

PSYCHOLOGY OF RISK AND RISK PERCEPTION: THEORETICAL ASPECT IN DECISION-MAKING

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Abstract

The risk concept, dual nature of risk, risk perception is presented in the paper. Different models of risk perception are shown. Theoretical aspects of risk perception in the decision-making process are considered. The importance of the issue in the financial decision-making is noted.

Key words: risk, decision-making process, risk perception.

Introduction

Ironically, since modern society has made great efforts to make life safer and healthier, many in society have become more, not less, concerned about risk. These people consider themselves subject to more serious risks than people have ever experienced in the past, and they believe that this situation is worsening, not improving. Nuclear and chemical technologies (with the exception of medicines) were compromised because they were perceived as having too great risks [1]. As a result, it was difficult, if not impossible, to find sites for the disposal of chemical waste of high or low levels of radioactivity or for incinerators, landfills and other chemical facilities.

It has been found that public perception of risk determines priorities and even the legislative agenda of regulatory bodies, such as, for example, the US Environmental Protection Agency. This in turn greatly complicates the work of the

agency's technical experts, who claim that there are other dangers that deserve higher priority. The main part of the Agency's budget in recent years has been spent on hazardous waste disposal, mainly because the public considers this direction to be one of the most serious environmental priorities for the country. Hazards, such as indoor air pollution, are considered to be more serious health risks from experts, but this view is not perceived in society [2].

In general, polarized views, disputes and open conflicts have become widespread in the context of risk psychology and risk management assessments. A desperate search for a solution to the problem began in the mid-80s through discussion of this trend in the scientific community, but despite some localized successes, these efforts did not lead to the resolution of serious conflicts or to a significant overcoming of dissatisfaction in risk management approaches. This dissatisfaction can be traced, in part, in the inability to assess and determine the complex and socially oriented nature of the concept of "risk" in science.

Risk concept

Attempts to manage risk, first of all, should begin with deciding the question: "What is risk?" The prevailing concept regards risk as "a chance of injury, damage or loss" [3]. It is assumed that the probabilities and consequences of adverse events are caused by physical and natural processes, and those that can be objectively assessed through risk assessment. Many sociological studies reject this notion, arguing that risk is inherently subjective [2, 4-6]. From this point of view, risk does not exist "somewhere out there", regardless of our minds and cultures, expecting to be measured. Instead, people invented a concept to help themselves understand and cope with the dangers and uncertainties of life. Although these hazards are real, there is no such thing as "real risk" or "objective risk". The probabilistic risk assessment of a nuclear accident, made by an engineer or the quantitative assessment of a chemical carcinogenic risk, made by a toxicologist are based on theoretical models whose

structure is subjective and depends on judgment. As we can see, non-specialists have their own models, assumptions and subjective assessment methods (intuitive risk assessments), which sometimes differ greatly from the models of scientists.

Studies have shown that man has a broad concept of risk, qualitative and complex, which includes such considerations as uncertainty, fear, catastrophic potential, controllability, fairness, risk for future generations, etc. [2]. On the contrary, experts' perception of risks is not so closely related to these factors or characteristics underlying them. Instead, studies show that experts tend to perceive riskiness as synonymous with the likelihood of harm or expected mortality, according to how mathematical risks are usually characterized by risk assessments [7]. As a result of such different views, many conflicts related to the concept of "risk" may be the result of the fact that experts and ordinary people have different conceptual sources. Therefore, it is not surprising that expert statements reflecting "risk statistics" often can change little in the attitude and perception of people.

A person often has to deal with unpredictable, incomprehensible situations, while their decision is associated with a greater risk of gaining not the result that you expect. Risk is a constant and unavoidable part of any social activity, it acts not only as a kind of sociocultural environment or condition of action, but as an integral part of sociality [8], [9].

Risk plays a major role in management, in the decision-making process, creates protection from conservatism and conformism. Risk is required in all areas of activity. Without risk, a person cannot win, defeat an opponent and transfer circumstances to the best results. A man with determination and courage reaches his goals. Leaders of organizations, scientists, entrepreneurs who are afraid to take risks, most often do not have the ability to develop and achieve lofty goals [8, 10].

But on the other hand, often the risk is unjustified, and can lead to the opposite result. Often, a person's risky behavior leads to undesirable injuries or even death. The formation of the nuclear and chemical industries has led to the danger of

worsening the environmental situation in the world, which suggests a transition from an industrial society to a risk society [11].

Dual nature of risk

In the economic sector, risk is the probability of unplanned expenses, and as a result, the loss of expected profits, a decrease in income, deterioration of living standards due to unpredictable changes in the economic situation, unsuccessful circumstances [12].

Considering the negative side of risk, one should not forget about its main goal: they risk not for obtaining an unfavorable result, but, on the contrary, for a positive outcome of the event.

Therefore, it is necessary to remember about the opposite of risk - a guarantee. In case of failure, there is a guarantee of compensation, with success, a guarantee of achievement. If a person does not see the probability of a successful outcome of an event, even a small guarantee, a small opportunity, then he will retreat from his decision, will not take the risk [13].

A. Rennes identifies a common parameter in all risk concepts: the separation of opportunity and reality. If the outcome of the event had the status of a predetermined, would be known and not dependent on human activity in the present tense, the risk would lose its relevance. The term "risk" has meaning only when there is a perception of the difference between reality and the possibility that in the course of human activity or external environmental influences there is the likelihood of an undesirable, negative state of reality [14].

Finally, unpredictability, the inability to predict the outcome of an event of a situation, directly depends on the lack of sufficient information about the phenomenon, the mechanisms and the decision object itself, and constant changes in the area of the object. As a result, in practice a person will not get the right experience without making a mistake. An uncertainty can also be the fact that a

person often either underestimates or overestimates his condition, his knowledge, which will be needed to achieve his goal. Since there are many outcomes of situations, a person has to make a prediction and think about the success or failure. A.P. Algin considers that "if there is a probability to qualitatively and quantitatively assess the degree of probability of the embodiment and realization of one or another variant of an event, then this will be a risk situation" [8, 15].

Some of the authors in the risk analysis rely on evaluating the unsuccessful, negative outcome; consider the magnitude of the loss. This assessment reflects the balance between success and failure and is formed at the planning and organizing stage of action [16-19].

Risk perception: theoretical aspect in decision-making

Risk perception refers to people's subjective judgments about the probability of such negative manifestations as trauma, illness, or death. Risk perception is important for health communication and risk communication, because it determines what dangers concern people and how they deal with them. The perception of risk has two main aspects: the cognitive dimension related to how people know and understand the risks, and the emotional dimension related to how they relate to them.

Several theoretical models have been developed to explain how people perceive risks, how they process risk information and how they make decisions about them: psychometric paradigm, risk perception model, mental noise model, negative dominance model, trust definition model, and social reinforcement risk structures. It was found that people evaluate the risks mainly in accordance with subjective perceptions, intuitive judgments, limited information, as well as findings from the media.

A common assumption in a risk perception study is that people's knowledge and confidence about risk determine how they will perceive it. This assumption is based on a rational decision-making model, which reflects the process of choosing

people as an assessment of the possibility of outcomes after calculating potential costs and benefits. This method of risk assessment is mainly attributed to experts who are supposed to rely on scientific information and objective assessment. In contrast, it is usually considered that most ordinary people assess risks using heuristics and other informal thinking processes. For example, when people are more aware of certain risks, they tend to believe that these risks occur more often than they really are. This trend is known as accessibility heuristics [13].

Other ways of misperceiving the frequency and magnitude of risks may arise due to individual characteristics. Notable is the optimistic bias or unrealistic optimism, the tendency to believe that risks are less of a threat to themselves than to other people [20]. For example, smokers who have a strong optimistic bias are likely to believe that smoking can be dangerous to the health of other people, but not to their own. Heuristics, such as these, as well as other individual trends, cause people to perceive risks differently. In addition, since individuals often do not have access to detailed information about risks, they tend to perceive them more in conjunction with an emotion such as fear. This trend may lead people to re-evaluate the actual frequency and severity of hazards.

When risk perception was originally studied, researchers focused on people's cognitive judgments about the magnitude and probability of risks. In the end, however, they recognized the important role that emotions play, such as fear and resentment in risk assessment. Slovic [2] and his associates turned their attention to heuristics that affect perception, which in the context of risk perception refers to the tendency of people to rely on their current emotions when they make judgments about risks. If we feel a strong fear when we feel a risk, we will most likely rate it as more threatening and more common. Similarly, the hypothesis of risk as feelings predicts that emotional responses to risks often do not depend on their cognitive assessments and that they are stronger determinants of human behavior [7].

One of the theoretical foundations, which includes both cognitive and emotional aspects of risk perception, scientists call the psychometric paradigm

developed by Slovik and his colleagues [21]. According to the psychometric paradigm, people assess the riskiness of a hazard based on a combination of a number of (perceived) risk characteristics, which include the following:

- the severity of the risk is not controllable;
- risk makes people feel fear;
- risk can be globally catastrophic;
- the risk is certain to be fatal;
- people experience risk in unequal ways;
- many people are at risk;
- risk may threaten future generations;
- risk increases;
- exposure to involuntary risk;
- risk affects us personally;
- risk is not observed;
- people do not know whether they are at risk;
- the effects of risk are immediate;
- new and unfamiliar risk;
- risk unknown to science [21].

The psychometric paradigm classifies this range of risk characteristics according to two factors, terrible risk and unknown risk. The dreaded risk includes "a conscious lack of control, fear, a catastrophic potential, fatal consequences and an unfair distribution of risks and benefits" [21]. Unknown risk includes "hazards that are considered unobservable, unknown, new and delayed in their manifestation of harm" [21].

Critics of the psychometric paradigm claim that these labels are ambiguous. Some have suggested that fear and unknown risk should be viewed as two aspects of risk assessments, cognitive and emotional [22]. But, despite such criticism, the psychometric paradigm has expanded our understanding of the complex psychology

of risk perception among people. It also helped to explain why some risk problems are perceived as more serious than others, even if they are not in fact.

Using some of these risk characteristics in the context of risk communication, Covello proposed four theoretical models that explain how people perceive risks, how they process risk information, and how they make appropriate decisions [23, 24].

First, the risk perception model, which determines a wide range of factors influencing risk perception by people. These include voluntariness, manageability, familiarity, fairness, advantages, understanding, uncertainty, fear, trust in institutions, reversibility, personal interest, ethical / moral nature, human and natural origins, and catastrophic potential. These factors are used to inform risk response and crisis response strategies [25].

Secondly, the model of mental noise, which claims that events that produce a higher level of mental noise (or stress), reduce the ability of people to process information related to risk. Factors that cause a high level of mental noise include controllability, voluntariness, familiarity, the cause of the disaster (human and natural), fear, uncertainty, and vulnerability of the victim (for example, a child, a pregnant woman). These factors are very similar to those defined in the risk perception model.

Third, the negative dominance model, which predicts that situations that engender risks and subsequent emotions, such as fear and anxiety, create an environment in which people are more likely to focus on negative messages.

Fourth, the trust definition model emphasizes the importance of the perceived trust of the communicator in people's perception and reaction to these risks. It highlights several trust determination factors that help build a communicator's trust, such as care and empathy, competence and experience, honesty and openness. The risk perception model was the most widely used of these four models.

The psychometric paradigm and Covello's four models focus on how people's psychological characteristics affect risk perception. Other approaches point to the diversity of cultural and social influences on the perception of risks by people and

their response to risks. For example, the social risk profile enhancement model (SARF) shows the relationship between technical risk analysis and the cultural, social, and individual response structures that shape people's experience with risk [24]. SARF assumes that risk events interact with psychological, social, and cultural processes in such a way that it can enhance or mitigate the public perception of risk and risk behavior associated with it. An important feature of SARF is that it highlights the roles that communication channels play in enhancing or mitigating risk.

One channel is informal interpersonal communication. Friends, family, and colleagues can reinforce or weaken risk perceptions by providing information to each other or reinforcing familiar perceptions and cultural biases. Another channel is the media, which can determine what risks receive public attention. Media tend to pay more attention (and thereby reinforce) unusual or dramatically significant risks, and they pay less attention to well-known or dramatically uninteresting risks, although such risks may still remain serious.

Taken together, the psychometric paradigm, the four theoretical models of Covello and SARF emphasize how people's perceptions of risk are determined by different risk characteristics and factors of individual psychology, social institutions and communication channels.

Conclusion

One of the key processes is the decision-making process. It is associated with both the human mental activity and the development of modern approaches and skills. The influence of the environment in which a person makes his choice cannot be overestimated. The main characteristics of this environment are the conditions of risk and uncertainty in which the individual is operating.

Currently, many scientists are involved in research of decision-making. This topic is especially popular and in demand in the west science. For the first time, the

question of making financial decisions, in which the risk component is key component to the result, was raised by D. Kahneman and A. Tversky in their work on the theory of prospects [8]. They suggested that human choice is not always rational. On the contrary, we often make mistakes and irrationality when making financial decisions. With the help of a series of experiments, they were able to show and prove that a person is governed by psychological patterns at the time of making financial decisions. In particular, the perception of risk by a person is very often irrational, distorted, and sometimes simply erroneous.

Understanding the factors that are essential for a person's perception of risk will help in studying the decision-making process. This, in turn, will reveal the cognitive mechanisms inherent in this process, and will increase the success rate of the results of such solutions based on the goals set.

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