

ФІНАНСИ, БАНКІВСЬКА СПРАВА ТА СТРАХУВАННЯ

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VIRTUAL ASSETS OF THE DISTRIBUTED REGISTER

This publication focuses on the definition of “virtual assets of a distributed registry” as an economic category. Analysis of the term showed a lack of unity in the definition. The opportunities provided by the deployment of virtual assets in a distributed registry are new but potentially effective. Virtual assets can be distributed or unallocated registry assets, secured or unsecured. Among the virtual assets of the distributed ledger: tokenized assets and cryptocurrencies. Accordingly, these are types of virtual assets that exist exclusively in the form of a record with an information identifier. But in the case of a tokenized asset, this information is derived from the original asset. And in the case of a crypto asset, this information is not derived from the primary asset. The stakeholders of the virtual assets market are individuals, miners, mining pools, which carry out the storage, exchange, transfer, provision of intermediary services. Disadvantages of the introduction of virtual assets of the distributed register are the possibility of anonymous transfers, complicated process of identification of stakeholders in the virtual assets market, the possibility of financial speculation, money laundering, difficulties with taxation. The advantages include relatively low transaction fees, their irreversibility and rapid validation. Any changes to the data in the chain of blocks are possible only when stakeholders confirm the legitimacy of transactions in accordance with general rules and protocols. This technology prevents data loss because all network members keep an up-to-date, up-to-date copy in encrypted form. The use of blockchain eliminates the possibility of making changes to the data, so the database is considered relevant at the time of access. Data is stored on different servers, data cannot be processed with expired dates, changes are made in real time and it is impossible to forge them. It is noted that the introduction of virtual assets of the distributed register in order to stimulate economic growth requires a joint effort of the science sector, education sector, IT sector, financial sector, the sector of state regulators. The possibilities of distribution registry technologies are constantly growing and opening new perspectives.

Keywords: **blockchain, virtual asset, crypto asset, distributed registry, tokenized asset.**

JEL Classification: K19, O16, O23, O31.

General formulation of research and its topicality. At the present stage, the achievements of information technology are being rapidly implemented, the digital economy is developing, and business process technologies are changing. The issue of virtual assets concerns not only the economy of the state, IT companies or economic companies, but also individuals. Concepts such as “Virtual Asset Market”, “Virtual Asset Wallet” and “Virtual Asset Key” are gradually but steadily taking their place. A significant number of publications are devoted to the definition of virtual assets from the point of view of law (Кудь, Кучерявенко & Смычок, 2019; Черевко, 2019; FATF, 2020), there are publications on the classification of virtual assets (Kud, 2021; Овчаренко, 2020a), financial monitoring (Закон “Про віртуальні активи”, 2021).

The problem of implementation of virtual assets of the distributed register is relevant, debatable and therefore requires further scientific study.

Setting of the problem and the aim of the article. Digitalization is changing the present. Confidence in the capabilities of distribution registry technologies is constantly growing. Virtual

assets of the distributed registry open new perspectives and come to new industries. Theoretical and methodological problems of informatization of society, economic and organizational problems of information activities, the creation of information space of the object are scientific areas of modern economic research. Currently, the approach to the term "distributed registry virtual assets" is controversial, with different views on the types of virtual assets.

The purpose of this article is to review the virtual assets of the distributed register as an economic category, as a financial instrument, to define the main terms related to the market of virtual assets, and to analyze the possible prospects for their use.

Discussion and Results. Virtual assets in economic development are the subject of discussion at conferences, round tables, in scientific publications. We have been dealing with virtual assets for decades. For example, digital gift certificates, shopping bonuses, various coins in computer games, digital subscriptions are all virtual assets. And virtual assets of the distributed registry are those that are based on the latest technologies, in particular, blockchain technology.

A blockchain is a distributed registry system, a chain of data, a sequence of blocks or units of digital information stored in public databases that prevents any changes in the data chain.

To achieve consensus in a blockchain between network nodes, a sequence of blocks or chains of blocks that are protected by cryptographic methods is used. The blockchain is based on a distributed registry token, its main tool. The token accounting system serves as a system of registration, storage, data exchange.

Blockchains consist of a series of individual blocks, each of which contains information about transactions conducted over a period of time. They also contain a unique identifier to distinguish them from other blocks in the chain. Blocks are created by solving cryptographic problems. Blockchain technology is constantly improving.

"Virtual asset", "virtual currency", "digital currency", "cryptocurrency", are they synonymous or different terms?

More than ten years ago, for the first time in 2012, the European Central Bank defined the term virtual currency as a type of digital money that is not regulated and is issued and controlled by developers, used and accepted by members of a certain virtual community. Subsequently, the term virtual currency was defined by the FATF. She defined it as a digital representation of value that can function as a unit of account that can be traded or used as a medium of exchange, and / or a means of storing value, but does not have the status of legal tender (ie is not officially valid and legal tender in settlements with creditors) in any jurisdiction. And only in 2018 did the FATF for the first time define "virtual asset" as a term: "Virtual asset is a digital representation of value that can be traded digitally or that can be translated and used for payment or investment purposes" (FATF (2020); FATF (2019); FATF (2012–2021)).

According to the Law of Ukraine No. 361-IX (Закон України «Про запобігання та протидію легалізації (відмиванню) доходів, одержаних злочинним шляхом, фінансуванню тероризму та фінансуванню розповсюдження зброї масового ураження», 2019), a virtual asset is a digital expression of value that can be digitally traded or transferred, and that can be used for investments or payments.

Today, the Ministry of Digital Transformation is working to create an enabling environment for the virtual asset market. Thus, Forsyth: Virtual Assets in Ukraine - 2030. Final Report states that the Virtual Asset is a specific type of ownership that is valuable in electronic form, exists in the system of circulation of virtual assets and may be in civil circulation. Virtual asset market - a set of economic entities in the field of virtual assets and the legal relationship between them regarding the circulation of virtual assets (Офіційне інтернет-представництво Президента України Володимира Зеленського, 2021).

Virtual assets can be secured or unsecured. The secured person is the one who gives its owner the right to claim in relation to other than the virtual asset, the objects of civil rights, and the unsecured - does not give its owner any rights of claim in relation to other objects of civil rights.

Thus, the article by O. Kud (Kud, 2021) provides a comprehensive classification of virtual assets. The author identifies the following types of virtual assets. The authors propose a classification of virtual assets taking into account the complexity of their nature, namely: technological, economic and legal, information and applied. Thus, by their technological nature, divide virtual assets into 1) a distributed registry and 2) an unallocated registry. By economic and

legal, on cryptocurrencies and tokenized assets. On the information-applied, on digital assets, poly assets and mono assets.

There are two main types of virtual assets of the distributed registry: tokenized assets and cryptocurrencies. Accordingly, these are types of virtual assets that exist exclusively in the digital data accounting system in the form of a record with an information identifier. But in the case of a tokenized asset, this information is derived from the original asset. And in the case of a crypto asset, this information is not derived from the primary asset.

Virtual asset market stakeholders are individuals, miners, mining pools, and all providers of virtual asset circulation services that store, exchange, transfer, provide intermediary services related to the sale or offering of virtual assets.

Virtual asset circulation system is a software or software-hardware complex of electronic data exchange, in which the identification and circulation of virtual assets is provided.

A virtual asset wallet is software or hardware that provides its user with information about their virtual assets and the ability to dispose of them in the virtual asset circulation system.

The key of a virtual asset is a set of technical means implemented in the system of circulation of virtual assets, which allow to dispose of a virtual asset (FATF (2020)).

In September 2021, the Information Department of Ukraine reported on the State Website of Ukraine that the Law "On Virtual Assets" had been adopted. This law was to define "virtual asset" as the concept, rights and obligations of market participants, according to which, virtual assets are intangible. Assets have value and civil rights, expressed in electronic form. Regulation is carried out by the system of ensuring the turnover of virtual assets. The law was also intended to define its scope, the legal regime of virtual assets, market participants' rights and obligations, virtual asset exchange services, and so on. The field of circulation of virtual assets is increasingly receiving attention from the international community (Дорожня карта розвитку сфери віртуальних активів в Україні, 2021). But the Official Internet Representation (Овчаренко, 2020b) reported that the President of Ukraine returned his proposals the Law "On Virtual Assets" (Bill 37 3637), which MPs passed on September 8, 2021. Volodymyr Zelenskyi proposed to include the control of the circulation of virtual assets in the competence of the National Commission on Securities and Stock Market.

The disadvantages of the introduction of virtual assets of the distributed register are the possibility of anonymous transfers, complicated process of identification of stakeholders of the virtual assets market, the possibility of financial speculation, money laundering, difficulties with taxation.

Confidence in distributed registry technologies is gradually growing. For the first time, bitcoin was created on the basis of blockchain technology. With the help of such technologies it became possible to create digital records, registers, certificates and more. Data in the blockchain can be stored, corrected, sent online. To ensure security, transactions are quickly confirmed, documented and encrypted. The advantages also include irreversibility and validation. Any changes to the data in the chain of blocks are possible only when stakeholders confirm the legitimacy of transactions in accordance with general rules and protocols. It should also be noted that the use of distributed registry technologies eliminates the entry of unauthorized data, as all participants verify changes in the registry. The use of blockchain eliminates the possibility of making changes to the data, so the database is considered relevant at the time of access. Data is stored on different servers, data cannot be processed with expired dates, changes are made in real time and it is impossible to forge them.

Conclusions. Thus, the opportunities provided by the introduction of virtual assets in a distributed registry are new but potentially effective. Analysis of the term showed a lack of unity in the definition. Allocate virtual assets of the distributed registry and unallocated registry. Among the virtual assets of the distributed registry - two types: tokenized assets and cryptocurrencies.

Disadvantages of the introduction of virtual assets of the distributed register are the possibility of anonymous transfers, complicated process of identification of stakeholders in the virtual assets market, the possibility of financial speculation, money laundering, difficulties with taxation.

The advantages include relatively low transaction fees, their irreversibility and rapid validation. Any changes to the data in the chain of blocks are possible only when stakeholders confirm the legitimacy of transactions in accordance with general rules and protocols. This technology prevents data loss because all network members keep an up-to-date, up-to-date copy in encrypted form.

The development of new information products based on distributed registry technologies to stimulate economic growth requires a high level of involvement of all stakeholders in the market, with

the mandatory involvement of the science sector, education sector, IT sector, financial sector, government regulators.

Another important aspect is to determine the level of public confidence in virtual assets, the transparency of the market. This is the goal of our further research.

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ВІРТУАЛЬНІ АКТИВИ РОЗПОДІЛЕНОГО РЕЄСТРУ

В даній публікації приділена увага визначенню поняття "віртуальні активи розподіленого реєстру" як економічна категорія. Аналіз терміну продемонстрував відсутність єдності у визначенні. Можливості, які надають впровадження віртуальних активів розподіленого реєстру є новими, але потенційно ефективними. Віртуальні активи можуть бути активами розподіленого реєстру і нерозподіленого реєстру, забезпеченими чи незабезпеченими. Виділяють два основні види віртуальних активів розподіленого реєстру: токеновані активи і криптоактиви. Відповідно, це види віртуальних активів, що існують виключно у вигляді запису з ідентифікатором інформації. Але у разі токенованого активу, ця інформація є похідною від первинного активу. А у разі криптоактиву, ця інформація не є похідною від первинного активу. Стейкхолдерами ринку віртуальних активів є окремі особи, майнери, майнінгові пули, які здійснюють зберігання, обмін, переказ, надання посередницьких послуг. Недоліками впровадження віртуальних активів розподіленого реєстру є можливість анонімних переводів, ускладнений процес ідентифікації стейкхолдерів ринку віртуальних активів, можливість фінансових спекуляцій, відмивання доходів, отриманих злочинним шляхом, складнощі з оподаткуванням. До переваг слід віднести відносно низьку плату за транзакції, їх незворотність і швидку перевірку достовірності. Для того, щоб провести зміни даних в певному ланцюжку блоків, стейкхолдери мають підтвердити легітимність транзакцій відповідно до загальних правил та протоколів. При цьому слід зазначити, що дані зберігаються на різних серверах, виключена можливість втрати даних, стейкхолдери мають постійний доступ до інформації у зашифрованому вигляді, можуть доповнювати чи вносити зміни на

даний момент, але не можуть вносити зміни в інформацію, яка була оформлена раніше. Зазначено, що впровадження віртуальних активів розподіленого реєстру з метою стимулювання зростання економіки потребує об'єднання зусиль сектору науки, сектору освіти, ІТ-сектору, фінансового сектору, сектору державних регулюючих органів. Можливості технологій розподільного реєстру постійно зростають і відкривають нові перспективи.

Ключові слова: **блокчейн, віртуальний актив, криптоактив, розподілений реєстр, токенизований актив.**

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