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MELNYK Tetiana,
Doctor of Sciences (Economics),
Professor, Head of the Department of International
Management
State University of Trade and Economics,
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0002-3839-6018
t.melnyk@knute.edu.ua

KLYM Oleh,
PhD Student
of the Department of International Management
State University of Trade and Economics
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0003-3134-9558
o.klym@knute.edu.ua

VIRTUAL ASSETS IN THE CONTEXT OF GLOBAL ECONOMIC INSTABILITY

Virtual assets, such as crypto-currencies, have become the object of significant interest in the conditions of global economic instability, when people are looking for alternative investment opportunities and means of saving funds. One of the reasons for the growing popularity of virtual assets in such conditions is their independence from traditional financial markets and the potential for diversification of the investment portfolio. In times of economic instability, such traditional assets as stocks and bonds can be highly dependent on market fluctuations. Instead, virtual assets can be a way for investors to preserve their funds and even make a profit. At the same time, the market of virtual assets is extremely risky. It is known for its volatility, which can lead to significant losses for investors. Therefore, the investment strategy, which provides for the distribution of assets to reduce risk, is optimal in conditions of economic instability. Virtual assets can play an important role in diversifying an investment portfolio, reducing overall risk, as these assets

МЕЛЬНИК Тетяна,
д. е. н., професор, завідувач кафедри
міжнародного менеджменту
Державного торговельно-економічного
університету
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0002-3839-6018
t.melnyk@knute.edu.ua

КЛИМ Олег,
аспірант кафедри міжнародного менеджменту
Державного торговельно-економічного
університету
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0003-3134-9558
o.klym@knute.edu.ua

ВІРТУАЛЬНІ АКТИВИ В УМОВАХ ГЛОБАЛЬНОЇ ЕКОНОМІЧНОЇ НЕСТАБІЛЬНОСТІ

Віртуальні активи, такі як криптовалюти, стали об'єктом значного інтересу в умовах глобальної економічної нестабільності, коли люди шукають альтернативні інвестиційні можливості та засоби збереження коштів. Однією з причин зростання популярності віртуальних активів у таких умовах є їх незалежність від традиційних фінансових ринків і потенціал у диверсифікації інвестиційного портфеля. За економічної нестабільності такі традиційні активи, як акції та облигації, можуть сильно залежати від коливань ринку. Натомість віртуальні активи можуть стати для інвесторів способом зберегти свої кошти та навіть отримати прибуток. Водночас ринок віртуальних активів є надзвичайно ризикованим. Він відомий своєю волатильністю, що може призвести до значних втрат для інвесторів. Відтак, інвестиційна стратегія, що передбачає розподіл активів для зменшення ризику, є оптимальною в умовах економічної нестабільності. Віртуальні активи можуть відіграти важливу роль у диверсифікації інвестиційного портфеля,



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can respond to market events independently of traditional assets.

The aim of this research is to determine the possibilities of using virtual assets in conditions of global economic instability. General scientific and special methods are applied: observation, description, comparison, analysis and synthesis. Data on prices of virtual assets and stock indices in online environments TraadingView and CoinMarketCap were used. The benefits of using virtual assets based on blockchain technology (using bitcoin as an example) in conditions of global economic instability are considered. A comparative analysis of the price of bitcoin with leading stock indices affecting the global economy was carried out. The main advantages and disadvantages of using virtual assets as investment tools and the prospects for their use in this area are determined.

Keywords: recession, crisis, cryptocurrancy, Bitcoin, blockchain.

JEL Classification: F20, F21, G11, G12.

Introduction

Virtual assets (VA) are electronic forms of money stored in digital wallets and used to carry out various transactions, mainly settlement transactions. Most of these assets are based on Distributed Ledger Technology (DLT), which is based on the blockchain concept. Blockchain is defined as a system where data is divided into blocks and connected in a sequential chain, creating a reliable and decentralized network without intermediaries.

VAs originated as a means of storage and exchange, and over time has evolved into complex financial instruments with various functions, including insurance and investment. They are gaining more and more popularity among users and investors. As of 2023, the number of cryptocurrency owners is 402 million people. Institutional bodies and large companies that were previously unfamiliar or skeptical of cryptocurrencies are investing in virtual assets. These include MicroStrategy (US software developer, owns 140.000 BTC, equivalent to USD 4.2 billion, Tesla (US electric car manufacturer, USD 1.5 billion investment in BTC in 2020, introduction of Dogecoin as a means of payment on the site), Block Inc. (American technology company, owns 8.027 BTC, equivalent to 241 million USD), etc. (Bitcoin treasuries, 2023).

The regulation of VA is becoming increasingly important, and many countries are adopting relevant laws and regulations to protect users and investors. Japan and Switzerland are examples of countries that have already regulated this sector, while the USA and the European Union are considering

зменшуючи загальний ризик, оскільки ці активи можуть реагувати на ринкові події незалежно від традиційних активів. Метою цього дослідження є визначення можливостей використання віртуальних активів в умовах глобальної економічної нестабільності. Застосовано загальнонаукові та спеціальні методи: спостереження, опис, порівняння, аналіз та синтез. Використано дані про ціни віртуальних активів та біржові індекси в онлайн середовищах TraadingView та CoinMarketCap. Розглянуто переваги використання віртуальних активів на основі технології блокчейн (на прикладі біткоїну) в умовах глобальної економічної нестабільності. Проведено порівняльний аналіз ціни біткоїну з провідними біржовими індексами, що впливають на глобальну економіку. Визначено основні переваги та недоліки використання віртуальних активів як інвестиційних інструментів та перспективи їх використання у цій сфері.

Ключові слова: рецесія, криза, криптовалюта, біткоїн, блокчейн.

regulatory options. In the US, federal regulators such as the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC) treat VAs as securities and not as tangible assets. This means that virtual assets are subject to the same rules and regulatory requirements as other financial derivatives. The European Union is at the stage of developing its own draft law "Regulation on Markets in Crypto Assets" (MiCA), i.e. "Regulation of virtual asset markets" (Proposal for a regulation of the European parliament and of the council on Markets in Crypto-assets, 2020).

Along with the advantages of using VA, there are also certain risks: legal status in different countries, volatility of prices for these assets, as well as the risk of hacker attacks on exchange platforms. However, interest in them continues to grow, especially among large investors, which affects international economic activity.

Ukraine is also joining these processes, and VAs are increasingly spreading among the population as a means of investment and payment. In Ukraine, a regulatory system is being formed to ensure the protection of users and investors in the field of virtual assets. In particular, the Law of Ukraine No. 2074-IX "On Virtual Assets" (2022) was adopted, but its entry into force has been postponed until the Tax Code of Ukraine is amended. After the full-scale invasion of the Russian Federation, digital currencies, in particular cryptocurrencies became more widespread as both an investment instrument and a payment instrument. The main prerequisites for this are the fall of the hryvnia, NBU restrictions on transactions with foreign currency, as well as such advantages of using virtual assets as anonymity, the possibility of transactions without intermediaries, speed and security of transactions (Blockchain industry has a great future in Ukraine, 2023).

Under modern conditions, new and important challenges arise that require careful analysis and study. One of them is the aggravation of economic instability, which poses a threat at all levels of the economy. In this context, VAs such as cryptocurrencies and digital financial instruments gain additional relevance and attract the attention of global financial market players. They open up new opportunities for subjects of international economic activity to carry out settlement operations, optimize the execution of international contracts, as well as invest in conditions of growing financial risk and instability. The gradual increase in the interest rate in the US, which is used to reduce the level of inflation, is also causing an increase in interest in VA among large investors and ordinary citizens.

The issue of using VA as an investment tool is considered by such scientists as Ganne, E. (2018), Trimborn, S., (2018), Lucey, B., (2019) and others. The main areas of research include the study of the properties of virtual assets, their technical features and economic value, the impact of

virtual assets on the financial system and banking activities, the analysis of risks and challenges associated with the use of virtual assets, such as fraud, money laundering and cyber-attacks. However, most of the information on the use of VA as an investment tool is not systematized, in addition, there is no unified system of indicators.

Therefore, the aim of the research is to determine the possibilities of using virtual assets in conditions of global economic instability.

To achieve this aim, the following tasks have been set: to consider the prerequisites of global economic instability and the use of countercyclical investment assets, to determine the aspects of using bitcoin as an investment asset during global economic instability, to assess the prospects for the use of alternative financial institutions in conditions of global economic instability.

The set tasks in their totality should give an idea of whether it is appropriate to use bitcoin and other VA as a countercyclical investment asset.

The methodological basis of this study is general scientific and special methods of scientific knowledge. Using the methods of observation, description and comparison, the prerequisites of global economic instability, the main countercyclical assets, and the differentiation of virtual assets by generation are determined. The method of analysis and synthesis was applied to determine the main trends in the price of bitcoin relative to the main stock market indicators and the impact of the halving on the price of bitcoin. Data on prices of virtual assets and stock indices in online environments TradingView and CoinMarketCap were used. Conclusions are formulated by the method of generalization. The main part of the article consists of three sections.

The first chapter highlights the signs of global economic instability, the main countercyclical investment assets, the advantages of the "classic" crisis asset – gold, and its price fluctuations during global financial crises.

In the second part, the aspects of using bitcoin as an investment asset during global economic instability are disclosed, the trends in the price of bitcoin relative to the main stock market indicators are analyzed, and the change in the price of bitcoin after halvings is highlighted.

The third one is devoted to the analysis of the expediency of using alternative financial institutions as investment vehicles during global economic instability.

1. Countercyclical investment assets in conditions of global economic instability

The beginning of this decade is characterized as a period of special destruction in the history of mankind. The return to the "new reality" after the COVID-19 pandemic was quickly disrupted by the full-scale russian

invasion of Ukraine, which caused a new series of crises in all spheres. The beginning of 2023 brought various risks. Such "classical" risks as inflation, cost-of-living crises, trade wars, capital outflows from emerging markets, large-scale social protests, geopolitical confrontations, and the threat of nuclear war are returning. These risks are exacerbated by relatively new phenomena in the global risk landscape: unproductive debt levels, a new era of low growth, low global investment and deglobalization, the decline of human development after decades of progress, the rapid and unlimited development of dual (civilian and military) technologies, and increasing pressures from climate change and ambitions in the shrinking window to transition to a world limiting temperature rise to 1.5°C (The Global Risks Report, 2023).

According to the World Economic Forum’s Global Risks 2023 report, economic risks are one of the most influential groups of risks, along with environmental, geopolitical, social and technological (*Figure 1*).

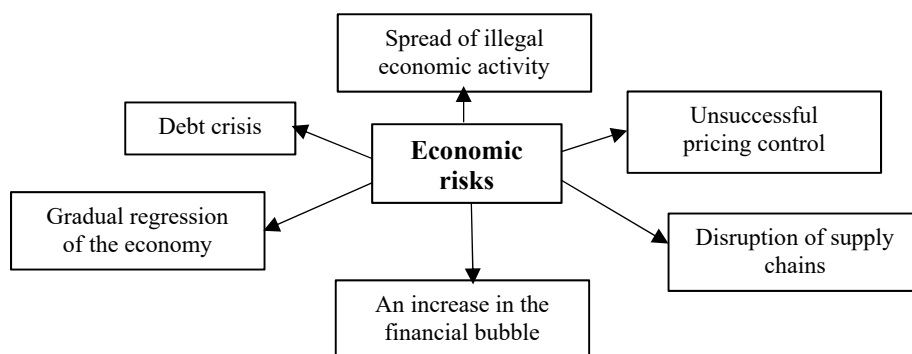


Figure 1. Global economic risks in the short and long term

Source: compiled by the authors based on data (Global Risks Report, 2023).

These risks, combined with other groups of risks, can cause global economic instability, which will have a wide range of consequences that affect various aspects of society and the economy. Under these conditions, the role of investment assets for the formation of an insurance reserve fund is growing.

Countercyclical investment assets are assets that are used for investment and move in opposite directions from the cyclical trends of economic development. In other words, these are assets that usually decrease in price or are stable during periods of economic strengthening and increase during periods of economic recession or crises.

According to the results of a Bloomberg survey, the main virtual asset – Bitcoin took the third place among the most attractive assets for hedging risks (*Figure 2*).

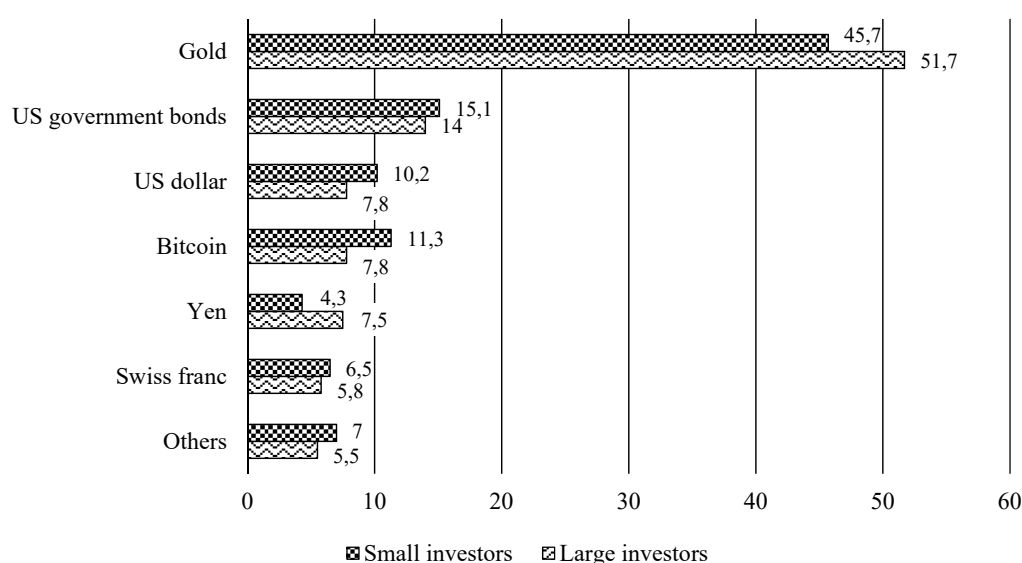


Figure 2. Poll results on the most attractive assets in the event of a US default
 Source: (Partz, 2023).

First place was taken by gold, which has been used as a crisis asset for a long time, and US government bonds. Gold is often used as a means of hedging risks in the financial world (Mazaraki et al., 2022). There are several reasons why gold is a popular hedging tool:

- preservation of value;
- inverse fluctuation to the level of inflation;
- diversification of the investment portfolio.

As a result of the crisis of the 1970s, which was caused by the oil shock of 1973, rising inflation, as well as geopolitical tensions in the context of the Cold War, the price of a triple ounce of gold rose from US 35 dollars in 1970 to US 680 dollars in 1980. The global financial crisis caused the price to rise from US 924 dollars in January 2008 to US 1.823 dollars in 2011.

2. Aspects of using bitcoin as an investment asset in conditions of global economic instability

Bitcoin, which took the third place in this ranking, is often seen as one of the means of hedging risks in the financial world. This is explained by a number of factors.

Decentralization. Bitcoin is a digital cryptocurrency that works on the basis of blockchain technology. It does not depend on any central authority or government. Blockchain is a method of decentralized and distributed recording of data that is stored using cryptographic methods. Unlike traditional databases managed by a central authority, blockchain technologies rely on a peer-to-peer network that no one participant or outsider can fully

control. Transactions are authenticated using cryptographic means and a mathematical "consensus protocol" that defines the rules by which the database is updated and enables participants who may not trust each other to transact without relying on a third party to act as a guarantor fulfillment of obligations of the parties. The transparency, decentralization and stability of blockchain technology increases the interest of international companies and governments of countries to reveal the potential of using this technology in international economic activity, in particular to increase the efficiency of trade processes and create new concepts and projects using blockchain technology. This can provide a decentralized nature and independence from traditional financial markets, making Bitcoin a potential alternative for hedging risks. The first practical implementation of blockchain technology took place on January 3, 2009, when the first cryptocurrency Bitcoin was created and the first block in the chain was mined (A peer-to-peer electronic cash system). Since then, Bitcoin has remained the most famous cryptocurrency, which has opened up opportunities for the development of other projects based on blockchain technologies and virtual assets.

Diversification of the investment portfolio. Adding Bitcoin to your portfolio can help diversify your assets. Bitcoin has a slightly different correlation to traditional assets such as stocks or bonds, which can reduce overall portfolio risk (*Figure 3*).

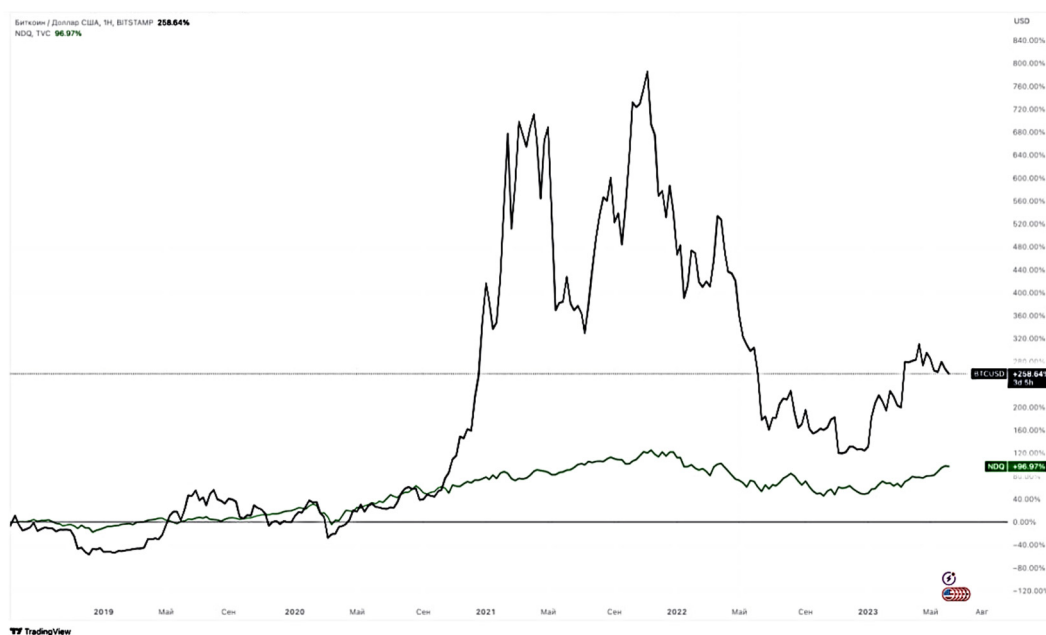


Figure 3. Comparative dynamics of the bitcoin price (black line) and the NASDAQ index (green line) for 2022-2023

Source: compiled by the authors in the TradingView environment, using BTCUSD, Bitstamp and NDQ charts, TVC (Livestock, index, futures, forex and bitcoin charts on TradingView, n.d.).

NASDAQ (National Association of Securities Dealers Automated Quotations) is one of the largest American stock indexes. It contains stocks of technology companies as well as companies from other sectors that are traded on the NASDAQ stock exchange. It is commonly used to measure market performance, which allows tracking and analysis of the impact of the technology sector on the market and offers a variety of technology solutions to increase trading efficiency. Bitcoin is only partially correlated with this index (Cheon et al., 2023).

The DXY dollar strength index is also an important indicator of market sentiment. This index measures the value of the US dollar against a basket of major world currencies, including the euro, Japanese yen, British pound, Canadian dollar, Swedish krona and Swiss franc. The DXY index is used to measure the strength of the US dollar relative to other world currencies. An increase in the DXY index indicates a strengthening of the dollar against other currencies, while a decrease in the index indicates a weakening of the dollar. Investors and traders use the DXY index to analyze currency market trends and identify potential risks and opportunities (Figure 4).

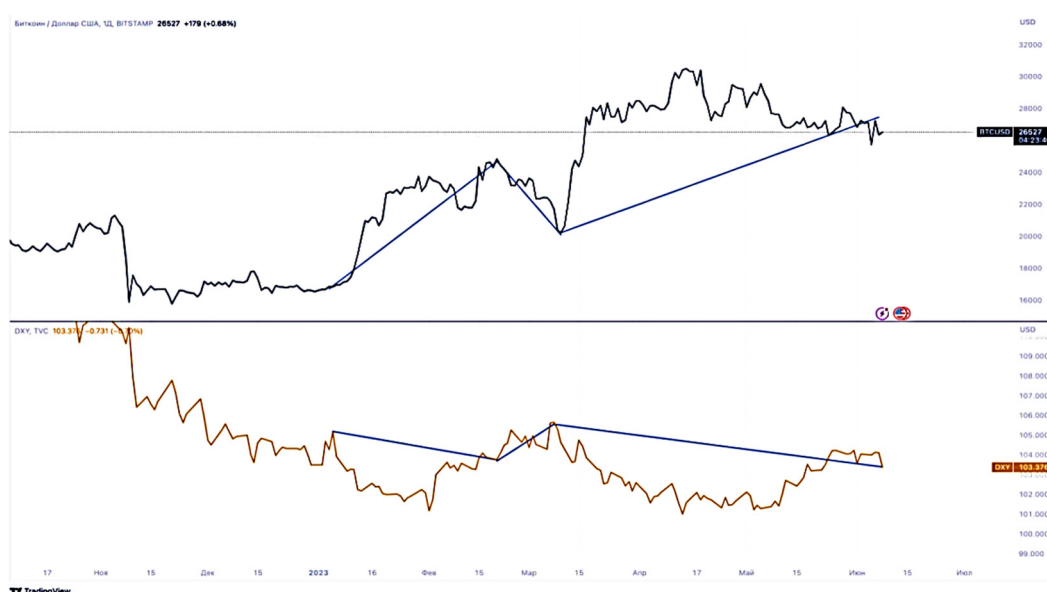


Figure 4. Comparative dynamics of the Bitcoin and DXY price for 2022 – 2023

Source: compiled by the author in the TradingView environment, using BTCUSD, Bitstamp and DXY charts, TVC (Livestock, index, futures, forex and bitcoin charts on TradingView, n.d.).

The chart shows the relative trend lines of both indicators with blue segments. The trends of Bitcoin and the Dollar Strength Index are inverse, indicating an increase in public and investor interest in cryptocurrencies and Bitcoin as the value of the US dollar declines. This makes a strong case for using Bitcoin as a hedge against global economic instability.

Projected cost growth. Bitcoin is known for its high volatility and can experience significant changes in value over a short period of time. This can

create opportunities to increase the value of the portfolio in conditions of risk or volatility in the financial markets. The asset's market capitalization peaked at USD 1.2 trillion in 2021 (*Figure 5*).



Figure 5. Dynamics of Bitcoin market capitalization in 2011–2023

Source: compiled by the authors in the CoinMarketCap environment, BTC Capitalization graph (Bitcoin price Today, BTC to USD live price, market cap and Chart. CoinMarketCap. (n.d.).

One of the main factors in the growth of the price of Bitcoin is the halving. A Bitcoin halving is an act where the block reward on the Bitcoin network is halved. This occurs when a block is reached approximately every 4 years. Halving limits the supply of Bitcoin in the market, which causes demand to increase and the price of this asset to increase (*Table 1*).

Table 1

The impact of halving on the Bitcoin price

Halving date	Price on the day of halving, USD	Price after one year, USD	Bitcoin price change, %
28.11.2012	12.35	127	931
09.06.2016	650.63	2526.63	288
11.05.2020	8725.84	57668.63	560

Source: compiled by the authors based on data from TradingView BTCUSD, Bitstamp (Livestock, index, futures, forex and bitcoin charts on TradingView, n.d.).

The increase in the Bitcoin price due to halving during the year is significant and systemic, but the exact growth rate is impossible to predict due to the significant volatility of this asset (Ciaian et al., 2015).

3. Prospects for using other virtual assets as an investment tool

Bitcoin uses the blockchain as a technological tool, and the number of cryptocurrencies and technologies that use this method of storing and exchanging information is constantly growing (*Table 2*).

Table 2

Dynamics of the number of active cryptocurrencies in the world for 2013–2023

Year	Number of active cryptocurrencies
2013	7
2015	501
2017	636
2019	2086
2021	4154
2022	8714
2023	8856

Source: (Howarth, 2023).

The results of the analysis of the given data indicate that the number of active cryptocurrencies is constantly growing, which leads to an increase in interest in these assets. But, despite the growing number, the total number of inactive or unsupported cryptocurrencies is 14.408, which demonstrates significant risks for investments in these assets.

The main advantage of using alternative VAs is the possibility of diversification. Virtual assets (Ethereum, Ripple, Litecoin, etc.) allow investors to expand their portfolios and reduce the risk of concentration of funds in one asset; improve the balance and stability of the investment basket. Alternative VAs may have their own price formation trends, which is especially important in conditions of fluctuations in global financial markets. Also, a significant factor in the use of alternative VAs as an investment tool is the technological aspect of the blockchain, namely the evolution of generations, which includes the creation of new and improvement of existing capabilities of technologies based on the blockchain (*Table 3*).

Table 3

Comparative characteristics of cryptocurrencies of different blockchain generations

Generation (examples)	Technological aspect	Advantages
First (BTC)	The first practical implementation of blockchain technology	BTC has the highest market capitalization and the highest degree of trust among investors
Second (Ethereum)	Added "smart contracts" and decentralized applications (DApps)	Opening up a wide range of opportunities for development and innovation. ETH is the second largest cryptocurrency in the world
Third (Cardano, ADA; Polkadot, DOT; Solana, SOL, so on)	Focused on overcoming the limitations of previous generations, including increasing the speed of transaction processing and scalability	Providing advanced opportunities for developing applications and protocols
Others (NFT-platforms, DeFi and so on)	Creation of non-fungible tokens and decentralized financial instruments based on the blockchain of the second and third generations	The ability to create and trade digital artwork, exchange financial instruments without intermediaries, and more

Source: (Howarth, 2023).

Alternative VAs open up a wide range of opportunities for investors. These digital assets can be a portfolio diversification tool, have great technological potential and provide global market access. However, their use is also accompanied by significant risks and requires caution and awareness. Still, virtual assets have the potential to become an important investment tool in the future and deserve the attention of investors willing to explore this market.

Conclusions

Virtual assets (VA) are becoming an increasingly popular payment and investment tool. Every year, this area is rapidly expanding: the capitalization of VA is growing, their number is increasing, blockchain is gradually replacing the centralized system of information storage and exchange.

The decentralization, autonomy of the VA on the blockchain architecture, in particular the most popular cryptocurrency Bitcoin, implies consideration of this group of assets as a tool for hedging financial risks during global economic instability. The pandemic of the COVID-19 coronavirus since the beginning of 2020, and then the full-scale invasion of the Russian Federation on the territory of Ukraine caused the largest recession of the world financial market since 2008. This period is characterized by a drop in the growth rates of the economic development of states, an increase in inflation within countries, and a reduction in investments.

This research has been showed that Bitcoin, like gold, can be used as a tool for hedging risks. The main prerequisites for this are the relative independence of bitcoin, which has a different price dynamics from traditional financial markets, which makes it possible to diversify the investor's portfolio as much as possible and reduce the risk of losing funds in the event of a further increase in the level of consumer prices. Also highlighted is the inverse relationship between the Bitcoin price and the DXY Dollar Strength Index. This shows the increasing interest of the public and investors in Bitcoin and all VAs in general when the US dollar, which is the leading traditional currency in the world, falls. The independence of VA and Bitcoin from any jurisdiction also allows for the distribution of risks associated with political instability or currency restrictions in certain regions, and technological progress favors investment in this area, making it more independent of traditional financial instruments.

The main risk of using virtual assets as a means of hedging risks is the significant volatility of the price of these assets compared to traditional ones such as gold and bonds. This factor reduces the attractiveness of VA as a risk hedging tool for large investors, but has less impact on retail investors. A factor that negatively affects both groups of investors is the legal uncertainty of some aspects of the use of VAs, as well as the desire of state financial regulators of the leading countries of the world to partially or completely limit transactions with them. An example is the ongoing lawsuits by the SEC (the US federal regulator responsible for overseeing and regulating financial markets, including securities, exchanges and brokerages) against cryptocurrency exchanges and issuers of virtual assets. Also, a significant number of inactive cryptocurrencies that have completely lost their intrinsic value is a possible negative factor, which limits the diversification of the investment portfolio by various VAs.

Therefore, virtual assets can be used as a method of hedging financial risks during global economic instability, but due to insufficient legal protection and significant price volatility, investments in these assets carry greater risks than traditional hedging assets, so their use is appropriate only as a component of a diversified investment portfolio.

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