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## **Black swan events in a theory of crisis**

The theory of black swan events in scientific concepts considers unpredictable and rare events that have a significant impact on their members and the environment in the future. In the book, *The Black Swan*,<sup>1</sup> connected with the study of unpredictability, Taleb coined the new concept "black swan events".

According to the set criteria in this book:

- The event is a surprise to the expert;
- The event makes a significant impact; and
- In the future, the event has a rational explanation, as if the event was expected for the participants.

The author claims that all known scientific discoveries, historical and political upheavals and achievements in arts and culture are so-called "black swans". Such examples of black swans are the most famous world wars, the collapse of empires and the attacks on a world scale.

Many events that seemed unreal and were described in this book took place in real life, such as military action in North Ossetia, a crisis for US equity markets, the startup of a neutron collider and all risks associated with this event, and in such minutes say, "black swan devoured market".

The book was amenable to severe criticism by the mathematical community, who believed in needlessly rejecting modern advances in science and focused attention on addressing the outdated models. The book, *The Black Swan* is dedicated to Benoit Mandelbrot, the great mathematician and fractal explorer, who is also involved in the field of risk assessment.

N. Taleb began his book with the story that before the opening of the Australian people in Europe, it was believed that all swans were white, and in this belief there is nothing surprising, since it is fully confirmed by research data and empirical observations. Discovery of the first black swan was a big surprise for ornithologists. N. Taleb argues that this example illustrates the severe limitation of our ability to learn from experience and the fragility of the acquired knowledge. A single, small observation destroys all generalised, long-term follow-up. N. Taleb proposed the name, "black swan event", which has the following three attributes:

- They are unusual, and they are beyond our expectations and knowledge.
- The impact of this event is extremely high for all participants.

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<sup>1</sup> Taleb N.N., *The Black Swan: Second Edition: The Impact of the Highly Improbable: With a new section: "On Robustness and Fragility"*, Random House Trade Paperbacks. 2010

- Despite the unusual nature of this event, the human nature is constructed in such a way that forces us to come up with such an explanation of this event, which starts to look predictable when viewed retrospectively.

Thus, this concept has three distinctive features: a rarity, a significant impact and a retrospective predictability. In considering the properties of black swans, according to N. Taleb, it is almost all of the properties of our world: the success of people, ideas and of the dynamics of historical events. In addition, according to N. Taleb, during history, from the Neolithic to the present day, the frequency of black swans is increasing, and life becomes more unpredictable and uncertain.

Further results of N. Taleb are known examples of unpredictable events, such as the world wars for the people who lived in the times of these events. However, unfortunately, it is impossible to assess the real extent of the unpredictability of these events for these people because the knowledge is irreparably distorted by subsequent interpretations of the events of those times. However, N. Taleb said the disease, events, fashion, ideas, the emergence of art styles and all kinds of the events have their own dynamic interpretations like black swans.

The combination of low predictability and significant effects makes black swans painful puzzles, and this causes issues, which N. Taleb discusses in his book. One of his main ideas is that we act as if black swans do not exist. To explain this point, N. Taleb refers to his experience in the financial sector. He defends the idea that ordinary portfolio investors interpret risk as a normal bell curve distribution of a certain value's average. However, in their calculations, it is difficult to find the ways of black swans. He said that the strategy of the investment fund built on the usage of the extraordinary psychological properties of people. He bought contracts (options) that were not very expensive, but made a profit only in case of very rare events, disasters or of a force majeure, and then waited. Then, all of the sudden, even minor variations in the market brought him profit.

N. Taleb presents the main idea of the book, depicting our blindness with respect to accidents, especially for a large event. He asked why people are focusing on the penny and do not pay attention to the dollar. Follow the small processes, not great ones. The book says that reading the newspaper actually reduces our knowledge of the world, instead of increasing it.

It is easy to see that life is the cumulative effect of several significant events. N. Taleb proposes a thought experiment: consider your own life situation, and examine the role of sudden unexpected events with huge consequences for ourselves and others. An example of this could be a moment of choice of profession, the second half of the meeting, problems at work, in business, and the devastation of sudden enrichment – how often these things happen when they haven't been planned.

The logic of black swans is that they do the unknown, which is much more important than the known. Most black swans happen only because they were unexpected. If the possibility of the terrorist attacks on 11 September, 2001 would have been considered real, this attack would have been impossible. The inability to predict major events makes it unrealistic to predict the course of history. Yet, people act as if they can predict historical events, and even more so, change the course of history. Experts are trying to predict what will happen to the oil in 30 years, but we can not predict how much it will cost you next summer. Because of this, experts know no more than ordinary citizens of the future, but are able to sell their predictions with graphs and numbers. As the black swans are unpredictable, people must adapt to their existence, and not naively try to predict them.

Another important factor is the tendency of people to learn the particulars, not the general laws. N. Taleb gives his interpretation of history. Its main feature is the opacity. History is presented as a black box at the input and the output of the specific event, but the real relationship between them remains anonymous. However, there is an illusion of understanding history, which is associated with three factors:

- the world is much more complex and random than could be imagined, but people convince themselves that they are able to understand it and ignore the fact that their belief is not important.
- retrospective distortion: people perceive the events after the fact and through the prism of their prejudices, filtering out important information.
- overestimation of factual information: people overestimate the information and believe that the facts they have witnessed in the past lead to universal conclusions about the future.

When people are still trying to take into account the uncertainty in the models, they are too prone to perceive the tunnel, which is trying to wrap up the uncertainty in the clear shell of theories. This gives a false sense of security and makes people more vulnerable to black swans.

A black swan is not just an unlikely event; it is the possibility that people could not have even thought about.

The next source of error is confirmation fallacy. It consists of the fact that there was no evidence of something we take for lack of evidence, leaving a black swan to sneak up on us quickly. We are so certain that our perceptions were right and too quickly discount the fact that what we believe could be easily refuted.

Taleb points out that humanity has a terrible reputation for successful predictions of the future. Moreover, the human confidence in their knowledge being ahead the knowledge itself gives rise to the phenomenon of over-reliance. We are not able to recognise the past mistakes; instead, we are inclined to say that we were "almost right." In most cases, the range of possible outcomes is important, not the specific outcome of the situation. However, we tend to focus on trying to predict

the result, losing sight of its fundamental blur. For example, following strategy could be used when trading in the stock exchange in order to avoid black swans; for example, by having a portfolio with an average risk. Instead, invest one hundred percent of the money in securities that are according to opinion, the average risk (so, trusting their ability to assess risk), possible investment of 90 percent in guaranteed security tools, such as the state of the US commitment, and the remaining 10 percent in the highly risky speculative bets. Rather than get a fake medium risk, it is possible to have a higher risk on the one hand and no risk on the other, protecting from negative black swans and leaving the possibility open to positive black swans.

At the end of the book, Taleb gives several recommendations: there are two areas of activity, those where it is possible to expect the negative black swan (e.g. finance) and those where it may be positive, for example, research and publications. The first areas should be avoided, and people should be more involved in the second. No need to prepare for some specific black swan, but it should be open to any possible unexpected events and is not to be trusted to experts.

With the start of the world's global financial crisis, the ideas of N. Taleb became particularly popular, as for most people, this crisis was made an affair. However, it was not so sudden an event like the attacks on 11 September.

The financial crisis is not the worst event in the history of mankind in the 21st century. Mankind may face risks for its existence, relating to the development of new technologies, especially nanotechnology, biotechnology and artificial intelligence.

However, N. Taleb was not the only researcher of the impact of uncertainty on decision-making and global issues. The largest Israeli scientist, Amos Tversky,<sup>1</sup> worked on the problems of uncertainty and risks.

Summing up, it should be noted that the key feature is the fact that, today, especially in the subject of political science, the subject of political risk is a political entity that makes decisions. The risk is directly related to reputational costs and the legal implications of the decisions made when applied to the environment of the political system. Unfortunately, the development is devoted to this problem in quite a bit of context, as most of it is related to peer review, rather than to quantitative data, which is analysed within the framework of economic direction. In addition, the level of uncertainty in which the political system operates is often very high. To predict the consequences faced by decision makers is problematic. That is why the study of the economic risks associated with the policy comes to the fore, and the problems of reputation costs are outside the research.

Under the direction of the study of modern political risk management, technologies are used that have not been aired in this area, such as crisis management and the involvement of civil society

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<sup>1</sup> Tversky A., Kahneman D., *Judgement under Uncertainty: Heuristic and Biases*, Science, New Series, Vol.185, No. 4157 (Sep. 27.1974), P. 1124-1131

in the process of elaboration and the adoption of environmental policy-making, the creation of specialised social networks and information management in the communications field. This is due to the globalisation of threats, such as environmental and economic crises and increased permeability of information and information space.

In addition, since the 1980s focused on the development of the political agenda, it, thus, reduced the risks of crisis management and involved broad social strata.<sup>1</sup>

Risk and uncertainty are the new dimensions of geopolitical studies, so the work of Gearóid Ó Tuathail<sup>2</sup> was devoted to the identification of communication geopolitics, and risk society thesis postulated that, today, every state is facing a challenge, due, among other geopolitical, to existing in ambivalent terms of global risk (attempts of terrorist organisations, "state hooligans" to exert political influence on the development of international political solutions that meet their conditions, the existence of nuclear threat and weapons of mass destruction, innovative research and development, conflicts between ethnic groups within states and the threat to the quality of the environment on a planetary scale, coming as from the developing and the developed countries). This is forcing national governments to look for opportunities to create a structure to ensure security at the global level. Preventing the implementation of such projects is the latent desire of every nation-state shaking the unifying bond, for there is always the risk of "dissolving" in the structures of this type at the international level, as well as a danger to national boundaries. Therefore, the coalition, the international community, exists in a fairly unstable environment in which, despite the unifying purpose, there is a practice to use each other for selfish ends, as priorities dominate global confrontation crises and conflicts. It is also important to consider the fact that some of the actors on the international stage generate profitable risks and the images of the risk. Moreover, even during the global financial crisis and the meeting in Davos, when the economic situation around the world is quite heavy, political disagreement and controversy come to the fore.

Thus, in the political environment related to the activities and decision-making, bearing the space-time in nature, there is always uncertainty. The situation in which nonlinearity is a characteristic of the international system is primarily political, as well as the policy is addressed in the future. The use of the nonlinear approach is one of the most effective tools for future colonisation, converting potential opportunities into existing reality, but the key point is political attention to dangers and threats from the effects of the damage that is irreparable.

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<sup>1</sup> Cobb R., Ch. Elder, Participation in American Politics: The Dynamics of Agenda-Building. – Baltimor, 1983

<sup>2</sup> Ó Tuathail Gearóid, Understanding Critical Geopolitics: Geopolitics And Risk Society, Department Of Geography, Virginia Tech., Blacksburg, Virginia, USA

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