



Problems and Prospects of Cryptocurrency Development

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Abstract. The article is devoted to the prospects for the integration of cryptocurrencies into the national and world economy. The views of various researchers on the essence of cryptocurrency, its strengths and weaknesses are systematized, the impact of differences in state regulation of cryptocurrency circulation on the nature of its use and the risks of money laundering is assessed, the factors that complicate the implementation of the main functions of money are identified. It has been revealed that in a broad sense, cryptocurrency is a new transaction technology that embodies the properties of money, goods, property, and financial assets but does not fully correspond to any of them. A cross-country analysis of the impact of changes in the economic and political situation on cryptocurrency and financial assets has confirmed a growing interest in investing in cryptocurrency, including institutional investors, which opens up the opportunity to become not just a speculative but also a protective investment asset. Taking into account the identified trends in government regulation of cryptocurrencies creates new opportunities for economic growth.

Keywords: Bitcoin · Blockchain · Electronic money · State regulation · Money laundering · Investment

1 Introduction

The relevance of the research topic is determined by the growing popularity of cryptocurrencies and the ambiguous attitude towards them on the part of investors and the state.

Despite the increasingly broad use of cryptocurrencies to pay for goods and services, as well as an investment assets, the economic essence of this phenomenon remains discussable.

Also, there is no unified approach to defining the role of cryptocurrency in the global financial system and state regulation of cryptocurrency circulations and evaluating the opportunities and threats it creates for the development of the global and national economies and the stability of international financial markets.

The paper aims to define the role, trends, and prospects of the development of cryptocurrency in the global financial system. To achieve it, the following tasks are set:

- To systematize and to precise views on the nature and role of cryptocurrencies.

- To identify the advantages, disadvantages, and risks of using cryptocurrencies for investors and national as well as international financial markets.
- To assess the prospects for using cryptocurrency as a means of payment and as an investment asset.

2 Literature Review

There is a significant difference in the views of different authors on the content and essence of cryptocurrencies. Table 1 reflects the systems of theoretical views of various researchers on the main aspects of the emergence and development of cryptocurrencies.

Table 1. Systems of theoretical views of different authors on the content and essence of cryptocurrencies

Author(s)	Definition	Economic essence
P. Vigna, M. Casey	Currency is a digital unit of value used by people to exchange goods, services, or in exchange for other currencies that tend to fluctuate widely relative to traditional government-issued currencies [1]	Similarity to fiduciary money, based on the concept of Chartalism, according to which the value of money is determined by social agreement, regardless of their material embodiment
L. Leloup	Unlike other currencies, a currency is not the embodiment of a government agency, bank, or company, and each bitcoin is identified in the ledger using the history of all transactions in which it has been involved from the moment of its creation [2]	Not defined
A. Tepper	Open protocol of a decentralized payment system [3]	Currency, and thus money
A. Tapscott, D. Tapscott	An alternative means of payment that does not require the services of third parties to establish trust between the parties of the transaction [4]	An alternative to the traditional banking system

The authors believe that cryptocurrency is a contractual means of payment that has value only to the extent that members of a particular community recognize it. Thus, the main functions of money can be sufficiently manifested in a certain virtual currency only when the scope of participants in this community is wide enough.

Numerous researchers point to two factors that hinder the performance of the main functions of money by cryptocurrency - the uncertainty of the legal status and extremely high volatility. The second factor is largely a consequence of the first one.

The results of a SWOT analysis of the theoretical views of various researchers on the impact of cryptocurrency development on the financial system and the external environment are given in Table 2.

Table 2. The results of a SWOT analysis of the theoretical bases of the development of cryptocurrencies

Strengths	Weaknesses	Opportunities	Threats
1) Low fees for transfers 2) High fault-tolerance 3) Trust, guaranteed by the network protocol	1) High volatility 2) Theoretical probability of attack - 51% 3) Negative reputation 4) Incomplete protection of operators from state restrictions	1) Involvement of people without access to banking services in the global financial system 2) Creation of new working places in the IT sector 3) Use of smart contracts and derivatives thereof for raising investments and activities in other areas	1) Use of cryptocurrencies for illegal activities 2) Job cuts in the financial sector 3) The carbon footprint, created by the infrastructure and, as a result, a contribution to global warming 4) Unproductive use of electricity

It should be noted that the overwhelming majority of researchers also characterize to the advantages of cryptocurrency the decentralized model of its construction and the ability to create a payment system based on blockchain technology, completely independent of state control.

At the same time, they overlook the fact that such a decentralized system is implemented through the global computer network Internet, which is ensured by Internet providers, whose activities are regulated by the state in most countries.

Digital money has numerous advantages, but there is also the possibility of using cryptocurrency for illegal activities. At the same time, this probability is not higher than cash, providing the required level of anonymity.

Practice shows that the situation with money laundering in the country is largely determined not by the rigidity of regulation but by geographical, historical, and institutional factors [5].

3 Research Methodology

The theoretical basis of the study is the following:

- Theories on the nature of money and its payment and savings functions;
- Portfolio theory of investment on asset diversification as a method of risk mitigation;
- Theories of financial markets on the main factors of development - supply and demand for financial services, the composition and level of risks, the level of competition and the development of new technologies, government regulation, economic cycles, and crises.

The methods of logical and statistical analysis, generalization and classification, cross-country comparisons, induction, abstraction, mathematical and expert assessment have been used in the study.

The analysis of the nature and prospects for the development of cryptocurrency is carried out based on:

- Systematization and generalization of theoretical views on the main characteristics of cryptocurrency and its advantages and disadvantages;
- Assessment of the results of opinion polls of the residents of different countries on their attitude to cryptocurrency;
- Statistical data on the trends and factors of dynamics and interrelation of bitcoin market prices with major currencies and classic protective and speculative assets in the conditions of global economic crisis, caused by the COVID-19 pandemic in early 2020;
- Cross-country analysis of the differences in approaches to the regulation of the cryptocurrency market.

4 Results

The analysis of the approaches to state regulation of cryptocurrency circulation, the data from opinion polls of the residents of different countries on their attitude to cryptocurrency, as well as statistical data on the development of the COVID-19 pandemic and the market prices of bitcoin, major currencies and financial assets enabled to reveal the trends and factors and to assess the prospects for the development of cryptocurrency.

4.1 Regulation of Cryptocurrency Turnover

The difference in the approaches to state regulation of cryptocurrencies' circulation is caused by the difference in evaluating the opportunities and threats it creates for developing the global and national economies and the stability of international financial markets.

The analysis of the existing approaches to the regulation of cryptocurrencies' circulation shows that some jurisdictions allow the use of cryptocurrencies as a means of payment (Venezuela, Japan), while in others, they are completely prohibited (Bangladesh, Ecuador) or significantly limited (Lithuania, China, Vietnam, India, Italy, Iran, etc.) [6].

Most countries are still "observing" this phenomenon, determining the balance between the potential for digital technology development and the risks pertaining to the weakening of state control.

There is no clear policy of legal regulation of cryptocurrencies' circulation in the EU. Cryptocurrencies are mentioned mainly in the directives pertaining to money laundering and terrorist financing, which does not stimulate the use of their positive opportunities [7].

In countries with greater opportunities for citizens to influence government decisions and greater availability of electricity, there is greater predictability of financial regulators regarding the free circulation of cryptocurrencies [8].

4.2 Cryptocurrencies in the Global Financial System

The results of sociological surveys conducted in the USA and the EU indicate that the interest of residents of these regions in cryptocurrency is growing [9]. There are also trends in the growth of public confidence in cryptocurrency and the development of interest in it from small and medium-sized businesses [10]. The observed increase in volatility driven by the growth in the number of cryptocurrency acceptance venues is further evidence of its growing acceptance by market participants [11].

The volume of money transfers between cryptocurrency users is also steadily growing. As of May 2020, 19,350 business entities worldwide, including 44 in the territory of Latvia, voluntarily and publicly announced the acceptance of payments in cryptocurrency [12].

In some countries (for example, the USA), cryptocurrency is recognized as an investment product at the level of state regulation. The start of trading futures contracts on Bitcont (CME: BTC, CBOE: XBT) in December 2017 indicates the institutionalization of cryptocurrency on the leading trading platforms Chicago Mercant Exchange (CME) and Chicago Board Option Exchange (CBOE). Cryptocurrency quotes started to be published on the front pages of leading financial portals such as Bloomberg [13] and Yahoo Finance [14].

Thus, in the activities related to cryptocurrencies, development trends are being observed.

The possibilities of using cryptocurrency as an investment asset for the period 2019–2020 were significantly affected by the COVID-19 pandemic. At the beginning of 2020, it moved from a state of moderate growth, close to a recession, to a state of global economic crisis.

Figure 1 shows the dynamics of the development of the pandemic, measured by the number of newly diagnosed cases of COVID-19 disease worldwide, as well as the dynamics of the bitcoin cryptocurrency rate from January 22, 2020, to January 22, 2021.

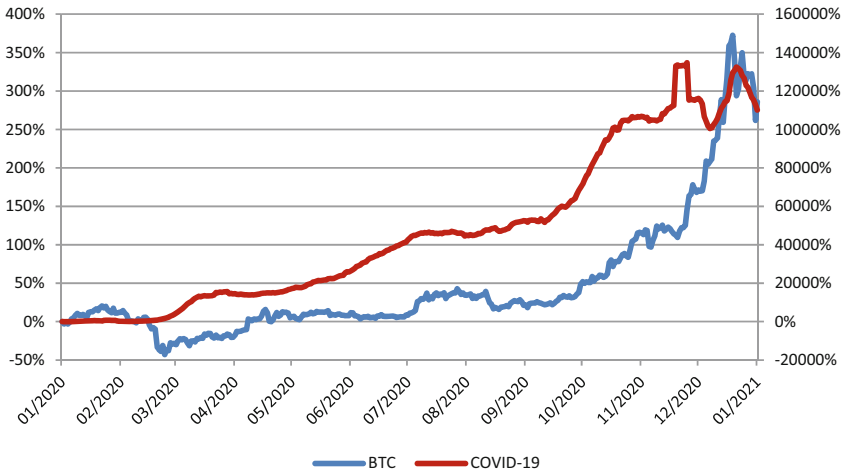


Fig. 1. Dynamics of detected cases of COVID-19 and bitcoin rate, 2020–2021

The left Y-axis of the graph (Fig. 1) reflects the rise in the bitcoin rate, while the right axis increases the incidence of COVID-19. The graph data (Fig. 1) indicate the presence of a positive correlation between the studied data. The authors believe that this may be due to investors’ growing interest in cryptocurrencies as a protective asset amid the economic crisis caused by the COVID-19 pandemic.

The first phase of growth in the bitcoin rate in 2020 (March - June) coincides in time with the first wave of the pandemic. This is followed by a certain period of consolidation (July - September) and the beginning of intensive growth, which coincides in time with the second wave of the pandemic.



Fig. 2. Dynamics of bitcoin, euro, and pound sterling rates, 2019–2020

A comparison of bitcoin and leading world currency rates over a wider time interval to test this assumption is presented in Fig. 2.

The nature of the bitcoin rate dynamics indicates that before the onset of the crisis, it could be used as a defensive asset to hedge the currency risk for the euro and pound. However, with the onset of the pandemic, especially its second wave, the situation changed dramatically.

The results obtained indicate a low correlation between the bitcoin rate and the leading world currencies during the period of moderate growth of the world economy (2019 - early 2020). It can be explained by the difference in factors affecting the dynamics of the exchange rate of traditional national currencies and cryptocurrencies. In the case of traditional national currencies, these are the economic indicators of the issuing country, the actions of national banks and other financial institutions, and geopolitical factors (the latter is especially characteristic of the British pound). In cryptocurrencies, the main factors determining the exchange rate dynamics are the speculative expectations of market participants and the technical aspects of using a particular cryptocurrency.

The dynamics of the bitcoin rate concerning the Japanese yen deserves special attention (Fig. 3).

Figure 3 shows the dynamics of the bitcoin rate to the national currency of Japan, where, unlike most other countries, bitcoin is a legal mode of payment.

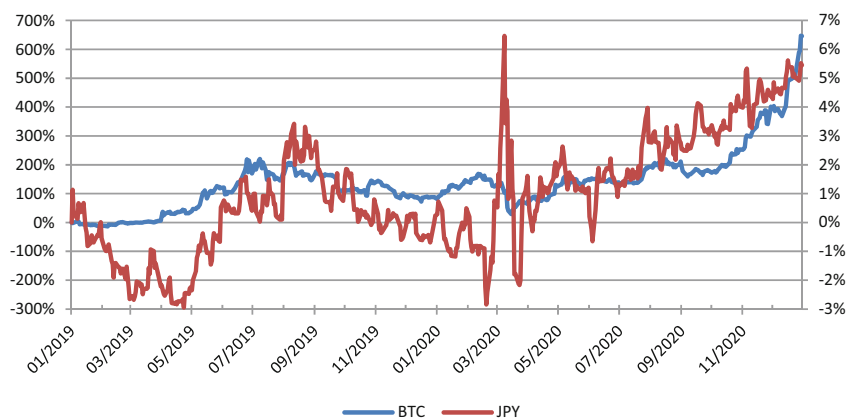


Fig. 3. Dynamics of bitcoin and Japanese yen rates, 2019–2020

The graph data (Fig. 3) indicate a stable positive correlation between the considered financial instruments, which may be because, in Japan, unlike most other countries, bitcoin is recognized as a legal means of payment.

Let us study the dynamics of gold prices, quotations of long-term US Treasury bonds (US 10-years Treasury Bonds), the S&P 500 stock index, and bitcoin cryptocurrency for the period 01.01.2019–31.12.2020 in percent (Fig. 4).

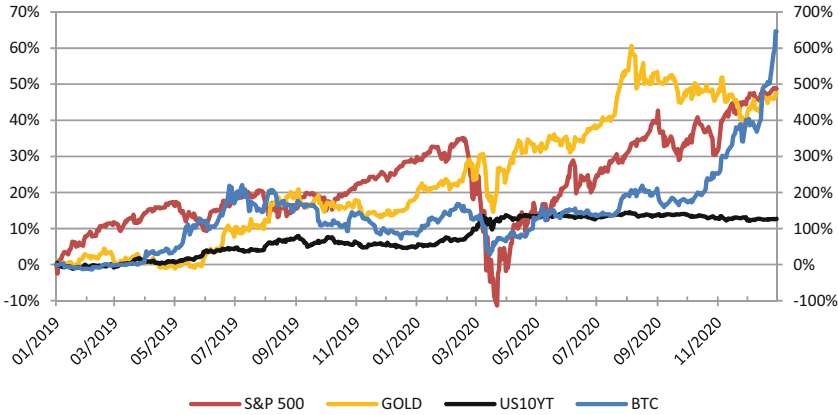


Fig. 4. Dynamics of quotations of separate financial instruments, 2019–2020

Analysis of the graph data (Fig. 4) indicates that in the considered time interval up to September 2020, there is a stable positive correlation between bitcoin quotes and the price of gold. However, in September 2020, the situation changed—this correlation became negative. Bitcoin quotes continued to rise, while gold prices began to decline. This period is characterized by the onset of the second wave of the COVID-19 pandemic and the development of an accompanying economic crisis and political instability in the USA due to the presidential election campaign.

On this background, not only gold prices fell (−4.13% from 08/01/2020 to 12/31/2020), but also the quotations of 10-year US Treasury bonds (−1.47%), traditionally considered a defensive asset, while the S&P index 500, reflecting the state of the US economy as a whole, rose by 5.77%, while bitcoin quotes rose by 154.43%.

This may indicate an increase in interest in cryptocurrency as a protective asset on the part of institutional investors. Thus, the volume of cryptocurrency assets of the US investment fund Grayscale Investments in December 2020 reached 17.5 billion US dollars, while at the beginning of 2020, it was 1.8 billion US dollars [15]. The conclusion of JPMorgan analysts evidences the high prospects for the use of bitcoin that if bitcoin manages to establish itself as an alternative to gold as an investment asset, its value could reach \$146,000 in the foreseeable future [16].

The results of mathematical model analysis of the redistribution of risk between cryptocurrencies and traditional currencies and gold during the COVID-19 pandemic show that in more stable markets, cryptocurrencies can be seen as defensive assets [17].

5 Conclusion

In today’s world, cryptocurrency is used to pay for goods and services but is not as active as financial speculations.

The main functions of money can appear in a particular virtual currency only provided that the number of its users increases significantly.

The limiting factors of the performance of the functions of money by a cryptocurrency are its shortcomings, such as possible use for illegal activities, unproductive use of power energy, high volatility, the uncertainty of legal status, and incomplete protection of operators against state restrictions.

In a broad sense, cryptocurrency is more than money. It is a new technology for accounting of transactions, which has a universal ability to embody the characteristics of money, goods, property, financial asset, and payment systems without fully matching any of them.

There are risks of using cryptocurrency for illegal activities, but their level is generally not higher than cash.

The role of cryptocurrency in the global financial system today is closer to a high-risk speculative digital asset.

Such advantages determine the prospects for using cryptocurrency as its high resiliency, trust guaranteed by the network protocol, low transfer fees, opportunities for high profitability, and diversification to hedge currency risks. These advantages are the drivers of a persistent trend of increasing the interest of individuals and businesses of economically developed countries in investing and money transfer and in paying for goods and services in cryptocurrency.

Certain jurisdictions allow the use of cryptocurrencies as a means of payment and apply favorable tax regulation to transactions in cryptocurrencies, which creates new opportunities for economic growth.

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