, for instance, via developing a risk map, which should illustrate a holistic forecast and overview of the totality of risks ranged by the level of significance and their peculiarities in accordance with the specifics of the company [2, 46]. This type of analytical data, being the basis of effective financial risk management of commercial banks, is developed for efficient qualitative and quantitative risk assessment and is aimed to evaluate the initial degree of risk, the probability of losses and the size of possible damage from it. Once the risk is determined, the practical moves are undertaken in a way of determining the strategy of risk detrimental effects minimization: avoidance, acceptance, reduction or transfer. The final step assumes the evaluation of the effectiveness of risk management.

Basically, all the methods of the financial risk forecasting can be divided into two groups:

1. Statistical methods, based on the quantitative analysis;
2. Expert methods, based on the quantitative analysis.

Value at Risk (VaR) Method forms the basis of the quantitative assessment of financial risks. VaR is the total amount of losses not exceeding the loss in value of a portfolio over a particular time interval based on the existing probabilities. The VaR methodology is essentially a certain evolution of the classical method of measuring risk, which is based on the calculation of the standard deviation with the following applying of the normal distribution. In general, VaR can be defined as a statistical estimate of the maximum loss of portfolio for a given distribution of market factors over a specified period of time in almost all cases. This method determines the functional relationships of the probability of the risk emergence, depending from various external indicators. The VaR method is widely used by the international institutions (from the Banking Federation of the European Community to the vast majority of the international commercial banking organisations) for the calculation of the capital adequacy.

When calculating VaR, it is sufficiently needed to determine the basic elements influencing its value: the probability distribution of market factors, the confidence interval, the holding period, etc. The formula for calculating VaR:

$$\boxed{\text{VAR}=k*\sigma*Y} \quad (1)$$

Where  $k$  – the coefficient of a confidence interval,  $Y$  – the value of the asset,  $\sigma$  – the volatility of the exchange rate.

There are three basic methods of the VaR calculation: the variance-covariance method (the analytical method), the historical simulation and the statistical simulation (also known as the “Monte Carlo Simulation”) [5, 36]. In the overwhelming majority of cases, to calculate the VaR, the variance-covariance method is used. Its wide usage can be justified by the fact of its relative simplicity of use and the results of a high accuracy level derived during the calculation. This method requires the evaluation of the two factors: an expected/average return and a standard deviation, allowing to construct a normal distribution curve. The possibility of this method usage is limited by the constraint of the statistics to correspond to the normal distribution of, which, in reality, means the absence of any significant deviations of prices from the average level [4, 78]. However, despite the analytical method of the VaR calculation can be implemented comparatively easily, its use must be considered from the point of the stationary normal distribution law, making this method’s usage quite unsuitable under circumstances of the Russian Federation.

In practice, as it was previously mentioned, every bank, including VTB, as a specific financial institution, is exposed to systematic risks. Being the one of the most large-scaled groups of multifunction banking organisations in Russia, VTB has always been involved in a complex network of interbank interactions that does not suggest a high stability of its activities and only exposes the banking corporation to higher risks. With risk-acceptance being an important and integral feature of the business of VTB-group, risk management is considered a key controlling-management function. The VTB Bank's risk management is purposed to the formation and the transition to a holistic risk management approach, which matches the nature and scale of the Bank's activities, profile and meets the needs of further business development.

The most significant risks recognized and regarded by the VTB-group are:

1. Credit risk;
2. Market risk;
3. Liquidity risk;
4. Operational risk.

Risk management on the Group level includes the identification, assessment and monitoring of risks, controlling their significance and elaboration of effective measures to maintain an optimal balance between accepted risks and profitability of transactions, and unfolding the information about capital and risk management procedures in VTB Bank and VTB-group.

The entity responsible for the maintenance of the system of risk management and credit control, market and operational risks in the VTB group and VTB Bank is the Risk Department. It consists of the following divisions: Credit Risk Management Department (specialized units responsible for risks and/or credit procedures elements), Market Risk Management Department, Operational Risk Management Department, Service of the examination of loan applications. Risk Management Department in VTB Bank also includes the executive collegial bodies: Governing Board, Management Committee of the assets and liabilities and Credit Committees [6, 7].

Taking the VTB Group as an example, for the formation of effective system of risk management and ensuring the compliance with new regulatory requirements and international standards, banks apply the following techniques embracing the new technologies [6, 10]:

1. SAS Risk Management. SAS is a worldwide-recognized turnkey solution in the field of risk management within the whole bank. SAS Risk Management, being flexible, open and extensible environment system, allows to calculate current and potential credit exposure, aggregate weighted according to specific user levels of aggregation, etc. It provides the chance to carry out integrated assessment of market and credit risk taking into account the relationship of all aspects of risk involved in the process, making risk assessment more deliberate and objective [3, 110]. In 2014, "VTB 24" was acknowledged the leader in the nomination "Implementation of the year" by the annual award in the field of innovations and achievements in the Banking sphere for "the introduction and start of work at the Bank any particular technology, the basis for any client service or business challenges" with the project "Big Data from SAS";

2. The VTB Group has already started the system of trial calculation of profitability indicators on "economic capital" (RAROC) as part of the process of integration of the model of "economic capital" (ECap, Capital-at-Risk) into financial planning and forecasting;

3. EGAR Focus (EGAR Technology) is a comprehensive solution for banks and investment firms. It allows to implement the financial monitoring, risk management solutions, assessment rates for derivative cash instruments in the business and eases the calculation of profits and expenses in real time.

The key strategic directions of further development of the risk management system in the medium term are determined by the strategy of development of the risk management system of the VTB Group for 2017-2019 (approved in 2017) [6, 45]:

1. The transition to IFRS 9, the effective monitoring of implementation of the business plan on the level of reserves for possible losses (taking into account the major development directions of the VTB Group);

2. The completion of the organizational and technical centralization of the risk management Departments in the merging VTB Group and VTB 24 Bank;

3. Planned continuation of works on automation of key processes and analytical tasks of risk management, in particular the further implementation of the information technology platform for the calculation of the risk rational assets, in the framework of the project "Basel II";

4. Further improvement of the system of planning and continuity at the level of VTB Bank and VTB group.

This way, it can be concluded that the risk culture is important in the economy, and especially crucial in the banking sphere of nowadays. The right decisions on the field of risk management can level off the development of all banks and financial organisations, providing acceptable transparency of business processes. It ultimately serves a precise indicator of the stability and the absence of the reckless or fatal business decisions in the broadest concept for everybody: investors, employees and customers of the financial institution. The formation of the effective system of risk management does not seem a feasible event without the implementation of the bank's common risk corporate culture, the organization of the respective centralized departments, as well as automation of relevant processes and procedures based on the modern IT-technologies.

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