

ECONOMIC SECURITY

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Olena PARSHINA[©]
Dr of Economics, Prof.



Yurii SAVCHENKO[©]
Dr of Eng-g, Ass.Prof.



Bogdana POLYANOVSKA[©]
student

(Dnipropetrovsk State University of Internal Affairs)

PROBLEM ASPECTS OF FINANCIAL AND ECONOMIC SECURITY IN THE CONDITIONS OF DEVELOPMENT CRYPT

Олена Паршина, Юрій Савченко, Богдана Поляновська. ПРОБЛЕМНІ АСПЕКТИ ФІНАНСОВО-ЕКОНОМІЧНОЇ БЕЗПЕКИ В УМОВАХ РОЗВИТКУ КРИПТОВАЛЮТ. Розглянуто аспекти фінансово-економічної безпеки і здійснено аналіз відомих в даний час криптовалют та широкий спектр тлумачень поняття «криптовалюта» офіційними органами різних країн; прогнозування розвитку криптовалют за рахунок формалізації факторів, що впливають на вартість криптовалют. Проаналізовано еволюцію криптовалюти і спрогнозовано її подальший розвиток, як потужний фінансовий інструмент на світовому ринку. Метою статті є аналіз аспектів фінансово-економічної безпеки через прогнозування розвитку криптовалют за рахунок формалізації факторів, що впливають на вартість криптовалют. Поява криптовалюти стала можливою завдяки криптографії і принцип обігу криптовалют заснований на технології блокчейн. Криптографія лише механізм, але не суть; механізм, який не має жодного відношення ані до правової природи, ані до юридичного статусу криптовалют. Розглянута форма залучення інвестицій у вигляді продажу інвесторам фіксованої кількості нових одиниць криптовалюти, отриманих разовою або прискореною емісією. Звернено увагу, що за кількістю користувачів криптовалютами, Україна входить в топ-10 країн світу. Технологія блокчейн застосовується у державних реєстрах України. Віртуальна валюта – це величезна кількість обчислювальних потужностей та цифрових активів. На етапі технологічного розвитку людства криптовалюта здобуває стійкі позиції на міжнародному ринку. Стрімкий розвиток визиває подальший приріст потужностей та зацікавленість мас, але в кінцевому підсумку може призвести до краху. Суть роботи майнера полягає в пошуку з мільйонів можливих комбінацій одного єдиного правильного коду та необхідне спеціальне програмне забезпечення. Якщо цінова стабільність криптовалюти буде досягнута, то її можна буде використовувати у міжнародних транзакціях, а не лише для спекулятивної вигоди. Однак, це питання вже буде напряму пов'язано з легалізацією нової валюти та її визнанням центральними банками як засобу обміну, або зберігання вартості грошей. В спектрі різних тлумачень поняття «криптовалюта» вбачається певна закономірність: в тій чи іншій формі, але криптовалюти все ж таки визнаються засобами обміну, а у деяких випадках навіть засобами платежу. В сучасній час розвиток криптовалют почав в значній мірі впливати на фінансово-економічну безпеку держав.

Ключові слова: криптовалюта, біткоїн, ефіріум, лайткоїн, неймкоїн, майнінг, гроші, блокчейн.

© Parshina O., 2019
ORCID iD: <https://orcid.org/0000-0002-7836-0140>
k_eam@dduvs.in.ua

© Savchenko Yu., 2019
ORCID <https://orcid.org/0000-0002-7177-6311>
k_eam@dduvs.in.ua

© Polyanovs'ka B., 2019
k_eam@dduvs.in.ua

Problem statement. Modern society is developing rapidly in scientific and technological progress. Many people are actively watching the emergence of a new payment method, the name of which is cryptocurrency. Cryptocurrency is introduced into daily circulation and supports the interest of people and entire states. This implementation generates market demand, under the influence of which the price of the product changes. Under the rush of influence, the rate of cryptocurrency is growing rapidly. In the financial market, the economy is increasing its partial ratio. No one can control and stop the development of cryptocurrency. Cryptocurrency is creating the conditions for the Internet revolution. There was a need to analyze the evolution of cryptocurrency and to predict its further development as a powerful financial instrument in the global market.

In modern times, the development of cryptocurrencies has begun to have a significant impact on the financial and economic security of states, prompting them to consider the problematic aspects of financial and economic security in the context of cryptocurrency development.

Analysis of publications that started solving this problem. Investors' interest in cryptocurrencies remains low. The significant impact on the world economy is not significant. However, in the future the situation may change and the crypto economy will contribute to the development of the global economy. Blockchain technology plays an important role in enhancing the openness and performance of the global financial system and the economy as a whole.

In the late 90's of the twentieth century, the idea of creating cryptocurrencies at the time of a revolutionary period in the world of new technologies arose. It happened when computer technology became personal and during the mass spread of the Internet. The first concepts of virtual currencies emerged, the functioning of which was based on cryptography – the science of methods of encryption of information.

First of all, cryptocurrency ideologists sought to ensure the full independence of the new currency from the state, which would guarantee the cryptocurrency transaction participants the desired anonymity and invulnerability. Bitcoin, the first full-fledged cryptocurrency, emerged in 2008, when Satoshi Nakamoto, a Japanese (there is also a version that is not one person but a group of scientists under a pseudonym), came up with his own concept of a cryptocurrency system headed with bitcoin (BTC) [1, p. 95-115].

The article's objective is to analyze the aspects of financial and economic security by predicting the development of cryptocurrencies by formalizing the factors that affect the value of cryptocurrencies.

Basic content. Cryptocurrency is a type of digital currency, the issue and accounting of which are based on asymmetric encryption and application of various cryptographic security methods, such as Proof-of-work and / or Proof-of-stake. The functioning of the system is decentralized in a distributed computer network [2, p. 27, 15]. You need to use the computing power of your computer to get new coins. The essence of a miner's job is to search among, out of millions of possible combinations, one single correct code called a hash and get rewards for it. As of 2016, the award is 12.5 BTC (\$ 122 593 thousand as of December 1, 2017), in 2020 its next change will occur [3]. For complex computations based on cryptocurrency systems, powerful graphics or specialized graphics card accelerators are used to provide high-speed sha-256 encryption. Mining requires special software. The software can be obtained from official cryptocurrency websites or from other open sources [4].

Consider some of the currently known cryptocurrencies.

The first of cryptocurrencies and the basis for building all other existing blockchain systems is Bitcoin (BTC). The first issue of Bitcoins is January 3, 2009. Bitcoin pricing began in 2010. At first it did not exceed a few cents for 1 BTC.

Each transaction is called bitcoin addresses and is used by means of virtual aliases correction [4]. The Bitcoin address looks like 1DSrfJdB2AnWaFNgSbv3MzC2m74996JafV. It consists of a string of letters and numbers beginning with "1" (number one). Transactions are irreversible. Cryptocurrencies are transmitted using blockchain technology, with each transaction being verified by at least five other system clients. Confirmation is for a small fee.

Through blockchain, you can track the movement of money. But it is almost impossible to trace the owner's connection with the wallet, which determines the high anonymity of cryptocurrencies.

Blockchain technology provides complete decentralization of data storage. A common transaction database is distributed between all nodes in the system. This ensures high security of information from external influences and force majeure.

Since the birth of bitcoin, more than 2,000 varieties of digital money have appeared on

the market. Most of them are just a fork of a bitcoin. That is, the basis for the creation of such currencies was the Bitcoin code. In the cryptocurrency system, one of the first types of digital money was Neymkoin.

Neymkoin (NMC) was released in mid-April 2011 based on a bitcoin code that has undergone minor changes. The maximum coin limit is 21 million units. The NMC price demonstrates relative stability at 50 cents for one Neymkoin. Number of coins purchased 12.6 million.

Lightcoin (LTC). This type of cryptocurrency is created without centralized administration and is also a bitcoin fork. By volume of capitalization, lightcoin is consistently among the top four crypto currencies.

Ethereum (ETH, Ethereum) is a blockchain-based open source platform that allows developers to create and deploy decentralized applications. The main advantage of ethereum over bitcoin is that the former provides support for various types of decentralized applications.

Ethereum occupies the second position after bitcoin in terms of market capitalization. Over the year, the cost of the Ethereum platform has more than doubled. Bitcoin and Ethereum compete in the digital currency market.

A novelty of Ethereum was the extension of a set of instructions in the full-featured JavaScript programming language [5].

The total capitalization of the cryptocurrency market is now \$ 202.5 billion.

Ethereum has become a staging ground for various projects [6]. As a result, a form of investment attraction (ICO) appeared in the form of sales to investors received by a single or accelerated issue of a fixed number of cryptocurrency units, (fig. 1.).

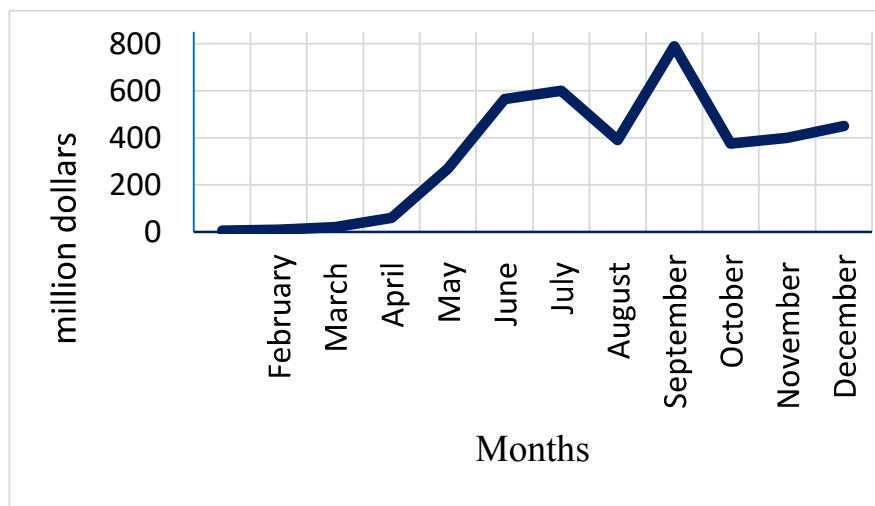


Fig. 1. Number of ICOs and volumes of funds raised in 2017.

From picture 1. We can see that the amount of funds raised is growing rapidly.

Due to ICO placement, Ukrainian companies created 25 different cryptocurrencies in 2017-2018, the amount of funds raised exceeded \$ 100 million. The world has created 1.8 thousand cryptocurrencies by 2018. About it writes liga.net with reference to the message BRDO [7].

Ukraine is in the top 10 countries in the number of users of cryptocurrencies. Daily hryvnia cryptocurrency trading volumes reach \$ 1.9 million [7]

In the near future, the appearance of cryptocards is planned. These cards will be able to be used as a regular credit card in stores. That is, use the cards to meet the daily needs of their owners. Cryptocards will look like regular plastic and debit cards, but the concept of calculations will be different. There are two options for making a payment by installing special terminals or using the created payment infrastructure.

Creating the foundation for stable cryptocurrency transactions enables the new currency to enter full-scale circulation and move to a new stage of belief evolution [8].

By July 2013, all cryptocurrency software except XRP (Ripple) was based on open source Bitcoin. Since July 2013, self-developed platforms have been launched that support cryptocurrency in addition to various crypto-infrastructure — stock trading, shops, messengers

and more. The following crypto platforms include: BitShares, Mastercoin, Nxt; other platforms are announced. The default cryptocurrency does not provide for forced refunds, but there are options for intermediary agreements, where the agreement or consent of all three or arbitrary two parties is required to terminate or cancel the transaction, the funds cannot be forcibly frozen or removed without access to the owner's private key, but participants agreements may voluntarily temporarily suspend funds as collateral. As a rule, there is an upper limit to the total emission. However, some cryptocurrencies, such as PPCoin, Novacoin, Sifcoin and others, do not have a fixed cap on the total amount of the issue and are possible to issue due to the accumulated accumulation and the issue through the obligatory destruction of a small fixed amount in each transaction. All cryptocurrencies currently in use are nicknamed — all transactions are public, but there is no binding to a specific person by default, but a user's identity can be established if additional information is known [9, p. 27]. Zerocoin is under development, where it is planned to replace the alias with anonymity [10].

As the newest electronic means of payment, cryptocurrencies do not have their legislative fixation in Ukraine, and therefore no regulatory definition [11, 12]. It is widely understood that cryptocurrencies are units of value stored on electronic devices, used as means of payment, and transacted with cryptography. The Verkhovna Rada of Ukraine has registered several bills on the circulation of cryptocurrencies, which demonstrate different approaches to the legal qualification of this institute. Draft Law of Ukraine No. 7183 "On the Circulation of Cryptocurrency in Ukraine" (hereinafter – Bill 7183) defines cryptocurrency as a program code (a set of symbols, numbers and letters), which is the subject of property rights, can act as a means of mines, information about which are transferred and stored in blockchain system as accounting units of the current blockchain system in the form of data (program code) [13]. The definition of cryptocurrency in such a way does not seem very successful because of the focus on the technical aspect, which pushes to the second plan the economic and legal content of the concept (from a technical point of view, the category "program code" covers a fairly wide range of objects, most of which are not related to cryptocurrencies, including computer programs, databases, etc.).

Alternative Draft Law of Ukraine № 7183-1 "On Encouragement of the Cryptocurrency Market and Their Derivatives in Ukraine" (hereinafter – Bill 7183-1) proposes to define cryptocurrency as a decentralized digital value dimension, which can be expressed in digital form and function as a medium of exchange, storage or unit accounting based on mathematical calculations is their result and has cryptographic protection of accounting.

The debate on the legal nature of cryptocurrencies has not subsided with scholars: they are defined both as money and as means of exchange or settlement other than money, and as monetary surrogates and even commodities. The study of whether it is legitimate to consider cryptocurrencies a kind of money seems appropriate to begin by analyzing the current definitions of money. Article 192 of the Civil Code (Civil Code) of Ukraine, although called "Money (cash)", does not contain any definitions, only stating that the legal tender in the territory of Ukraine is the hryvnia and that foreign currency is used in cases and in accordance with the procedure established by law. According to the National Regulation (Standard) of accounting "General Requirements for Financial Reporting", approved by the order of the Ministry of Finance of Ukraine from 07.02.2013 № 73 cash (money) – cash, funds on accounts with banks and demand deposits. But the meaning of the concept of "money" these rules do not disclose. Other pieces of legislation also do not contain a definition, so fill in the gap.

Money is a measure of value, a common equivalent, a universal medium of exchange. These characteristics clearly correlate with the functions of money. According to K. Marx's theory, there are five of them [14]:

- a measure of value;
- exchange (circulation);
- means of accumulation (formation of wealth);
- means of payment;
- world money.

Modern economists add to this list other functions: ensuring the functioning of the state; consumption regulator; stimulation of scientific and technological progress and the like. But what is characteristic of modern society may be completely unnatural to the society of the ancient world or the Middle Ages. That is, certain functions of money begin to manifest themselves only under certain conditions, at a certain stage of social development. At the present stage, money exists in the material or intangible form.

Today, cryptocurrencies are not only an objective reality, but also a significant econom-

ic factor. As already mentioned, there is no consensus in the scientific community or at the level of governments of different countries as to which category should be classified as cryptocurrencies.

Participants in the G-20 summit, held in Buenos Aires from March 19 to 20, 2018, deliberately withdrew from their use of the term crypto-currency, replacing it with crypto-assets, where it is explicitly emphasized: crypto-assets have key attributes of sovereign currencies. According to the summit participants, cryptocurrency is not a currency but an asset, so they use the term cryptocurrency as a more correct one. This position is not generally accepted even within the G20 itself. "

Countries are demonstrating different approaches to government-level legal qualification of cryptocurrencies. Within these countries, discussions do not cease, often leading to different interpretations of this institution by the departments of one country. In the United States, cryptocurrencies are viewed simultaneously as an analogue of money, as property, and as commodities, depending on the position of an institution. The peculiarity of the United States is the precedent system of law, which allows courts to actively participate in the legislative regulation of various issues, without excluding cryptocurrencies.

The problem of Bitcoin was ignored by US federal authorities. The head of the Federal Reserve System (US Federal Reserve) voiced the Fed's official stance on cryptocurrencies, saying "the cryptocurrency in no way intersects with the banking sector, and therefore the Fed has no authority to regulate it. The Federal Bureau of Investigation in its official currency reports The same is the case with the US Treasury Department's Financial Crimes Commission, with the US State Commission on Exchange Futures equating cryptocurrencies to commodities. yno allowed to start trading futures Bitcoin. komisiyī Chairman Christopher Giancarlo said that Bitcoin is a virtual currency, goods, which the Commission has never faced.

In Europe, approaches to cryptocurrencies are also not well established or unified. The European Central Bank (ECB) uses the term "virtual currencies", to which Bitcoin refers. The ECB has defined virtual currency as "the type of unregulated digital money" that is issued and usually controlled by its developers, used and accepted by members of a particular virtual community.

The Republic of Belarus has officially determined the status of cryptocurrencies. On December 21, 2017, the President of Belarus signed Decree No. 8 "On the Development of the Digital Economy", which legalized the circulation of cryptocurrencies in the country. According to paragraph 4 of annex 1 to the aforementioned Decree, cryptocurrency is defined as bitcoin or other digital sign (token) used in the international trade as a universal medium of exchange. [15]

Conclusions. There is a wide range of interpretations of the concept of "cryptocurrency" by official bodies of different countries. There is a certain pattern in this variety in one form or another. However, cryptocurrencies are still recognized as a means of exchange and means of payment.

The emergence of cryptocurrency was made possible by electronic cryptography. The principle of cryptocurrency circulation is based on blockchain technology. However, the above aspects have only the technical side of the issue. Cryptography is only a mechanism, not an essence. A mechanism that has nothing to do with either the legal nature or the legal status of cryptocurrencies. Cryptography has long been used to encrypt information. Cryptocurrencies are only a by-product in this matter. Blockchain technology is also used in state registers. An example of this is the State Land Cadastre of Ukraine. The National Bank of Ukraine announced the possibility of issuing e-hryvnia. Non-cash hryvnia will be based on blockchain technology. Understandably, the terminology of the two e-hryvnia bills would not fall under the sign of cryptocurrency, even if cryptography and blockchain technology were used, since one of the main features of the Bitcoin-based cryptocurrency is decentralization and lack of uniformity.

Virtual currency is a huge amount of computing power and digital assets. At the stage of scientific and technical process cryptocurrency gains a stable position in the international market. The rapid development causes a further increase in capacity and interest of the masses. It can eventually lead to a crash. If the price stability of the cryptocurrency is achieved, it can be used in international transactions, not just for speculative gain. However, this issue will already be directly linked to the legalization of the new currency and its recognition by the central banks as a means of exchange, or the preservation of value for money. In the modern times, the development of cryptocurrencies has begun to greatly influence the financial and economic security of states.

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Summary

The aspects of financial and economic security are considered and the analysis of currently known cryptocurrencies and a wide range of interpretations of the concept of "cryptocurrency" by official bodies of different countries are carried out; forecasting the development of cryptocurrencies for accounting for formalizing factors that affect the value of cryptocurrencies. The evolution of cryptocurrency has been analyzed and its further development projected as a powerful financial instrument in the world market. The purpose of the article is to analyze the aspects of financial and economic security by predicting the development of cryptocurrencies by formalizing the factors that affect the value of cryptocurrencies. The emergence of cryptocurrency was made possible by cryptography and the principle of cryptocurrency turnover based on blockchain technology.

Keywords: *cryptocurrency, bitcoin, ethereum, lightcoin, nemkoin, mining, money, blockchain .*

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Zoya KALINICHENKO®

Ph.D

(Dnipropetrovsk State University of Internal Affairs)

PROBLEMS OF INSTITUTIONAL AND LEGAL SUPPORT FOR OVERCOMING STRUCTURAL IMBALANCES IN UKRAINE'S DEVELOPMENT

Зоя Калініченко. ПРОБЛЕМИ ІНСТИТУЦІЙНО-ПРАВОВОГО ЗАБЕЗПЕЧЕННЯ ПОДОЛАННЯ СТРУКТУРНИХ ДИСБАЛАНСІВ РОЗВИТКУ УКРАЇНИ. Розглядаються проблемні питання забезпечення економічного зростання в країнах з ринковою системою, що розвивається: структурна незбалансованість; керована, неринкова фінансово-монетарна політика; втрачання можливостей розвитку реального сектора економіки; управлінська неспроможність державно-владних інституцій.

На високий рівень теоретичного узагальнення проблем в наукових публікаціях вказують фахівці, як на досягнення. Але дослідження різних аспектів структурної незбалансованості, взаємозв'язків між діями державно-владних інституцій з метою зменшити та вирівняти їх негативний прояв, залишаються актуальними та потребують додаткових наукових розробок.

Автор розглядає перешкоди на шляху економічного зростання країн та пропонують їх класифікацію залежно від їх впливу, походження та функціонального змісту. Серед ризиків, що перешкоджають та створюють небезпеку, наводять саме такі, як слабкість державних інституцій, історично сформовану слабку соціальну структуру. Досліджується в працях учених діаметральна протилежність інтересів впливових соціальних груп, безвідповідальність, що пов'язана зі станом правової культури в суспільстві, нефаховість та прорахунки інститутів, що утримуються на державні кошти та повинні забезпечувати впровадження ринкових змін.

Дослідження присвячене розробці концептуальних засад, принципів та підходів до моделювання систем економічного зростання в країнах з ринковою трансформацією. На базі проведеного аналізу репрезентативного масиву інформації розкривається взаємозв'язок між складовими, що створюють небезпеку економічному зростанню, сталому розвитку країн;

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ORCID iD <https://orcid.org/0000-0002-6045-1511>

k_eam@dpuvs.in.ua