

# THE CLASSIFICATION OF RISKS FACING SOCIETY IN CONNECTION WITH THE CREATION AND SPREAD OF VIRTUAL ASSETS: INSTITUTIONAL AND SCIENTIFIC APPROACHES

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**Annotation.** The article suggests that the emergence and proliferation of virtual assets has led to an increase in a number of negative events (risks) that society, States and investors might face. However, despite significant developments in identifying these risks, there is still no generalized classification of them. Given this, the purpose of the article is to analyze and classify the risks faced by society, States and investors in connection with the emergence and proliferation of virtual assets.

The author proposes to classify the risks into six groups based on the study: economic, investment, criminological, technological, subjective, and environmental risks. Within each of the proposed classification groups, the author identifies the relevant risks. For example, the economic risks include the following: the possibility of affecting the foundations of financial stability and security of the state, inflation (possible impact on the monetary policy of the state due to unjustified and uncontrolled increase in the money supply), the possibility of creating pyramid schemes, the possibility of circumventing currency legislation (in particular, currency restrictions on the withdrawal of currency abroad).

As to the subjective risks, the author identifies the following: the possibility of unfair behavior of entities providing services in the field of turnover of such assets, the possibility of losing a crypto wallet password and/or a secret personal PIN code by its owner, the possibility of an erroneous transaction during a transfer from one crypto wallet to another, the possibility of carrying out settlement operations and entering into smart contracts by persons under the appropriate age or with limited legal capacity, and the inability of some non-professional users to use virtual assets.

It is emphasized that a comprehensive study of the risks that may arise in connection with the emergence and proliferation of virtual assets will form the basis for further development of legal support for their operation and implementation in all spheres of public life.

**Key words:** bitcoin, virtual assets, blockchain, transactions, payment systems, inflationary risks, investments.

## 1. Introduction.

Since the publication of Satoshi Nakamoto's article "Bitcoin. A Peer-to-Peer Electronic Cash System" [13, p.3] (2008, October, 31), the era of virtual assets began, as the Bitcoin system provided users with the opportunity to safely and securely conduct transactions on the Internet without intermediaries, the need to pay for their services, while remaining anonymous.

Initially, the value of bitcoins was not pegged to fiat currencies, and they were exchanged mainly on the domestic virtual market. Over time, bitcoins became increasingly widespread. On April 25, 2010, the first official purchase

and sale of 1000 bitcoins took place at a price of 0.3 cents, and on May 22, 2010, the first exchange of bitcoins for consumer goods took place (American programmer Laszlo Hanich bought two pizzas for 10 thousand bitcoins) [23]. These events became landmarks in the development of bitcoin, as they marked the beginning of its widespread use in financial transactions. Today, the value of a bitcoin is about 30 thousand dollars.

In parallel to bitcoin, new cryptocurrencies have begun to emerge. First of all, Altcoins became widespread - alternative bitcoin coins derived from bitcoin, the structure and idea (blockchain) of which is similar to bitcoin (Namecoin, Litecoin (LTC)), but whose technological functions are improved (some of them have improved functions to ensure privacy, scalability, smart contracts, decentralized programs and other innovations). Subsequently, Ethereum, Ripple, Cardano, Polkadot, Dogecoin, Binance Coin, Binance USD, Polkadot, SwiftCoin, Peercoin, Emercoin, Gridcoin, Omni, Primecoin, XRP, Uniswap, Chainlink, Monero (XMR), etc. were introduced into the world (at the present stage, the number of cryptocurrencies is more than 2.3 thousand) [1], new types of cryptocurrencies - stemware, tether, and other. ), new types of them - stemcoins, tokens and others, they received the generalized name "virtual assets". At the present stage, the capitalization of the global market of virtual assets is equal to 1.2 trillion dollars [25].

The emergence and proliferation of virtual assets leads to a number of negative events (risks) that arise for society, states, and investors. One of the first publications to raise the issue of risks facing society was an article in Tame dated April 16, 2011, "Online Cash Bitcoin Could Challenge Governments, Banks". It mentioned that bitcoin is a potentially revolutionary product because:

- 1) Transactions with its use are as convenient as cash because they are completely anonymous;
- 2) inflation is impossible in the Bitcoin network because there is no central issuer (such as the country's central bank, which can print more money to recover from the economic crisis) that could increase the supply of bitcoins, and new bitcoins are introduced into the network based on a publicly available and predictable algorithm (their number cannot exceed 21 million);
- 3) Bitcoin transactions do not require the participation of intermediaries, eliminating "double payments".

The article also stated that the emergence and spread of bitcoins leads to the possibility of their use in illegal activities (for the sale of pirated or counterfeit goods, stolen credit card numbers and passwords, money laundering, gambling, etc.) due to the impossibility of prosecuting end users. In addition, the threat of creating competition for payment systems was emphasized [17].

Since then, state institutions of different countries have carried out the study of the risks faced by society in connection with the emergence of virtual assets. For example, HM Treasury of Great Britain, European Central Bank, Central Bank of Brazil, National Securities Commission of Argentina, Reserve Bank of India, National Stock Market Commission of Spain and Bank of Spain, National Securities Commission of Argentina, Reserve Bank of India, etc.

## **2. Analysis of scientific publications.**

Financial Action Task Force on Money Laundering (FATF), which develops world standards in the field of combating money laundering and terrorist financing, and scientists – both foreign (M. Swan, A. Tepper, J. Brito, A. Castillo, J. Edwards ect.) and domestic (D. Arzyantseva, N. Zakharkevych, B. Derevyanko, I. Belova, V. Bokhenko, I. Honak, T. Bantorina, O. Livandovska, L. Prymostka, K. Pavlova, I. Sytnyk, T. Bodareva, D. Kaznacheieva, A. Dorosh, K. Shapovalova, S. Ogynok, K. Yanko, O. Nesen, K. Tsiрук, V. Novytskyi, V. Fitsa, M. Duchenko, T. Pavlenko.

Despite significant developments in identifying the risks that society faces in connection with the emergence of virtual assets, there is no generalized classification of such risks.

## **3. The aim of the work.**

The purpose of the article is to analyze and classify the risks faced by society, states and investors in the context of the emergence and proliferation of virtual assets.

#### 4. Review and discussion.

In the Report of the Swiss Federal Council on virtual currencies, in response to the postulates of Schwab (13.3687) and Weibel (134070) of June 25, 2014 [9], the Report "Digital currencies: A response to a request for information" by HM Treasury [7], the European Central Bank's 2012 [5] and 2015 [24] reports on Virtual Currency Schemes and other documents, the two main risks posed to society by the emergence of virtual assets were emphasized:

- 1) the impact on the foundations of financial stability and security of the state, a decrease in the effect of monetary policy, an unjustified and uncontrolled increase in the money supply, and inflationary risks;
- 2) The possibility of losing investments in virtual assets due to their high volatility and the absence of an issuing center.

In 2017, the Argentine National Securities Commission (Comisión Nacional de Valores) issued a communiqué (ICO Communiqué), warning investors that there is no legal regulation of relations in the field of virtual assets:

- The value of such assets is characterized by high volatility and liquidity risks;
- There are many unscrupulous service providers on the market;

In addition, there is a possibility of technological and infrastructure failures. In 2018, the Ministry of Finance of India issued a Circular on the risks associated with virtual assets (Warning Circulars), which included the possibility of using such assets for money laundering and loss of funds invested in assets due to their high volatility and cyber security [11].

State institutions have identified the following risks that society faces in connection with the emergence of virtual assets: (1) the possibility of affecting the foundations of financial stability and security of the state;

(2) Inflationary risks (possible impact on the monetary policy of the state due to unjustified and uncontrolled increase in the money supply);

(3) investment risks (the possibility of losing investments in virtual assets due to their high volatility and the lack of an issuing center, the dishonesty of entities providing services in the field of virtual assets turnover);

(4) Criminological risks: (the possibility of using virtual assets for money laundering and terrorist financing);

(5) Technological risks (the possibility of technological and infrastructure failures, cyber-attacks).

The scholars also noted other risks. Thus, B. Derevyanko points to:

1) technological risks, consisting in the possibility of voluntary or forced abandonment of human civilization from modern computers and/or Internet technologies and the possibility of unauthorized persons acquiring information about the "ID wallet" and password, including the possibility of transferring this information to third parties by the wallet service provider; the possibility of damage to the software equipment or the wallet owner's computer; the possibility of banal loss and failure to restore the "ID wallet" and/or password by its owner;

2) legal risks, which include the possibility of unilateral changes by the wallet hosting company and the terms of the contract, the introduction of payments for the provision of certain services and certain transactions, as well as the lack of legal regulation of transactions with cryptocurrencies;

3) economic and legal risks, which include the possibility of a drop in demand for cryptocurrencies due to increased demand for real goods, an economic crisis, a world war, or due to the state's ban on one and the emergence of a new cryptocurrency [6, p. 33-37].

V. Bokhenko, D. Kaznacheieva, A. Dorosh, K. Shapovalova emphasize the criminological risks, such as the use of cryptocurrencies for the purpose of illegal trafficking in narcotic drugs and psychotropic



substances, purchase of weapons and ammunition, financing of terrorist or extremist organizations, etc. [4, 12, 21]. V. Novytskyi and V. Fitsa also emphasize the criminological risks - sponsorship of international terrorism and transnational criminal activity, illegal connection to the power grid, fictitious entrepreneurship, and tax evasion [15].

I. Gonak, in his analysis of the risks of the cryptocurrency business, identifies the following: lack of legal regulation and insurance for cryptocurrency wallet owners, hacker cyberattacks, the likelihood of losing one's own assets, loss of a cryptocurrency wallet password, possible loss of a secret personal PIN, possible erroneous transaction during a transfer from one cryptocurrency wallet to another, volatility of cryptocurrency value, risks to national security (monetary policy, financial stability), financing of illegal activities [10].

In the view of T. Bantorina and O. Livandovska, the risks of the spread of virtual assets include the following: destabilization of the global economy; creation of virtual smuggling markets; creation of a new financial pyramid scheme; control of the global system by transnational corporations; loss of interest in cryptocurrency due to the refusal of countries to legalize it [3].

D. Arzyantseva and N. Zakharkevych characterize virtual assets in a slightly different way (in negative context). Thus, scientists determine the possibility of using virtual assets for money laundering and terrorist financing, fraud (failure to provide the appropriate digital goods, substitution of goods with others, providing limited access to the use of goods, etc. taxation, settlement operations and conclusion of smart agreements by persons under the appropriate age or with limited legal capacity [2].

According to L. Primostka, the risks accompanying cryptocurrency transactions should include: regulatory, asset insecurity, lack of guarantees, illiquidity, high price volatility, the impossibility of using virtual assets as a universal means of payment (since in some countries cryptocurrencies are not recognized at the legislative level) [19, p. 90].

K. Pavlova highlights the risks of economic (course instability), legal (lack of regulatory authorities and guarantees of damages) and technological nature (theft of cryptocurrencies, hacker attacks), as well as the risk of bankruptcy and closure of exchanges, a possible market collapse, a fall in the course of existing virtual assets due to the emergence of new ones [18, p. 231-232].

I. Sytnyk and T. Bodareva classify the risks associated with the use of virtual assets into three categories. In particular, scholars identify the following categories: 1) security vulnerabilities of the blockchain system itself and the service infrastructure built on it, including intermediary services, such as cryptocurrency exchanges and trading platforms, electronic wallet services, etc.; 2) high volatility; 3) use of virtual assets in counteracting legitimate purposes, including for criminal services trade, money laundering and terrorist financing [22, p. 57].

S. Ogynok and K. Yanko have a somewhat different approach to defining risks in the sphere of virtual assets turnover. They emphasize that virtual assets can be used for criminal purposes, such as money laundering and terrorist financing; high volatility; competition with traditional currencies and financial institutions; negative environmental impact, as the mining process requires a significant amount of electricity (creation of new blocks), which can lead to an increase in carbon and other harmful substances in the atmosphere [16, p. 187].

O. Nesen, K. Tsiruk highlight the possibility of hacker attacks on users' crypto wallets, volatility of virtual assets, ambiguous legal regulation in different countries, increased inflationary processes in the country, depreciation of the national currency, the possibility of circumventing currency legislation, in particular currency restrictions on the withdrawal of currency abroad [14, p. 737].

M. Duchenko and T. Pavlenko emphasize the following risks of using virtual assets. For example, such risks as: lack of legislative regulation of their status and circulation, the possibility of classifying activities in the virtual asset market as illegal, uncertainty about the possibility of judicial protection of rights in matters related to virtual assets, hacker attacks, loss of cryptocurrency in case of loss of the password to the electronic wallet, the inability to contribute cryptocurrency to the authorized capital of legal entities, the risk of decentralization of the issue, the complexity of use for some non-professional users, significant exchange rate volatility, the possibility of financing illegal activities [8, p. 1004].

## 5. Conclusions.

In conclusion, the analysis of the risks faced by society in connection with the emergence and spread of virtual assets identified in institutional and scientific research can be classified as follows:

- 1) Economic risks: the possibility of affecting the foundations of financial stability and security of the state, inflation (possible impact on the monetary policy of the state due to unjustified and uncontrolled increase in the money supply), the possibility of creating pyramid schemes, the possibility of circumventing currency legislation (in particular, currency restrictions on the withdrawal of currency abroad);
- 2) Investment risks: the likelihood of losing investments in virtual assets due to their high volatility and lack of an issuing center;
- 3) Criminological risks: the possibility of using virtual assets for money laundering and terrorist financing, for the purchase of goods withdrawn from circulation (narcotics, psychotropic drugs, weapons, etc.), sponsorship of international terrorism and transnational criminal activity, illegal connection to power grids, fictitious entrepreneurship, tax evasion;
- 4) Technological risks: the likelihood of technological and infrastructure failures and cyberattacks;
- 5) Subjective risks: firstly, the possibility of unfair behavior of entities providing services in the field of turnover of such assets, the possibility of losing a cryptocurrency wallet password, secret personal PIN code by its owner. Secondly, the possibility of an erroneous transaction during a transfer from one cryptocurrency wallet to another. Thirdly, the possibility of conducting settlement operations and entering into smart contracts by persons under the appropriate age or with limited legal capacity, the inability of some non-professional users to use virtual assets;
- 6) Environmental risks: the tendency to increase carbon emissions and other polluting substances into the atmosphere due to the need for a significant amount of electricity for mining.

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