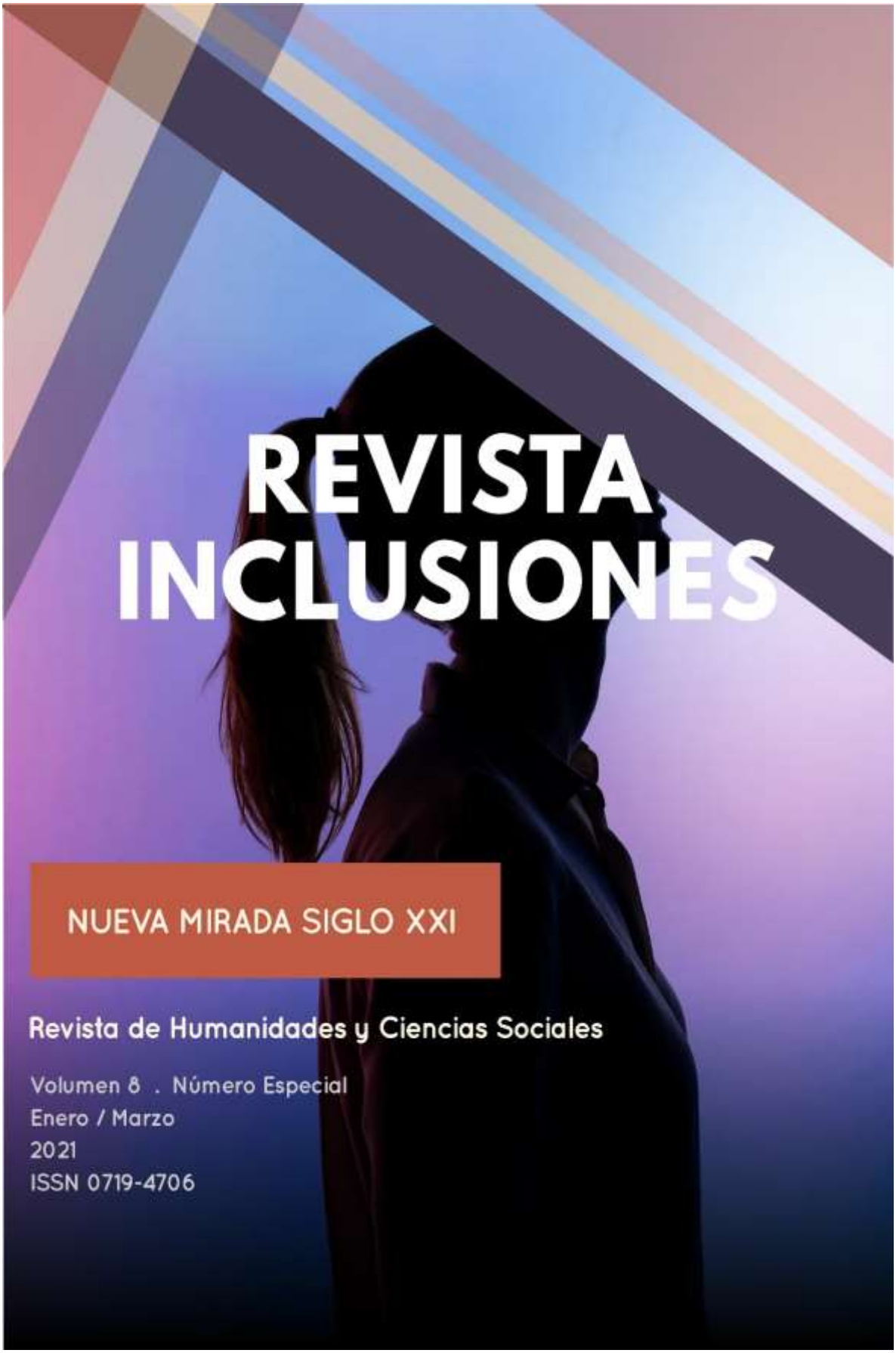

REVISTA INCLUSIONES

NUEVA MIRADA SIGLO XXI

Revista de Humanidades y Ciencias Sociales

Volumen 8 . Número Especial
Enero / Marzo
2021
ISSN 0719-4706

REVISTA
INCLUSIONES M.R.
REVISTA DE HUMANIDADES Y CIENCIAS SOCIALES

CUADERNOS DE SOFÍA
EDITORIAL

REVISTA INCLUSIONES M.R.

REVISTA DE HUMANIDADES Y CIENCIAS SOCIALES

CUADERNOS DE SOFÍA EDITORIAL

COMITÉ CIENTÍFICO INTERNACIONAL

Comité Científico Internacional de Honor

Dr. Adolfo A. Abadía
Universidad ICESI, Colombia

Dr. Carlos Antonio Aguirre Rojas
Universidad Nacional Autónoma de México, México

Dr. Martino Contu
Universidad de Sassari, Italia

Dr. Luiz Alberto David Araujo
Pontificia Universidad Católica de Sao Paulo, Brasil

Dra. Patricia Brogna
Universidad Nacional Autónoma de México, México

Dr. Horacio Capel Sáez
Universidad de Barcelona, España

Dr. Javier Carreón Guillén
Universidad Nacional Autónoma de México, México

Dr. Lancelot Cowie
Universidad West Indies, Trinidad y Tobago

Dra. Isabel Cruz Ovalle de Amenabar
Universidad de Los Andes, Chile

Dr. Rodolfo Cruz Vadillo
Universidad Popular Autónoma del Estado de Puebla, México

Dr. Adolfo Omar Cueto
Universidad Nacional de Cuyo, Argentina

Dr. Miguel Ángel de Marco
Universidad de Buenos Aires, Argentina

Dra. Emma de Ramón Acevedo
Universidad de Chile, Chile

Dr. Gerardo Echeita Sarrionandia
Universidad Autónoma de Madrid, España

Dr. Antonio Hermosa Andújar
Universidad de Sevilla, España

Dra. Patricia Galeana
Universidad Nacional Autónoma de México, México

Dra. Manuela Garau
Centro Studi Sea, Italia

Dr. Carlo Ginzburg Ginzburg
Scuola Normale Superiore de Pisa, Italia
Universidad de California Los Ángeles, Estados Unidos

Dr. Francisco Luis Girardo Gutiérrez
Instituto Tecnológico Metropolitano, Colombia

José Manuel González Freire
Universidad de Colima, México

Dra. Antonia Heredia Herrera
Universidad Internacional de Andalucía, España

Dr. Eduardo Gomes Onofre
Universidade Estadual da Paraíba, Brasil

Dr. Miguel León-Portilla
Universidad Nacional Autónoma de México, México

Dr. Miguel Ángel Mateo Saura
Instituto de Estudios Albacetenses "Don Juan Manuel", España

Dr. Carlos Tulio da Silva Medeiros
Diálogos em MERCOSUR, Brasil

+ Dr. Álvaro Márquez-Fernández
Universidad del Zulia, Venezuela

Dr. Oscar Ortega Arango
Universidad Autónoma de Yucatán, México

Dr. Antonio-Carlos Pereira Menaut
Universidad Santiago de Compostela, España

Dr. José Sergio Puig Espinosa
Dilemas Contemporáneos, México

Dra. Francesca Randazzo
Universidad Nacional Autónoma de Honduras, Honduras

Dra. Yolando Ricardo
Universidad de La Habana, Cuba

Dr. Manuel Alves da Rocha
Universidade Católica de Angola Angola

Mg. Arnaldo Rodríguez Espinoza
Universidad Estatal a Distancia, Costa Rica

REVISTA INCLUSIONES M.R.
REVISTA DE HUMANIDADES Y CIENCIAS SOCIALES

CUADERNOS DE SOFÍA EDITORIAL

REVISTA INCLUSIONES M.R.

REVISTA DE HUMANIDADES Y CIENCIAS SOCIALES

CUADERNOS DE SOFÍA EDITORIAL

Indización, Repositorios y Bases de Datos Académicas

Revista Inclusiones, se encuentra indizada en:

CATÁLOGO

BIBLIOTECA UNIVERSIDAD DE CONCEPCIÓN

REVISTA INCLUSIONES M.R.
REVISTA DE HUMANIDADES Y CIENCIAS SOCIALES

CUADERNOS DE SOFÍA EDITORIAL

ISSN 0719-4706 - Volumen 8 / Número Especial / Enero – Marzo 2021 pp. 256-274

DESIGN METHODOLOGY OF RISK-ORIENTED INTERNAL CONTROL SYSTEM OF A BANK

Ph. D. (C) T. S. Novashina
Synergy Moscow University of Industry and Finance, Russia
ORCID ID: 0000-0001-9959-7385
tnovashina@mail.ru
Ph. D. (C) V. I. Karpunin
Moscow State Institute of International Relations (University)
of the Ministry of Foreign Affairs of Russia, Russia
Synergy Moscow University of Industry and Finance, Russia
ORCID ID: 0000-0002-7947-4131
vikarpunin@mail.ru
Lic. Yu. S. Efremova
Independent Analyst, Russia
ORCID ID: 0000-0002-8720-4852
juliasefremova@yandex.ru

Fecha de Recepción: 11 de octubre de 2020 – **Fecha Revisión**: 25 de octubre de 2020

Fecha de Aceptación: 19 de diciembre de 2020 – **Fecha de Publicación**: 01 de enero de 2021

Abstract

The article is devoted to a fundamentally new concept of the methodology for building the system of risk-oriented internal control in a bank. The authors use *the system paradigm* as the basic and key principle of the methodology for designing and building the bank's internal control system. The bank is viewed as a complexly organized socio-economic system, consisting of structural components – that is, functional subsystems of the bank, forming a new quality in their integrated unity - a deposit and credit institution. The second key component of the applied methodology is the principle of the *system-functional organization,* based on the understanding that each institutional component of the system - the internal structural and functional divisions of the bank (divisions, departments, management) when designed should be endowed with a necessary and sufficient set of specific functions. The third key component of the applied methodology is the principle and a special system requirement: the bank's internal control system is designed to perform a key function of *providing feedback* in the system. The presence of the feedback in a system of any type is a necessary condition for the existence of this system.

Keywords

Bank as a designed system – System paradigm – Internal control system – Functional concept

Para Citar este Artículo:

Novashina, T. S.; Karpunin, V. I. y Efremova, Yu, S. Design methodology of risk-oriented internal control system of a bank. Revista Inclusiones Vol: 8 num Especial (2021): 256-274.

Introduction

System Paradigm

The use of system paradigm and methodology of system-functional analysis in disclosing the content of general scientific concept of "system", that is, the analysis based on various interpretations of this phenomenon, historically developed in the theory, allows us to conclude that socio-economic "systems" are systems, which are complexly arranged and not amenable to precise and detailed description. However, at the same time they represent the set of well-defined *components*.

The system, as the set of components, means:

- firstly, the set of components, which stably interact *with each other*;

- secondly, the set of components, stably interacting as a system unity, as a whole, with the *external environment*;

- thirdly, the system, as the set of components, acquires new characteristics, which are absent in each of the system's components separately – the so called *emergent* properties of the system;

- fourthly, a *designing system* created to achieve initially set and well-defined goals;

- fifthly, the set of components endowed with initially given and well-defined and *designed functions*;

- sixthly, a functioning system is subject to evolutionary *transformation* both in the composition of components and in the set of functions inherent in these components;

- seventhly, in its essence, each specific system is *invariant*, i.e. the system is unambiguously characterized and distinguished from other systems by key features (structural elements, basic functions) that do not change significantly over the entire horizon of the system's life cycle. This allows a specific system to exist in physical parameters of space and time in accordance with its mission.

From the point of view of the system approach, a bank is a stable in time and space, open and non-deterministic socio-economic system (organizational and economic institution). Let us reveal the meaning of the bank as a system according to a number of key *criteria*.

- *Bank as a designed system*. A bank, as a financial and credit institution, is designed and created by a person (the form of ownership and organizational and legal form is not of fundamental importance) for achievement of predetermined goals (private and public) and for the implementation of public needs (redistribution of monetary resources in the form of market money trading). When designed, this institution is provided with certain *functions*, and, in the course of the bank's operation, the functions specified in the design of the bank can be subject to *transformation* both in their type and content.

- *Bank as a complex, multilevel socio-economic system*. The bank, as a financial and credit institution, performs various functions; has a complex multi-level, vertical-linear organizational structure with clearly defined *functional units*; centralized and strictly hierarchical management, *functional and administrative subordination among levels of the hierarchy*; it has a significant number of personnel performing, in its entirety, certain functions prescribed to the system, which has its own private interests, but its behavior depends on the management. Components of the bank, as a system, are organizational and functional units (with *personnel*, which possesses necessary professional competencies) actively interact with each other and external environment (*the system of industrial relations*).

- *Bank as an organizational and economic system.* The bank, as a financial and credit institution, participates in economic processes of *distribution and redistribution of monetary resources*, thereby predetermining the *scale* and *speed of economic processes* in national economy.

- *Bank as an open system*. The bank, as a financial and credit institution, interacts with the external environment (with government regulators - as the system of legal and organizational relations; with market (market mechanism) - as the system of economic, legal and organizational relations; with counterparties and other subjects of economic, legal, scientific and social environment) with the aim of *information exchange, obtainment of resources* (primarily monetary ones) and *providing services* (sale of products, services and carrying out specific operations) in order to achieve other goals of its existence.

- *Bank as a non-deterministic system*. The bank, as a financial and credit institution, has a high degree of uncertainty connected with the outcome of its financial performance, and, consequently, its performance in general. *Banking risk* (the most significant of all banking risks are credit, liquidity and operational ones), being a situational characteristic of performance (here we especially emphasize, - of *human performance*), reflects the uncertainty of its outcome and possible *unfavorable (or favorable) consequences* in case of failure (or success). The management and, first of all, risk minimization, perform as, based on the concept of general management of socio-economic systems, an irrefutable *condition for ensuring the sustainable functioning of the bank as a system.*

- *Bank as an integrated mega-system*. The bank, being a financial and credit institution, integrates, unites and mediates, which is reflected in the forms of its existence, various types of economic systems: object systems (objects), environmental systems (environments), process systems (processes) and design systems (projects/events). At the same time, occurring *emergent properties of the bank as an integrated system,* predetermine, in case of *sufficient functionality* of each of subsystems' types, identified and presented by us, *the potential for sustainable functioning of the bank* as a mega-system.

Designing and creation of steadily functioning socio-economic systems, in general, and financial and credit institutions, with their internal rational structure, in particular, is a *complex* and *responsible* process. *Complexity* of the design process assumes the presence and use of an appropriate methodology that allows to optimally solve the assigned design tasks - the creation of institutions, which are stable over time, possess changing parameters and are exposed to a variety of destabilizing factors (external and internal). At this point, the dialectic of *theory and practice* arises. The dialectic of abstract thinking and purposeful practical human activity.

As a result, deep understanding and awareness of the consequences of taken design decisions, based on the essence of things and accumulated experience, are created.

Responsibility for taken and implemented design decisions on the creation of financial and credit institutions, and for forms of its necessary and sufficient implementation, is due to possible serious negative failures in their (financial and credit institutions) functioning as a result of incorrect, erroneous, incompetent, and sometimes deliberately false both design and management decisions.

This responsibility assumes sufficient financial solvency and necessary efficiency, first of all, of these institutions' owners. The owners must ensure its financial stability, especially in the event of serious functional failures and serious threats to the bank's performance. Thereby, as a tool for ensuring system stability, banking regulators, in due time, introduced into the structure and practice of the Board of Directors (Supervisory Board) of the bank the institution of internal audit, that is, a function staffed by highly professional specialists with significant experience in internal control system of the bank, and placed under the responsibility of only this management body (the Board of Directors (Supervisory Board)) of the bank.

This responsibility assumes the necessary and sufficient level of professional competence of the bank's top management. This responsibility also assumes the necessary and sufficient level of professional competence of the bank's line management. Besides, this responsibility assumes ensuring the proper quality of the bank functions and divisions' performance, the formation and proper implementation, consequently, of an adequate personnel policy that fully meets set strategic and tactical goals: selection, training and motivation of personnel, as well as the optimization of internal corporate communications. Both owners and management of the bank should jointly share this responsibility, taking into account all the consequences arising from the principle of joint responsibility. The quality of personnel potential and personnel stability are necessary conditions for ensuring the stable performance of the bank. In all these *relations* dominate interconnections generated by the dialectic of *necessary* and *sufficient*.

Applied Methodology

Working hypothesis

Authors proceed from the understanding of a credit institution (bank) as a complexly organized socio-economic system, which is an organic unity of four types of subsystems: *object, process, environmental and design.* In addition, the authors believe that internal functional subsystems of the bank, as independent components of the system of a higher hierarchic level, that is the bank as a system, including, inter alia, internal control system[1], are similar in their internal architecture to the system of the bank as such. This means that *internal control system*, as a functionally integral subsystem of the bank, performing the key function of providing "feedback" in a system of a higher order and a higher level of hierarchy, has the similar architecture of its internal structure: that is, the organic unity of four types of subsystems - *object, process, environmental and design.*

[1] Iu. S. Efremova, "Organization of monitoring, internal control and audit system in the bank" (Moscow, 2018).

In this regard, in the context of our research, it is necessary to draw attention to an extremely important circumstance of methodological type. In regulatory documents of central banks, banking supervisory bodies and in official state standards, an identification of concepts "internal control *system*" and "internal *control*" can be noticed. This identification is often present in documents not in a direct explicit form, but in the essence of things, in concepts disclosed in these documents. Substantially, this identification is carried out through the concept of "process" as an action[2].

The very concept of a system is also blurred. For example, in the national standard of the Russian Federation “Risk Management. Principles and Guidelines "- that is, an identical analogue of the international standard "Risk management. Principles and guidelines”[3], the authors, integrating essential elements of the “system ” into a single term, use (apply) a different concept – that is, the notion of “architecture”. This is how a logical and meaningful terminological inconsistency has arisen and steadily exists, which prevents a clear understanding of the system paradigm and designing of internal control system in accordance with this methodology.

From our perspective, the notion of “process” (a key characteristic of “control”[4] notion) is an immutable element of the “control system’s” internal architecture, which, in

[2] GOST R 51897-2011. Risk management. Terms and Definitions. Official Edition. Moscow. 2019. Retrieved from: http://docs.cntd.ru/document/gost-r-51897-2011; GOST R ISO 31000-2010. Risk management. Principles and Guidelines. Official Edition. Moscow. 2019. Retrieved from: http://docs.cntd.ru/document/1200089640; Letter of the Central Bank of Russia as No. 87-T “On Recommendations of the Basel Committee on Banking Supervision”. July 10, 2007. Retrieved from: http://www.consultant.ru/document/cons_doc_LAW_32567/; Enterprise Risk Management (ERM). Integrating with Strategy and Performance. COSO, 2017. Retrieved from: https://www.coso.org/Documents/2017-COSO-ERM-Integrating-with-Strategy-and-Performance-Executive-Summary.pdf; Framework for the Evaluation of Internal Control Systems Basel Committee on Banking Supervision Paper. Basel Committee on Banking Supervision. 1998. Retrieved from: https://www.bis.org/publ/bcbs33.pdf; Guidance on the 8th EU Company Law Directive Article 41. FERMA and ECIIA. 2010. Retrieved from: http://www.ferma.eu/app/uploads/2011/09/eciia-ferma-guidance-on-the-8th-eu-company-law-directive.pdf; Internal Control Integrated Framework. COSO. 2013. Retrieved from: http://www.coso.org/documents/internalcontrol-integratedframework.pdf; Internal Control Systems of Credit Institutions. European Monetary Institute, 1997. Retrieved from: https://www.ecb.europa.eu/ecb/access_to_documents/document/emi_pubaccess/shared/data/ecb.dr.paremi2007_06_report.en.pdf y The IIA’s Three Lines Model. An Update of the Three Lines of Defense. The Institute of Internal Auditors (IAA). 2020. Retrieved from: https://global.theiia.org/about/about-internal-auditing/Public%20Documents/Three-Lines-Model-Updated.pdf

[3] ISO Guide 73:2009: Risk management - Vocabulary - Guidelines for use in standards. International Organization for Standardization (ISO). 2009. Retrieved from: https://www.iso.org/standard/44651.html; ISO 31000 – 2009: Risk management — Principles and guidelines. International Organization for Standardization (ISO). 2009. Retrieved from: https://www.iso.org/ru/standard/43170.html; ISO 31000 – 2018: Risk management – Guidelines. International Organization for Standardization (ISO). 2018. Retrieved from: https://www.iso.org/ru/standard/65694.html y Actual Risk-Management Issues: 1st Edition. PriceWaterhouseCoopers. 2017. Retrieved from: https://docplayer.ru/80885437-Aktualnye-voprosy-risk-menedzhmenta.html

[4] Informational Letter of the Central Bank of Russia No. IN-06-28/143 “On recommendations for organizing risk management, internal control, internal audit, and the work of the audit committee of the board of directors (supervisory board) in public joint-stock companies. October 1, 2020. Retrieved from: http://www.consultant.ru/document/cons_doc_LAW_364286/ y Annex to the Letter of the Central Bank of Russia No. IN-06-28/143. October 1, 2020. Retrieved from:

addition to the "process" subsystem, should also include "object", "environmental" and "design" subsystems.

Thereby, the authors separate notions of "internal *control system*" and "internal *control*" as "general" and "particular", existing within the framework of system paradigm as a dialectical unity: the system of a higher order, and its internal attribute, the component of this system - "process" subsystem.

Based on the system paradigm, "*internal control system*" is considered as an internal functional subsystem of the bank, designed to ensure the implementation of a key function inherent in any system (including socio-economic), namely, *the "feedback" function*. The presence of feedback in the system (regardless of the type of systems - biological, chemical, socio-economic, etc.) is a prerequisite that allows *the management body* of the system *to track the correctness of execution of commands on implementation of functions assigned to the system*, and thereby to ensure *the stability of the system* as such.

This implies a very important synthetic judgment: the main target function of internal control system is to ensure *the stability of the system* as such.

Synthetic judgment is an important logical tool introduced into the field of abstract scientific thinking by the German philosopher, the founder of German classical philosophy, I. Kant (Immanuel Kant, 1724-1804) [5]. I. Kant assumed that both "a priori" and "a posteriori" synthetic judgments, which are judgments that "expand knowledge", bringing something new about the object of research, are possible.

Therefore, when characterizing the quality of internal control system's functioning, the *"optimality"* but not its *"effectiveness"* in any way should be determined (evaluated). This becomes especially important, since, in addition to the task of *estimating the effectiveness* of internal control system, it has steadily moved from the sphere of banking supervision to the sphere of personnel policy, to the sphere of *standardization* of professional performance, to the sphere of *standardizing* training requirements for highly qualified personnel of internal control functions in banks[6]. Making the statement about the "optimality", and comprehending this phenomenon, we inevitably encounter a *systemic logical contradiction* in methodology for assessing the effectiveness of internal control system's functioning. On the one hand, it is the "effectiveness" (the pole of contradiction) as an estimation criterion; on the other hand, it is the "optimality" (the pole of contradiction) as an estimation criterion. Undoubtedly, the development (stable existence) of a contradiction inevitably leads to the dominance of one of the poles of contradiction and, consequently, to vanishing (or leveling) of the other. In other words, these criteria for an essential assessment of internal control system's functioning are incompatible.

http://www.consultant.ru/document/cons_doc_LAW_364286/483563f4293d541b23758725089281e092f851f7/

[5] I. Kant, Criticism of Pure Reason (Moscow: Eksmo, 2018).

[6] Professional standard "Risk Management Specialist" (Moscow: Ministry of Labor and Social Development of the Russian Federation, 2018) Retrieved from: https://profstandart.rosmintrud.ru/obshchiy-informatsionnyy-blok/natsionalnyy-reestr-professionalnykh-standartov/reestr-trudovyh-funkcij/index.php?ELEMENT_ID=75562&CODE=75562

In a logical contradiction, the completion comes inevitably: that is, intellectual victory, the triumph of one of the sides in conceptual or epistolary forms. With the development of *socio-economic contradictions* that are present in real socio-economic process, the resolution of the contradiction leads to much more serious and sometimes dramatic consequences. Since this is the sphere of real production and socio-economic relations among people, the sphere of collision and struggle of their vital interests.

If we discuss the real sphere of the bank's and banking system's functioning, then the methodology and criteria-based estimation of internal control system as the form of ensuring the stability of these systems and false direction in criteria for the system's evaluation ultimately leads to a significant management *imbalance* between *the necessity* and *the opportunity*. The stability of the economic system is significantly reduced, possibly up to a critical, catastrophic level for the system[7].

In this regard, we believe, it is necessary to present our vision of the existence of *contradiction* "effectiveness" - "optimality" in the sphere of banks' and banking system's as a whole functioning more reasonably.

One of the key components of the methodology we apply, as we have already mentioned, is the principle and a special system requirement: that is, the bank's internal control system is designed to perform a key function of *providing feedback in the system*. The existence of feedback in a system of any type is a necessary condition for the existence (functioning) of this system. This requirement especially applies to human-designed artificial socio-economic systems.

Adequate (reasonable) performance of this function ensures for the system, as such, the stability of its existence (functioning) over time.

Optimal performance of the feedback function by the bank's internal control system is the dominant *quality characteristic* of this system.

Conceptually, the principle of optimal implementation of the function, designed to ensure the integral stability of the system, *contradicts* the widely used and deeply rooted in regulatory documents of central banks and banking supervisory authorities' vision (statement) on the need to unconditionally ensure the *effectiveness* of internal control *system*[8]. The notion of "effectiveness" (the ratio of the effect and costs that led to its achievement) can and should be inherent in the economic system (an economic institution), which uses the combination of economic resources to produce the variety of vital benefits necessary for a person. The notion of "effectiveness", introduced into scientific and practical

[7] Professional standard "Risk Management Specialist"…

[8] Letter of the Central Bank of Russia as No. 87-T…; Informational Letter of the Central Bank of Russia No. IN-06-28/143…; Annex to the Letter of the Central Bank of Russia No. IN-06-28/143… http://www.consultant.ru/document/cons_doc_LAW_364286/483563f4293d541b23758725089281e092f851f7/; Framework for Internal Control Systems in Banking Organizations. Basel Committee on Banking Supervision. 1998. Retrieved from: http://www.bis.org/publ/bcbs40.htm; Guidance on the 8th EU Company Law Directive Article 41…; Internal Control Integrated Framework. COSO. 1992. Retrieved from: https://www.coso.org/Pages/ic.aspx; Internal Control Systems of Credit Institutions… https://www.ecb.europa.eu/ecb/access_to_documents/document/emi_pubaccess/shared/data/ecb.dr.paremi2007_06_report.en.pdf y The IIA's Three Lines Model…

use, is intended to characterize the degree of economic use (application, consumption) of these resources in market environment. As it is known, in economic estimation of economic activity's effectiveness *a financial indicator* is widely used - *a coefficient*. The coefficient is a ratio of two (or more) parameters, represented by a mathematical notation in the form of a fraction that forms the field of real numbers. Thereby, the "coefficient", by its mathematical nature, as the expression of a relative value, is devoid of any economic dimension, and therefore exists in the form of *dimensionless* mathematical record.

The use of *value form of economic resources* (monetary value) for calculating "effectiveness" indicators, including, paradoxically and absurdly, one of the main types of economic resources - *time*, does not allow, *by its essence and nature*, to apply this methodological approach to estimation of *the feedback function*.

Either this methodological approach is not applicable for assessing the outcome of *internal control system's* functioning, or for assessing the degree of implementation of the feedback *function's* providing in mega-system (the bank as an integrated mega-system).

Revealing the state of things in the sphere of characterizing the quality of internal control system's functioning, we have encountered a phenomenon that can only be defined as the *contradiction* between the logical and the factual.

Speaking about optimality, authors of the article rely upon the understanding of this category by G. Leibniz (*Gottfried Wilhelm von Leibniz, 1646-1716*)[9].

This fact raises a number of questions, which are far from being rhetorical. Why optimality? Why G. Leibniz? How to understand *the contradiction* between the logical and the factual? The quintessence of human being in the world around us is that optimality is one of the universal principles of human being, originally identified and described by G. Leibniz. The optimality of this world, as a sufficient basis for its existence, means the optimality of relationships among the variety of existing things. It is generally accepted that Leibniz is a genius. The genius of Leibniz is not inferior to the genius of Newton, either in scale or in the value of what he did, and sometimes even surpasses it. G. Leibniz and I. Newton are not only contemporaries, but also irreconcilable opponents. Their uncompromising opposition on the authorship of the discovery of integral and differential calculus is known in the history of science. However, we are interested in other things.

The most important principle of *the methodology* proposed by Leibniz was the principle of universality. *The presence of experience-independent "a priori" principles of human being:*

• *The law of contradiction* (the consistency of every possible or imaginable human being).

• *The law of sufficient reason* ("Not a single phenomenon can be true or valid, and not a single statement is fair without a sufficient reason why this is true and not otherwise ...").

[9] V. I. Karpunin, "Phenomenology of global systemic contradiction", Academy Vestnik, num 2 (2017): 35 - 44. Available at: http://www.vestnik-mosap.ru/archive/2017/2/vestnik_2-2017.pdf

• Logical superiority of *the possible* over *the actual*.

• *Optimality* (perfection) of the given world as a sufficient basis for its existence.

Considering the principle of optimality as a qualitative characteristic (estimation) of internal control system's functioning, several important and necessary explanations should be given.

First. The optimal solution (from the Latin *optimus* – "the best") is *the best solution*. This is the solution that is preferable for one reason or another.

Second. The optimal solution assumes the presence of *an optimality criterion*. The optimality criterion underlies the variety of estimations: estimating the implementation degree of taken decision, estimating the degree of feasibility of system functions, estimating the level and parameters of dynamic processes, estimating the quality of structural components of various systems' functioning, thus *the degree of maximum meeting* the set requirements is estimated.

Third. When solving one problem, it is desirable (must-do) to set *several criteria of optimality*. Using only one criterion can lead to absurd results outside the range of acceptable values.

Fourth. Optimization involves *consideration of all solutions* that fall within the range of acceptable parameter values. Solutions that do not include the estimation of all possible options are usually called "rational" solutions.

Fifth. The correct choice of criteria is essential in choosing the optimal solution. *The decision-taking theory* deals with the selection of criteria.

Historical notes

In the context of our reasoning, and as a historical illustration, let us provide an outwardly very insignificant, but substantively very significant fact - that is, the state order of the Government of the Russian Federation for development and the development itself of the "ideology" of the state corporation "Bank for Development and Foreign Economic Affairs" (Vneshekonombank ("VEB.RF")), which in due course has been developed by the group of armchair scientists of one of the prestigious Russian universities. The point is not in the fact of the state order for "scientific research", because this fact itself is quite a banal phenomenon: that is, the state order for taxpayers' money for needs of the state development corporation. But in the incompetence, and therefore, in professional inconsistency of its "developers", who proposed a "new philosophy" of Vneshekonombank's performance. New philosophy of the bank was partially embodied in the Federal Law as of May 17, 2007 "On the bank of development" no. 82-FZ[10]. The systemic flaw in the functioning of the bank was originally laid down by this concept and was embodied, in particular, in clause 3 of article 3 of the legislative act: "In order to achieve goals of its performance, Vneshekonombank carries out the following main functions:…".

[10] Federal Law "On the State Development Corporation "VEB.RF" as of May 17, 2007 No. 82-FZ.

In the law 22 "main functions" were listed, in particular: "… [the bank] finances investment projects for infrastructure development ... including in the form of participation in the capital of commercial organizations", "acquires shares (stocks, share of stocks) in the authorized capital of business entities", "issues guarantees for third parties to legal entities...", "participates in financial support of small and medium entrepreneurships...", “carries out leasing operations” (!).

The proposed concept, with the set of vague, and sometimes questionable functions, has failed the test of time. By the year 2015, the financial position of Vneshekonombank had deteriorated to such an extent that, in order to improve the situation, extraordinary measures from the Russian Government were required. The fact is widely known. The government considered several options for reorganizing the financial institution, even up to its closure. But, thanks to "titanic" efforts of the Government of the Russian Federation and very significant financial injections, the state corporation was saved from bankruptcy. It took very significant investment of time, that is, several years of reorganization and significant efforts to optimize the operation of the entire corporation in order to restore its viability. For example, in order to carry out the optimization of labor costs (the role of bank employees is to perform functions assigned to a financial institution), 5,000 of the 8,000 employees registered in the payroll table were laid off.

According to the point of view expressed officially and formed in modern times, "VEB.RF" calculates its history today from the Russian Commercial Bank, founded on August 18, 1922. In our opinion, this point of view is controversial and not justified. It is true that during the time of the beginning of the New Economic Policy of Soviet Russia (NEP), proclaimed by the Government of Vl. Ulyanov-Lenin, joint-stock "Russian Commercial Bank" ("RKB") was created in Soviet Russia in Moscow. The Bank's charter was approved on October 19, 1922. The Bank began to carry out operations on December 12, 1922. The Bank was organized as a concession by Swedish banker of Jewish origin Olof Aschberg (1877-1960), the head of Stockholm bank Nya Banken. Olof Aschberg especially distinguished himself before the Bolshevik government by his participation in so called "locomotive speculation". It was unprecedented in its scale and naive cynicism speculation on exporting gold (about 200 million gold rubles) from Russia to Sweden (1920). The deal was listed in government documents under the heading "top secret", "printed in one copy"[11].

“Russian Commercial Bank” was created exclusively on the basis of private foreign capital, in fact, with money of American banker John Pierpont "Jack" Morgan (1867-1943), under the far-reaching plans of J.P. Morgan in relation to Russia. It is known that J.P. Morgan played a prominent role in financing the Great War (the World War I). After the World War I and the Versailles Treaty, “Morgan Guaranty” managed German compensation payments. By the year 1920, “Guaranty” had become one of the most important institutions in banking world as Germany's leading lender. J.P. Morgan did much to fund Italian dictator Benito Mussolini right down to the start of the World War II. However, in connection with a radical change in internal and, primarily, in financial policy of the USSR[12], "RKB" was nationalized on July 4, 1924, transferred to the jurisdiction of the People's Commissariat of Foreign Trade and transformed into the "Bank for Foreign Trade of the USSR". At the same time, it is important to keep in mind what represented the Russian Commercial Bank in operational terms at that time.

[11] A. A. Igolkin, “Lenin People's Commissar: at the origins of Soviet corruption”, 2004.
[12] Resolution of the Central Executive Committee and the Council of People's Commissars of the USSR "On the issue of state treasury notes". April 5, 1924

RKB credits to export-import organizations as on April 1, 1924, i.e. by the time of its nationalization (it was not economic, but political decision), accounted for only 17% of the bank's loan portfolio. From May 1924 until the year 1961, the bank carried out mainly *settlement operations on non-trade payments of Soviet state and public organizations*. Only starting January 1, 1961, functions of the bank changed significantly. It was assigned functions of *foreign trade lending*, conducting operations on *international settlements*, and it was allowed to conduct certain foreign exchange transactions (the monopoly right to conduct foreign exchange transactions was the prerogative of the State Bank of the USSR (transformed from the State Bank of the RSFSR in 1923)). By this time, specialized state banks for foreign trade lending had been existing for many years and successfully operating in a number of countries with developed economies, for example, in the United States and Japan. In the United States it was the government institution *"Export-Import Bank of the USA"* (Ex-Im Bank). Its key goal was to support national exporters[13]. In Japan it was the Export-Import Bank of Japan (JEXIM). The Export-Import Bank of Japan and the International Economic Cooperation Fund (OECF), due to significant duplication of functions, were merged in 1999 into the Japan Bank for International Cooperation (JBIC)[14].

The key motive for transformation and the leading factor in *transforming the form and matter* of any banking institution (as an economic system) when changing its *goals*, and above all, *understanding the mission*, should be a *functional* approach. The transformation should be based on the development of a functional concept. Describing above the content of the bank as a system according to a number of key criteria, we especially noted the need for sufficient functional content, which consists in the development and implementation of *a functional concept*. French state bank *"Caisse de Dépôts & Consignations"* shows us an amazing example of the *historical stability of a functional concept* (the set of key functions performed by an institution).

The bank was founded in 1816 by King Louis XVIII and still carries out its mission, successfully implements its key functions, and performs as one of the state's financial policy guides.

System-functional Methodology

The system paradigm, as a scientific concept for the study of economic systems, assumes the presence of a methodology that allows to adequately describe design solutions. We assume that the system-functional method, successfully applied in the field of scientific research, may serve as such a methodology. Why do we use this exact method when designing risk-oriented internal control system of a bank?

Internal control system of the bank as its *functional* subsystem, performs a key system *function* - the *feedback function*. Only the presence of feedback can potentially provide the system with its *system stability*. These are the principles of system stability. The presence of feedback is a necessary (!) condition, but not sufficient. The sufficiency conditions are fulfilled by other functional components of the system. Above all, these are systems of general and functional management.

[13] Japan Bank for International Cooperation. Retrieved from: http://www.jbic.go.jp/english/base/
[14] Export-Import Bank of the United States official website. Available at: https://www.exim.gov/

For the first time the concept of system paradigm in relation to the field of economic

research was considered in works of the Hungarian economist, mathematician, professor at Harvard University and the President of the International Economic Association (2002-2005) Janos Kornai (in Hungarian -Kornai János; born 1928)[15].

One of the adherents of the system paradigm, Deputy Director of the Central Economic and Mathematical Institute of the Russian Academy of Sciences, Professor G.B. Kleiner[16] considers the economy as "the set (population) of socio-economic systems - economic entities / phenomena isolated in time and space, possessing properties of relative integrity and stability." Under the system, most researchers understand "a relatively *stable* in space and time integral part of the surrounding world, separated from it by spatial or *functional* characteristics" (the text *in italics* is ours)[17], while G.B. Kleiner identifies four basic types of economic systems - objects, environments, processes and projects (events), which "... differ depending on the degree of certainty of location of their space-time boundaries"[18].

Let us characterize each of the four types of socio-economic systems by structural and space-time criteria.

Objects are characterized by certainty in space, but indefinite duration in time.

Processes are characterized by uncertainty in space, but a certain duration in time.

Environments are characterized by uncertainty in both space and time.

Projects are characterized by certainty both in space and in time[19].

Based on the system-functional methodology, developing the theory of system paradigm of economic systems, the authors introduce into scientific circulation the key *functions* of each of the four types of socio-economic systems.

The function of object systems is to organize heterogeneous elements into a single whole.

The function of environmental systems is communication and coordination, creating conditions for exchange (economic resources, information) among various components of economic systems.

The function of process systems is to harmonize the activity and state of economic systems.

The function of event (design) systems is an innovative transformation of economic systems[20].

---

[15] I. Kornai, “System Paradigm”, Voprosy ekonomiki num 4 (2002): 4-22.
[16] G. B. Kleiner, M.A. Rybachuk, System balance of the economy (Moscow, 2017).
[17] G. B. Kleiner, System paradigm in economic research: a new approach. Proccidings of the Eighth Scientific Conference (Moscow, 2007), 3.
[18] G. B. Kleiner, System paradigm in economic research… 6-7.
[19] G. B. Kleiner, System paradigm in economic research… 5.
[20] V. I. Karpunin y T. S. Novashina, On the mechanism of deployment of the global system contradiction "creditors" - "debtors". Senchagov’s readings. Economic security of Russia: methods of assessment and management: Materials of the International Research Conference (Moscow:

At the same time, the authors express an important, from their point of view, position, a hypothesis, that *the functional content* of all four types of economic systems, i.e. the design and subsequent implementation of *the designed functions*, taking into account peculiarities of the individual, pair and group interaction of components/subsystems of all types of economic systems, actually constitutes the process of *economics functioning*[21]. In other words, high-performance, full-scale and effective functioning of national economy in accordance with set strategic goals, adopted national programs and approved plans is possible only with functional and content filling of all four types of economic systems, ensuring the interaction of these systems with the help of organizational and financial mechanisms.

This statement can be fully applied to a banking institution as an organizational and economic system. Financial and credit institutions, banks are created as legal entities, mainly in organizational and legal form of a joint stock company. Organizational and functional structure of banks include various internal divisions that perform diverse functions: main (basic) and auxiliary, key (from the point of view of ensuring the performance of the bank) and secondary, inalienable (inseparable) and transferred to other legal entities (subsidiaries and dependent companies, outsourcing).

Financial and credit institutions integrate departments, employees and clients. This is the sign of belonging to *the object type* of systems.

Financial and credit institutions have a developed management system, design and demonstrate corporate culture, form institutional and information environment, interact in business processes with external and internal counterparties - financial, legal, managerial, consulting, and other market and public institutions. They interact with internal divisions according to certain regulations and procedures. This is the sign of their belonging to *the environment type* of systems.

Financial and credit institutions participate in external and internal information exchange, organize their activities in accordance with national and international regulations, in accordance with internal regulatory documents, develop legal documents and consummate transactions with participants in financial and other markets. This is the sign of belonging to *the process type* of systems.

Financial and credit institutions carry out the formation of corporate and other substantive strategies (financial, personnel, structural, etc.). Financial and credit institutions are subject to restructuring, rebranding and adapting innovative technologies. This is the sign of belonging to *the design type* of systems. Financial and credit institutions mediate in their activities all four types of systems. These subsystems can *function with varying degrees of capacity.* To carry out their activities, banks must have, and, actually, do have, a certain level and margin of stability and acceptable efficiency.

Institute of Economics of the Russian Academy of Sciences, 2019) y V. I. Karpunin y T. S. Novashina, Genesis of the global systemic contradiction of modern era: about mechanisms of ensuring the national security of Russia (Tambov, 2020).

[21] V. I. Karpunin y T. S. Novashina, On the mechanism of deployment of the global system contradiction…

Instead of conclusion

The main subject and the main topic of our research is the *methodology for designing the system* of risk-oriented internal control of a credit institution. In the Russian legal field, there is a fundamental normative act, which prescribes the behavior and functioning of credit institutions – that is, the Regulation of the Bank of Russia[22], the document affecting the subject of our interest to a certain extent.

We are far from the task of conducting the methodological audit of this document. We are stating the very fact. The document regulating the activities of credit institutions in the field of internal control does exist. And this is quite enough (from the point of view of the legal basis) so that the management of the credit institution, and above all the Board of Directors of the credit institution, directors and members of the audit committee, using their authority and necessary resources, could form an internal structure with the main functional purpose and conditional name - "Committee of functional and structural design". And by virtue of this, could introduce the position of "Chief Methodologist" into the bank's staffing table.

Today, the position of “Chief Economist” that was introduced several decades ago at the World Bank and a number of systemically important financial institutions, has become quite common in banks. For example, the main function of the World Bank’s Chief Economist is to develop an overall development strategy. The main function of the Chief Economist of systemically important banks, Deutsche Bank, Sberbank of Russia (the position was first introduced in 2008) is to conduct macroeconomic research.

Everything once has its beginning and its end. The global economy is entering the digital era based on a new phase of the unfolding technological revolution. Conducting macroeconomic research in their traditional paradigm absolutely loses its meaning, especially when using artificial intelligence and super-fast computers. Today, the best of them is Tianhe-2 (Milky Way) (China). Its performance is 33.86 petaflops, power: 17.6 MW. Cray CS-Storm (USA) is ranked tenth. Its performance is 6.1 petaflops, power: 1.4 MW. In addition, the program and platform for analytics and investment risk management - ALADIN (Asset Liability and Debt and Derivatives Investment Network) of BlackRock company (the largest shareholder of Deutsche Bank) exists. The program was presented on March 28, 2017 in the New York Times’s article entitled "At BlackRock, Machines Are Rising Over Managers to Pick Stocks." Possibilities of digital technological innovation in forecasting and conducting macroeconomic research are truly endless. A person must completely give way to artificial intelligence. The significance of “Chief Economist” function performed by a person is substantially transformed and leveled. In contrast to this trend, the significance and value of "Chief Methodologist" function performed by a person increases multifold.

To conclude we note the following. The applied value of the methodology is the search for principles for achieving the goal in the situation of real cases and circumstances. The authors believe that the following designed main functions can be assigned to the "Committee for functional and structural design":

[22] Statement of the Central Bank of Russia as No. 242-P “On the organization of internal control in credit institutions and banking groups" (with changes and additions). December 16, 2003. Retrieved from: http://base.garant.ru/584330/

• Functional/structural design methodology

• Business modeling methodology

• Programming methodology

• System analysis methodology

• Methodology of an activity's time structure: phases, stages, steps

• Methodology of estimation activities

• Risk identification methodology

• Methodology of technology for performing operations and solving operational problems: means, methods, ways, techniques.

• Security methodology

• Audit methodology

• Monitoring methodology

A number of functions prescribed to the "Committee" in varying degrees of demonstration and detalization were reflected in different dates of activation (1992, 2001, 2004, 2006, 2013, 2014) in COSO models. These models, in the course of their meaningful deployment, received different names, acquired different depth and breadth of coverage of the subject of regulation. During their life cycle, these models have acquired both justified popularity and necessary embodiment. Today economic systems (first of all, we mean market institutions of various functional purposes) face a new challenge of the time. Today, for the first time, an important problem has been set and formulated: that is, the possibility of applicability and the need to apply the methodology of system-functional analysis in the context of system paradigm to the design of risk-oriented internal control systems of financial institutions. The authors believe that the solution of this problem in real economy will form basic and fundamental conditions for ensuring the sustainable functioning of various institutions in a market economy in the context of global instability and increasing systemic risks.

Notes

Note 1. A concept that is included (along with a number of others - connection, structure, purpose, function, etc.) in the definition of a system and characterizing its structure. A component is a relatively independent part of a system, which itself possesses characteristics of a system. System components are often viewed as subsystems of a lower level of the hierarchy.

Note 2. A system-wide regularity, often interpreted as a hierarchy of systems (ancient Greek, literally "hierarchy"; the position of components in order from the highest to the lowest).

Note 3. In particular, the implementation of monetary reform (II Congress of Soviets of the USSR Resolution as of February 2, 1924 "On measures in the field of financial policy of the USSR".

Resolution of the Central Executive Committee and the Council of People's Commissars of the USSR "On the issue of state treasury notes". April 5, 1924

Note 4. Committee of Sponsoring Organizations of the Treadway Commission (founded in 1985, USA).

References

Actual Risk-Management Issues: 1st Edition. PriceWaterhouseCoopers. 2017. Retrieved from: https://docplayer.ru/80885437-Aktualnye-voprosy-risk-menedzhmenta.html

Annex to the Letter of the Central Bank of Russia No. IN-06-28/143. October 1, 2020. Retrieved from: http://www.consultant.ru/document/cons_doc_LAW_364286/483563f4293d541b23758725089281e092f851f7/

Efremova, Iu. S. Organization of monitoring, internal control and audit system in the bank (pp. 255-260), in: Proccedings of MGIMO “Modern trends in the development of financial markets in Russia and abroad”. Moscow. 2018.

Enterprise Risk Management (ERM). Integrating with Strategy and Performance. COSO, 2017. Retrieved from: https://www.coso.org/Documents/2017-COSO-ERM-Integrating-with-Strategy-and-Performance-Executive-Summary.pdf.

Export-Import Bank of the United States official website. Retrieved from: https://www.exim.gov/

Federal Law No. 82-FZ “On the State Development Corporation "VEB.RF”. May 17, 2007. Retrieved from: http://www.consultant.ru/document/cons_doc_LAW_68404/

Framework for Internal Control Systems in Banking Organizations. Basel Committee on Banking Supervision. 1998. Retrieved from: http://www.bis.org/publ/bcbs40.htm

Framework for the Evaluation of Internal Control Systems Basel Committee on Banking Supervision Paper. Basel Committee on Banking Supervision. 1998. Retrieved from: https://www.bis.org/publ/bcbs33.pdf.

GOST R 51897-2011. Risk management. Terms and Definitions. Official Edition. Moscow. 2019. Retrieved from: http://docs.cntd.ru/document/gost-r-51897-2011
GOST R ISO 31000-2010. Risk management. Principles and Guidelines. Official Edition. Moscow. 2019. Retrieved from: http://docs.cntd.ru/document/1200089640

Guidance on the 8th EU Company Law Directive Article 41. FERMA and ECIIA. 2010. Retrieved from: http://www.ferma.eu/app/uploads/2011/09/eciia-ferma-guidance-on-the-8th-eu-company-law-directive.pdf.

Igolkin, A. A. “Lenin People's Commissar: at the origins of Soviet corruption. New Historical Bulletin”. Russian State University for the Humanities Vol: 1 num 10 (2004).

II Congress of Soviets of the USSR Resolution "On measures in the field of financial policy of the USSR". February 2, 1924.

Informational Letter of the Central Bank of Russia No. IN-06-28/143 “On recommendations for organizing risk management, internal control, internal audit, and the work of the audit committee of the board of directors (supervisory board) in public joint-stock companies. October 1, 2020. Retrieved from: http://www.consultant.ru/document/cons_doc_LAW_364286/

Internal Control Integrated Framework. COSO. 1992. Retrieved from: https://www.coso.org/Pages/ic.aspx

Internal Control Integrated Framework. COSO. 2013. Retrieved from: http://www.coso.org/documents/internalcontrol-integratedframework.pdf

Internal Control Systems of Credit Institutions. European Monetary Institute, 1997. Retrieved from: https://www.ecb.europa.eu/ecb/access_to_documents/document/emi_pubaccess/shared/data/ecb.dr.paremi2007_06_report.en.pdf

ISO 31000 – 2009: Risk management — Principles and guidelines. International Organization for Standardization (ISO). 2009. Retrieved from: https://www.iso.org/ru/standard/43170.html.

ISO 31000 – 2018: Risk management – Guidelines. International Organization for Standardization (ISO). 2018. Retrieved from: https://www.iso.org/ru/standard/65694.html.

ISO Guide 73:2009: Risk management - Vocabulary - Guidelines for use in standards. International Organization for Standardization (ISO). 2009. Retrieved from: https://www.iso.org/standard/44651.html.

Japan Bank for International Cooperation. Retrieved from: http://www.jbic.go.jp/english/base/

Kant, I. Criticism of Pure Reason. Moscow: Eksmo. 2018.

Karpunin, V. I. “Phenomenology of global systemic contradiction”. Academy Vestnik, num 2 (2017): 35 - 44. Available at: http://www.vestnik-mosap.ru/archive/2017/2/vestnik_2-2017.pdf

Karpunin, V. I. y Efremova, Iu. S. “The system paradigm of risk-based internal control of a credit institution”. Vestnik of the Plekhanov Russian University of Economics num 2 (2020): 13-31.

Karpunin, V. I. y Novashina, T. S. Genesis of the global systemic contradiction of modern era: about mechanisms of ensuring the national security of Russia. Tambov. 2020.

Karpunin, V. I. y Novashina, T. S. On the mechanism of deployment of the global system contradiction "creditors" - "debtors". Senchagov's readings. Economic security of Russia: methods of assessment and management: Materials of the International Research Conference. Moscow: Institute of Economics of the Russian Academy of Sciences. 2019.

Kleiner, G. B. System paradigm in economic research: a new approach. Proccidings of the Eighth Scientific Conference. Moscow. 2007.

Kleiner, G. B., Rybachuk, M.A. System balance of the economy. Moscow. 2017.

Kornai, I. "System Paradigm". Voprosy ekonomiki num 4 (2002): 4-22.

Letter of the Central Bank of Russia as No. 87-T "On Recommendations of the Basel Committee on Banking Supervision". July 10, 2007. Retrieved from: http://www.consultant.ru/document/cons_doc_LAW_32567/

Professional standard "Risk Management Specialist". Moscow: Ministry of Labor and Social Development of the Russian Federation. 2018. Retrieved from: https://profstandart.rosmintrud.ru/obshchiy-informatsionnyy-blok/natsionalnyy-reestr-professionalnykh-standartov/reestr-trudovyh-funkcij/index.php?ELEMENT_ID=75562&CODE=75562

Resolution of the Central Executive Committee and the Council of People's Commissars of the USSR "On the issue of state treasury notes". April 5, 1924.

Statement of the Central Bank of Russia as No. 242-P "On the organization of internal control in credit institutions and banking groups" (with changes and additions). December 16, 2003. Retrieved from: http://base.garant.ru/584330/

The IIA's Three Lines Model. An Update of the Three Lines of Defense. The Institute of Internal Auditors (IAA). 2020. Retrieved from: https://global.theiia.org/about/about-internal-auditing/Public%20Documents/Three-Lines-Model-Updated.pdf

REVISTA INCLUSIONES M.R.
REVISTA DE HUMANIDADES Y CIENCIAS SOCIALES

CUADERNOS DE SOFÍA EDITORIAL