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EVOLUTION OF ENTERPRISE RISK MANAGEMENT UNDER CURRENT CONDITIONS OF ECONOMIC DEVELOPMENT: FROM FRAGMENTED TO INTEGRATED

Basing on the analysis of the stages in formation and evolution of risk management we prove here that in the practice of management risk management transition from fragmented to integrated is associated with the objective processes of sharp increase in manifestation of nonlinear (synergistic) nature of social and economic development of the society. As part of the model developed by the authors there were identified and grounded the key principles and directions in formation of integrated enterprise risk management strategy such as: integration, continuity, advanced and proactive nature of management based on the systemic synergistic approach that takes into account nonlinearity and stochasticity of contemporary economic processes.

Keywords: risk management; risk management system of an enterprise; proactive management; philosophy of management.

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ЕВОЛЮЦІЯ РИЗИК-МЕНЕДЖМЕНТУ ПІДПРИЄМСТВА В СУЧАСНИХ УМОВАХ РОЗВИТКУ ЕКОНОМІКИ: ВІД ФРАГМЕНТАРНОГО ДО ІНТЕГРОВАНОГО

У статті, на підставі проведеного аналізу етапів становлення та еволюції ризик-менеджменту доведено, що обумовлений практикою менеджменту перехід від фрагментарного до інтегрованого ризик-менеджменту пов'язаний з об'єктивними процесами різкого підвищення прояву нелінійного (синергетичного) характеру соціально-економічного розвитку сучасного суспільства. В рамках розвинутої авторами моделі визначено та обґрунтовано основні принципи та напрями формування системи інтегрованого ризик-менеджменту підприємства. Це інтегрованість, неперервність, розширений та проактивний характер управління на базі системно-синергетичного підходу, що враховує нелінійність та стохастичність сучасних економічних процесів.

Ключові слова: ризик-менеджмент; система ризик-менеджменту підприємства; проактивний менеджмент; філософія менеджменту.

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ЭВОЛЮЦИЯ РИСК-МЕНЕДЖМЕНТА ПРЕДПРИЯТИЯ В СОВРЕМЕННЫХ УСЛОВИЯХ РАЗВИТИЯ ЭКОНОМИКИ: ОТ ФРАГМЕНТАРНОГО К ИНТЕГРИРОВАННОМУ

В статье, на основе проведенного анализа этапов становления и эволюции риск-менеджмента доказано, что обусловленный практикой менеджмента переход от фрагментарного к интегрированному риск-менеджменту связан с объективными процессами резкого повышения проявления нелинейного (синергетического) характера социально-экономического развития современного общества. В рамках развитой авторами модели определены и обоснованы основные принципы и направления формирования системы интегрированного риск-менеджмента предприятия. Это интегрированность, непрерывность, расширенный и проактивный характер управления на базе системно-синергетического подхода, учитывающего нелинейность и стохастичность современных экономических процессов.

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Ключевые слова: риск-менеджмент; система риск-менеджмента предприятия; проактивный менеджмент; философия менеджмента.

Problem statement. Nonlinear stochastic, unbalanced and bifurcated nature of micro- and macroeconomic environment processes in today's world is associated with a sharp increase in uncertainty, unpredictability and variability. This stimulates the focus to different aspects of enterprise risk management demonstrated in relevant studies.

Recent research and publications analysis. There is a growing body of scientific studies (Barton et al., 2009; Lobanov and Chugunov, 2009; Medvedeva, 2011; Pickford, 2004; Shulga, 2006; Vasil'eva and Didenko, 2004; Vitlinsky and Velykoivanenko, 2004) demonstrating recent changes in scientists' opinions on the development of basic principles of building and operation of a risk management system as well as its methods and models.

However, despite the large research volumes, a significant number of problems and issues in risk management have not been addressed yet. This requires deeper understanding and comprehensive theoretical grounding of all aspects of integrated enterprise risk management under the conditions of nonlinear dynamics taking into account the synergy mechanism of today's economic development.

Research aims. To analyze the main stages in the formation and evolution of risk management using the systemic-synergistic approach. To determine the mechanism, basic principles and directions of formation of contemporary integrated risk management (IRM).

Key research findings. Risk management systems have been developing over a long time period which includes the stage of formation and evolution of risk management system and also the stage of transition of the risk management system from fragmented to integrated one.

The first stage in this process included the period from the World War II to the 1970s (Lobanov and Chugunov, 2009) when the responsibilities of employees in organizations related to property loss risk became progressively more complex. During this time notions and methods of classical decision theory were based on the von Neumann-Morgenstern's utility theory. They contained the elements of statistics, operations research, economics and psychology and served as a methodological basis for risk management (Kaminsky, 2006; Lobanov and Chugunov, 2009; Jia and Dyer, 1996). Experts constructed different scenarios of future events using mainly this methodology. Predicted values of cash flows were estimated and each scenario was attributed to a certain probability of its realization. After that the standard measure of risk was determined by calculating the expected deviation from the mean value for a given specific utility function. Thus, this approach was based on the evaluation of the utility function in a rather subjective manner allowing experts assessing the risks from taking certain actions.

However, it was experimentally proved that almost all people tend to give incorrect assessment of events probability, especially the probability of rare events. This happens due to lack of feedback needed to correct false statements (Lobanov and Chugunov, 2009), which represents a major drawback of the classical approach. As a result, the lack of definitive criteria for evaluation of the probability of certain events

and the utility function creates opportunities for decision manipulation (Lobanov and Chugunov, 2009).

The 1970s were the time of risk management formation as an independent field of practice. During this period a gradual transition from subjective to objective paradigm of "market" approach has started. Real, observable market prices began to be used to measure the risk of losses from the implementation of one or another scenario instead of subjective probability and utility assessments (Lobanov and Chugunov, 2009; Linsmeier and Pearson, 1996). The need to assess financial risks became the objective reason for this transition and it was associated with two important events: final abolition of the Bretton Woods system of fixed exchange rates and the foundation of the Chicago Board Options Exchange (Linsmeier and Pearson, 1996). A drastic increase in the volatility of exchange rates and interest rates initiated the transition to the system of free-floating exchange rates in most of developed countries and also caused the threat of bank losses that had not previously observed so often. This gave a powerful push to establishing of a quantitative measurement and development of market risk management for financial instruments such as derivatives (Linsmeier and Pearson, 1996).

The second period of risk management evolution covers the time from the 1970s to the 1990s when risk management systems were developed for enterprises and also for financial institutions in real sectors such as Du Pont, Unocal Corporation, United Grain Growers Limited etc. (Barton et al., 2009). It happened mainly due to two factors. First, objective processes in the society driven by scientific and technological progress caused the increase of risk and uncertainty in business activities of financial and economic entities in various fields. Second, accelerating deregulation of financial markets as well as growing complexity of their structure and rapid development of financial instruments at these markets have become the critical factors in increasing variability, instability and vulnerability of market environment. The excess costs of financial derivatives and outstanding total cost of production of goods and services are often compared to flipped pyramid that stands on the foundation of real output and is expanding all the time to the top (Lobanov and Chugunov, 2009).

This comparison allows us interpretate easily how even minor fluctuations in the state of the real sector lead to significant changes in the "superstructure" – financial market. Financial turmoil, in turn, certainly induces the opposite effect on the producers of goods and services who use financial derivatives in hedging their positions and also for speculative profit (Maler, 1996). The methodological basis of quantitative measurement of risk in this period became the classical theory of variation based on the efficient market hypothesis (Bachelier, 1964).

The classical paradigm of risk management system formation is based on the separation of risk management from the organization's core functions and enterprise management (Barton et al., 2009). Risk management under these circumstances is fragmented. Each department manages its risks independently and in accordance with own functions. It applies primarily to accounting, finance and audit departments. Risk management is becoming episodic. It is carried out only when managers consider it necessary. Usually, limited risk management is performed by outlining of financial risks as well as insured risks (Barton et al., 2009). During this period, the concept of efficient market (Bachelier, 1964) serves as a basis for business manage-

ment philosophy. It includes risk management which leads to maximizing profits at the accepted risk level. Risk management in turn has mainly reactive basis (Figure 1).

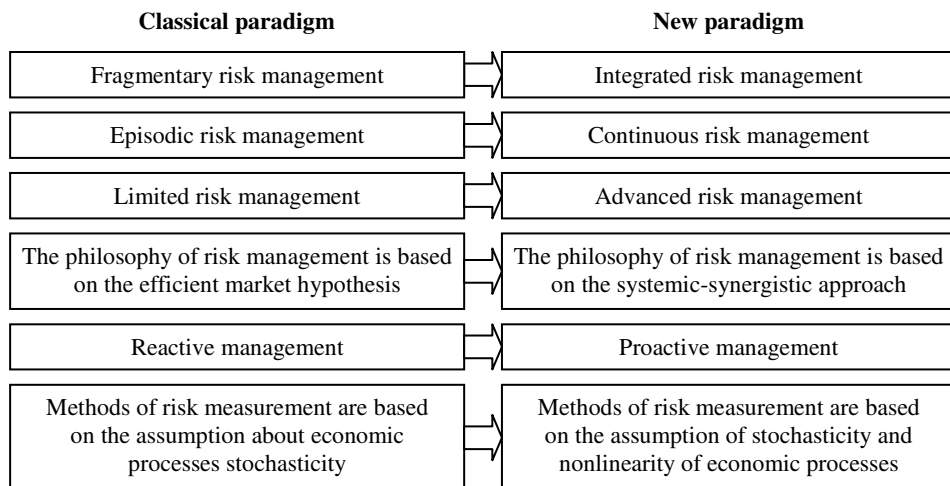


Figure 1. **Key principles and directions of the integrated risk management formation**, authors' based on the ideas presented in (Barton et al., 2009)

During the 1990s a novel philosophy of business management was developed. This philosophy was based on the enterprise-wide risk management (ERM), or integrated risk management (IRM). In our mind, it was mainly due to objective processes leading to sharp increase in nonlinear nature of social and economic development (Danchuk et al., 2015). Indeed, scientific and technological progress, globalization, especially financial globalization, formation of the world economy as well as the widespread using of information technologies ultimately led to a significant expansion of the risks range and their manifestations (dynamic, systemic, contagiousness, dissonant) (Danchuk et al., 2015). This induced a rise in the magnitude and frequency of global financial and economic crises and the bankruptcy of individual enterprises.

The transition from fragmented to integrated risk management was determined objectively by managerial practices. It was primarily associated with the emergent need for integrated risk management driven by top leadership, and also by each employee who is considering the risk management as part of own work (Barton et al., 2009). Thus, the ultimate goal of IRM is reaching the optimal balance between risk and revenue for the entire enterprise. The cumulative or integrated business risk becomes the subject for analysis and management under the IRM concept (Lobanov and Chugunov, 2009). Such integrated risk may depend on the expression of several individual risk types. Usually, the volatility of the market value of a company provides the quantitative value of the integrated risk. It measures the integrated risk by using the standard deviation of stock returns at the stock market, or by using the standard deviation of return on assets (Lobanov and Chugunov, 2009). Taking into account that risks in today's business environment are often systemic (Danchuk et al., 2015), it is critical to carry out the expanded risk management analysis based on the IRM concept to cover all risks and opportunities.

Today risk management systems must be flexible, dynamic and have the sufficient ability to adapt rapidly to quickly changing environment. Nowadays, nonlinearity of the economy and fluctuations in economic processes induce the objective multivariance and irreversibility. Time for making decision is short, therefore decision-making depends mainly on comprehensive preliminary analysis (forecasting) of enterprise performance. This analysis should take into account different scenarios of business environment development as well as it should provide the assessments of enterprise stability and adaptability to possible impacts of various scenarios. So, it is necessary to move from reactive to proactive form of risk management. This requires preparing a set of preventive measures concerning possible negative effects of risk events (Figure 1). Moreover, this change will secure the continuous process of risk management, in particular, monitoring of internal and external business environment, as well as assessment of the results obtained using the selected technologies of risk management (Figure 1).

We believe that the systemic-synergistic approach should become the basis for IRM philosophy today (Figure 1). In contrast to the efficient market concept (Bachelier, 1964), we define enterprise's risk management approach as company's activity aimed at preventing the risk of loss or at least at minimizing the negative consequences from such loss. Adequate risk management strategy increases chances for positive impact of risk while ensuring harmonious unity between maximizing opportunities for entrepreneurs and satisfying their social and economical needs (rather than profit maximization (Bachelier, 1964)) and also their moral, ethical, social and political responsibilities (Danchuk et al., 2015). Combination of self-organization and management becomes the predominant criterion for management efficiency in today's business environment as part of the systemic-synergistic concept. This strategy relies on both quick adaptation to changes in external market environment, and increased internal integration of personnel.

Contemporary methods which consider stochasticity and nonlinearity of economic processes (Danchuk et al., 2013, 2015; Kaminsky, 2006; Lobanov and Chugunov, 2009) create the methodological background for quantitative assessment of integrated risk indicators at the enterprise level according to the IRM concept. These are the modifications within the methods of the theory of variation as well as the methods based on the VAR concept, which has gained more interest lately (Danchuk et al., 2013; Kaminsky, 2006; Lobanov and Chugunov, 2009).

This paper describes the model of principles and directions of integrated risk management which being based on the model developed in (Barton et al., 2009). We have included additional model elements such as risk management philosophy which is based on the systemic-synergistic approach; proactive management; methods of risk evaluation based on the assumption of stochasticity and nonlinearity of economic processes. However, these additional components are not additive. In particular, nonlinear (synergistic) nature of the majority of current economic processes induces the emergent transition to the systemic-synergistic paradigm of risk management. Accordingly, the synergistic approach allows both the detailed analysis of synergistic effects induced by continuous, integrated and advanced nature of risk management and the development of proper quantitative methods of risk assessments based on nonlinear (synergistic) stochastic models. Such models do not have to be based main-

ly on historical information as proposed by the majority of the related models. These models are not able to perform risk assessment adequately under crisis-induced quick and dramatic market changes. When market conditions are essentially altered, for example, due to prices skyrocketing and quick changes in liquidity or correlation between assets, traditional models and methods can adapt these changes only through some period of time taken into account proper data and statistics of events. During this time any attempt of risk assessment would be yet inaccurate. Thus, forecast models and proper methods of risk management assessment have to reflect adequately alterations in social and economic environment and provide proactive risk management.

The analysis of the current global and domestic situation demonstrates the increased need of enterprises in both financial and real economic sectors for organizing and functioning of IRM as an effective instrument ensuring company's profitability in a highly competitive and risk-intensive business environment (Kaminsky, 2006; Medvedeva, 2011).

For example, according to the results of the study performed by Marsh & Risk Consulting in 2008 (participants – 41 companies in the real sector, all companies belonging to top-300 in Ukraine and Russia), 12 companies had appropriate risk management services, 24 companies were in the process of such service implementation, and 5 companies planned to develop this service in the future.

The comparison of risk management between Ukrainian and foreign banks showed a considerable lag in the organization of IRM systems on the side of domestic financial institutions. Only 20% of Ukrainian banks use IRM systems which met international standards (Kaminsky, 2006) according to the assessment performed by the international credit-rating agency Standard & Poor's at the end of 2008. Currently, some banks plan to implement an integrated risk assessment in the near future (Kaminsky, 2006).

It should be noted that a large number of studies by foreign and domestic scientists and leading economical agencies including The Economist Intelligence Unit (in cooperation with Arthur Andersen & Co; Canadian Institute of Chartered Accountants Criteria of Control Board; American Institute of Certified Public Accountants / Canadian Institute of Chartered Accountants Risk Advisory Services Task Force and others) focus on the development of new IRM paradigm (Barton et al., 2009; Lobanov and Chugunov, 2009; Medvedeva, 2011; Pickford, 2004; Shulga, 2006; Vitlinsky and Velykoivanenko, 2004). Moreover, some standards (namely, AS/NZS 4360:2004; Enterprise Risk Management – Integrated Framework (COSO, 2004); Risk Management Standards (FERMA, 2003)) have been developed exclusively for modelling of risk management process.

Conclusions. Analysis of the stages in formation and evolution of risk management proved that the transition from fragmented to integrated risk management has been observed from the 1990s induced by objective processes of sharp increase in the expression of nonlinear (synergistic) nature of social and economic development (Danchuk et al., 2015). The key principles and directions in IRM formation, such as integrity, continuity, and advanced proactive type of management based on the systemic synergistic approach were identified and justified by the authors as part to the already proposed model (Barton et al., 2009). The authors emphasize the importance

of the development and validation of appropriate methods for diagnostics and measuring of business risks adequately describing nonlinear dynamics and stochasticity of contemporary economic processes at the micro- and macrolevels.

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