

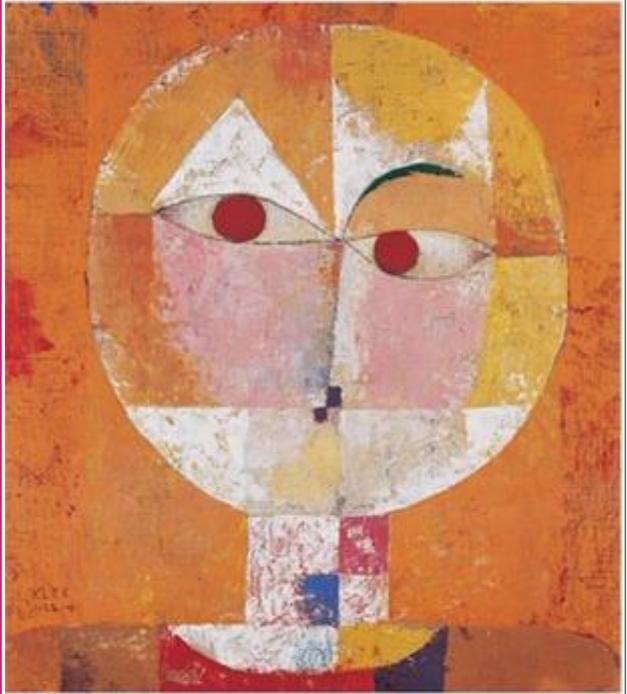
opción

Revista de Antropología, Ciencias de la Comunicación y de la Información, Filosofía,
Linguística y Semiótica, Problemas del Desarrollo, la Ciencia y la Tecnología

Año 35, 2019, Especial N°

23

Revista de Ciencias Humanas y Sociales
ISSN 1012-1537/ ISSNe: 2477-9385
Depósito Legal pp 198402ZU45



Universidad del Zulia
Facultad Experimental de Ciencias
Departamento de Ciencias Humanas
Maracaibo - Venezuela

The assessment and management of credit risk of commercial banks

Elena E. Panfilova¹

¹State University of Management, Moscow, Russian Federation

ee_panfilova@guu.ru

Viktoria V. Borisova²

²State University of Management, Moscow, Russian Federation

vv_borisova@guu.ru

Lev N. Demidov³

³Financial University under the government of the Russian Federation,
Moscow, Russian Federation

ldemidov@fa.ru

Alexander E. Ushanov⁴

⁴Financial University under the Government of the Russian Federation,
Moscow, Russian Federation

Ushanov_0656@fa.ru

Maksim S. Maramygin⁵

⁵Ural State University of Economics, Ekaterinburg, Russian Federation

maramygin_ms@usue.ru

Abstract

This paper discusses methods for assessing and managing the credit risk of commercial banks in the context of Nassim Taleb's works via comparative qualitative research methods. As a result, Taleb does not offer strategies for negative events, while emphasizing that luck is the main factor for success, and not purposeful, daily, painstaking work. In conclusion, such an approach may be possible for use in the short term, while for long periods of time it is advisable to introduce traditional methods based on the methods of mathematics and statistics into the assessment.

Keywords: Nassim Taleb, Black Swan, Credit, Risks.

La evaluación y gestión del riesgo de crédito de los bancos comerciales

Resumen

Este documento analiza métodos para evaluar y gestionar el riesgo de crédito de los bancos comerciales en el contexto de los trabajos de Nassim Taleb a través de métodos de investigación cualitativa comparativa. Como resultado, Taleb no ofrece estrategias para eventos negativos, mientras enfatiza que la suerte es el factor principal para el éxito, y no un trabajo minucioso, diario y minucioso. En conclusión, este enfoque puede ser posible a corto plazo, mientras que durante largos períodos de tiempo es aconsejable introducir métodos tradicionales basados en los métodos matemáticos y estadísticos en la evaluación.

Palabras clave: Nassim Taleb, Black Swan, Crédito, Riesgos.

1. INTRODUCTION

The history of the twentieth century, the history of unpredictable events, each of which was a shock, radically changing people's lives. In this connection, the desire of individuals, households, companies and states to have tools for forecasting, detecting statistical dependencies and being ready to comprehend correctly trends is absolutely understood. Under the conditions of constant shocks and crises, the study of the nature and scale of the impact of uncertainty on the development of the economic system is one of the most relevant to modern society. Since globalization increases uncertainty in the daily life of each individual and leaves a mark in the evolutionary development of economic systems of interstate associations.

Complications of socio-economic processes increase the instability of the economic environment and business conditions.

It should be noted that it is precisely uncertainty and its manifestations that help to distinguish the phases of economic development (PEARL, 2019). The stage of new capital accumulation (transition to the next long-term cycle) is due to the influence of uncertainty, which redistributes the balance and promotes innovation (manifesting itself in periods of instability, when the new can solve the problem of the old). However, it happens that the boundaries of cyclic changes are significantly different, so it is difficult or impossible to establish the exact duration of the cycle (TERESO ET AL, 2018).

After the economic crisis of 2008 and its global consequences, a special place in the banking sector was taken up by the adequate assessment, modeling and forecasting of credit risks in conditions of uncertainty. For international business, credit risk assessment is critical in countries where corporations face a lack or distortion of market information about business entities, unpredictable possible pressure on a business. As well as the volatile national currency, a significant proportion of non-return loans at the micro and meso levels, an unstable regulatory framework which are the factors that do not allow sovereign business planning with a time horizon of three years or more (LEIDNER AND SCHILDER, 2010).

2. LITERATURE REVIEW

The economic system of micro and macro levels is constantly struggling with risks within itself, where forecasting serves as the main instrument of counteraction. However, with the development of economic theory and the improvement of mathematical analysis methods, the following evidence is increasingly being presented. Modern forecasting in economics uses statistical methods that work only in the middle of the normal distribution and do not take into account the unlikely events in the distribution (TALEB AND PILPEL, 2007). Modern statistics do not distinguish methods of forecasting in the long and short term. Practice shows that events with a probability close to zero, still occur, and are characterized by a serious scale of consequences (TALEB AND MARTIN, 2012; SHUBINA & KULAKLI, 2019).

American economist Nassim Taleb in his books *Fooled by Randomness* and *The Black Swan: The Impact of the Highly Improbable* considers the effect of uncertainty on the evolutionary process, where an unforeseen event is called a black swan. Taleb showed that it is not necessary to predict the future as a trend of the past. Criticizing such economic forecasting, he points out that it is impossible to deny chance, but one should consider the possibility of unforeseen events. Using the methods of mathematical analysis of economic phenomena, Taleb draws conclusions using the methods of forecasting each cycle. That is, after the rise, a deep crisis recession is sure to occur. The problem is that not only the duration of the period is

unknown, but also whether the new phase is a temporary or sustained decline. The main characteristics of the black swan phenomenon should be indicated:

- This event is anomalous in its essence, because before its existence, there was no analogue to it in the past;
- This phenomenon can influence the further development of humankind or separate individuals;
- The individual is trying to provide a logical (after the fact) explanation of the unforeseen event.

Nassim Taleb developed these ideas in his subsequent research papers. He argues that it is impossible to predict the appearance of so-called black swans, any system should be sustainable in nature, and not by risk management (Taleb, 2009). The management method based on the quantitative risk model in itself causes an increase in risks, especially hidden ones. In addition, those who made mistakes should correct them. That is, bankers should be made accountable for their mistakes, and not creating a centralized planning system.

3. RESEARCH RESULTS

A modern methodology for assessing credit risks involves the use of the Gauss's law to model the distribution of risks, as well as the use of the entire statistical apparatus (correlation, regression, etc.)

(TALEB AND PILPEL, 2007). One of the main ideas put forward by Nassim Taleb is that the society and the course of historical events are influenced by extremely rare, unexpected, extraordinary incidents that cannot be foreseen, but to which one must always be ready. The author separates two types of accidents: accidents with an average probability of occurrence and insignificant influence, and accidents with near-zero probability and significant influence. Both of these cases are within the Gaussian distribution, which Taleb himself denies. The main object of criticism is the normal distribution curve (normal curve) and everything that can be connected with it - correlation, quadratic deviation, etc. (TALEB AND GOLDSTEIN, 2011).

Taleb criticizes this distribution, as it is not connected with the realities of life. Taleb's position on the Gaussian distribution as the tool that underlies any statistical study is most intransigent. He believes that the normal curve is valid only within a narrow circle of tasks that are not able to solve the problems of the modern economy, finance and investment. Relying on the curve of normal distribution in the conditions of constant uncertainty, humanity is accelerating the approach of the crisis phenomenon - the black swan. According to Taleb, to describe events in the financial and social spheres, it is necessary to use power laws of distribution. An obvious conclusion follows. In order to avoid mistakes when studying and using randomness associated with rare events, one should use tools based on the use of the power law of probability distribution.

The author proposes his means and his strategy of dealing with black swan events - using the most conservative strategy, which he calls the barbell strategy: invest 85-90% of the capital in the safest securities (treasury bills), and the rest - on extremely speculative ones, including derivatives (TALEB, 2009). In economic theory and practice, this approach is called diversification. It is widely used as a way to prevent or reduce the adverse effects of risk events. Taleb believes that the main success factor is luck, not purposeful, daily, painstaking work. He proposes profit maximization strategies by searching for events — potential black swans. However, he does not propose strategies in case of negative events. An enterprise can continue working if an entrepreneur does not consider the laws of probability and believes in a happy black swan (CIRILLO AND TALEB, 2016).

Taleb proposes a rule of decision-making: audacity, when there is the prospect of catching a black swan of success and extreme caution when there is a threat to meet the black swan of failure. It might be said that Taleb contradicts himself — since black swans are unpredictable, one should adapt to their existence, for it is impossible to foresee them. Happy occasions might be caught if using the ability to think outside the box, improvise more, ignore the laws of probability, believe in a happy event, etc. This approach is very similar to the approach typical for the so-called funky-business. At the same time, practical recommendations on how to implement these tools in order to minimize the undesirable consequences of meeting with black swans are absent. Considering the risk of running individual

enterprises, Taleb believes that mathematics is useless in the humanities sphere, both pure and applied. Considering the optimization, he argues that it is useless and meaningless. The contradiction is contained in the practical experience of Taleb, who, with all his criticism of mathematical methods in economics, achieved success in the financial sphere using these mathematical and statistical methods.

Considering the problem of managing credit risks in the context of Taleb's work, it should be noted that such black swans are very predictable. Such events occur over a short time period, after which a very long period of stabilization occurs. Over a long period of time, risk minimization approaches are used, which use mathematics and statistics methods. Risk management methods and tools have gone through a long process of development. From credit risk assessment at the nominal value of a loan to the development and application of a borrower's credit rating. Today, the following methods and tools are used. Such as survival analysis, probabilistic and statistical modeling, mathematical programming, game theory, neural networks, etc. The development of modern methods for assessing credit risk was promoted by the following trends:

- Deregulation of the financial sector, that is, a significant reduction in state intervention in the activities of banks. The abolition of many restrictions that existed previously opened up opportunities for banks to promote successfully new types of financial services to markets;

- Expansion of bank lending and the growing number of borrowers;
- An increase in losses due to the occurrence of risks on off-balance sheet operations of banks, especially on operations with derivative financial instruments;
- Expanding the range of operations related to asset securitization, that prompted banks to develop more effective credit risk assessment tools;
- The emergence of new complex models of credit risk assessment, which allowed modelling the influence of numerous factors on borrowers' default, as well as to determine the correlation links between them.

Taleb is very skeptical of various experts, assessment methods, classes of borrowers and devalues their importance. At the same time, the experts and scientists developed the mathematical apparatus and the methods of credit risk assessment that Taleb used in his successful stock exchange activities, including the diversification strategy recommended by him. Taleb in his books compares society with a turkey that is fattened for the table, while forgetting that a turkey has no freedom of choice. The action is performed on the turkey, while the person performs the action him/herself. The person consciously observes the trend, analyzes and makes a decision. The banking system needs to work out an effective system of using tools recognized

by the banking community to minimize risks, given the possibility of their transfer from the bank to investors. The regulatory framework (governing this process) might become the determining factor in the development of new tools of bank risk management.

It is extremely important for players of the banking industry to improve the existing methodological base and develop a new one for managing the credit risk of a bank by concentrating on the advantages of existing assessment methods and at the same time creating a versatile methodology for assessing the borrower's creditworthiness. At the same time, as noted earlier, the responsibility for credit risk should be divided. The credit risks should be minimized both by the bank (using management credit risk) and by the national regulator (through the correction of macroeconomic indicators). It is important for banks with structural industry risks and crisis precedents to learn from the experience of foreign banks in credit risk management as well as the experience of banks in developed countries, based on a detailed study of credit procedures and multifactorial analysis of the creditworthiness of potential borrowers.

4. DISCUSSION

The modern economic system is undergoing changes, but the rush in the implementation of projects, innovative ideas and restructuring might disrupt the elasticity of the process. As a result, there are crises and black swans that can completely redraw the global

balance. That is, every year the influence of uncertainty on the world economy grows with a geometrical progression, which is manifested in an increase in the number of large-scale black swans. This might have been expected, since the market economy denies stability. The world economic system increasingly resembles a stock exchange with a complete lack of control. However, the influence of black swans might be compensated by turning them into gray (TALEB, 2009).

Financial and credit risk is an integral component of each of the banking institutions. Absolute risk avoidance is impossible; hence, the bank's tactics and strategy should be aimed at minimizing them. A bank may reject credit risk by terminating lending, but thereby it refuses to make a profit (AVEN, 2015). Effective management of financial and credit risks is the most important task of any bank. Insurance is an effective system for reducing the impact of risks in banking. Although today, there are still some issues with the insurance of financial and credit risks. However, it gradually develops and becomes promising from year to year. This trend contributes to the reliability, stability and competitiveness of the banking system, which should positively affect the overall economic situation of the state.

On the other hand, the state cannot ignore possible macroeconomic events that are potential black swans. It is important to pursue an economic policy aimed at the development of the real sector of the economy (CIRILLO AND TALEB, 2016). Based on the above, solutions to the problems posed and reducing the effect of uncertainty on a country's economy can be proposed:

- Implementation of the updated industrial policy. There is an urgent need to create numerous enterprises for the processing of raw materials. The availability of developed processing technologies increases the potential of the processing sector of the economy (GEMAN ET AL., 2015).

- The introduction of new technologies in the industry of the national economy. For the extensive development of the economic system, it is necessary, in addition to strengthening the industry, to secure it and form a regulatory foundation for high-tech enterprises;

- Ensuring state control to protect competition, counteract the monopolization of individual industries;

- A toolkit that successfully operates in other countries, taking into account the rules of the free market. Among such tools are free industrial zones and companies responsible for attracting direct investment, as well as subsidizing primary sectors of the economy;

- Attracting investments in the development of the country's infrastructure;

- Creation of a flexible system of infrastructure development, which is based on the formation of industrial determinants for

the expansion, restructuring and replacement of the infrastructure and enterprises of the country;

- Creation of a flexible system of taxation and regulation of the labor market;

- Strengthening of the banking system (through the partial transfer of money supply to credit money, which will stabilize the system and prematurely foresee the appearance of black swans);

- Strengthening the national currency and de-dollarization of the economy.

5. CONCLUSIONS

The main part of the profitability of banks is credit operations. Hence, the effectiveness of the system of credit risk management is important. Credit risk management is the most important task of any bank, and choosing the right method of managing credit risk will increase the stability, reliability and competitiveness of the banking system, which has a positive effect on the country's overall economic situation. In the conditions of economic instability, it is necessary to study how uncertainty affects the development of the state's economic system. It will be useful to conduct further study of the effect (described by Nassim Taleb) on the economic system. As such, the

study might find a way to reduce prediction errors and achieve a lesser influence of instability as a phenomenon of the global situation.

The solution of this problem also arises before our society. As the economic system of micro, meso and macro levels are constantly exposed to various external and internal factors that allow black swans to interfere in the functioning of economic laws. Modern approaches to solving the problem of crediting require the introduction of new effective risk management principles, taking into account minimization of the risk of possible losses. Such new principles, which operate with large amounts of data and require the use of computer decision support systems. The development of such systems involves the creation and use of a variety of alternative methods for analyzing data. In addition, alternative models and relevant criteria for analyzing the quality of models as well as the result - the probability of loan default.

There are economic, mathematical, statistical and econometric methods of forecasting used by banks. In addition to listed methods, the further development of the following method is particularly promising. Such a method is based on internal credit ratings, which provides information on the loan portfolio that is comparable in time.

REFERENCES

- AVEN, T. 2015. "Implications of black swans to the foundations and practice of risk assessment and management". **Reliability Engineering & System Safety**. Vol. 134, pp. 83-91. Netherlands.

- CIRILLO, P., & TALEB, N. 2016. "Expected shortfall estimation for apparently infinite-mean models of operational risk". **Quantitative Finance**. Vol. 16, N° 10: 1485-1494. UK.
- GEMAN, D., GEMAN, H., & TALEB, N. 2015. "Tail Risk Constraints and Maximum Entropy". **Entropy**. Vol. 17, N° 6: 3724-3737. Switzerland.
- LEIDNER, J., & SCHILDER, F. 2010. **Hunting for the black swan: risk mining from text**. In Proceedings of the ACL 2010 System Demonstrations. pp. 54-59. USA.
- PEARL, M. 2019. "The (Next) Big Short and the End of the Anthropocene". **Utah Law**. Vol. 2, N° 3. USA.
- SHUBINA, I., & KULAKLI, A. 2019. "Pervasive Learning and Technology Usage for Creativity Development in Education". **International Journal of Emerging Technologies in Learning**, 14(1).
- TALEB, N. 2009. **Report on The Risks of Financial Modeling, VaR and the Economic Breakdown, Report presented on Committee on Science**. Space and Technology. p. 9. USA.
- TALEB, N., & GOLDSTEIN, D. 2011. "The Problem is Beyond Psychology: The Real World is More Random than Regression Analyses". **International Journal of Forecasting**, Forthcoming. Netherlands.
- TALEB, N., & MARTIN, G. 2012. "How to Prevent Other Financial Crises". **SAIS Review**. Vol. 32, pp. 49-60. USA.
- TALEB, N., & PILPEL, A. 2007. "Epistemology and risk management". **International Journal of Forecasting**, Forthcoming. Netherlands.
- TALEB, N., CANETTI, E., KINDA, T., LOUKOIANOVA, E., & SCHMIEDER, C. 2012. "A New Heuristic Measure of Fragility and Tail Risks: Application to Stress Testing". **IMF Working Paper**. Vol. 12, p. 216. Spain.
- TERESO, A., RIBEIRO, P., & CARDOSO, M. 2018. "An Automated Framework for the Integration between EVM and Risk Management". **Journal of Information Systems Engineering & Management**, 3(1), 03.



**UNIVERSIDAD
DEL ZULIA**

opción

Revista de Ciencias Humanas y Sociales
Año 35, Especial No. 23 (2019)

Esta revista fue editada en formato digital por el personal de la
Oficina de Publicaciones Científicas de la Facultad Experimental
de Ciencias, Universidad del Zulia.
Maracaibo - Venezuela

www.luz.edu.ve

www.serbi.luz.edu.ve

produccioncientifica.luz.edu.ve