

## OVERVIEW OF APPROACHES TO DEFINITION OF RISK AND ENVIRONMENTAL RISK

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#### Analysis of recent investigation and publications.

Review of domestic and foreign sources shows that there is no unambiguous of the concepts of risk and the essence of its content in the scientific literature.

The concept of "risk" is already found in the works of representatives of early classical political economy of D. Ricardo, A. Smith, J. Mile. Further more deeper these concepts were considered by F. Knight, JM Keynes. The investigation on the nature of the risks discovery of their causes and classification was performed by A. Marshall, J. Schumpeter, Y. Brigham, L. Gapensky, S. Hughes, G. Kleiner.

In the process of analyzing the nature of risk the direct relationship between risk and profit becomes evident. According to J. Mill, D. Ricardo, and A. Smith risk is a mathematical expectation of losses that can occur in the conditions of choice and profit must include a recompense for risk (Ricarddo, 2016: 406). The development of trade, manufacturing and logistics has fastened the terms securely "profit", "capital" and "risk" from entrepreneurs of that era but risks were often regarded as a fear of objective reality and sources of adverse events.

A. Marshall in his work "Principles of Economic Science" (Marshall, 1920) regarded the causes and risk factors in the context of supply and demand. And for that to happen he divided the risks into entrepreneurial ones, driven by fluctuating markets, increased competition, technology development and personal risk that only extends to the borrower.

Supporter of the 19th century German Classical School. J. von Tünen, directly related the value of entrepreneurial income or "gain" with entrepreneurial risk (Tyunen, 1857).

J. Schumpeter linked entrepreneurial activity to the "dynamic uncertainty" which is generated by the continuous development of the "economic and political" environment and scientific and technological progress (Schumpeter, 2010: 22).

The most comprehensive study of risk as a major component of the entrepreneurial function was performed by American researcher Frank Knight. He offered a fundamental justification for the relationship between risk and uncertainty in his work, "Risk, Uncertainty and Profit" (Knight, 2009).

### **The main results of the research.**

The legislations were adopted in Ukraine in the 1920s which contain the characteristics of industrial and economic risks, but by the mid-1930s, the risk category was declared a "bourgeois concept."

The risk-taking attitude was changed by the transition to market relations after Ukraine's declaration of independence in 1991. Business entities had to take into account many variants, characterized by high uncertainty of possible deviations from the intended trajectory.

Risks and high levels of business activity are typical for any country. But they are especially relevant for Ukraine in the conditions of instability and information uncertainty.

There are different approaches and opinions in domestic and foreign literature for the determination of the nature of the risk category. This is explained by the complexity and versatility of this phenomenon, its using in the describing different phenomena, the imperfection of formulating measures that promote the using of risks in business practice and management (Posokhov, 2014: 89).

The review of definitions of the concept of "risk" shows that the analyzed concept is multidimensional; it is much researched and actively developed. This is due to the high relevance of the risks in the current conditions of development of the world economy and the Ukrainian economy in particular, which has not come out of the stage of permanent crisis for many years.

Theoretically, the concept of "risk" implies the possibility of events in case of which there is a possibility of adverse outcomes. This term has many meanings in the existing sources, for example: risk is an unwanted event that may or may not occur; risk is the cause of an unwanted event that may or may not occur; risk is a statistical indicator of the likelihood

of an adverse event occurring; risk is a concept that means the fact that a decision is made under known probability conditions ("decision in risk conditions") (Algin, 1989: 65).

The risk is possible only in case of uncertainty. A risky situation means that uncertainty must be made known in advance. Risk Awareness is very important in balancing the risk situation and the activity. The better the awareness of alternatives, the greater the chances of success.

All definitions of the category named "risk" can be divided into three groups. The first group includes the definition of where the risk is considered as the level of loss or other negative impact. The second group focuses on the probability of deviation from the planned results, the possibility of its qualitative and quantitative assessment. In the third group risk is shown as the activity of the risk carrier; actions in an uncertain environment aimed at maximizing profit margins; opportunities to create and take advantage of competitive advantages in the uncertainty of all market players.

The definitions can also be divided by objective and subjective understanding of risk. An objective understanding of risk means the possibility of realizing both a favorable and unfavorable risk situation that is independent of the desire or awareness of the risk carrier. In other words, uncertainty is an objective characteristic of the environment of the risk carrier.

Based on the analysis of scientific achievements we can propose a new definition of the concept of "risk". It means that *risk is a scientific category which due to the influence of uncertainty contains the risk of underperformance or loss.*

The source of risk is the uncertainty in the movement of the organizational and economic system. Risk exists independently of the will and the relationship of the risk carrier to the risk situation.. The actions of the risk carrier are only a reaction to the objective changes of the external environment, which

occur independently of him and personal attitude is characterized by the personal competencies, character and emotional state of the decision-maker.

Among all kinds of risks, environmental risk deserves special attention. It has a specific nature and must be considered at all levels of government, because it is influenced by all economic entities, production processes, and most importantly, society.

There are several definitions of environmental risk. In the United States, for example, environmental risk is two-component and includes the possibility of an undesirable environmental event and also the potential losses from that event. The latter is credited with a level and in compliance with this way, risk is defined as the product of the probability of an event at its level.

According to the interpretation of Yaili E.A. (Yayli, 2006: 17) environmental risk is the risk of dynamic equilibrium disturbance in ecological systems, which leads to changes in the characteristics of their abiotic and biotic components, as a result of natural processes or anthropogenic activity, and the ecosystem is restructured into a state with new properties.

Generally, the concept of the risk of environmental systems is related to sources of internal and external influences some of which are directly dependent on human economic activity.

An important condition for the sustainable development of Ukraine is to ensure growth with maintaining environmental equilibrium. However, at present, industrial enterprises do not sufficiently take into account environmental factors and their possible consequences in their activities. According to DSTU 2156-93, environmental risk is considered as the possibility of the negative effects from the set of harmful effects on the environment (ДСТУ 2156-93, 1994).

Depending on the extent of the impact and the consequences of the risk, emergency and systematic environmental risks are considered. Emergency

environmental risk is a situational quantitative characteristic of an environmental danger that takes into account the consequences of its implementation that are caused by anthropogenic environmental impact and is manifested in the form of damage to recipients at a certain frequency. Systematic environmental risk is a situational quantitative characterization of the environmental danger which is taking into account the consequences of its implementation that are caused by a systematic anthropogenic impact on the environment and are shown as inflicted with a certain frequency (probability) of damage to the recipients (Lishenko, 2014: 28-29).

In the theory of risk are widely used concepts such as individual and background risks. Individual environmental risk is a risk that is usually identified with the possibility that a person during his or her life fills a negative environmental impact. It characterizes the environmental danger at a particular point in the space where the individual is located that is the distribution of risk across space. Background risk is due to the presence of effects on the nature and social environment of human habitation (Lishenko, 2014: 33).

Depending on the source of the danger, the risks associated with the devastating impact of the forces of nature and human activity are distinguished. The first - natural, the second anthropogenic risks. Natural risks include: atmospheric; geological; space; biological and more.

In the area of environmental management, the risks that are combined with the concept of "environmental" are divided as follows:

- risks of environmental pollution during the production, storage and use of chemicals, including fertilizers;
- risks of environmental pollution due to the emission of danger by-products of production;

- risks related to urbanization processes;
- risks of natural disasters and disasters.

Environmental risks include the risks associated with environmental pollution and the liability of the entrepreneur for the damage caused by production activities. They distinguish the risk of impact on the business object its and the infrastructure, as well as the permanent risk, accumulated one and one-time risk.

Classification of environmental risks can be done on the basis of localization of adverse events, sources of their occurrence, nature and exposure of pollution, a form of compensation for negative consequences, etc.

For nature, the state of risk is a natural phenomenon, relatively short-lived and one that passes quickly in the overall functioning of specific natural processes. For humans, environmental risk is determined by a potential disruption of established trends in the development of natural anthropogenic and anthropogenic systems. The anthropogenic-ecological risk is created by the person himself, often unintentionally.

Environmental risk is characterized by the following regulatory levels (Orel, 2014: 84):

- acceptable environmental risk. Its level can be justified in terms of both environmental, economic, social and other problems in a particular society and at a particular time;
- the maximum permissible environmental risk. This is the maximum level of acceptable environmental risk. It is determined by the totality of adverse environmental effects; should not be exceeded regardless of the interests of economic or social systems;
- critical environmental risk is a minimum acceptable level.

In practice, the need to identify and take into account environmental risk is due to the fact that it exists in any territory. Environmental risk must be taken into account at all levels, from local to global. Since the thresholds for the influence of many factors are unknown, the calculation should be multivariate and probabilistic. Both potential and actual risk should be considered. Not only in normal conditions of production, but also in the event of an accident, the risk to the environment and human health must be distinguished.

Features of environmental risks include:

- the necessity of taken into account the requirements of environmental legislation in their accounting and evaluation;
- variety of their effects, affecting not only the property of the enterprise, but also on people, animals, plants;
- the possibility of not only direct but also indirect consequences;
- availability of limit values for pollution, after which catastrophic consequences can occur;
- territorial location and possibility of transboundary transfer of pollution;
- the possibility of long-term nature of the impact of pollution;
- high capital intensity of protective measures and the need for long terms for their implementation;
- activities that are ineffective in the short term can be effective in the long term, and the effects of their implementation may be observed in other industries or in other regions. In addition, the effect of implementing an environmental measure cannot always be measured in monetary terms.

Environmental risk assessment methods are consistent with general risk assessment methods but have specific characteristics. A quantitative approach can be used but when the decisions are making that take into account the interests of individuals, groups and organizations, during the threat of environmental

risk the disadvantages of using quantitative assessment are obvious. Public life requires the introduction into practice of managing more relevant modern models. These include the use of an integrated approach that allows to distinguish two types of risk, the first one is rational (justified) and the second is irrational (unjustified). The integrated approach allows the using of three interrelated parties: quantitative, qualitative and axiological.

Taken advantage by the discounting process, you can judge the benefits and harms distributed over time. The right consideration of the time factor allows a reasonable allocation of funds and limits for the introduction of innovations with environmentally acceptable characteristics (Orel, 2014: 60).

### Conclusions.

Environmental risk means a probable event and if it occurs would have environmentally adverse effects.

According to the source environmental risk is divided into natural and human risk. Environmental risk is potentially affected not only by the natural environment but also by the enterprise's fixed assets and public health. Risk management needs to be taken into account to minimize it.

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