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UNCERTAINTY AND RISK: ON THE ISSUE OF GENERATION OF APPROACHES AND MODELS IN THE ECONOMY

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Abstract

The article notes that cyclicality is one of the most important economic problems; it has a direct or indirect impact on all market subjects. The author evaluates the role of risk based on a review of the current state of the economy and also proposes a constructed risk model based on vector operations, for example, insurance companies of Uzbekistan with a combination of geometric images of the aggregate amount of premiums to the amount of risk compensation, i.e. the impact of non-zero risk to the "ordinary value" of the asset as consistent indicators of performance. This model makes it possible to assess the role of unpredictability and uncertainty in modern complex economic systems, burdened by immanent risks, within the framework of constructiveness and "quantitativeness", having a vector calculation of risky constructions as the opening key.

Keywords: Uncertainty, fundamental uncertainties, unpredictability, fortuity, equilibrium, disequilibrium, risk, riskology, cost of risk, vector risk model

INTRODUCTION

In conditions of a dynamic change of reality, the growth of globalization processes in the economy, equilibrium states are characteristic, when growth goes as if along a direct trajectory, when the volume of output increases proportionally to the growth of production factors, and imbalance (imbalance) when the development of an economic subject experiences fluctuations

in the dynamics i.e. , the change in the indicators characterizing the results of activity occurs not monotonously, but oscillatingly (cyclically).

The existence of uncertainty and risk is an integral component of any economic activity; therefore, it can be stated that production activities are carried out under risk conditions, and it is difficult to overestimate the importance of risk management, which is a conscious need rather than just a function of the management system as a whole. Risks exist only because we do not know precisely and confidently about the onset of certain economic events, we cannot foresee them.

At the heart of the problems of uncertainty and risk in the economy (Madera, 2014) and in economic theory lies the inherent focus of this process on the future, i.e. ways to reduce uncertainty and increase the adequacy of its prediction.

Fundamental uncertainties (there is an opinion that uncertainty may be a fundamental property of nature) and fundamental risk (it differs from both pure and speculative risk by its impersonal character, that is, it has no favorites) in economic life - the essence of forecasting errors the future and in the implementation of adaptations (from the Latin. adaptatio - adaptation) to future conditions.

At the same time, the effectiveness of various forecasting methods and the assessment of their adequacy for a particular task depends on the need and accuracy of the forecast, the specific scope of application of the results and forecast periods, the type of data being analyzed and the cost of the forecast. The problem of overcoming uncertainty, representation and quantitative calculation of risk is inevitably summarized before the meeting of “three sources, three components” of testing unpredictability in the economy - these are cycles, forecasts and risks. The modern economy is formed on the basis of the interaction of three main components (banks, the real economy, the educational sphere) (Zelentsova, 2015).

LITERATURE REVIEW

Fundamental scientific works in the field of risk theory belong to such authors as Algin (1989), in his works one can find an approach to determining financial risk and methods of managing it, John. M. Keynes (1948) defined financial risk as the uncertainty of obtaining the expected return on investment. Keynes believed that the cause of uncertainty is the future-oriented nature of the economic process itself, and suggested that the role of the state be intensified to reduce the degree of uncertainty in the economy), A. Marshall shares the risk between entrepreneurial and personal. Entrepreneurial risk “is caused by fluctuations in the markets of raw materials and finished products, unforeseen changes in fashion, new inventions, the invasion of new and strong competitors in their respective areas. However, there is another category of risk, the

burden of which falls only on the person working with borrowed capital and on no one else. This kind of risk can be called personal risk", O. Morgenstein in his von Neumann – Morgenstern theory of utility is normative in nature and uses mathematics to show the most effective way to achieve a certain goal, i.e. she answers the question of how to optimize the solution. According to the theory of utility, a rational individual must choose an alternative that maximizes the expected utility.

In the second half of the 21st century, the theory of utility became widespread in economics and management. It is not by chance that a number of well-known scientists quite rightly attribute its appearance and development to one of the intellectual achievements of the first half of the twentieth century. Today, the theory of utility and its various modifications serve as the basis for building models of decision-making processes in various fields of activity of economic entities.

The central problem of a rationalistic approach to organizing people is that people are not very rational. The imaginative right symbolic hemisphere of the human brain plays at least as important a role as the rational - the left. People think in stories, images as often as clear data. Each has its own set of values and responds to situations of risk in accordance with this set, so the real behavior of a person in such conditions is often far from "ideal". The works of F.Nayt, J.Neiman, B.A.Raisberg, VVCherkasov reveal theoretical problems and give characteristics and definitions of the concepts "risk" and "uncertainty", but the practical aspects, methods and ways of influencing the risk are not studied because they were not part of their research.

Thus, in the process of carrying out activities, business entities face a number of problems that require immediate management decisions, which as a result can be attributed to one or another level of investment or financial risk.

RESEARCH METHODOLOGY

The key task of the management team in the risk management process is the development and implementation of measures to improve the efficiency of the enterprise with the prevailing negative consequences, reduce financial losses and improve financial results.

After analyzing the approaches of domestic and foreign scientists to constructing a risk management algorithm, the authors found that the practice of developed countries adheres to drawing up clear links between departments, and the experience of economic agents in Uzbekistan is based only on the development of risk management stages distributed between departments.

RESULTS

The result of production is the benefit received as a result of creative activity. The benefits are produced in order to meet future needs, the production of benefits takes time, and thus introduces two elements of uncertainty (element of uncertainty) (Tikhomirov, 2017), corresponding to two different types of risk and forecasting:

Firstly, from the very beginning it is necessary to evaluate the goal of regularly repeated actions (operations) with the help of resources and mechanisms in production to achieve a certain result that is valuable to the consumer. It is well known that, when starting production activities, it is impossible to predict exactly what its results will be in the physical dimension, to what quantity and quality of benefits will the expenditure of fixed and circulating capital (resources) lead to.

Secondly, the needs for which benefits are intended to be met also belong to the future, and their forecasting is also associated with uncertainty.

So one of the essential characteristics of the economic subject is the ability to predict the needs of the consumer for the period of production, the duration of which increases more and more, such a forecast implies the sustainability of the nature of the needs mentioned. A manufacturer must evaluate both future demand and the future results of its interrelated business operations, through which it tries to satisfy this demand.

Stochasticity (randomness) becomes a breeding ground for the existence, movement and multiplication of risks (Vintizenko, 2010) in logistic parallel-sequential chains of economic assets, decisions, projects, events, phenomena, operations, processes. The institutional nature of this situation is manifested precisely in the unpredictability of the immanent properties of economic behavior.

Today, the illegality and socio-economic risk of underestimating the importance of carefully studying the interrelations of economic growth and meeting the vital needs of the population is becoming more and more obvious. Empirically, the presence of certain oscillatory cycles of economic development was recorded, whence it followed that such an oscillatory process systematically covered almost all aspects of the reproductive process and was an immanent feature of the economy as a whole (Sukharev, 2018).

Today, the illegality and socio-economic risk of underestimating the importance of carefully studying the interrelations of economic growth and meeting the vital needs of the population is becoming more and more obvious. Empirically, the presence of certain oscillatory cycles of economic development was recorded, whence it followed that such an oscillatory process systematically covered almost all aspects of the reproductive process and was an immanent feature of the economy as a whole.

Cycles in the economy (economic cycle), unlike seasonal fluctuations, arise and disappear suddenly, their amplitudes, causes, periods, start and end times are unknown in advance. Therefore, economic cyclicality is one of the most important economic problems, it has a direct or indirect impact on all market actors. Modern economics knows more than 1380 different types of cycles (Galyautdinov, 2015).

Willetdefines risk as the “objective correlate of subjective uncertainty”, which varies in accordance with the theoretical probability of loss so that the maximum is reached when the probability of this event is equal to the probability of its absence (Protasovitsky, 2017; Vorontsovskiy, 2019).

Currently, a large number of quantitative approaches to risk assessment have been developed. All methods used for risk analysis can be divided into qualitative and quantitative (figure 1).

The basis of the quantitative measure of risk is some probability of his arrival. In this regard, the relationship between risks is their attributive property and its presence allows us to form pairs of risks that later, with a variety of risks, form a network of risks. In the decision-making process in risky situations, it is more convenient to use quantitative risk measures, as they are more easily interpretable and objective.

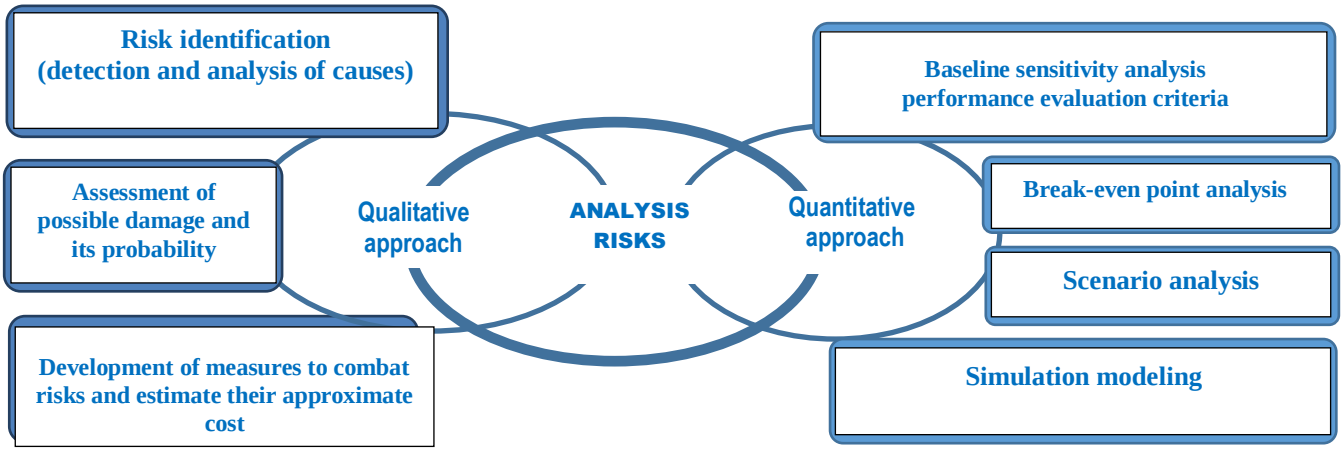

Figure 1 Risk analysis procedure

Risk work has recently migrated to a separate economic discipline — riskology, which is positioned as part of the science of crisis (crisisology) or the theory of catastrophes. The practical tasks of this science are to minimize damage and optimize risk management.

For verbal risks, the following interpretation of the term “riskology” is fully true: “Riskology is the science of risk, investigating the essence of risk, its causes, forms, manifestations and

role in people's lives"(Aminov, 2006; Kubar, 2016). There are a huge number of definitions of this science, one more, more "quantitative": "Riskology is a science that studies the basic laws, principles and tools for identifying, accounting, assessing and managing risk"(Buyanov, 2002). This shows that riskology has two characters - a theoretical one, an explanation of the reality burdened with risk, and a practical one - as the science of risk management.

There are many tasks in riskology. And the main feature of riskology is that it is closely related to all other functions of managing the economic (for example, production) cycle - time, cost, quality, etc. This is the identification of typical types of risks in economic applications, the development and improvement of risk management methodologies in various areas through forecast information, etc (Perepelitsa, 2002).

Problems and complexities of riskology as a science consist of:

- in extreme looseness of risky structures;
- their "dimensionlessness";
- the infinite breadth of risk classification;
- predominantly qualitative (verbality, linguistic, intuitive, descriptive, descriptive, "psychological", indirection, attribute, often referred to as "effective risk") of their estimates, rather than a quantitative measure, measure of value, magnitude, degree or level;
- in a variety of risk consequences (financial, temporary, etc.).

Solving a more difficult task — explaining the reasons for the appearance, growth, movement over time, multiplication of risks in unsatisfactory conditions — is still quite controversial. Different interpretations are used in various branches of knowledge and more than a dozen of its definitions can be counted(Diev, 2008).

Theoretically, risk should mean a certain amount available to measurement. The category of "risk" in the 20s of the XX century, one of the founders of riskology F.Kh. Knight interpreted as "measurable uncertainty" or "insurable uncertainty"(Knight, 2003). In contrast, the term "risk", freely used in everyday speech and in economic discussions, is, according to Knight, "immeasurable uncertainty", a certain opportunity to say something about the unfavorable event that entails the occurrence of economic losses. So, accurate risk measurement can be achieved rather in artificially designed systems. Moreover, the property of "measurability" is implicitly embedded in these systems even when they are being designed. While in systems that evolved under subjective influence, but not as a result of their conscious design, accurate risk assessment is fundamentally impossible, even if there is a sufficient statistical base, since the latter gives an idea of established trends that may not be reproduced in the future. Thus, it can be concluded that only a rough estimate of risks can be made, and in this sense, the boundary between risk and uncertainty is very conditional. Developing this logic, it can be argued that the

primary task of the analyst is not the assessment of a certain risk as such, but the transformation of uncertainty into risks.

In terms of the objects of research in the framework of this article, we mean by risk, the probability of deviation of parameters from predicted ones, i.e. from the expected values. This approach describes risk as a situation or action when different outcomes are possible, that "risk is not damage caused by the implementation of the decision, but the possibility of deviation from the goal, for the achievement of which the decision was made" (Buyanov, 2002). Deviations from the goal can be both positive and negative. Some researchers believe that risk is the only source of entrepreneurial profit (Bakchai, 1979). This argument once again shows that risk is a complex phenomenon that has many different and sometimes opposite real foundations (Cherkasov, 2002).

In one production cycle, but at different stages, both success and failure can be observed, and if the degree of failure is not compensated by the degree of success, then we can talk about a negative set of circumstances, the occurrence of a "risk case" that resulted in negative deviations from the goal. At the same time, a "risk case" should be understood as an event that actually occurred, which resulted in a deviation from the decisions made or planned targets.

When a value of a value is searched for, it is implied that it somehow affects other variables of interest to us. And if you try to determine the value of risk in the economy, it is only to determine your future income.

Verbal economists believe that the risk that scares them and which they want to "tame" is the lack of reliable knowledge, so the risk cannot be expressed in numbers (Kardash, 2009). They give a detailed definition of risk: risk - our intuitive idea of the occurrence of some negative consequences in the absence of reliable knowledge or data, in other words, when there is no reliable forecast. If the causes of these consequences are studied, the risk information is lost, since there will be no uncertainty and uncertainty that feeds the risk. If you leave something unexplored, it will be impossible to assess the negative effects of what is not known or little is known.

These are the roots of the emergence and flourishing of linguistic risk assessment in the form in which verbal economists understand this, on the basis of experience and intuition, in an attributive, subjective way. Therefore, studying the risk, we thereby reduce it. After studying, we narrow the area of the unknown, the indefinite, thereby reducing the risk.

In a new turbulent economy, information and telecommunication technologies make it possible to receive, process, store, search in any "cuts" and transmit information at high speeds, speeding up global economic processes, so that the role of risks increases immeasurably and

forecasting ceases to give satisfactory results. The economy is likened to a lottotron, which cannot be predicted by definition. This is the scientific basis of the slogan: “The future is almost incomprehensible” (Perepelitsa, 2002).

Many thinkers of past times were interested in the natural limits of human ability to predict: these are philosophers and mathematicians Jacques Hadamard and Henri Poincaré, philosopher and economist Friedrich von Hayek, philosopher Karl Popper. According to these researchers, prediction limiters are built into our human structure. Successes in building models and forecasts overlap with the ever-increasing complexity, stochasticity, chaotic and contradictory nature of the world, therefore, the role of the unpredictable and the role of risks grows.

“Our inability to predict, plan and reconcile with our ignorance of the future also plays a leading role. All our prophecies look monstrously pitiful: the world is much more complicated than we imagine. But this is not a problem - the trouble is that few people guess about it. Trying to look into the future, we “tunnel at the network and at the application levels” - we imagine it to be ordinary, but there is nothing ordinary in it. This is not a Platonic category, i.e. not based on utopias. Focusing on the normal (private), platonizing - make us predict on a pattern. Instead of doing empirical accounting, we continue to plan for years ahead, using tools and methods that exclude rare events” (Taleb, 2009).

However, forecasting in our society has a strong official status that helps supposedly pave the way in the world of accidents. In many ways we come to the conclusion that the more random the information, the greater its dimension and the more difficult its generalization. The more information is summarized, the more order is introduced there, the less the initial randomness becomes and the less risks.

Thus, the circumstance that compels us to simplify, makes us think that the world is less chaotic than it really is. Both creative and scientific efforts are the result of our need to exterminate multidimensionality, reduce risks, and impose a stable order. Interestingly, the passion for order motivates and scientific activities - just as opposed to art, science is designed to seek the truth, and not to give a sense of organization and not reassure.

It is worth moving from a verbal to a quantitative representation of risks. Often, the simplest, logically constructed two-dimensional risk model that meets the above-mentioned aspirations is often proposed, in it the probability of a risky event and the assessment of its expected harm are combined into one plausible result. The science of probability is based on the dogmatic assumption of the equiprobability of elementary alternative outcomes, thus signifying objective non-determinism. If in theory randomness is an inherent property of events, then in practice randomness is the incompleteness of information, which is beautifully called the

"impenetrability of history." Indeed, the total damage due to the risk action is defined as the product of the frequency of the risk response (probability) and the personal damage during each time it arrives. The cost of risk becomes a function of two parameters: the probability of the occurrence of a negative event and the scale of the possible damage, ie the sensitivity of a project, operation, process or portfolio to the consequences of the event. A significant drawback of such a model, neither the probability of risk nor the damage from its manifestation can be clearly explained and quantified in economic variables (Sholomitsky, 2005).

We propose another risk model based on vector operations, when the vector sum of components of different nature allows us to find a generalized vector image of the entire quantitative risk. In this model, the reason for introducing multidimensional risk is as follows: a risk is not an object in itself. During his manifestation, he necessarily changes that basis, that asset, the cost of a project, portfolio, event, phenomenon or process that he “burdens”. Therefore, the cost of risk as a category is primarily determined by the initial value of the asset. This is the value of an asset that exists today, not burdened with any bills, debts or risks, you can get the cost, give it away, you can buy something for it, etc. There is also a “risky cost” (Pindyke, 2011) in the model; this is the stochastic, virtual component that determines the possible future probability of loss.

The exhaustion of methods for describing, systematizing and classifying risks adequate to classical methods and trends, the invasion of science and economics of the synergetic paradigm, the new mathematical apparatus must pose the task of generating quantitative multidimensional approaches and models for presenting risks on the new research platform of the abstract theory multidimensional spaces, vector algebra, complex manifolds, analytic transformations, profession nogo tools.

The mathematical prototype of the proposed quantitative multidimensional representation of risks was the well-known mathematical property of vector arithmetic operations with numbers located on a one-dimensional numerical axis. A useful intermediate conclusion from this procedure is to assume that the results of vector operations remain in the same class of initial numbers.

Since “ordinary cost” and “risk value” are values of different nature (deterministic and stochastic) and are not linear combinations of each other, they can be placed on different orthogonal axes (Vintizenko, 2010).

For example, the three insurance companies of Uzbekistan (Fig.) Consider the combination of geometric images of the total amount of premiums to the amount of compensation for risks, i.e. the impact of non-zero risk to the "ordinary value" of the asset as consistent indicators of performance (table 1).

Table 1. Dynamics of volume of total insurance ratios of insurance premiums and payments for the leading three companies in Uzbekistan

№	Name of insurance company	Insurance premiums	Insurance payments
1	JSC "Uzagrosugurta"	134295,3	93251,5
2	"Uzbekinvest"	130932, 1	20311,6
3	Gross Insurance LLC	81269,5	11 405,2

Source: Review of the insurance market of Uzbekistan: 2017. Financial Analysis and Rating Department of the Information-Rating Agency SAIPRO // http: //insurance.uzreport.uz/files/docs/overview_2017.pdf

On the first axis (abscissa) we will place the “normal cost” vectors, and on the second axis (ordinate) we will place the risk value vectors orthogonally.

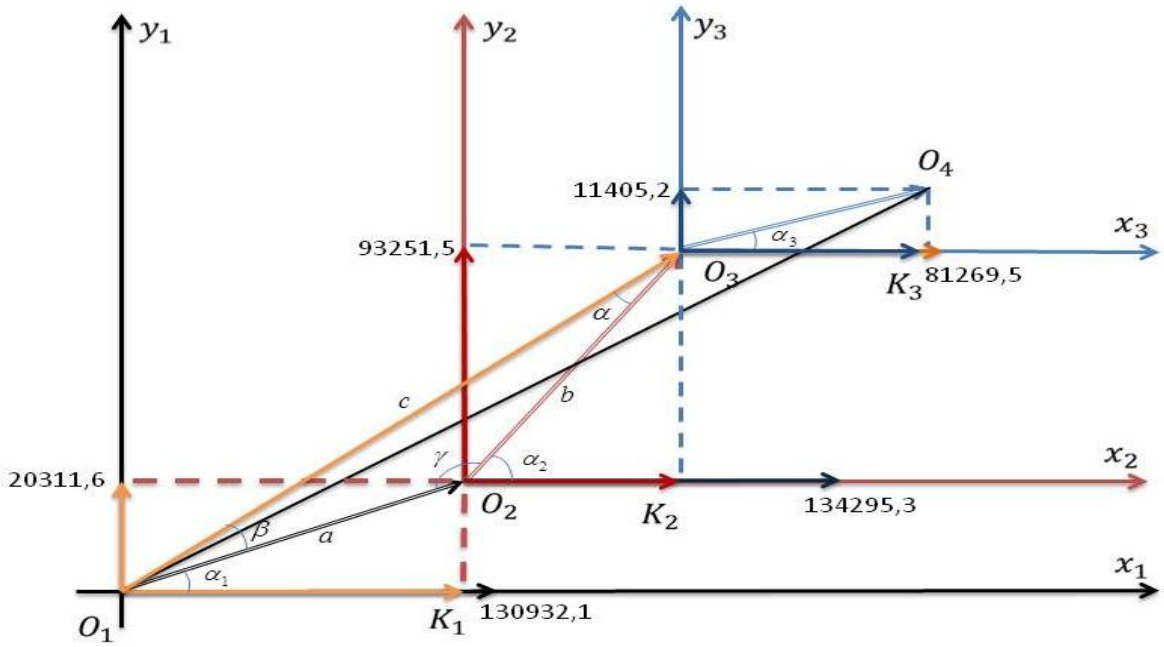

Figure 2. Vector three-dimensional model of risk

The total asset value will be the vector sum of these vectors. We will decipher the economic meaning of such a construction. If the measure of risk is zero, then the vector of its entire value coincides with the vector of “ordinary value” and is located on the axis - $O_i X_i \ \ (i = 1,2,3)$. If a non-zero risk appears, the total cost vector rotates counter clockwise, leaving its projection on the first axis, the length of which O_iK_i becomes less than the initial “ordinary cost”.

Differential vectors will show losses from the effects of non-zero risk. Consider the mathematical relationships for the case of three consecutive indicators of performance. In each of them rely non-zero risks.

First, we consider two correlative sequential indicators: Uzagrosugurta JSC and Uzbekinvest. To find the total asset value of these indicators of performance, with a non-zero risk, we construct the triangle $\Delta O_1O_2O_3$.

In the triangle $\Delta O_1O_2O_3$ we introduce the standard reference designations of the parties, $a = O_1O_2 = 130932,1,\ b = O_2O_3 = 134295,3,\ c = O_1O_3$. Angles opposite them respectively, $\alpha,\ \beta = \alpha_2 - \alpha_1 - \alpha,\ \gamma = \pi - \alpha - \beta$.

By the cosine theorem

$$c^2 = a^2 + b^2 - 2ab\cos\gamma = a^2 + b^2 - 2ab\cos\left(\pi - (\alpha + \beta)\right) =$$
$$= a^2 + b^2 + 2ab\cos(\alpha + \beta) = a^2 + b^2 + 2ab\cos(\alpha + \alpha_2 - \alpha_1 - \alpha) =$$
$$= a^2 + b^2 + 2ab\cos(\alpha_2 - \alpha_1) = a^2 + b^2 + 2ab(\cos\alpha_2\cos\alpha_1 + \sin\alpha_2\sin\alpha_1). \quad (1);$$

Since from triangles $\Delta O_1O_2K_1$ and $\Delta O_2O_3K_2$ we have

$$\cos\alpha_1 = \frac{O_1K_1}{O_1O_2},\ \cos\alpha_2 = \frac{O_2K_2}{O_2O_3},\ \sin\alpha_1 = \frac{O_2K_1}{O_1O_2},\ \sin\alpha_2 = \frac{O_3K_2}{O_2O_3},$$

then from (1) we obtain

$$c^2 = a^2 + b^2 + 2ab\left(\frac{O_2K_2}{O_2O_3}\cdot\frac{O_1K_1}{O_1O_2} + \frac{O_3K_2}{O_2O_3}\cdot\frac{O_2K_1}{O_1O_2}\right) =$$
$$= a^2 + b^2 + 2\cdot O_1O_2\cdot O_2O_3\left(\frac{O_2K_2}{O_2O_3}\cdot\frac{O_1K_1}{O_1O_2} + \frac{O_3K_2}{O_2O_3}\cdot\frac{O_2K_1}{O_1O_2}\right) =$$
$$= a^2 + b^2 + 2(O_2K_2\cdot O_1K_1 + O_3K_2\cdot O_2K_1).$$

Now from triangles $\Delta O_1O_2K_1$ and $\Delta O_2O_3K_2$ the Pythagorean theorem determines the length of the segments $O_1K_1,\ O_2K_2$:

$$O_1K_1 = \sqrt{(O_1O_2)^2 - (O_2K_1)^2} = \sqrt{130932,1^2 - 23895,7^2} = 128733,$$
$$O_2K_2 = \sqrt{(O_2O_3)^2 - (O_3K_2)^2} = \sqrt{134295,3^2 - 93251,5^2} = 96640,5.$$

Then the “risk-free” or “independent” value of these two indicators of the result of an activity is determined as follows

$$c = \sqrt{130932,1^2 + 134295,3^2 + 2\left(128733 \cdot 96640,5 + 93251,5 \cdot 23865,2\right)} = 253990,2.$$

To determine the “risk-free” or “independent” cost of the three indicators of the results of the activity of Uzagrosugurta JSC, Uzbekinvest and Gross Insurance LLC, it is necessary to consider a triangle $\Delta O_1O_3O_4$ (see fig.) with sides

$O_1O_4,\ O_3O_4 = 81269,5; O_1O_3 = 253990,2$.

By the cosine theorem

$d^2 = c^2 + f^2 + 2cfcos\sigma$ (2)

Where,

$cos\sigma = \cos\left(\alpha_3 + 90^0 + 90^0 - \alpha - (90^0 - \alpha_2)\right) = \cos(90^0 + \alpha_3 + \alpha_2 - \alpha)$

Also consider,

$\cos(90^0 + \alpha_3 + \alpha_2 - \alpha) = \sin(\alpha_3 + \alpha_2 - \alpha)$

$= (sin\alpha_3(cos\alpha_2 \cdot cos\alpha + sin\alpha_2 \cdot sin\alpha) + cos\alpha_3(sin\alpha_2 \cdot cos\alpha - cos\alpha_2 \cdot sin\alpha)$

Where,

$\cos\alpha_3 = \frac{O_3K_3}{O_3O_4} = \frac{\sqrt{81269,5^2 - 11405,2^2}}{81269,5} = 0,99,\ \ sin\alpha_3 = \frac{O_4K_3}{O_3O_4} = \frac{11405,2}{81269,5} = 0,14,$

$cos\alpha = \frac{-O_1O_2^2 + O_1O_3^2 + O_2O_3^2}{2 \cdot O_1O_3 \cdot O_2O_3} = \frac{-(130932,1)^2 + 253990,2^2 + 134295,3^2}{2 * 253990,2 * 134295,3} = 0,95$,

$\sin\alpha = \sqrt{1 - cos\alpha^2} = \sqrt{1 - 0,95^2} = 0,28;$

What means,

$cos\sigma = (0,14 * (0,72 * 0,95 + 0,69 * 0,28) + 0,99 * (0,69 * 0,95 - 0,72 * 0,28) = 0,57$

Then the “risk-free” or “independent” value of these three indicators of the result of activity is defined as follows:

$d = \sqrt{253990,2^2 + 81269,5^2 + 2 \cdot 253990,2 \cdot 81269,5 \cdot 0,57)} = 307647,9$

For the definition of “risk-free” or “independent” cost of the three indicators of the results of the activity of Uzagrosugurta JSC, Uzbekinvest and Gross Insurance LLC considered a triangle (see fig.). This method of determining the “risk-free” or “independent” cost of two and three can be applied to a limited number of consistent performance indicators, for example, insurance companies of Uzbekistan.

CONCLUSION

The study conducted in the framework of this article allowed to formulate the main conclusions concerning the theoretical, methodological and practical aspects of the generation of approaches and models in economics in the context of uncertainty and risk:

- The boundary between risk and uncertainty is very conditional. Uncertainty is a complex concept associated with limited knowledge, incompleteness and imperfection of information, the uniqueness of events, the uniqueness of each point in time, the risk is an integral component of any economic activity;
- In a section of objects of research within the framework of this article, the risk means the probability of deviation of parameters from expected values. This means that a risk is like a situation or an action, when different outcomes are possible, and the probability of deviation from the target can be both positive and negative;
- At present, a large number of approaches to risk assessment have been developed and can be divided into qualitative (identification of factors leading to risk situations) and quantitative (based on some probability of its arrival). The primary task of the analyst is not the assessment of a certain risk as such, but the transformation of uncertainty into risks. They exist only because we do not know precisely and confidently about the onset of certain economic events, we cannot foresee them;
- The formed knowledge base in the field of the theory of risk and uncertainty, the increasing complexity of economic activities of subjects, the dynamic development of financial markets have significantly expanded the area of risk research and deepened specific aspects of this problem;
- In a new turbulent economy, information and telecommunication technologies allow to receive, process, store, search in any “cuts” and transmit information at high speeds, speeding up global economic processes, so that the role of risks increases immeasurably and forecasting ceases to give satisfactory results;
- The successes achieved in building models and forecasts overlap with the ever-increasing complexity, stochasticity, chaos and contradictory nature of the world, therefore, the role of the unpredictable and the role of risks grows.

Thus, the circumstance that compels us to simplify, makes us think that the world is less chaotic than it really is. Both creative and scientific efforts are the result of our need to exterminate multidimensionality, reduce risks, and impose a stable order.

Based on the formulated conclusions as a result of the study of the aspects of generating approaches and models in the economy in the context of uncertainty and risk, we were able to put forward the following proposals:

- the exhaustion of the possibilities of describing, systematizing and classifying risks adequate to classical tendencies, the invasion of science and economics of the synergetic paradigm, a promising mathematical apparatus, it is necessary to generate quantitative multidimensional approaches and models for presenting risks on an innovative research platform with modern designs;

- the effectiveness of various forecasting methods and the assessment of their adequacy for a specific task depends on the need and accuracy of the forecast, the specific scope of application of the results and forecast periods, the type of data analyzed and the cost of the forecast;

- it offers a constructed risk model based on vector operations, for example, insurance companies of Uzbekistan with the combination of geometric images of the aggregate amount of premiums to the amount of risk compensation, i.e. the impact of non-zero risk to the "ordinary value" of the asset as consistent indicators of performance.

Thus, the multidimensional (dyadic) vector risk model, obtaining the private risks of individual decisions, assets, operations, procedures, processes, finds the generalized risks of sequential-parallel logistic chains of events and phenomena. This makes it possible, within the framework of constructiveness and “quantitativeness,” to assess the role of unpredictability and uncertainty in modern complex economic systems, burdened with immanent risks, having a dyadic vector calculation of risk constructions as the opening key.

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