

## SCTMG 2020

### International Scientific Conference «Social and Cultural Transformations in the Context of Modern Globalism»

# CRYPTOCURRENCY AS A COMPONENT OF THE DIGITAL ECONOMY

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### *Abstract*

This article reveals the economic content of the cryptocurrency, which has recently become widely known and spread. The system of direct payments was a response to the global financial crisis, the consequences of which have shaken the financial system of many countries. The authors analyze the scientific achievements of foreign and domestic scientists, which allows to identify a number of advantages and disadvantages of the new currency based on information. Along with the technological superiority in this direction, there are still questions concerning methodological, methodological and legal components of the cryptocurrency. Bitcoin is characterized by decentralization: a special program code regulates the work of the network members, as well as the schedule of emission, which is limited in itself, because the generation of coins is closed and the number of PTSs is constant. The introduction of cryptocurrency has a number of other positive effects: irreversible transactions, low transfer fees, complete isolation of the currency from inflation, etc. At the same time, the cryptocurrency has negative consequences. For example, the inability to track remittances and the vulnerability of the system create the preconditions for illegal operations: money laundering, capital flight, terrorism, etc. Another negative feature of the cryptocurrency is its dependence on supply and demand. Thus, the legal status of the cryptocurrency in many countries, including Russia, is not fully defined due to its ambiguous attitude. However, it should be admitted that its appearance on the world market is a phenomenon that in theory can fundamentally change the existing financial system.

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**Keywords:** Financial system, cryptocurrency, crisis, bitcoin.



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## 1. Introduction

Recently, there has been a systemic loss of confidence in the country's financial system in the Russian Federation. Depositors trust the banks less and less, and they, in their turn, do not trust the clients, because the number of insolvent citizens has increased.

The mortgage crisis, which began in the USA in 2006 due to a decrease in the number of sales in real estate, turned into a credit crisis in 2007. The loan could get everyone wishing to almost any product. Lack of control and was the cause of this global problem.

The global financial crisis of 2008 dealt a crushing blow to the financial systems of many countries of the world. Experts attribute its emergence to such factors:

- the cyclicity of economic development;
- the imbalance of international trade and capital flows;
- uncontrolled growth of the money supply;
- depreciation of the US dollar in 2002–2008 (this was caused by the decrease in its use as a reserve currency by many countries and by attempts to switch currencies in international settlements, which led to the emergence of crisis phenomena in certain sectors of the economy);
- "Overheating" of the credit market and stock market;
- High commodity prices, which led to abnormal pricing.

The global financial system is based on third party intermediaries (in most cases, banks) authorized to carry out financial transactions between end users (households, companies, and government agencies). The banking system, as a component of the financial system, plays a crucial role in the economic development of the country. The economic crisis was most acutely manifested in this very sphere. It has jeopardized the stability of monetary systems due to massive loan defaults and reduced lending capacity, which has affected solvent demand and real production.

The results of the 2008 crisis were: general recession of the economy, slowing or stopping of GDP growth of the countries, its reduction, decrease of incomes of the population, revenues and budget allocations, reduction of production, growth of unemployment, closing of social programs, etc. In this regard, the search for alternative ways – conceptually new currencies based on information – was intensified (Vlasenko, 2017). In 2008, a system of "cryptocurrency" payments was described, which did not require the participation of a third party. The proposed direct payment system had technological advantages over standard currencies. However, there are still many unresolved methodological, methodological and legal issues in this area.

## 2. Problem Statement

In the modern world, the cryptocurrency is becoming an advanced instrument of monetary relations. Consideration of this issue has become the main problem of the study, the solution of which will give a complete picture and understanding of the new type of currency.

### 3. Research Questions

Cryptocurrency is an alternative expression of ordinary currency and has a number of advantages:

- Cryptocurrency transactions are completely anonymous and confidential. All transaction information is encrypted in a set of characters and personal data is not linked to the cryptocurrency wallet (Kovalenko & Miller, 2017);
- Each unit of cryptocurrency has a unique code and is protected against forgery;
- The cryptocurrency is decentralised, i.e. it does not have a control centre, so that the founder of the digital money or any financial institution cannot influence its existence. Course and transactions are regulated by users of electronic wallets;
- Each unit of cryptocurrency is not tied to any of the banks, which significantly reduces the commission for transactions. The cost of the commission is usually equal to the cost of energy resources spent on the transaction;
- Absence of binding to banks contributes to significant reduction of time spent on transactions with the cryptocurrency. Usually, the confirmation of transactions with the cryptocurrency comes within a few seconds;
- Transactions are carried out directly between different owners of electronic wallets, which helps to increase the speed of transactions and reduce fees;
- most types of cryptocurrency have a maximum threshold due to the finitude of all possible combinations of symbols forming each new unit of cryptocurrency (Vander Laan, 2014). This helps to reduce the unjustified money supply in circulation and reduce inflation.

However, some of the advantages of cryptocurrency are also its disadvantages. For example, the complete anonymity and confidentiality of transactions allow for currency speculation and its use for criminal operations, such as human trafficking, drug trafficking, financing of terrorism, etc. A. Juels, a cryptographer and professor at Cornell Tech University, described Bitcoin (the first and most famous of the officially recognized cryptocurrencies) as "an ideal weapon for crime because it creates a situation of trust, whereas in other cases it is difficult to achieve" (as cited in Antonov, 2015, p. 26). To a certain extent, we share the opinion of A. Juels, because due to the complete anonymity of the cryptocurrency it allows to finance criminal activities without much fear or effort. One of the most famous examples when the cryptocurrency was used for criminal purposes is the SilkRoad website, which was closed down by the U.S. law enforcement agencies in 2013 and had an income of about \$400,000 per day. Bitcoin was used to calculate the sales transaction on this Internet resource, which provided the necessary level of anonymity. Most of the goods displayed on the site were narcotic substances (as cited in Antonov, 2015).

Another disadvantage of the cryptocurrency is its elasticity, which depends on the supply and demand for it. This is due to the fact that it is only controlled by currency users.

#### 4. Purpose of the Study

The aim of the work is to determine the peculiarities of functioning of cryptocurrency in modern financial markets as a component of the digital economy and to assess the advantages and disadvantages of its implementation for the national economic system.

#### 5. Research Methods

Both foreign and domestic scientists are engaged in the study of the issue under consideration. Analysis of the works of the above scientists and is a method of research article. Despite the global nature of the topic under study, there are many unresolved problems to determine the essence of the cryptocurrency, assessment of the positive and negative effects of their implementation, the legal framework for the functioning and regulation of emissions in global financial markets.

#### 6. Findings

The first purchase made for bitcoins was a pizza order worth \$50,000 for 10,000 Bitcoins; as of November 15, 2015, the Bitcoin/USD exchange rate was already 339.61. Given the fact that it has been in existence since 2009, it can be noted that the growth rate is extremely rapid. Over the past five years, the increase has occurred approximately 67,920 times (Vries, 2018). But if we look at the dynamics of the Bitcoin exchange rate, we can see that along with its significant growth, there is also a significant drop.

Bitcoin instability can be explained by its relatively low weight in circulation (the maximum possible amount of Bitcoin is 21 million, and more than half of it was extracted) (Grobys & Sapkota, 2019). In this regard, any sufficiently large operation may affect its course. On the one hand, this feature of the cryptocurrency makes it possible to play on courses and be enriched by its fluctuations. On the other hand, many people who tried to enrich themselves with Bitcoin could not calculate the change of course and lost their money. The evolution of the Bitcoin/dollar exchange rate can be seen in the table 1.

**Table 01.** Bitcoin exchange rate trends over the period of its existence, by year, in USD per year US\$ 1,000

Currency, dollars	2012	2014	2016	2017	2018
<i>Minimal</i>	0.005	4	15	220	200
<i>Maximum</i>	32–33	15	1250	1000	500

Analysing table 1, it can be concluded that the maximum rate of Bitcoin was observed in 2016, and over the past year and a half it has fluctuated between \$200 and \$500. Bitcoin was reported to be in the range of \$200–\$500 per Bitcoin. Analysing the dynamics of the Bitcoin exchange rate, it can be concluded that there are no significant upward trends in Bitcoin (Caporale et al., 2018).

Also one of the drawbacks of the cryptocurrency is the ambiguous attitude of different governments towards it. Cryptocurrency is a new payment system that is fundamentally different from the traditional one and thus creates a gap in legislation. This gap needs to be filled in by legislation, or the cryptocurrency needs to be recognized or banned.

In the absence of such a regulation, all comments and prohibitions by the authorities and national banks can only be regarded as recommendations and cannot be used to further punish the use of the cryptocurrency for personal purposes.

Different countries deal with this issue in different ways. For example, the United States has established a five-year moratorium on any regulation of the cryptocurrency. This was done in order to assess the opportunities and prospects for the development of new technology. In the Russian Federation, however, the opposite has been done - what is unknown must be banned. Thus, the Bank of Russia defines Bitcoin as a "money surrogate", which has no real value and cannot be used by individuals and legal entities on the territory of the Russian Federation as a means of payment, as, in its opinion, it contradicts the norms of Russian law (Ashim, 2017).

In our opinion, several reasons contribute to complicating the path of cryptocurrency recognition in our country: unwillingness of legislative bodies to conclude new and revise existing regulations on currency regulation and cryptocurrency in general; fear that the mass use of the cryptocurrency will call into question the liquidity and credibility of the ruble as a whole; in the long run, the transition to settlements with the use of cryptocurrency may have a significant impact on the banking system, as banks do not have influence on the market of cryptocurrency; reluctance to release the cryptocurrency in free navigation, as the Russian government is used to controlling most areas of economic activity, and the market for cryptocurrency operates centrally and cannot be subordinated to any particular authority; the use of Bitcoin and other cryptocurrencies on a mass scale on the territory of the Russian Federation is difficult, as the power, anonymity and confidentiality of cryptocurrencies can be used to finance terrorism; the authorities refuse to recognize cryptocurrencies (Antonov, 2015).

Cryptocurrency hides huge financial potential. For example, a recent Technology Tipping Points and Societal Impact study conducted as part of the World Economic Forum (WEF) showed that the turning point for Bitcoin will be in 2025. According to more than 58 % of the 800 CEOs and professionals surveyed, about 10 % of global GDP will now be channelled through virtual currencies (Ashim, 2017).

At the same time, a study conducted by the British M&A technology consulting company Magister Advisors showed that the top 100 financial companies will spend about \$1 billion over the next two years on projects related to the encryption system that underpins any cryptocurrency.

In addition, according to the data received, Bitcoin may become the sixth largest reserve currency in the world in the next 15 years.

## **7. Conclusion**

Summing up all of the above, it should be noted that there is the following opinion: the cryptocurrency is a model of the financial pyramid. But it differs radically from the financial pyramid. The essence of the pyramid is to enrich its first participants at the expense of new ones, i.e. always loses to the last one. However, in the cryptocurrency market each participant acts independently and does not pursue the goal – to invite new participants. In addition, usually the founders of a cryptocurrency have no influence on it through its decentralization, so the enrichment of creators in this case is virtually impossible. Besides, despite different opinions about the cryptocurrency, it should be admitted that its

appearance on the world financial market is a phenomenon that in theory can fundamentally change the world's financial system. That is why the governments of the countries do not hurry to give permission for mass introduction of cryptocurrency in their territories, because the alternative to the existing financial system can change the power of central authorities in financial processes management.

Theoretically, the cryptocurrency may have a positive impact on business, since the absence of a commission in the implementation of operations will allow enterprises to obtain free funds that will be used for the development of production, and in general to reduce the cost part of economic entities. High speed of operations with the cryptocurrency will allow to spend time and labor force, increase the dynamism of entrepreneurial activity, which will have a positive impact on the economy.

So, whether we want it or not, and the progress is moving around the world very quickly, and no one can stop it. It is possible to slow down the development of cryptocurrencies without creating the necessary infrastructure for them, but sooner or later they will still take their place in the global financial system.

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