

UDC 330.1

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CRYPTOCURRENCY – DEFINITION, FUNCTIONS, ADVANTAGES AND RISKS

Abstract. *The emergence of “virtual currencies” is extremely recent, with a history of only 13 years. Being an ultra-new economic tool, it arouses interest and effervescent reactions, especially in terms of definition, but also about the cumulative effects it has begun to produce in the economic world. The subject also becomes controversial due to the fact that, being an economic instrument of absolute novelty, it is reflected in the legislation of very few countries in the world. One of the definitions determines as virtual currency – the digital representation of the value that is not issued or guaranteed by a central bank or a public authority, which is not necessarily linked to a legal currency and which does not have the legal status of the currency, but which can be accepted by natural or legal persons as a means of exchange and which may be transferred, stored and traded by electronic means. The evaluation of cryptocurrency publications has shown that most of them are related to attempts to establish legislative agricultural work for the operation of virtual currencies. The functions of the cryptocurrencies that we have defined are: the exchange and payment function, the hoarding function, the investment function and the attraction of funds necessary for the activity. Thus, we established that virtual currencies, as well as fiduciary ones, have the role of: means of payment, means of accumulation, means of capitalization and investments. Likewise, through this research we managed to highlight the main features and peculiarities of cryptocurrencies. Among the basic characteristics of cryptocurrencies we highlight: the high degree of security, maximum speed of transactions, full freedom from financial organizations, irreversibility of operations, full anonymity of transactions, open source, they can be “mined”. Another approach was to determine the advantages and disadvantages and risks of using cryptocurrencies. The main advantages of using cryptocurrencies are related to its functions and characteristics, such as: it represents a real alternative to classic banking services, market freedom, privacy of transactions, high speed of transactions, alternative payment methods, increasing the customer base etc. On the other hand there are some disadvantages. They are related mostly with the following risks: legal uncertainty, market volatility, low degree of acceptance, unsecured crypto wallets, risks related to use for illegal or criminal purposes, money laundering risks. Taking in consideration the global trend of the digitization of the society, the share and importance of fiat currencies will tend to decrease for the benefit of virtual currencies. Cryptocurrencies are becoming a real alternative to physical currencies, but its main disadvantage is that the public authorities are missing controlling it yet. Even so, in the nearest future the money could become digital figures.*

Key words: virtual currency, cryptocurrency, Bitcoin, investment, risk, blockchain, electronic registers.

JEL Classification: A10, E44, F38, G28

DOI: <https://doi.org/10.36477/2522-1256-2021-30-01>

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КРИПТОВАЛЮТА – ВИЗНАЧЕННЯ, ФУНКЦІЇ, ПЕРЕВАГИ ТА РИЗИКИ

Анотація. *“Віртуальна валюта” з’явилась досить недавно, історія становлення якої налічує близько 13 років. Будучи достатньо новим економічним інструментом, вона викликає інтерес та бурхливі реакції, особливо з точки зору визначення, а також щодо кумулятивних наслідків, які криптовалюта має в економічному світі. Питання криптовалюти стає суперечливим через те, що, будучи економічним інструментом абсолютної новизни, вона відображається в законодавстві небагатьох країн*

світу. Одне з визначень характеризує віртуальну валюту як цифрове представлення вартості, яка не випущена або гарантована центральним банком або державним органом, яка не обов'язково пов'язана із законною валютою і яка не має юридичного статусу валюти, але може бути прийнята фізичними або юридичними особами як засіб обміну і може передаватися, зберігатися та торгуватися електронними засобами. Оцінка публікацій про криптовалюти показала, що більшість із них пов'язані зі спробами встановити законодавчу роботу в сільському господарстві для роботи віртуальних валют. Функціями криптовалют, які ми визначили, є: функція обміну та оплати, накопичувальна функція, інвестиційна функція та залучення коштів, необхідних для діяльності. Таким чином, ми встановили, що віртуальні валюти, як і фідучіарні, виконують роль платіжних засобів, засобів накопичення, засобів капіталізації та інвестицій. Також, в рамках цього дослідження нам вдалося висвітлити основні особливості криптовалют. Серед основних характеристик криптовалют ми виділяємо: високий ступінь безпеки, максимальну швидкість транзакцій, повну свободу від фінансових організацій, незворотність операцій, повну анонімність транзакцій, відкритий код, їх можна "видобувати". Іншим підходом було визначення переваг, недоліків та ризиків використання криптовалют. Основні переваги використання криптовалют пов'язані такими характеристиками: це реальна альтернатива класичним банківським послугам, свобода ринку, конфіденційність транзакцій, висока швидкість транзакцій, альтернативний спосіб оплати, збільшення клієнтської бази тощо. З іншого боку є деякі недоліки. Вони пов'язані з наступними ризиками: правова невизначеність, волатильність ринку, низький ступінь прийняття, незахищені крипто-гаманці, ризики, пов'язані з використанням у незаконних або злочинних цілях, ризики відмивання грошей. Беручи до уваги загальну тенденцію цифровізації суспільства, частка та значення фіатних валют, як правило, зменшуватимуться на користь віртуальних валют. Криптовалюти стають реальною альтернативою фізичним валютам, але головним її недоліком є те, що державні органи поки не контролюють їх.

Ключові слова: віртуальна валюта, криптовалюта, біткойн, інвестиції, ризик, блокчейн, електронні реєстри.

Formulation of the problem. The notion of "virtual currency" (cryptocurrency) and the blockchain technology dates back to 2008, when the cryptocurrency "Bitcoin" was first launched by the Japanese man Satoshi Nakamoto (pseudonym). It is considered that the purpose of inventing the new type of currency is the emergence of an alternative currency that would have some of the functions of traditional currencies (fiduciary and scriptural). With the emergence of a new payment instrument, it is necessary to define it as clearly as possible, as well as to delimitate the objectives, functions and field of use. Considering the fact that interest in this economic instrument is growing exponentially all over the world, it is required to be included in the specific legislation, which would regulate virtual currencies, the technology of distributed registers and the supply of the cryptocurrency.

Analysis of recent researches and publications. Scientific publications on cryptocurrencies are quite few, given that it is a recent notion. However, they appear gradually, in connection with the desire of some countries and even regional blocs to introduce the new domain in the legal field but also in the desire to use it in its full capacity and exploit all its benefits. Thus, various authorities and public institutions of the countries of the world, using the national legislative framework, define the notion of cryptocurrency and other aspects of their functioning. Those notions are found in various laws and documents developed by international organizations.

In 2015, the International Financial Action Task Force (IFATF) 27, an intergovernmental body to combat money laundering and terrorist financing, which brings together 35 states, published guidelines entitled "Guidance for a risk-based approach to virtual currencies". In February 2018, Member States called for the adoption of new provisions to increase the fight against money laundering. The final communication of the G20 meeting in Argentina (19–20 March 2018) supported the action of the FATF, calling for the updating of international standards for combating money laundering and terrorist financing in the field of cryptocurrencies and for a wider application of those revised standards.

In European Union law, the legal definition of virtual currencies can be found in Directive (EU) 2018/843 of 30th of May 2018.

Objective statements. The objective of this article is to define as precisely as possible the notion of cryptocurrency, delimiting their functions and features, examining the advantages and disadvantages of cryptocurrencies but the possibility of using them as an investment and the risks that could be generated with the use of cryptocurrency investment.

Outline of the main research material. First appeared in 2008, the virtual currency, so far still does not have a generally accepted definition, it varies depending on the country's legislation. However, we agree with the wording of the Fifth Money Laundering Directive (Directive 2018/843, EU), which defines "virtual currencies" as a digital representation of

value that is not issued or guaranteed by a central bank or public authority, which it is not necessarily linked to a legal tender and does not have the legal status of a currency, but can be accepted by individuals or legal entities as a medium of exchange and can be transferred, stored and traded by electronic means; according to the same directive, the functions / uses of virtual currencies are means of payment, exchange, investment, value storage product or for use in online casinos. From a terminological point of view, it is sometimes preferred to use the term “virtual assets”, insofar as those instruments are not “currency” in the common sense.

Most virtual currencies are based on distributed ledger technology, commonly referred to as “blockchain”. Virtual currencies have been developed to transfer value outside the existing monetary system, using cryptography and without the involvement of third parties, such as central banks or commercial banks. This is why they are sometimes called “currencies” and “payments”. They do not fulfill the established role of coins, being used relatively little for payments and not universally accepted as a stable way of exchange, a viable unit of account or a reliable tool for storing value. Although there are no universal definitions of cryptocurrencies, they still have a generally accepted feature: virtual currency is not a fiat currency and should not be confused with electronic money. To define the notion of “virtual currency”, terms such as: “virtual money”, “cryptocurrencies”, in the generic sense, or “cryptoassets”, “virtual assets”, “virtual tokens”, etc. are sometimes used. There are opinions that “cryptocurrency” is not perfectly synonymous with “virtual currency”.

Cryptocurrencies are defined as digital representations of a value or contractual rights that use some form of distributed registry technology and that can be transferred, stored or traded electronically. Cryptocurrencies are considered one of the practical uses (applications) of distributed registry technology and, although all cryptocurrencies use some form of distributed registry technology, not only the practical uses of that technology involve cryptocurrencies.

Sometimes the term “token” is preferred to “virtual currency” as being more neutral and without the implicit legitimacy of “currency”; is a broad term, which includes many virtual assets and can be defined in opposition to account assets, given that the account-based system starts from the possibility of verifying the identity of the holder, while those who use tokens are based on the ability to verify validity the token itself.

The first cryptocurrency, “Bitcoin”, was created on August 19, 2008 by a certain Satoshi Nakamoto⁸ (so far his identity has not been established with certainty), as a virtual currency that uses a computer protocol for encrypted and decentralized transactions, called blockchain (Chain of blocks). Bitcoin was created

to ensure the protection of investments and the free financing of business, without resorting to financial institutions and outside any constraints and regulations [1].

The first quotation between bitcoin and the US dollar was published on October 5, 2009, when a bitcoin was worth 0.001 USD so that at the end of 2017, a bitcoin was worth over 11,000 USD. So, bitcoin has a very volatile exchange rate, with significant daily fluctuations: in 2017, the value of bitcoin rose sharply from about \$ 1,200 in January 2017 to over \$ 18,000 in mid-December 2017, and then decreased by approximately 70%, up to 6,000 USD, at the beginning of February 2018, increasing to its maximum value of 60,000 USD in mid-April, 2021, followed by a sudden decrease, establishing a value of about 35,000 USD less than one month from its maximum historical value.

There are a lot of virtual currencies. The Fig. 1 shows the top 10 virtual currencies listed on one of the multiple virtual currency trading platforms – Investing.com.

There are currently about 10 200 cryptocurrencies that are traded non-stop on a lot of virtual platforms in various states.

Virtual currency is classified into:

- Convertible / non-convertible – may / may not be converted into fiat / reverse currency or not.
- Centralized / decentralized – whether or not there is a managing authority for the virtual currency [2, p. 10].

By electronic money, we mean a digital representation of the fiat currency used to electronically transfer the value denominated in the fiat currency. Electronic money is a digital transfer mechanism for fiat currency – ie it transfers electronically the value that has the status of a legal means of payment [3].

1		Bitcoin	BTC
2		Ethereum	ETH
3		Tether	USDT
4		Cardano	ADA
5		Binance Coin	BNB
6		XRP	XRP
7		Dogecoin	DOGE
8		USD Coin	USDC
9		Polkadot	DOT
10		Uniswap	UNI

Fig. 1. Top-10 of cryptocurrencies

Source: <https://www.investing.com/crypto/currencies>

There are secondary markets for non-convertible virtual currencies. These are usually online auction sites, for example: www.coinbase.com; www.bitmex.com; www.binance.com; www.kraken.com and others, which can accept a wide range of storage sources, such as: other virtual currencies; bank transfers; money transfers (Western Union, MoneyGram); bank cards; fiat money; PayPal etc. On these online auctions, for any transaction of conversion, purchase and sale of virtual currencies, the central authority (platform administrator) charges a commission. Additional fees may also be charged for depositing or withdrawing fiat currencies or money.

From the multitude of proposed definitions, we can deduce some characteristics:

- 1) represents a program code;
- 2) is the result of mathematical calculations;
- 3) is created and registered in the blockchain (the distributed register of digital transactions, kept by the participants in this register);
- 4) constitutes a unit of account that has a cryptographic protection of the evidence;
- 5) is one of the types of digital financial assets;
- 6) is a decentralized digital measure of value;
- 7) forms the object of possession;
- 8) can be transferred, stored and traded electronically.

At the same time, we can deduce several peculiarities inherent in virtual currencies:

- High degree of security. Funds held in cryptocurrencies are secured by a cryptographic system based on a public key. However, in order to make transactions with virtual currencies, you also need a private key (a kind of password) that only the owner has. The combination of a strong cryptographic technique and long numbers makes it virtually impossible to break.

- Maximum global speed. Transactions generally spread almost instantly and are confirmed in a few minutes. Because they take place in a global computer network, they don't depend on physical location.

- Total freedom, the owner does not need the permission of any entity to use cryptocurrencies and no one can interfere with its accounts (for example there is no notion of seizure on the account). It's just software that anyone can use.

- Irreversibility. Once virtual currency transactions are confirmed, they are irreversible, no one can change or cancel them.

- Anonymous. Virtual currency transactions and similar accounts are not associated with real-world identities. The owner receives virtual coins on a so-called address which is actually a string of about 30 characters. Although transaction flows can be analyzed, it is quite unlikely that the connection between the address and the real identity can be made.

- Open source. Virtual currencies are often open source, meaning they can be used for free by anyone to develop new applications, and the network can be used by anyone.

- They can be "mined". Most virtual currencies can be mined, i.e. generated electronically using mathematical algorithms.

The functions or uses of cryptocurrencies are summarized in Fig. 2.

Next we will examine what may be the advantages and disadvantages of cryptocurrencies (Fig. 3).

Advantages:

Alternative to classic banking services. Cryptocurrencies can serve as an alternative to some first name banking services are: deposits; currency exchange, money transfer, etc.

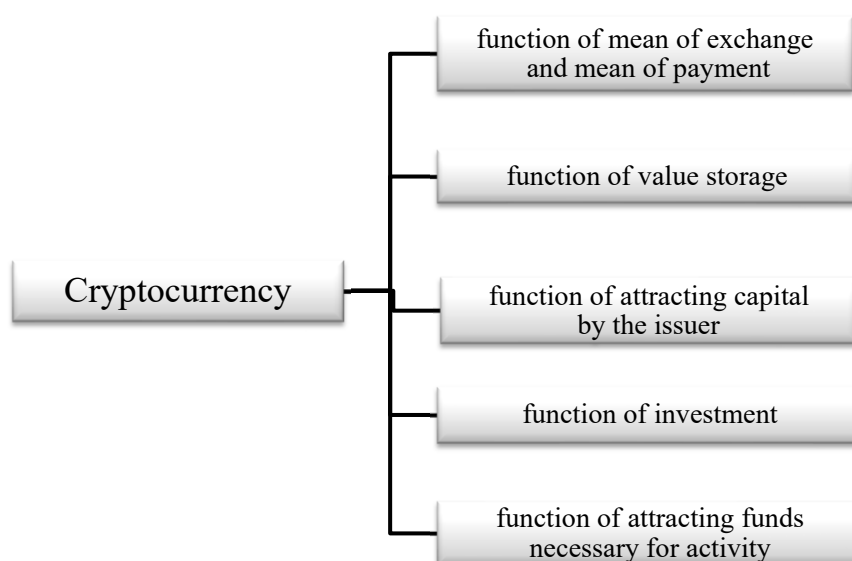


Fig. 2. Functions of cryptocurrencies

Source: developed by the author



Fig. 3. Advantages, disadvantages and risks of cryptocurrencies

Source: compiled by the author

Confidentiality. Trading platforms ensure the confidentiality of personal data, so that traders are protected from any fraud.

Freedom of the market expressed by the lack of a public authority that would intervene in the trading of cryptocurrencies.

Boosting e-commerce, closely linked to growing the customer base. Serving an additional payment method, virtual currency contributes to boosting e-commerce while growing the customer base.

The efficiency of international transfers and the increase in the speed of transactions are expressed by the fact that transfers take place 24/7 and can be used as a way of secure foreign exchange transfer at minimal costs. Payments in cryptocurrencies can be made instantly and permanently, without worrying about the short program of banks, as long as there is an Internet connection.

Transaction speed. In some cases, banks have to agree to transactions, which means long waiting times. When it comes to cryptocurrencies, the transaction is completed in a maximum of one minute.

Varied range of payment methods. The number of cryptocurrency users is growing every day, which means that the demand for this payment system is also growing. Sellers who opt for the introduction of cryptocurrencies thus have an advantage in the market.

Fraud protection. When it comes to cryptocurrencies, there is no credit. They may or may not exist in the customer's account, so the potential for fraud is reduced to zero. Also, the transactions are final and immutable, so they cannot be canceled later as in the case of credit cards.

Risks and disadvantages:

Legal uncertainty. The process of regulating cryptocurrencies is still in its infancy, with most

countries not yet having clear legislation. It is possible that in the future, the way cryptocurrencies are taxed will change, which may generate some accounting difficulties.

The biggest risk posed by cryptocurrencies is price volatility. Many of the virtual currencies experience a very high degree of volatility, in the sense that there are significant daily fluctuations in their prices.

The low degree of acceptability is conditioned by the fact that a large part of the countries of the world still do not have a well-developed legislation regarding the acceptance and circulation of cryptocurrencies on national territories.

Unsecured crypto wallets. To receive funds, sellers must have a digital wallet, which runs the risk of being compressed. Unfortunately, no infallible methods of protection have been discovered so far, and cryptocurrencies cannot be secured at present.

Risks related to use for illegal or criminal purposes. Given the anonymity of cryptocurrency traders, its use can lead to illegal and even criminal issues such as drug trafficking and the financing of international terrorism. Closely related to these risks are the risks of money laundering inherent in the use of virtual currencies.

Certainly, with more rigorous regulation in this area, these and other risks can be eliminated.

Conclusions. Given the global trend of digitization of society, the share and importance of fiat currencies will tend to decrease, being merged with the virtual ones, but to the extent necessary. The liberalization and globalization of practical trade has created the need for a new alternative in making payments. The anonymity, but also the freedom and independence of virtual currencies from any kind of financial authority have generated the exploitation of interest in these

resources. However, physical money will continue to exist for many years to come. Cryptocurrencies are alternatives to physical currencies, but cannot yet be controlled by public authorities. There is a tendency for banks to start exercising control, but this would contradict the very idea and significance of cryptocurrency. Thus, the trend of a not so distant future will be that money will become digital figures.

REFERENCES

1. Bitcoin: A Peer-to-Peer Electronic Cash System, available at: <https://bitcoin.org/bitcoin.pdf>

2. Advice. Initial Coin Offerings and Crypto-Assets, January 2019, available at: https://www.esma.europa.eu/sites/default/files/library/esma50-157-1391_crypto_advice.pdf

3. L'encadrement des monnaies virtuelles, June, 2014, available at: https://www.economie.gouv.fr/files/rapport_monnaies-virtuelles2014.pdf

4. Crypto-assets. Report of House of Commons Treasury Committee (UK), available at: <https://publications.parliament.uk/pa/cm201719/cmselect/cmtreasy/910/910.pdf>

5. Les crypto-monnaies. Rapport au Ministre de l'Économie et des Finances, 4 juillet 2018, available at: <https://www.ladocumentationfrancaise.fr/var/storage/rapports-publics/184000433.pdf>

Стаття надійшла до редакції 09 червня 2021 р.