The Impact of Cryptocurrency on the Investment Market

Shakhnos Gapurbaeva[1,*], Azyk Orozonova[2], Andrii Zinchenko[3], Tetiana Ovcharenko[4] and Liudmyla Huliaieva[5]

[1]*Department of Management and Economics, International University of Kyrgyzstan, Bishkek, Kyrgyzstan.*

[2]*Kyrgyz-European Faculty, Kyrgyz National University named after Jusup Balasagyn, Bishkek, Kyrgyzstan.*

[3]*Department of Finance, Admiral Makarov National University of Shipbuilding, Mykolaiv, Ukraine.*

[4]*Department of Innovation and Investment Management, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine.*

[5]*Department of Finance, Academy of Labour, Social Relations and Tourism, Kyiv, Ukraine.*

Abstract: The study of the impact of cryptocurrencies on the investment market identified a number of factors that indicate a positive impact: the development of financial technology companies and their technological solutions for cryptocurrencies, in particular neobanks (virtual banks that ensure the growth of online banking), the development of the regulatory framework for the regulation of digital currencies, in particular by central banks and the launch of digital currency projects. The development of cryptocurrencies by banking institutions operating in the online environment provides for the purchase and sale of cryptocurrencies on stock exchanges, not on crypto exchanges, allowing the use of cryptocurrencies as a means of payment and investment. The issue of cryptocurrency by banking institutions also ensures its stability, thus expanding the investment potential of this financial instrument. The above contributes to the formation of the cryptocurrency investment market in the structure of the stock market. Among the factors that indicate the negative impact of cryptocurrency on the investment market are the following: the lack of a stable value of cryptocurrency and its volatility, dependence on fluctuations in the world economy and macroeconomic factors, in particular demand; as a result of the first factor, cryptocurrency as an object of investment activity is quite risky.

Keywords: Investment market, cryptocurrency, cryptocurrency market, central bank digital currencies, neobanks.

FORMULATION OF THE PROBLEM

After the impressive growth dynamics of the cryptocurrency market in 2018-2021, there was a decline in 2022. The growth factors were associated with the rapidly growing public interest, which led to an increase in demand in the market. Analysis of price dynamics in the Bitcoin market shows that the demand for cryptocurrency is formed not by its intrinsic value, but by market expectations, the level of interest and involvement of participants in this virtual network (through the network effect)[14]. In 2022, the “bear market” began: cryptocurrency assets lost about 80-90% of their value, which led to a decline in investment activity. On November 11, 2022, one of the world's largest crypto exchanges FTX declared bankruptcy due to a liquidity crisis and began bankruptcy proceedings under American law. At the beginning of 2022, FTX was valued at $32 billion, but at the time of writing, funds are writing off investments in this crypto exchange. The CEO of the Binance crypto exchange points to the beginning of the crisis in the cryptocurrency market[13]. The above-mentioned trends and discussions around the potential of cryptocurrencies actualize the problem of studying the impact of cryptocurrencies on the investment market.

The aim of the article is to determine the impact of cryptocurrency on the investment market based on the analysis of key environmental factors that affect the correlation of these variables.

ANALYSIS OF RECENT RESEARCH AND PUBLICATIONS

In the scientific literature, the area of cryptocurrency impact on the investment market is little studied. At the same time, a number of studies examine the impact of cryptocurrency on the economy. Among scientists and financial analysts, there is no consensus on the ways in which cryptocurrencies influence the international economy, the prospects for such influence. At the same time, the main prospects of influence identified by Lytvynenko, A. O., Sytnikov, V. I.[3] make it possible to identify certain features of the relationship between cryptocurrency and the investment market. There is an expansion of the investment market and its structure, in particular due to the emergence of new digital currencies (for штіефтсу, the development of projects to launch central bank digital currencies (CBDC), private companies that actively compete with each other; they issue their own digital

*Address correspondence to this author at the Department of Management and Economics, International University of Kyrgyzstan, Bishkek, Kyrgyzstan; E-mail: shahnoza.gapurbaeva@mail.ru

currencies, understanding the significant potential). There is an expansion of access to the investment market due to the ability of various economic agents to purchase crypto assets, which is due to the dynamic development of financial and technological companies, their technological solutions that ensure the simplicity of such acquisition; reduction of the cost of investment in cryptocurrencies due to low transaction costs; increase in the level of transparency of investment due to the full digitization and automation of cryptocurrencies. Whereas Lytvynenko, A. O., Sytnikov, V. I.3 concluded that the number of investors in cryptocurrencies is growing, Kavetskyi, V.2 noted a huge interest from investment managers in cryptocurrencies, Pavlenko, T. V., Raievskyi, E. V. noted insufficiently high investment interest in cryptocurrencies to ensure their significant impact on the world economy. Using the circular economy model for rational use in sustainable production (Atstaja, D., Koval, V., Grasis, J., Kalina, I., Kryshtal, H., & Mikhno, I., 2022) involving investments in core sectors economy in the context of Industry 4.0 (Nikonenko, U., Shtets, T., Kalinin, A., Dorosh, I., & Sokolik, L., 2022). Ensuring financial and economic security in financial markets during European integration (Novak, A., Pravdyvets, O., Chornyi, O., Sumbaieva, L., Akimova, L., & Akimov, O., 2022), and improving state strategic planning systems in modern conditions (Bondarenko, S., Bratko, A., Antonov, V., Kolisnichenko, R., Hubanov, O., & Mysyk, A., 2022). Makovoz, O. S., Perederii, T. S.4 in the context of economic relations note that cryptocurrency can be both an investment and an object of investment activity. At the same time, among the advantages of investment, the authors highlight the speed, ease and anonymity of investment, the growth of profitability of such investments, and among the disadvantages - the imperfection of legal regulation of these relations. In the context of the latter, it is worth noting that central banks (CB) of different countries are actively developing projects of digital currencies, the regulatory framework for their regulation in connection with the growth of the private digital currency market and the realization of their significant potential in simplifying settlement operations. Kavetskyi V.2, based on the analysis of the investment environment and the connection of cryptocurrencies with it, highlights that the consequences of the impact of cryptocurrencies on the development of the global financial system remain unknown.

It is worth noting that in the scientific literature, the analysis of the impact of cryptocurrency on the investment market is based on the assessment of a limited number of indicators that study such impact (for example, only market dynamics or capitalization). The studies also rely on the opinions of international experts, without generally taking into account such important factors as the development of the financial and technological sector, online banking, legal framework and the CBDC. The works do not take into account such aspects of the impact of cryptocurrencies on the investment market as the development of financial and technological companies and their technological solutions for cryptocurrencies, in particular neobanks (virtual banks that ensure the growth of online banking) and the development of the regulatory framework for the regulation of digital currencies, in particular by central banks. That is why in the scientific discussion there is no single point of view regarding such impact, and the most common opinions are as follows 1) the cryptocurrency market is a new financial pyramid, a "soap bubble", as evidenced by the high volatility of digital currencies, a small number of investors; 2) the cryptocurrency market has great potential for development, and investors and investment managers are interested in it. The authors of the study agree with both statements, while believing that the cryptocurrency investment market is characterized by both growth and decline, some cryptocurrencies create a "financial pyramid", others will evolve through the crisis of this market, forming their own value, and still others will emerge and develop as a new digital payment instrument.

In view of the above, it is advisable to analyze the impact of cryptocurrency on the investment market, taking into account these positive factors on the development of both digital money and the growth of investment in them. These factors together with supply, demand, price and level of competition in the cryptocurrency market change the structure of the investment market.

OUTLINE OF THE MAIN MATERIAL

As a matter of fact, cryptocurrencies are a technological means of payment, an intellectual asset, thus they can be attributed to intellectual intangible assets that are the object of investment, the value of which is currently estimated in dollars. Therefore, it is possible to distinguish the cryptocurrency investment market as part of the investment market and at the same time to argue that cryptocurrencies are a new digital means of payment.

The influence of cryptocurrency on the investment market will grow due to a number of factors. Key among them is the active dynamic development of online banking and the launch of banks' own cryptocurrencies. Thus, in 2021, 96% of the Norwegian population had access to online banking sites, making Norway the country with the highest presence of online banking in Europe, followed by Denmark (95%) and Iceland (95%). Internet banking is becoming one of the most popular payment methods in Europe, allowing customers of a bank or other financial institution to carry out a wide range of financial transactions through their websites. Accordingly, the level of trust of Europeans to this electronic payment system is growing. In some countries, such as Germany or Austria, the use of physical cash is significantly reduced[16]. The growth of trust in electronic payments ensures the growth of trust in digital currencies, in particular in cryptocurrencies as a means of payment and short-term investment. At the same time, the lack of stability in the value of cryptocurrency, its formation on the basis of supply and demand, leads to a high level of volatility and riskiness of this type of digital money. It can be expected that the issue of cryptocurrencies by online banks will ensure the stability of their value. The lack of stability of the cryptocurrency is evidenced by the data in Table **1**.

On their basis, it can be concluded that it is highly volatile, as indicated by the price change over the past seven days of various digital currencies. Moreover, cryptocurrencies have different values, like fiat money, measured in dollars, respectively, different volumes in the market in quantitative and monetary terms and different levels of supply in the market in quantitative terms. Bitcoin is characterized by the lowest

Table 1. Price, Price Change, Market Capitalization Volume and Supply of Ten Cryptocurrencies as of 11.11.2022.

Name of the Cryptocurrency	Price, USD	Price Change within an Hour, %	Price Change within 24 Hours, %	Price Change within 7 Days, %	Market Capitalization	Volume of Cryptocurrency on the Market (within 24 Hours), USD and Units	Supply, Number of Coins on the Market of Public entities, Units
Bitcoin	$17,155.53	0.59%	1.78%	16.68%	$329,460,657,288	$62,826,147,796 3,633,172 BTC	19,204,337 BTC
Ethereum	$1,265.60	2.30%	1.46%	21.61%	$154,876,766,244	$22,126,650,927 17,269,694 ETH	122,373,866 ETH
Tether	$1	0.00%	0.41%	0.16%	$68,270,161,803	$83,303,333,445 83,440,317,499 USDT	68,271,811,803 USDT
BNB	$290.49	0.56%	1.85%	16.57%	$46,471,599,710	$1,769,691,761 6,026,238 BNB	159,975,270 BNB
USD Coin	$1.00	0.10%	0.09%	0.02%	$43,869,846,548	$6,149,225,730 6,149,989,477 USDC	43,833,104,491 USDC
Binance USD	$1.00	0.17%	0.09%	0.11%	$22,993,754,540	$15,638,475,639 15,625,695,783 BUSD	22,974,332,226 BUSD
XRP	$0.3878	0.07%	0.55%	21.21%	$19,473,348,258	$1,990,992,304 5,079,993,214 XRP	50,215,300,844 XRP
Cardano	$0.3575	0.15%	3.61%	12.33%	$12,280,958,802	$713,594,090 1,964,634,393 ADA	34,356,705,109 ADA
Dogecoin	$0.08559	1.55%	4.98%	29.75%	$11,355,638,417	$1,565,344,977 17,958,668,269 DOGE	132,670,764,300 DOGE
Polygon	$1.04	1.20%	2.01%	7.42%	$9,106,345,126	$1,891,474,400 1,783,272,310 MATIC	8,734,317,475 MATIC

Source: Coin Market Capitalization.

level of supply in the market in quantitative terms, which accordingly makes it the most valuable digital currency. Over the past nine years (from November 11, 2013 to November 11, 2022), the price of bitcoin has increased from $ 342 to $ 17,155.53 ($ 64,950 in 2021, $ 15,701 in 2020, $ 8,758 in 2019, $ 6,411 in 2018, $ 6,358 in 2017, $ 716 in 2016, $ 311 in 2015, $ 368 in 2014) [9].

In 2021, there was a significant growth of the Bitcoin market, in particular due to such factors as the growing interest of the population in digital currencies (Fig. **1**).

The latter was the result of increased savings and pent-up demand for goods and services due to the pandemic (e.g., travel services, transportation services, etc.). As a result, the level of savings increased and they were invested in cryptocurrencies. In particular, during the pandemic, the US population began to invest their own savings in this currency: the level of personal savings in April 2020 reached a historic 33%, and pent-up demand for other goods and services led to an inflow of funds into the cryptocurrency market.

The development of the cryptocurrency market reached an all-time high in 2021 and grew rapidly, especially on the African continent, for instance due to the boom in trading in Kenya. Globally, the largest 10 companies in the sector were the leaders with a combined market capitalization of $107.04 billion. The growth of this sector also occurred due to the adoption of bitcoin in El Salvador as legal tender while China banned all cryptocurrency transactions. The stable growth of the cryptocurrency sector may be affected by the competition of digital currency from central banks, as well as the emergence of consumer protection laws[15]. At the same time, the CEO of the Binance crypto exchange stated that the CBCD is not a competitive threat to the cryptocurrency. According to the author of this article, when ensuring the stability of CBCDs, they can be a competitive threat to private cryptocurrencies.

The pandemic has become a factor that has caused an increase in interest in cryptocurrencies not only among the population, but also among banking institutions and central banks[17]. The development of financial technology companies, their technological solutions and neobanks (virtual

Fig. (1). Bitcoin price dynamics in 2013-2022.
Source: Coin Market Capitalization

banks that ensure the growth of online banking) also serves as a factor of positive impact on the investment potential of cryptocurrencies.

Neo-banks (virtual banks, mobile banks, internet banks, digital banks, challenger banks) are considered as online companies that function through technological platforms (the prefix "neo" in Greek means "new"), and in practice are called online or direct banks[18]. Virtual banking institutions have been rapidly gaining popularity among the population due to the simplification of banking services[19]. The latter also applies to a quick, easy way to purchase cryptocurrency, investing in cryptocurrency. Among the examples is the Swiss neobank Dukascopy Bank, located in Geneva, regulated by the Swiss Financial Market Supervisory Authority FINMA as a bank and securities company. As of 31 December 2020, Dukascopy Bank is a fully digital Swiss bank and securities firm operating online with 83.0 employees. The banking and securities activities of Dukascopy Group are regulated in Switzerland, Latvia and Japan, which indicates the scaling of activities on a global scale. The Latvian company Dukascopy Europe is licensed to operate in the European Union. Dukascopy Group offers every customer around the world easy-to-use financial services at affordable conditions in a friendly and modern environment[12]. Since 2016, an account in Dukascopy can be opened in one day and fully online, which allowed the bank to open 303,728 accounts as of November 11, 2022[11]. The Group offers multi-product (FX, bullion, CFD, binary options) online and mobile trading platforms, a wide range of other financial services, including current accounts, guarantees, classic bank payments, innovative instant payments via smartphones, payment cards. Among the products of Dukascopy Bank is its own cryptocurrency "Dukascoins", which has been available to individuals and institutions since 2018 as a means of payment and speculation. Dukascoins are tokens created by the Bank using Ethereum-based blockchain technology. It is the world's first cryptocurrency issued by a strictly regulated bank to be accepted by the Bank for payment and funding in euros[12]. The bank considers Dukascoins to be a successful project and product, given its wide acceptance as a reward for customers who open an MCA multi-currency account. The Dukascopy brand is known worldwide for innovation and integrity in digital financial services[12]. The main strategic directions of the bank's development remain focused on mobile retail banking and cryptocurrency related activities. In 2021, the development and growth of Dukascoin took place: by the end of 2021, more than 5 million digital currencies were issued owing to the digital banking model developed by the bank, which showed stability and reliability during 2021. As of November 11, 2022, 6,074,560 Dukascoins had been issued. It is worth noting that the average value of Dukascoins for the period February 2019 - October 2022 was 1.4 euros, the minimum value was 0.63 euros, and the maximum value was 3.42 euros in December 2020[11,12].

It was the online/digital banking model of Dukascopy Bank, introduced in 2017, that contributed to the flexibility of operations, the rapid adoption of blockchain technology and the launch of its specific financial programs for the development of cryptocurrency. It is worth noting that the bank offers customers around the world to open a multi-currency account (MCA), which is aimed at retail customers with a volume of funds below $100,000. Clients with the amount of funds over USD 100,000 can use Private Banking (Savings) services. The main purpose of the savings account is to store and accumulate funds, while the MCA is for everyday retail transactions, in particular with the use of the bank's cryptocurrency. The following advantages are available to Private Banking clients: storage of funds in a Swiss bank, the ability to deposit and store from $ 100,000 and above, a personal account manager, investments in gold, silver, oil, gas, stocks, many indices and cryptocurrencies, etc [6,12]. Thus, Dukascopy Bank allows customers of different segments to purchase their own cryptocurrency and use it for both payments and investments.

Thus, we can agree that cryptocurrency has a huge investment potential, opening up opportunities for different groups of investors[2]. At the moment, cryptocurrency has already significantly changed the investment market and ways of investing, significantly simplifying them due to a greater level of accessibility, ease of opening an account, and low transaction costs. Due to the accelerating pace of innovation in the financial and technological sector, the cryptocurrency investment market will grow.

Among the factors of the development of cryptocurrency as a new financial instrument for settlement and investment is the development of the digital economy, which has led to the transformation of the regulatory environment, the awareness of central banks of the need to launch digital currencies[20]. This awareness is a response of central banks to the high competition from financial technology companies and the opposition of their financial technology services to traditional banks. CBs have realized the potential of blockchain technology and how it can be used to create a new digital means of payment.

Globalization and the need to speed up cross-border payments and reduce transaction costs have also served as factors to increase the need for CBs to carefully study the processes of launching and regulating digital currencies. The banking sector understands the needs of customers for a simple, fast, round-the-clock accessible service for financial transactions. This, in turn, stimulates the introduction of new services, digitalization and transformation into financial technology companies. The latter, in order to ensure the sustainability of their own positions in the market, are developing private cryptocurrencies that are convenient and easy to use, both as a means of payment and as a means of investment, as demonstrated by the example of Dukascopy Bank.

Central banks are realizing the importance of digital transformation of the financial system by developing similar alternatives to private cryptocurrencies like Bitcoin. For example, in Mexico, financial regulation prohibits banks from working with private cryptocurrency, which causes an outflow of customers, a reduction in the level of deposits in favor of receiving financial services from financial technology companies. Banxico, as Mexico's central bank is known, has outlined a plan to create a digital currency platform based on aspects of its own interbank payment system SPEI in a report it published on December 17, 2021 on its website. The report, however, does not set a launch date for the currency, only specifying the possibility of using it by the population without bank accounts[10].

According to the Atlantic Union[10], as of November 2022, 87 countries (representing more than 90% of global GDP) are studying the possibility of launching a Central Bank Digital Currency (CBDC). For comparison, in May 2020, only 35 countries were considering launching a CBDC to optimize cross-border payments within global partnerships. 9 countries have already fully launched digital currency, including the Bahamas, Eastern Caribbean Islands, Nigeria. Nigeria is the latest country to launch a digital currency, eNaira, the first outside the Caribbean. At the launch of the eNaira in October 2021, the Governor of the Central Bank of Nigeria, Godwin Emefiele, announced that 500 million e-Naira (US$1.21 million) had already been minted. Currently, only bank account holders can access the eNaira by registering with the Nigerian bank ID BVN. The next phase of implementation will include non-banking services using Nigeria's National Identification Number, NIN, which has now reached 60 million registrations.

Among the countries with the 4 largest central banks (the United States, the Eurozone, Japan and the United Kingdom), the United States is the furthest behind. 14 countries, including China and South Korea, are currently in the pilot stage of digital currency launch and are preparing for a possible full launch. Without new standards and international coordination, the financial system may face a significant problem of digital currency interoperability in the future [10].

The main reasons for central banks to launch digital currencies have been outlined. Digital currencies are more cost-effective than physical cash because they have lower transaction costs. Moreover, digital currencies can promote financial inclusion, which means that those who are unbanked can access money more easily and securely through a mobile device. In addition, digital currencies can compete with private companies that need incentives to comply with transparency standards and curb illegal activities. Finally, digital currencies can help to implement monetary policy quickly and smoothly.

Among the main challenges of launching digital currencies there is the need for careful consideration before a country launches a digital currency. Centralization through the government of a private system can cause a negative reaction from users and pose cybersecurity risks. To launch digital currencies, regulatory processes for circulating the new form of money must be updated and harmonized. In addition, digital currencies must be reliable to use and inspire the trust of citizens.

It is also worth citing an example of the positive indirect impact of cryptocurrency on the investment market in the context of cross-border cooperation and facilitation of transactions between countries. The latest test of cross-border payments is Project Dunbar - a partnership between South Africa, Singapore, Malaysia and Australia. The United Arab Emirates and Saudi Arabia launched a bilateral central bank digital currency pilot called Project Aber in 2019 and concluded that the DLT currency could successfully facilitate cross-border transactions. In February 2021, the United Arab Emirates joined China, Hong Kong and Thailand in a joint cross-border digital currency trial[10].

CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

The conducted study of the impact of cryptocurrencies on the investment market allows us to identify a number of factors that indicate a positive impact: the development of financial technology companies and their technological solutions for cryptocurrencies, in particular neobanks (virtual banks that ensure the growth of online banking), the development of the regulatory framework for the regulation of digital currencies, in particular by central banks. The development of cryptocurrencies of banking institutions operating in the online environment, provides the purchase and sale of cryptocurrencies on stock exchanges, and not on crypto exchanges, allowing the use of cryptocurrencies as a means of payment and investment. The issue of cryptocurrency by banking institutions also ensures its stability, thus expanding the investment potential of this financial instrument. The above contributes to the formation of the cryptocurrency investment market in the structure of the stock market. Among the factors that indicate the negative impact of cryptocurrency on the investment market are the following: the lack of a stable value of cryptocurrency and its volatility, dependence on fluctuations in the world economy and macroeconomic factors, in particular demand; as a result of the first factor, cryptocurrency as an object of investment activity is quite risky.

While cryptocurrencies offer exciting opportunities for investment, their inherent risks and dependence on external factors should be carefully considered. It is crucial for investors to conduct thorough research and exercise caution when engaging in cryptocurrency investments, taking into account the potential rewards as well as the associated risks. Continued monitoring of the cryptocurrency market, technological advancements, and regulatory developments will be essential for understanding and navigating the evolving landscape of cryptocurrency investments.

In addition to the findings discussed in the study, further research should be dedicated to exploring the implications of central bank digital currencies (CBDCs) on the market of private digital currencies built on blockchain technology. Another critical aspect for further investigation is the potential technological advancements and innovations that may arise from the development and implementation of CBDCs.

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