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Studying the relationship between cryptocurrency markets and traditional financial markets: common dependence and possible interaction effects

Estudio de la relación entre los mercados de criptomonedas y los mercados financieros tradicionales: dependencia común y posibles efectos de interacción

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Resumen

Las tecnologías económicas modernas se están transformando en las condiciones actuales de digitalización. Las criptodivisas operan en el mercado en determinadas condiciones e interactúan de cierta manera con los mercados financieros tradicionales. Dado que las criptodivisas son dinámicas en el mercado, se ofrecen perspectivas para el futuro uso de las nuevas divisas y posibles formas de interacción con los mercados financieros tradicionales. El objetivo principal del estudio es un análisis exhaustivo y las direcciones prospectivas de la interacción de las criptodivisas con los mercados financieros tradicionales. En el curso del modelo de la influencia de los indicadores económicos fundamentales y las tendencias del mercado de valores en la dinámica de los precios de las principales cryptocurrencies. Los resultados de la investigación permiten aclarar la naturaleza económica de las criptodivisas como instrumentos financieros específicos y mejorar los modelos existentes de gestión de inversiones teniendo en cuenta las propiedades estadísticas de los activos financieros virtuales. Basándose en el análisis de los nombres del mercado, se demuestra que las criptobolsas y criptodivisas mundiales se centran en las personas, la gestión, el ahorro y los servicios. Se ha estudiado el mercado internacional de criptodivisas y su estado general. Las conclusiones se reflejan en un estudio exhaustivo de cryptocurrencies y su rápido crecimiento como la principal innovación en la economía mundial y de Ucrania.

Palabras clave: indicadores económicos, activos virtuales, relación estadística, mercado financiero, activo de inversión, economía mundial, cryptocurrencies, tecnologías económicas, desarrollo digital, digitalización.

Abstract

Modern economic technologies are being transformed in modern conditions of digitalization. Cryptocurrencies operate on the market under certain conditions and interact in a certain way with traditional financial markets. Given that cryptocurrencies are dynamic in the market, prospects for further use of new currencies and possible ways of interaction with traditional financial markets are offered. The main aim of the study is a comprehensive analysis and prospective directions of interaction of cryptocurrencies with traditional financial markets. In the course of the model of the influence of fundamental economic indicators and stock market trends on the price dynamics of the main cryptocurrencies. The results of the research make it possible to clarify the economic nature of cryptocurrencies as specific financial instruments and to improve existing investment management models taking into account the statistical properties of virtual financial assets. Based on analysis of market names, it is shown that global crypto exchanges and cryptocurrencies are focused on people, management, savings and services. The international market of cryptocurrencies, its general condition, was studied. The conclusions are reflected in a comprehensive study of cryptocurrencies and their rapid growth as the main innovation in the global and Ukrainian economy.

Keywords: economic indicators, virtual assets, statistical relationship, financial market, investment asset, world economy, cryptocurrencies, economic technologies, digital development, digitization.

Introduction

Research problem

For the effective functioning and development of the economy in the future, it is necessary to regulate in detail the procedure for introducing cryptocurrencies as innovative block chain technologies. In particular, important components include the relationship between traditional markets and cryptocurrencies and their direct implementation, the list and content of the main stages of application, features and types, the use of growth indicators, and the adoption of international experience.

Research Focus

Today, there is no consensus on the definition of the term “cryptocurrency”. Some scholars call cryptocurrencies virtual currencies, while others call them innovative payment networks or new types of money. In addition, some scholars deny any “connection” between cryptocurrencies and money and refer to cryptocurrencies as “digital assets”.

Taken together, the different definitions position cryptocurrencies as a universal means of payment, circulation, and investment, they exist in the form of highly secure software circuits and are characterized by a free-market exchange rate. In traditional instruments, the only relationship is that of buyer and seller. The only relationship between two parties is that of buyer and seller.

Research Aim and Research Questions

The purpose of this study is to identify the practical and theoretical foundations of cryptocurrencies as a basis for future development and improvement of the economy, as well as to determine the prospects of their relationship with traditional markets. The main objectives are:

1. to analyse the content of the concept of "cryptocurrency" and assess the current state, characteristics, advantages and disadvantages of innovative economic block chain technology;

2. to compare the functioning of virtual assets in the international and Ukrainian markets;
3. to study and analyse the prospects for the interaction of cryptocurrencies with traditional markets and their impact on the financial system as a whole.

Literature review

According to a scientific review of the literature, cryptocurrencies are digital innovative currencies, and their use is considered a prerequisite for improving the modern economic system. More and more researchers are interested in the significance and impact of cryptocurrencies on the future economic sphere, often defining them as an independent field of research.

The introduction of cryptocurrencies is undoubtedly important for shaping new stages and phases of economic development. Due to two important features of cryptocurrencies - their complete decentralization and their difference from other forms of currency currently existing in the world - over the past decade, they have become one of the world's economic Over the past decade, cryptocurrencies have become one of the main research topics in the world economy.

It is clear that cryptocurrencies are a modern means of payment and an innovative tool used by individuals and legal entities, the popularity of which is growing every year.

The rapid development and growth of information and communication technologies is changing not only everyday life but also traditional models of banking and financial transactions. Cryptocurrencies have a significant potential to change the way global markets interact (Ponomarenko, 2023). In other words, the issue of introducing cryptocurrencies in many resources is of interest to financial entities. In addition, an important aspect is the forecasting of cryptocurrency prices (Buriak and Petchenko, 2021). Rapid price growth encourages cryptocurrency miners to participate in production. In particular, they become investors, which leads to an increase in the value of cryptocurrencies (Ovcharova, 2022).

Bitcoin as a cryptocurrency has great technical potential and attracts large investments around the world. In addition, its intensive nature of data transfer in the process of global digitalization contributes to global efficiency (Redko et al., 2023) Cryptocurrencies include tokenized cryptocurrencies such as stable coin and software cryptocurrencies such as bitcoin and Ethereum (Roieva et al., 2023). Another important point is that all other types of cryptocurrencies are based on Bitcoin, have no distinctive features, and are derivative products in the economy.

The use of cryptocurrencies is associated with the following investment risks:

1. unlike traditional money, cryptocurrencies are not tied to the central banking system
2. cryptocurrencies can fluctuate in value and price;
3. a certain technical feature of cryptocurrencies is hashing (Bezrukova et al., 2022).

A number of international scholars have studied cryptocurrencies as a new form of money, the prospects for their use, and their impact on the future financial system.

According to Bannikov et al. (2022), the global economy is currently transitioning to digital technologies. In particular, the use of cryptocurrencies as a new form of money creates future opportunities. Researchers point out that virtual payment technologies can minimize problems associated with economic and social shocks, banking policies, payment system security, and banking business models.

The efficiency and effectiveness of such economic mechanisms as cryptocurrencies is confirmed by the fact that “new forms are prompting debate about their impact on the nature of money, leading to philosophical and social issues”.

Despite these factors underpinning the use and spread of cryptocurrencies, there is still no precise definition of the concept. However, it has been proven that cryptocurrencies are a new global economic phenomenon with an unprecedented and complex structure. Baranovskyi et al. (2021) points to cryptocurrencies as the currency of the market of the future. According to the scientist, cryptocurrencies are not currently a standard unit with which people can directly exchange goods. His research highlights that cryptocurrencies have both advantages and disadvantages.

On the one hand, the cryptocurrency market is growing and developing every day. On the other hand, cryptocurrency assets cannot be a means of exchanging goods and services in a modern economy, as they pose a sufficient risk to macroeconomic stability.

According to Warotek et al. (2023), economies and central banks are actively exploring decentralized technologies such as cryptocurrencies. In addition, the main requirements of modern banks are to speed up operations and reduce costs. For this reason, it is understandable that most companies and financial institutions are accepting cryptocurrencies as an effective alternative to the SWIFT system. Cryptocurrencies can provide financial services to users who are not interested in banking services. This provides an opportunity to secure economic benefits from the use of cryptocurrencies, but there are risks that need to be considered when using this currency to increase financial inclusion and support financial stability in any country (Humenyuk et al., 2023).

In their study, Makarchuk et al. (2021) emphasize that new forms of money reduce transaction costs, which is an important improvement in the economy. The emergence and development of cryptocurrencies reduces the cost of transferring currency, eliminates the need for third-party intermediation, and provides anonymity. There are also negative opinions about cryptocurrencies: according to a study by Tesluik et al. (2021), the dynamics of the cryptocurrency market are largely related to traditional financial markets. Indeed, the most popular cryptocurrencies, BTC and ETH, cannot serve as a hedge or safe haven for stock market investments in difficult and turbulent times in the global economy.

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Cryptocurrencies are an entirely new economic phenomenon and differ significantly from traditional money (Kuzheliev, 2023). They can now be bought, mined, exchanged, and given as gifts. Cryptocurrencies differ from real money in that they are issued online.

According to Onyschenko and Kapsamun (2019), monetary assets are currently undergoing transformation, which is a prerequisite for the growth of the digitalization of the economy. Cryptocurrencies are a new paradigm of money aimed at modernizing the entire economic model and decentralizing the monetary system.

Orekhov (2019) points to the important role of cryptocurrencies and the development of the technology behind them in the global economy. Cryptocurrencies can be a legal tender or store of value if the technology is used appropriately.

In view of the above, cryptocurrencies are actively used around the world on a daily basis and have all the guarantees and prospects to become a modern digital currency in the economy.

In general, the cryptocurrency market is actively developing, with new companies and infrastructure projects emerging. Another positive signal is that legal institutions and software development services are trying to assess the impact of Bitcoin and other digital currencies on economic development (Zakharkin et al., 2017).

Research by Dvulit et al. (2019) shows that the cryptocurrency market, with Bitcoin as its main asset, is both extremely profitable and extremely volatile compared to other traditional investment instruments (e.g., stock market, currency markets). This unusual profitability of Bitcoin can be explained by the fierce demand for it and the limited supply fuelled by the recent 3MI. These factors make the cryptocurrency market in general and bitcoin in particular very attractive to active investors. Prospects for further research in this area are to study the profitability and risk indicators, as well as the behaviour of other cryptocurrencies (Lyaschenko et al., 2022; Bezrukova et al., 2022).

Purpose and objectives

The purpose of the study is to identify the key principles of implementation and the relationship between cryptocurrencies and traditional financial markets and to improve their functioning in the long term. The aspects of the methodology for implementing virtual asset management practices in conjunction with traditional financial markets presented in this study are based on the use of innovative measures. It is important to carefully review the development of digital technologies, which is a key tool for overcoming crisis phenomena. To achieve this goal, a comprehensive analysis was conducted, and the following tasks were set:

1. Describe the current traditional and cryptocurrency markets, their status, and future trends;
2. Identify possible approaches to the relationship between cryptocurrencies and traditional financial markets;
3. To consider future prospects for improving the financial market system.

Materials and Methods

General scientific and special methods were used to achieve the goal and solve the research objectives. In particular, from the group of general scientific methods, analysis, synthesis, generalization, induction, and deduction were used. In particular, from the group of general scientific methods, analysis, synthesis, generalization, induction, and deduction were used, and from the group of special methods - collection and processing of information, comparison, generalization, statistical and analytical methods, as well as forecasting methods. In this study, general scientific methods were used to determine the main content and principles of cryptocurrencies and their direct impact on the economy. In addition, the method of synthesis was used to reveal the content of the concept of “cryptocurrency” and the traditional form of the market (Rubanov et al., 2022).

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With their help, important aspects of the theoretical and methodological significance of virtual assets for the efficiency of the modern and future economy are considered (Shamsul Abd Aziz et al., 2022).

In addition, the author presents the characteristics, advantages, and disadvantages of cryptocurrencies at the financial level. The inductive and deductive methods allowed the author to identify the prospects for the development of cryptocurrencies and their impact on the traditional market, as well as future prospects for interconnection.

The comparative approach allowed the author to make predictions about the need to introduce cryptocurrencies as a mechanism for building a reliable system of crisis management in the economy. The study is based on the method of statistical and analytical analysis, which reflects the current state of the economy and the impact of cryptocurrencies on the current and future economies of countries.

The main vectors of the potential development of cryptocurrencies are identified and collected using forecasting methods. The research conducted using the above methods creates the need to involve cryptocurrencies in the economy and provides a driving tool for improving the financial system. The methods used to collect and process information may also reflect the legal and regulatory framework for cryptocurrency issues. Comparative methods are used to show the status and trends of cryptocurrencies in different countries.

The methods used in this study address the issues of cryptocurrency research and contribute to further analysis of this issue, which requires constant monitoring and resolution in connection with global economic events.

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Result and discussion

To begin with, it is necessary to explore the theoretical aspects of the economic categories “financial market”, “traditional market” and “cryptocurrency market”.

From a functional point of view, a modern market is a system of markets in which financial markets play an important role. Financial markets are an integral part of the financial system and can only develop and function successfully in a market environment. An objective prerequisite for the existence of financial markets is the discrepancy between the needs of a particular entity for financial resources and its own resources (Savchenko et al., 2019). This is a mismatch between the relationship with the market and the available financial resources (Humenyuk and Bilyk, 2023). At the same time, other necessary conditions must also exist for the normal functioning of financial markets, as noted by Duchenko and Pavlenko (2018):

– economic independence of enterprises;
- economic independence of enterprises, elimination of the state monopoly on the use of household savings
- no state monopoly on the use of household savings;
- transition to a new system of organizing cash flows in the economy;
- equality of all financial market participants;
- formation and improvement of a two-tier banking system Formation and improvement of a two-tier banking system;
- creation of financial market infrastructure through various financial intermediaries;
- building a modern technological infrastructure favourable to the functioning of financial markets;
- preferential taxation of income from securities.

The essence and role of financial markets in the national economy is best revealed through its general and specific functions. The general ones include:
– ensuring interaction between buyers and sellers of financial assets, balancing the supply and demand for financial assets;

- introducing mechanisms in the financial markets for repurchase of financial assets from investors, thereby increasing the liquidity of financial assets, and improving the liquidity of financial assets;
- financial markets are designed to enable each creditor (debtor) to find counterparties to conclude transactions and significantly reduce transaction costs.

Savchenko et al. (2019) include the following specific functions: activating, insurance, redistributive, implementation, pricing, mobilization, and service. The financial market creates conditions that make it easier for business entities to raise the funds necessary for the development of their activities.

Financial markets play a crucial role in the development of the economy, as they act as intermediaries for the flow and replenishment of funds of economic entities. Traditionally, there are two main models of financial markets:

– stock-centric (capital market model), which represents economic entities that replenish financial resources using capital market instruments;
- bank-centric (credit market model), which represents economic entities that replenish financial resources using money market tools.

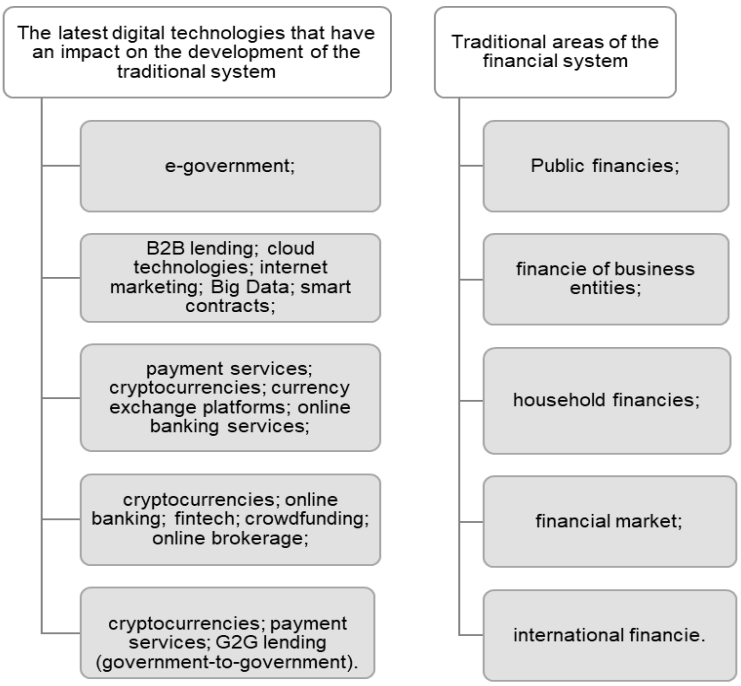
In addition to traditional financial intermediaries, the number of companies offering financial services and acting as competitors to banks and non-bank financial institutions has increased. Under the influence of external factors and current trends in the development of the financial services market, the financial system is beginning to transform, mainly through digitalization.

The rapid development of technologies and innovations will not allow avoiding the process of digitalization not only in the financial sector but also in other areas of people's lives.

One of the main indicators of whether a financial market belongs to a particular model is the ratio between the stock market capitalization and the volume of lending in the banking system. If the market capitalization of the stock market exceeds the volume of bank lending, the country's financial system is larger than the volume of loans to banks, and the country's financial system belongs to a certain model. If the stock market capitalization exceeds the volume of bank loans, the country's financial system is called shareholder-oriented, if it does not exceed, it is called bank-oriented (Tesliuk et al., 2021). The model of a financial market determines the development of its institutions and infrastructure. The types of financial institutions vary from country to country, but all fall into two main categories: banking and non-banking. The digitalization of the economy is profoundly changing the structure and ecosystem of financial markets. Financial services are no longer the prerogative of financial institutions alone, and new players have emerged in the market, partially or fully taking over the functions of traditional financial intermediaries (Figure 1).

Figure 1

The impact of digital technologies on the financial system



Source: compiled by the author on the basis of research Schkylyov, Parubets (2022)

The digital currency market currently has a significant number of digital currencies in circulation. Digital currencies are often equated with electronic money, virtual currencies, and cryptocurrencies (Shkylyov & Parubets, 2022). Although there are some differences between these terms, the general definition is that they are money that circulates exclusively in electronic form using a digital platform and an internet connection. Some digital currencies are fiat, while others are not. For example, electronic money issued by banks is legal tender (fiat). In most cases, cryptocurrencies are decentralized, not regulated, or guaranteed by the state (non-fiat).

Virtual currencies are both a global financial innovation and a tool that can be used for money laundering and terrorist financing (Burtnyak and Fufalko, 2023). Digital currencies can be either a digital medium for expressing virtual currencies (non-fiat currencies) or electronic money (fiat currencies) (Kabaklarh, 2021).

Table 1: Digital and traditional business models of the financial market

Features	Types of markets	Traditional business models	Digital business models
Economic purpose	Capital market	Medium- and long-term loan market. Securities market.	Internet trading. Crowdfunding.
	Money market	The market for short-term deposit and credit instruments. Cash market.	Lending without intermediaries. Digital currency market.
Types of financial tools	Borrowings market	Non-banking and banking services in the debt market	No lending intermediaries. Digital currency market.
	Foreign exchange market	Over-the-counter and exchange currency markets	Payment services. Currency exchange platforms.
	Securities market	Over-the-counter and exchange-traded securities markets	Online trading. Crowdfunding.
Institutional characteristics of cash flows	Market for products of non-bank financial institutions	Non-bank financial intermediaries in the financial market.	Fintech, payment services. Inshurtech.
	Banking products market	Banks in the financial market	Fintech, payment services. Inshurtech.
	Stock market	Over-the-counter and exchange-traded securities markets	Online trading. Crowdfunding

Source: prepared by the author on the basis of research by Buriak and Petchenko (2021)

The introduction of cryptocurrencies is undoubtedly important for the formation of new stages and phases of economic development. Cryptocurrencies have been the main object of research in the global economy over the past decade due to two important features: complete decentralization and differences from other forms of currency currently existing in the world.

This has been one of the main topics of research in the rapid development and growth of information and communication technologies, which are changing not only everyday life but also traditional models of banking and financial transactions.

Cryptocurrencies have a great potential to change the way global markets interact. In other words, the issue of implementing cryptocurrencies on many resources is of interest to financial players. In addition, cryptocurrency price forecasting is an important aspect. Rapid price growth encourages cryptocurrency miners to participate in production. They become investors, which leads to an increase in the value of cryptocurrencies (Volosovych et al., 2023).

Bitcoin as a cryptocurrency has great technical potential and attracts large investments around the world. In addition, its intensive use of data in the global digitization process contributes to global efficiency. Cryptocurrencies include tokenized cryptocurrencies such as stable coin and software cryptocurrencies such as Bitcoin and Ethereum.

The correlation power between cryptocurrencies in the market can be calculated by using closing prices (daily or weekly) for the values of the variables. Table 2 shows the obtained correlation coefficients between cryptocurrency pairs over the past 24 hours based on their daily returns.

Table 2: Correlation between major cryptocurrencies on the global market as of 11.09.2023 (24 hours)

	BTC	ETH	BNB	USDT	ADA	XRP	USDC	DOGE	LTC	TRX	BCN
BTC											
ETH	0,90										
BNB	0,84	0,85									
USDT	0,06	0,10	0,14								
ADA	0,82	0,81	0,80	0,01							
XRP	0,45	0,45	0,45	-0,01	0,55						
USDC	0,16	0,07	0,11	-0,12	0,10	0,12					
DOGE	0,75	0,76	0,71	-0,02	0,75	0,70	0,19				
LTC	0,88	0,84	0,83	0,15	0,79	0,48	0,15	0,73			
TRX	0,83	0,82	0,82	0,10	0,78	0,52	0,11	0,81	0,87		
BCH	0,81	0,78	0,75	0,07	0,75	0,51	0,06	0,75	0,85	0,80	

Source: compiled from Top 100 Cryptocurrencies by Market Capitalization (2023).

The above data shows positive results, as there is a moderate correlation between all currencies in the global market. Bitcoin has the greatest influence on the cryptocurrency market due to its market capitalization. Ethereum and Lite coin have the greatest association with it. The reason for this is a similar set of supporters and investors who invest in established cryptocurrencies. These aspects affect the strength of the correlation, as transactions with these cryptocurrencies mostly take place in a short time frame. Ivanov and Hostryk (2020) identify the existing investment risks associated with the use of cryptocurrencies, including:

1. unlike traditional money, cryptocurrencies are not tied to the central banking system;
2. cryptocurrencies can fluctuate in value and price;
3. certain technical features of cryptocurrencies are based on hashing;
4. the latest technologies and innovations are developing more and more actively every year, global economic processes are changing dynamically, and money markets are growing. The virtual economy is developing on the basis of the circulation of digital currencies, which exist in two forms. Electronic money (a digital representation of real money, which is used for transactions from one bank account to another in the real economy) and cryptocurrencies (virtual currencies that are freely used in the digital world).

Table 3: Comparative characteristics of traditional currencies and cryptocurrencies

Feature	Traditional currency	Cryptocurrency
Institutional characteristics		
Issue	Centralised	Decentralised
System of issue	National	Global
Issuer	Central bank (banking system)	User of computers (Internet) (miners)
Status of the issuer	State	Private
Basis of issue	Based on certain system and rules (inflation targeting)	Mathematical calculations
Cost of the issue	Low	Need for special equipment, use of electricity
Offer	Unlimited, flexible, dependent on the issuer's decision	Limited, inflexible
Change of rules	There is a possibility	Only with the consent of all participants
Responsibility of the issuer	Dependent on state legislation	No
Transparency of the issue	No	Yes
Credit cards of last resort	Central bank	No
Controlling authority	The central bank	No
Regulation of capital flows	There is a possibility	No
An instrument of economic regulation	No possibility	Foreign exchange and monetary policy
Internal characteristics		
Security	The risk of falsification	High due to blockchain technology
Cost	Determined by regulation and market	Determined by the market
Security	International reserves, GDP	No
Form	Paper money, coins	In the virtual wallet record
Volatility	Dependence on the economic situation of countries	High
Risk of inflation due to excessive issuance	There is a possibility if irresponsible central market policy	No
General risk	Depends on the economic situation of the countries	Very high
Speed of the operation	Depends on the form of money	There must be a confirmation
Scope of use	Mandatory means of payment on the territory of the state	Only those who wish
Possibility of cancellation of transactions	Yes	No
Customer identification	Standard in customer identification	Anonymous transactions
Ease of use	Yes	No
Commission during the operation	Low and high probability	Low commission
Application for lending	Yes	No
Level of trust	High	No
Legal status	Official	Unrecognised in many countries
Properties		
Cost-effectiveness	Yes	No
Divisibility	Yes	Yes
Durability	Yes	Yes
Portability	Yes	Yes
Easy identification	Yes	No
Homogeneity	Yes	Yes
Stability of value	Yes	No
Universality	Yes	No
Features		
Means of accumulation	Yes	No
Means of circulation	Yes	No
A measure of value	Yes	No (due to volatility)
Means of payment	Yes	No, but there are cases

Source: compiled by the authors based on research by Redko et al. (2023)

The debate on cryptocurrencies raises questions about the use of cryptocurrencies now and in the future. Both positive and negative aspects of the development of cryptocurrencies on the international market are described. The study confirms that currencies such as cryptocurrencies are only growing and establishing themselves now and have the potential to change the economic model and enable investors and businesses to generate income in the future.

The most popular cryptocurrency is Bitcoin, which is the result of changes in information and communication technologies (Pylypenko, 2023). Research confirms that cryptocurrencies are actively used around the world by both large companies and individuals and that they will continue to grow in the future (Lyashenko, Kravets, & Petrenko, 2022).

Prospects for further research are as follows:

1. determination of the direct impact of digitization on the state and scale of cryptocurrencies, which was fragmentarily studied in Wątorek et al. (2023), Yermolenko et al. (2019), Tkalenko et al. (2022).
2. developing a system for assessing the aspects that determine the role of further development of cryptocurrencies in international markets and the relationship with traditional markets This is partially reflected in the works of Stoyka (2021), Beerbaum (2023), Savchenko et al. (2019).
3. studying which types of cryptocurrencies are currently the most popular. This issue is sporadically addressed in Shamsul (2022), Ozili (2023), Morgan (2023), Kabaklarkh (2021).
4. how virtual assets can be used to create a safe and functional society.

Conclusion

The cryptocurrency market is a system that combines the issuance of cryptocurrencies and all the elements that ensure their circulation according to the laws of supply and demand among market participants. This market is still in its infancy and its formation is ongoing. New elements appear, existing ones are transformed or disappear, and the rules of conduct for market participants are being improved.

Rapid growth in the number of cryptocurrencies and an increase in the capital of some cryptocurrencies. Also. Despite significant fluctuations, the number of people willing to use cryptocurrencies is constantly growing. This also applies to commercial banks. Central banks in some countries are beginning to change their attitude towards cryptocurrencies. The number of studies on various aspects of cryptocurrencies in the real and virtual economy continues to grow.

The cryptocurrency market should be viewed as an open, complex, stochastic, dynamic, managed economic system with multi-vector inputs and outputs. The elements of this system can be divided into two subsystems - the governing and the managed, the boundaries and composition of which are not clearly defined.

The emergence and existence of this system is related to the need of society for alternative means of payment for savings. Its emergence is driven by the dissatisfaction of participants with the existing services and functions of traditional financial institutions. The approach of using cryptocurrencies should be seen as an innovation in the financial system that provides opportunities for innovators in a competitive market and poses a threat to conservative financial institutions.

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