Implementation of the Integrated System of Risk Management in the Banks of Kazakhstan

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Abstract

Background: The article substantiates the low level of effectiveness of the risk management system in the banks of the Republic of Kazakhstan. In this regard, the study was aimed at developing a model for implementation of the integrated risk management system in the banking sector of Kazakhstan in accordance with international standards. Method: To achieve the research objectives based on the structural and logical modeling the blocks of interrelated sequential processes have been formed in accordance with IDEF0 methodology for implementing an integrated risk management system in the second-tier banks of Kazakhstan. Each IDEF0 block represents a process stage of integration of the risk management system in the national banks on the basis of ISO 31000. The interface arrows between the process blocks of risk management system integration stages are justified by expertise in compliance with international standards, reflecting the functional task of each of them. Findings: The study presents a new approach to the bank security system. In contrast to the existing modern concepts of banking risk management the proposed approach allows creating a model of risk management system integration into the overall bank management system adapted for Kazakhstan national practice. The sequence of stages for implementing an integrated risk management system in the practice of banks of Kazakhstan is argued: changing the concepts of risk and management in accordance with ISO 31000, defining the risk management objectives and problems, forming the risk management system, creating the risk management process, evaluating the maturity of the risk management system, developing a plan for implementation of the integrated risk management system project. A distinctive feature of the adaptive model is to ensure the formation of a concept of integration of the in the RK second-tier banks' risk management system, which conforms to international standards. The model is based on the benefits of ISO 31000 risk management requirements and the prospects of its implementation in the security system of the national banks. It is characterized by the approach comprehensiveness, the possibility of continuous improvement, ease of use and consistency of implementation. It generates a new risk-management culture within the overall system of bank management, not limited by one component of the managerial mechanism. It causes an increase in the competitiveness of the banks and also helps to increase the level of their economic security. Improvements: The presented approach promotes structuring and consistency in decision-making on risk management in banks and can be used in the process of developing the concept of integrated risk management system in the practice of second-tier banks of Kazakhstan.

Keywords: Banks' Integrated Risk Management System, Bank Security, Kazakhstan Banking Sector, ISO 31000 Risk Management Standard

1. Introduction

The banking sector of the Republic of Kazakhstan (RK) plays a crucial role in cash flows in the state economy, providing basic prerequisites for social reproduction. It remains the leading provider for the national economy, which is proved by the level of banking assets in the country's GDP, amounting to almost half of it - 47.2% at

the beginning of 2015¹. The strategic importance of RK banking sector proves it is necessary to ensure the functional stability of the national banking system. Nowadays there is a growing threat of a systemic banking crisis, resulting from the decline in lending, lack of funding, increasing number of problem loans (at the beginning of 2015 they constituted 23.5% of assets of second-tier

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banks against exchange rate fluctuations), the instability of the macroeconomic situation¹. All this necessitates increasing risk management efficiency of the second-tier banks in terms of devising a stable national strategy in the banking system.

Today, the risk management system in the banks in Kazakhstan demonstrates low efficiency due to its weak integration into the bank management system². That led to risk management functioning as an isolated process without links to the overall system of the organization management. As a result, the introduction of risk management in the banking sector of Kazakhstan did not have a significant impact on increasing efficiency of their operations and the uncertainty threat management. In this respect, it appears necessary to develop approaches that would ensure the real integration of risk management into the overall management of the banks of Kazakhstan both at the strategic and operational levels. Since the integrated system of risk management contributes to better structuring, subordination and coordination of the activities within an organization³, it would facilitate the stability and security of the banking sector of Kazakhstan. Such an approach would increase the effectiveness of the whole system of bank management as well as risk management in particular.

2. Literature Review

Scientific inquiry for improving risk management system is one of the most relevant scientific tasks in the management of organizations. Active globalization process triggered the generation of systematic uncertainties for economic entities^{4,5}.

The origins of the risk management theory date back to the 18th century and emerged along with the paradigm of economic analysis of the classical political economy, based primarily on the works of A. Smith, A. Marshall, A. Pigou, J. Schumpeter. In 1900 - 1960 risk was already perceived as an integral part of any business done in the conditions of uncertainty. It was considered to be a result of anthropogenic (man-made) and natural factors, which is possible only at a high level of human knowledge about the world. There was a need for a systematic approach to risk management, which was thoroughly explored by J. Schumpeter. In his book "The Theory of Economic Development" he proposed a new approach to assessing the role of entrepreneurs engaged in innovation activities in the conditions of risk⁶. British scientists A. Marshall, A. Pigou and F. Knight developed the so-called "neoclassical" theory of entrepreneurial risk⁷.

The theory of strategic games by J. von Neumann and O. Morgenstern made a significant contribution into the system of risk management⁸.

One of the most important moments in the development of the risk management theory was the emergence of the concept "diversification", introduced by Harry Markowitz, who created an approach aimed at minimization of the market risks⁹.

It is believed that the origin of the integrated system of risk management as a new paradigm of the risk management theory was study "Internal Control - Integrated Framework" (ICIF) which in 1992 was written by the Committee of Sponsoring Organizations of the Treadway Commission. This document laid the foundation for a new culture and policy of organizations which implied risk awareness by the whole team¹⁰.

Today, the integrated risk management approach is developed and supported by many modern scholars¹¹⁻¹³. who are developing the theory of risk management both regarding the improvement of methodological apparatus and the specific features of its application according to the national and international standards.

Summarizing the achievements of researchers and practitioners, experience and results accumulated by them, the authors highlight the need for further research in this direction. In particular, there is a need to develop conceptual proposals and recommendations for the development of an integrated approach, the introduction of an integrated risk management system that would comply with modern international standards, which is done on the example of second-tier banks of Kazakhstan. In this regard, the study aims at designing an adaptive model of risk management integration into the banking sector of the Republic of Kazakhstan on the basis of ISO 31000 standard.

3. Methodology

Structural and functional modeling is carried out with the graphic language describing the sequence of actions¹⁴.

IDEF0 methodology is based on the system of conceptual provisions:

• A model is a simplified artificial object that represents basic functions, features and components of the

system under inquiry. The model allows describing the processes that occur in the system, relations between them and tools ensuring the system's functioning;

• Block modeling and graphical description of the processes. According to IDEF0 methodology, the modeled system is represented as blocks - a set of sequential processes in the studied system and relationships between them. The system's interaction with the external environment is described in the input that is shown on the left of the block, the output - on the right, management is above the block, and the mechanisms are represented below.

Incoming flows illustrate the resources that the system uses to perform its functions, the output is the operating result of the system, the management includes policies and procedures controlling the operation of the system, while the mechanisms are the resources needed to perform the functions of the system. In the course of management, the system converts inputs into outputs using certain tools.

- Minimalism and accuracy. Graphic simulation enables clear, precise and visual representation of the elements of the system and connections between them, as well as identification of problems in the existing structure;
- Rigidity and compliance with standards. Building a model with IDEF0 methodology requires strict adherence to formal rules that make the model unique, clear and precise;
- Iterative modeling. Developing a model according to IDEF0 methodology is an iterative procedure which involves its step by step improvement;
- Division of organizational structure and functions of the system. This prevents "linking" functions of the studied system to the existing organizational structure of the modeled object; as a result, it is possible to make recommendations for improving the existing business processes in the system¹⁴.

The structural and functional modeling methodology IDEF0 was carried out with BPwin computer simulation program.

4. Results

As the analysis shows, under modern conditions only major banks of Kazakhstan have an integrated system of risk management, while it has not found its practical application in medium-sized and small second-tier banks¹. Among 37 operating banks of the country, in 2015 an integrated risk management system was implemented in only 16% of the depository corporations, such as: JSC Kazkommerts Bank, JSC Halyk Bank of Kazakhstan, JSC BTA Bank, subsidiary bank JSC Sberbank, JSC Housing Construction Savings Bank of Kazakhstan and JSC VTB Bank Subsidiary (Kazakhstan)¹.

Meanwhile, direct experience of recent years shows that second-tier banks of Kazakhstan do not possess an effective risk management system. Over the past five years, the index of financial stability of the banking sector of Kazakhstan ranged from 1.81 to 2.75. This range of aggregated risk gives grounds to conclude on the satisfactory level of safety of the banking system (with a tendency to increasing risk) (Figure 1).

Destabilization of the economy under the influence of the global financial and economic crisis increases the risks of the second-tier banks of Kazakhstan. As a result, the current state of the loan portfolio of the second-tier banks of Kazakhstan is of a fairly low quality, which is caused by a high proportion of non-performing loans in the loan portfolio. As of 01.01.2015 the share of nonperforming loans in the banking institutions was 23.5% (Figure 2).

Despite the fact that by 2014 there is a significant decline in the share of non-performing loans compared to 2012-2013, the quality of the loan portfolio in Kazakhstan is still quite low, even in comparison with the countries of the Eurasian Economic Union. For instance, the share of non-performing loans in the banking systems of Russia and Belarus is much lower and varies in the range of $4-7\%^{15}$.



Figure 1. Dynamics of aggregate index of financial stability of RK banking sector (According to the figures of NBK, 2015)¹



Share of problem loans in the structure of the loan capital, %

Figure 2. The share of non-performing loans in the total loan portfolio of the second-tier banks of RK. (*According to the figures of the NBK, 2015*)¹



Figure 3. Dynamics of changes in the yield of the RK banking sector (*According to the figures of the NBK, 2015*)¹

Along with the deterioration of the loan portfolio quality, there is a decrease in the yield of the RK banking sector. Over the past 6 years the average growth of the net interest spread was only 5.9%, while the net interest margin has increased up to 10.8% (Figure 3).

Thus, bearing in mind the systemic risk threat, we may conclude that the modern trends of the RK banking sector development demonstrate the need for increasing the effectiveness of the risk management system.

As the experience of the financial crisis shows, decisions on the risk affect all components of the banking industry. So, it is viable to create a centralized risk management system which would provide a possibility for an instant access to information on the potential problems in real time. Therefore, such international standards as COBIT, COSO ERM, ISO 31000, ISO 27001, ISO 9000 advise on developing an integrated system for business processes and systems management, security, business continuity and its effectiveness¹⁶.

The integrated system of risk management involves taking strategic decisions that would contribute to reaching overall corporate goals of any organization. That is, the system of risk management should be built in the overall corporate strategy of the bank. The integrated risk management system should be based on constant monitoring of potential risks at each level of the management system. Aggregation of the output at the corporate level facilitates priority-setting and improves the process of decision-making, thus forming the integral comprehensive picture.

The analysis of the risk management in the secondtier banks of Kazakhstan lets us conclude that risk management in 84% of the national banks is isolated and functions without proper interaction with the bank's overall management system¹. Such an approach complicates the coordination of the overall development strategy of the bank, as it does not provide a uniform perception of risks and a unified approach to strategic planning, regarding the accepted risk. As a result, today the second-tier banks of Kazakhstan cannot compete with foreign banks and operate under the conditions of increasing threats of destabilizing factors of their financial stability.

It should be noted that in the present situation the second-tier banks, which use an integrated risk management system, rely on COSO ERM system of risk management¹⁷. However, the analysis proves this standard of the integrated risk management has a number of significant shortcomings regarding its implementation into the national practices:

- it requires transition of the management system of the whole organization to COSO standard, which is only possible for large banks;
- it has a natural practical application within financial institutions;
- it does not ensure steady improvement of the risk management system, etc.

Certainly, it is an organization to decide on adopting the integrated risk management system. But as past experience shows, the second-tier banks of Kazakhstan could increase the effectiveness of risk management if they used a universally accepted model, suitable for banks regardless of their level of capitalization. Besides, it should be perfectly clear for auditors conducting an independent evaluation; this would minimize possible misapprehensions and inaccurate presentation of the evaluation results of the risk management system integration.

Unfortunately, the standards of risk management based on the international standard ISO 31000, a common practice in many other countries, have not been adopted by the banking system of Kazakhstan. The standard provides specific schemes of the processes related to the definition, identification, assessment, management, risk control and their registration. Obviously, an integrated approach is the best solution to the problem of risk management in the second-tier banks; this would ensure their compliance with international standards and regulatory requirements of financial supervision. This approach should be based on best practices of organization management, meet the standards of corporate management, as well as it should comply with the requirements of ISO 31000. The ISO 31000 standard describes the general approach, provides principles and guidelines for the systematic, clear and reliable management of any kind of risk within any application and context¹⁸.

Given the obvious advantages of the abovementioned approach, in this study we designed an adaptive model for the implementation of an integrated risk management system into practices of the second-tier banks of Kazakhstan (Figure 4).

5. Discussion

The recognized process approach introducing an integrated risk management system in the organization according to ISO 31000 standard formed the basis for the adaptive model considered above.

The initial stage of introduction of an integrated risk management system into the management practices of the second-tier banks of Kazakhstan involves clarification of the concepts of risk and risk management. According to standard ISO 31000, based on the definition of the glossary ISO 73, 'risk' should understood as the impact of uncertainty on the implementation of the goals set¹⁹. Risk management is defined as coordinated actions for guiding and managing the bank with purpose of risk prevention¹⁹. The following definitions of the basic concepts in the integrated system of risk management should be applied not only at the level of the risk management system in the second-tier banks of RK, and but they should be used even at a global level of the organization management. It



Figure 4. Adaptive model for the implementation of an integrated risk management system into practices of the second-tier banks of Kazakhstan on the basis of the ISO 31000 process approach (*Developed on the basis of the following documents: ISO 31000 International Standard; Computer Simulation of Economic Processes; Law of the Republic of Kazakhstan No 2444, 1995; Recommendations of the Basel Committee on Banking Supervision, 2012^{14,16,18,20}.*

is the only way to create conditions for effective integration of the risk management system into the overall bank management.

The main objectives of its implementation are determined at the stage of defining the targets of the integrated risk management system of the second-tier banks in Kazakhstan. Targets of the bank's risk management systems should be formulated as objectives which are part of the management of the organization, the fundamental objectives being:

- sustainable development of the bank as part of the development strategy approved by the Supervisory Board of the bank;
- strengthening the competitive advantages of the bank through: a universal definition of the nature of risks and risk management; increasing the market value of the bank and increasing the efficiency of its capital management, increasing investment attractiveness through designing a transparent mechanism for uncertainties management.

The formulation of the main objectives of the integrated risk management system, consistent with the Development Strategy of Kazakhstan up to the year 2030 enables to determine the main directions (policies) of risk management implementation²¹. The integrated risk management system is formed on the basis of the strategic objectives.

The stage of the risk management development involves identification of internal and external threats to the stability of the second-tier banks, which allows creating the context of risk management procedure. As a methodological base we recommend using the universally accepted research methods of internal and external environment: GAP analysis, SWOT analysis, PEST analysis, Ansoff Matrix, the method of analyzing the environment profile and the method of factor weighing. The use of these methods for studying the internal and external environment will allow Kazakhstan's banks to determine both threats to their financial stability and factors of risk minimization. It enables to classify the factors of external and internal environment impact on the basis of their origin and the nature of their effect.

The stage of the risk management adoption involves the identification and aggregation of risks in the secondtier banks activities. Here, a first draft of a risk map is made which lists basic uncertainties impeding a financial institution's reaching its goals. As part of the bank's system of integrated risk management, the designed risk map is subject to constant updating depending on the identified additional risks, reassessment of certain risks, their constant monitoring.

The bank's appetite for risk is identified at this stage, and it represents a set of indicators that reflect the level of risk which allows the bank to function properly with its current yield. Practical implementation of the integrated risk management in the second-tier banks of Kazakhstan should be carried out through combined use of various methods of assessment and risk aggregation considering its specific features and the uncertainty factor. For each type of risks identified one should determine the most appropriate approach for rating the economic capital that should be based on the efficient mathematical apparatus and accurate statistical data.

When aggregating the bank risks, it is viable to use both the methods of economic capital analysis, stress testing and scenario analysis techniques since the results of stress testing of the capital and bank risks enable to determine the permissible value of the risks and planning parameters of the bank capital.

The results of identification, assessment and aggregation of risks form the basis for the risk management system in accordance with the overall system of management of the second-tier banks of Kazakhstan. This involves building the organizational structure of risk management and determining the hierarchy of functional and organizational management responsibilities within areas of their competence. For research purposes, it seems viable to define three levels of risk management in the second-tier banks of Kazakhstan. The first level is represented by the management system of the bank's overall risk, which is the responsibility of the bank directors and the Committee. The second level of risk management includes collegial bodies of the bank that set standards and limits to the current risks and the bank's capital. They implement, monitor and improve the system of risk management. The third level of risk management is formed by operating units that identify, evaluate and aggregate banking risks.

The system of risk management in the second-tier banks of Kazakhstan should be based on intertwined principles of efficient management and organization, the main among them being: collective responsibility for making decisions on risks, so-called "the three lines of defense"; the optimum combination of yield and risks; combined risk management on both centralized and decentralized levels in the bank's management system; constant modernization of the risk management system; risk-taking, a clear division of responsibilities in the risk management, etc.

According to the international standards ISO 31000:2009, when implementing the integrated risk management system into the banking practices, it seems viable to define its organizational maturity. In the proposed adaptive model this stage is implemented on the

fifth step of risk management adoption in the second-tier banks of Kazakhstan.

Organizational maturity in management is defined as a certain level of development that allows evaluating the methodology and project management processes within the organization. As a methodological approach for assessment of the management in the second-tier banks it is reasonable to use a well-known classification of stages of organizational maturity, developed by the American Institute SEI at Carnegie Mellon University²². Using this classification each organization may determine the degree of maturity of its management system. Moreover, it provides information both on the state of the risk management system and the directions for its development, if deemed necessary.

The last stage of an adaptive model is creating a plan for the implementation of an integrated management system in the work of the second-tier banks of Kazakhstan as a project. A document should be drawn that summarizes the planning outcomes of all the functions of the project management and which lays the basis for the implementation of the project and monitoring of the risk management adoption. Another procedure is creation of a realistic calendar progress chart for the risk management system implementation that includes planning the process and use of resources, building the organizational structure of the project and the rules of academic management processes. This approach helps to define and reach clear objectives, along with establishing the balance between the amount of work, time, quality, resources, and implementation risks. That is, it is possible to say that one of the key success factors for the implementation of the integrated management system in the second-tier banks is the clear predefined plan and effective change management.

The outcome of the adaptive model implementing an integrated system of risk management in the banks of Kazakhstan is the formation of the general concept of risk management. The aim of an efficient concept is not to regulate the management system: it serves as an auxiliary tool in integrating risk management into the overall bank management. Thus, banks should learn to apply the components of the concept for their own needs at every stage of the adaptive model. It should be noted that the concept of risk-management of the second-tier banks of Kazakhstan shall meet the requirements of the strategic development of the bank; implementation of the internal and external control of the organization, as well as it should comply with the recommendations of Basel II, III. Efficient approach to the integration of the risk management system of the second-tier banks should be updated according to the changes in the functional tasks proposed by governmental authorities and their requirements, along with the introduction of modern efficient instruments and methods of risk management in accordance with leading international banking practice.

6. Conclusion

Developed as a result of the study, the adaptive model of risk management integration into the overall management system represents a qualitatively new instrument for ensuring the safety of the second-tier banks of Kazakhstan. The advantage of the adaptive model, compared to existing methods, is its comprehensiveness, with room for continuous improvement, usability and detailed description of the successive stages of implementation of the integrated system of risk management in the RK banks, according to the risk management requirements of ISO 31000. The following model promotes better structure and consistency in making decisions concerning the risk management in the banks. It enables to coordinate the direction of risk management with the overall strategy of the development and operation of the second-tier banks of Kazakhstan.

The proposed adaptive model aimed at promoting the integrated system of risk management can lay the basis for improving competitiveness and enhancing the security of national banks.

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