

SYSTEM ANALYSIS OF SUBJECTS CRYPTOCURRENCIES OPERATIONS IN THE CONDITIONS OF GLOBAL CHALLENGES

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The article considers cryptocurrency as a new type of intangible assets and the regulatory and legal support for its implementation. Particular attention is paid to defining the content, legal status, features of accounting, and taxation of transactions with such assets. The market capitalization and bitcoin forecast are analyzed. The interdependence between the exchange rate of bitcoin and pairs of the most influential world currencies, world prices for precious metals, and securities rates on the largest stock exchanges is determined. The most significant influencing factors on the bitcoin price are determined using correlation and regression analysis. The advantages of using cryptocurrencies have been identified, including high speed of transactions, reduction of the intermediaries number, and low fees. The threatening nature of the crypto-industry development for the economic potential of the state is also determined, taking into account available with current global challenges such as cyberattacks and fraud and data theft. Real fraud schemes in the field of crypto-circulation are considered. It is noted that without determining the clear legal status of cryptocurrencies in the country, it is impossible to resolve the legal, accounting and tax consequences of these transactions. It was determined that for the legal circulation of cryptocurrencies, the creation of a financial institution or a special state body, which should exercise control over the cryptocurrencies circulation, must be ensured as a minimum; introduction of taxation for companies whose activities are related to the crypto industry; establishing the obligation of users to declare their income and profits from crypto-assets, etc. Because of this, the functions of state authorities in regulating operations with cryptocurrencies are characterized, and the changes that will be introduced to the Tax Code of Ukraine are analyzed, regarding the taxation of transactions with cryptocurrencies, which in the future will make it possible to increase budget revenues, regulate and facilitate accounting and taxation of transactions with cryptocurrencies, use legal remedies for virtual assets, reduce possible tax evasion, etc.

Keywords: global challenges, cyberattacks, data theft, correlation and regression analysis, cryptocurrency, taxation, regulation, business entities, factors, fraud.

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STATEMENT OF THE PROBLEM IN GENERAL AND ITS CONNECTION WITH IMPORTANT SCIENTIFIC OR PRACTICAL TASKS

One of the modern global challenges, along with climate change, extreme weather, and human environmental damage, is the spread of infectious diseases and digital power concentration. The massive spread of infectious diseases for example the COVID-19 pandemic has led to the transformation of the business entities' interaction and the mass transition to electronic forms of interaction. An integral component and important attribute of the digitalization of the new economy is the accelerated development of the crypto industry, which led to the emergence of cryptocurrencies (Blockchain 1.0), and later other types of tokenized assets (Blockchain 2.0).

From a means of exchange in the online environment, cryptocurrencies are transformed into a highly liquid means of payment, taxed and regulated by central banks, as well as an independent investment tool. Digitization covers the physical world and physical interaction into a new, digital plane, in which information and digitized objects of the physical world can acquire new characteristics. Digitization is a digital breakthrough, that is, a phenomenon of radical changes and progress caused by new digital technologies and innovative digital business models.

In the global challenges conditions, technologies and innovations play an important role. Considering this, the EU and other countries are making every effort to promote the development of the digital economy. Currently, Ukrainian legislation is being adapted to European standards for the regulation of cryptocurrencies Markets in Crypto-Assets or MiCA.

So, in recent years, in response to global challenges, there has been a rapid circulation of virtual assets as part of the digital economy, great momentum and dynamic growth have been gained in their implementation and use as a basis for conducting business.

ANALYSIS OF LATEST RESEARCH AND PUBLICATIONS

Domestic and foreign scientists are engaged in the study of the cryptocurrency development. For example, the question of the cryptocurrencies essence and the trends of their development in Ukraine was considered by such scientists as E.O. Galushka [1], I.I. Guseva [2], O.S. Novak, O.M. Petruk [3]. Yatsyk T. [4] proposes to consider cryptocurrency as a special electronic means of payment, the course of which is

supported only by supply and demand, but A. Kuvshinova [5] refuted the definition of the economic essence of cryptocurrency as money, currency value, electronic money, etc. The theoretical and methodological principles of accounting, taxation and determining the legal status of operations with cryptocurrencies are considered by V.M. Kostyuchenko [6], N.M. Zhydovska [7] and I. Spilnyk [8]. Such scientists as I. Samokhodskiy and O. Shelest [9] identified a list of stages that comprise the activity of economic entities on the cryptocurrency market. Therefore, despite the significant contribution of many authors to this issue, not enough attention has been paid to the advantages and disadvantages of using cryptocurrencies, features of their legal circulation and taxation of operations with them.

PURPOSE AND MAIN TASKS OF THE PAPER

The purpose of the article is the analysis the cryptocurrency advantages and disadvantages, determination the interaction between authorities and business entities during transactions with cryptocurrencies, and reasoning the prerequisites for the introduction of accounting and taxation of transactions with cryptocurrencies in Ukraine.

RESULTS AND DISCUSSIONS

Cryptocurrency is an intangible digital object that expresses a certain value [10]. People who own cryptocurrency can:

- to trade, that is, to exchange cryptocurrency of one type for another, or to exchange for traditional money, for example, US dollar, hryvnia;
- to transfer cryptocurrency between electronic wallets;
- to use cryptocurrency as a means of payment, which is possible only in a limited circle of people who agree to accept such payments (in global practice, there have already been cases when payments in cryptocurrency were accepted by well-known companies, for example, Tesla, Microsoft);
- to use for investment purposes, which means to hold for resale when its value on the market will increase, in other words, to hold for speculation, which is the main use of cryptocurrencies today.

Among the 20000 cryptocurrencies available in the world, the most popular and valuable as of January 2023 are Bitcoin, Ethereum, Tether, USD Coin, BNB, XRP, Binance USD, Dogecoin, Cardano, and Polygon (Table 1).

Table 1

Popular cryptocurrencies and their market capitalization as of January 2023

No	Name	Price		Capitalization		Change for the year, %
		UAH	USD	UAH	USD	
1	Bitcoin (BTC)	848281.00	23064.00	16358067945931.00	444364508427.00	-37.65%
2	Ethereum (ETH)	59079.00	1608.16	7091741330589.00	193525512984.00	-34.77%
3	Tether (USDT)	36.78	0.999156	2472787146372.00	67131678503.00	-0.23%
4	USD Coin (USDC)	36.76	0.998631	1595880052535.00	43339418985.00	-0.41%
5	BNB	11220.20	305.21	1512179620777.00	41142000310.00	-20.75%
6	XRP	15,12	0.411208	767333393664.00	20872342119.00	-33.73%
7	Binance USD (BUSD)	36.75	0.998866	570527718719.00	15503808544.00	-0.27%
8	Dogecoin (DOGE)	3.18	0.086406	438037689128.00	11922898587.00	-39.9%
9	Cardano (ADA)	13.93	0.378868	487949341552.00	13267799463.00	-63.77%
10	Polygon (MATIC)	40,28	1,094	360589839128.00	9132774338.00	-30.26%

Source: developed by the authors based on [11]

Since bitcoin is the most expensive and popular currency, we propose to consider the exchange rate forecast, prepared by MOFT experts based on data from world analytical platforms, as well as author's assessments (Fig. 1).

The article proposes to determine the factors that have the greatest influence on the Bitcoin exchange rate using a correlational analysis of interdependence:

- the exchange rate of the bitcoin cryptocurrency (BTC) and pairs of the most influential world currencies, namely the euro / US dollar (EUR/USD); Chinese yuan / US dollar (CNY/USD); Japanese yen / US dollar (JPY/USD); British pound / US dollar (GBP/USD); Australian dollar / US dollar (AUD/USD); Swiss franc / US dollar (CHF/USD);
- the exchange rate of bitcoin and world prices for precious metals such as gold (Au), silver (Ag), and platinum (Pt);

- bitcoin exchange rate and securities prices on the largest stock exchanges (PFTS index, UX index, Dow Jones index, S&P 500 index, NASDAQ index, Nikkei index, FTSE index, Euro STOXX index, DAX index, SSE index).

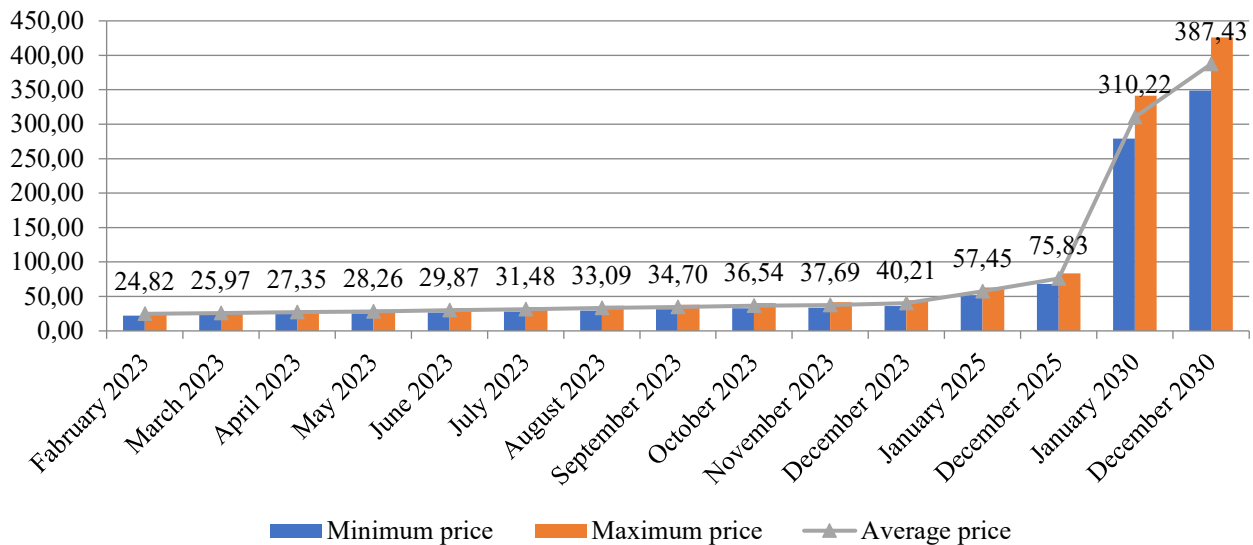


Fig. 1. Bitcoin price forecast for 2023, 2025 and 2030 (thousands of US dollars)

Source: built by the authors based on [12]

The model of the correlation dependence of the bitcoin exchange rate and pairs of the most influential world currencies is shown in Fig. 2.

Correlations (Spreadsheet2) Marked correlations are significant at $p < .05000$ N=12 (Casewise deletion of missing data)							
	EUR/USD	CNY/USD	JPY/USD	GBP/USD	AUD/USD	CHF/USD	BTC/USD
EUR/USD	1.00	0.65	0.74	0.74	0.48	0.66	0.55
CNY/USD	0.65	1.00	0.94	0.92	0.91	0.81	0.90
JPY/USD	0.74	0.94	1.00	0.98	0.87	0.91	0.87
GBP/USD	0.74	0.92	0.98	1.00	0.90	0.90	0.86
AUD/USD	0.48	0.91	0.87	0.90	1.00	0.81	0.84
CHF/USD	0.66	0.81	0.91	0.90	0.81	1.00	0.67
BTC/USD	0.55	0.90	0.87	0.86	0.84	0.67	1.00

Fig. 2. Model of the correlation dependence of the exchange rate of bitcoin and pairs of the most influential world currencies

Source: calculated by the authors based on [11]

Analysis of the obtained correlation coefficients shows that the bitcoin (BTC) exchange rate is most closely related to the CNY/USD exchange rate (correlation coefficient is +0,9); JPY/USD (correlation coefficient is +0,87); GBP/USD (correlation coefficient is +0,86). At the same time, the correlation coefficients have a positive value, which means that with the increase in the exchange rates of the specified currencies, the exchange rate of bitcoin also increases. At the same time, the CHF/USD and EUR/USD exchange rates have a weak relationship with the bitcoin price.

Given the fact that the exchange rate of bitcoin and Chinese yuan against the US dollar has the greatest correlation, a regression model of this dependence was built:

$$BTC = -180249 + 1407194 \times CNY/USD. \quad (1)$$

The built model is adequate according to Fisher, Student, and Durbin-Watson criteria.

The obtained results of the correlation analysis of the dependence of the value of bitcoin on the value of gold, silver, and platinum at LBM (London Gold Fixing) auctions are shown in Fig. 3.

Correlations (Spreadsheet2) Marked correlations are significant at $p < .05000$ N=12 (Casewise deletion of missing data)				
	Au	Ag	Pt	BTC
Au	1.00	0.87	0.48	0.80
Ag	0.87	1.00	0.80	0.62
Pt	0.48	0.80	1.00	0.25
BTC/USD	0.80	0.62	0.25	1.00

Fig. 3. Correlation model of the exchange rate of bitcoin (BTC) and the precious metals value

Source: calculated by the authors based on [11]

The results show that the bitcoin rate is most strongly correlated with the gold exchange rate (correlation coefficient is +0,87).

Given the fact that the bitcoin exchange rate and the price of gold have the greatest correlation dependence, a regression model of this dependence was built:

$$BTC = -138945 + 94 \times Au. \quad (2)$$

The obtained results of the correlation analysis of the dependence of the bitcoin value on the value of securities on the largest stock exchanges are shown in Fig. 4.

Correlations (Spreadsheet2) Marked correlations are significant at $p < .05000$ N=12 (Casewise deletion of missing data)											
	PFTS	UX	Dow Jones	S&P 500	NASDAQ	Nikkei	FTSE	Euro STOXX	DAX	SSE	BTC/USD
PFTS	1.00	0.31	0.69	0.73	0.74	0.46	0.38	0.79	0.79	0.61	0.43
UX	0.31	1.00	0.30	0.56	0.63	-0.08	0.45	0.30	0.40	0.62	0.69
Dow Jones	0.69	0.30	1.00	0.92	0.83	0.69	0.81	0.97	0.96	0.56	0.65
S&P 500	0.73	0.56	0.92	1.00	0.98	0.58	0.76	0.90	0.90	0.70	0.93
NASDAQ	0.74	0.63	0.83	0.98	1.00	0.50	0.65	0.83	0.83	0.74	0.96
Nikkei	0.46	-0.08	0.69	0.58	0.50	1.00	0.50	0.67	0.62	0.26	0.16
FTSE	0.38	0.45	0.81	0.76	0.65	0.50	1.00	0.81	0.84	0.31	0.59
Euro STOXX	0.79	0.30	0.97	0.90	0.83	0.67	0.81	1.00	0.99	0.57	0.60
DAX	0.79	0.40	0.96	0.90	0.83	0.62	0.84	0.99	1.00	0.58	0.64
SSE	0.61	0.62	0.56	0.70	0.74	0.26	0.31	0.57	0.58	1.00	0.54
BTC/USD	0.43	0.69	0.65	0.93	0.96	0.16	0.59	0.60	0.64	0.54	1.00

Fig. 4. Correlation model of the bitcoin exchange rate and the value of securities on the largest stock exchanges

Source: calculated by the authors based on [11]

The results show that the bitcoin rate is most strongly correlated with the NASDAQ index (correlation coefficient is +0,96) and the S&P 500 index (correlation coefficient is +0,93).

Given that the Bitcoin exchange rate and the NASDAQ index have the greatest correlation dependence, a regression model of this dependence was built:

$$BTC = -48421,9 + 6,2 \times NASDAQ. \quad (3)$$

It is quite interesting to compare our results with the results of researchers L.V. Shirinyan, G.O. Roganova, and A.S. Shirinyan [13], who find that most currency pairs have a weak and moderate relationship with the price of bitcoin. According to the Chaddock scale, the EUR/USD currency pair has the greatest impact on bitcoin with a pairwise correlation value of 0,68. There is a high, strong pairwise correlation between the GBR/USD, USD/CNY, USD/JPY currency pairs. But the impact of these currencies on the value of bitcoin is weak. Such significant differences in results may be related to the time interval of the study, which may demonstrate that in the short term, the CNY/USD JPY/USD and GBR/USD currency pairs have the greatest impact on the bitcoin exchange rate. The information base of our study is January-December 2022, taking into account the dynamism of the external environment and the rapid change and unpredictability of future events. The studied period of the analysis of researchers L.V. Shirinyan, G.O. Roganova, and A.S. Shirinyan was 3 years (January 2015 – December 2017 as of the end of the month on a working Sunday at the closing price of trading).

Modern global challenges such as cyberattacks and fraud and data theft are threatening the development of the crypto industry for the state's economic potential, which provokes new tasks for special

services. Fraudsters create their fictitious projects of financial services on the blockchain. For example, the special services of some foreign countries try to track cryptocurrency payments using neural networks and identify cybercriminals who have the keys to open bitcoin wallets. Algorithms for tracking cryptocurrency transactions are used by law enforcement agencies in the vast majority of countries around the world. The peculiarity of the blockchain system, which is the basis of various cryptocurrencies, is that it stores data about all transactions in an open register. By analyzing this information with the help of publicly available services and artificial intelligence, it is possible to track any cryptocurrency payment. The most well-known service that helps track transactions is Chainalysis.com. The amount which is interested for law enforcement agencies is tracked until it is transferred to an identifiable account with the owner of which it is possible to have contact. To carry out the process of identifying the account, special services contact its owner as a part of the know-your-client (KYC) practice and demand that criminals return a certain amount in cryptocurrency to the government. KYC is part of the anti-money laundering (AML) legislation. Cybercriminals, understanding the toolkit, used by special services against them, hide their transactions using a service called a "mixer" that breaks up the number of bitcoins into hundreds of assets of lower value, distributes them among different wallets, and then collects them again. At the output, the amount received by the owner of the "mixer" is received. Such a procedure complicates the work of special services, which significantly slows down the number of transactions that need to be monitored [14].

Given the above, for the legal circulation of cryptocurrencies, the following must be ensured as a minimum: the creation of a financial institution or a special state body that should exercise control over the circulation of cryptocurrencies; the introduction of taxation for companies whose activities are related to the crypto industry; establishing the obligation of users to declare their income and profits from income regarding crypto-assets in the national currency, etc. Only a progressive approach to the state regulation of cryptocurrency activity will make it possible to create the prerequisites that will ensure the implementation of legal and safe cryptocurrency relations and the development of the crypto industry in general in the future. World experience convincingly confirms that the regulation of activities related to the organization of trade, exchange, and storage of virtual assets, which are intended for investment, preservation of value, use for payment or investment purposes, is carried out by financial market regulators, mainly national banks or state financial institutions.

Ukraine is currently also undergoing a fundamental reform of the legal framework, in particular, on March 16, in wartime conditions, the President signed a law that will launch a legal market for virtual assets in Ukraine. The new law "On Virtual Assets" [15] will provide a clear legal status to the new class of assets. The business will be able to officially conduct activities with crypto, be served in banks, and openly declare income. Legalization of the virtual asset market will become a driver of the development of the digital economy, will help attract additional investments, and increase tax revenues for the state budget.

For its validity, a law on the peculiarities of taxation of operations with virtual assets must be developed and adopted, which will amend the Tax Code of Ukraine (Part 1 of Chapter VI of the Final and Transitional Provisions of the Law on Virtual Assets). In addition, there will be changes to the Civil Code of Ukraine, as it is mentioned in the legislation on cryptocurrencies in Part 1 of Art. 3 of the Law "On Virtual Assets". The Ministry of Digital Transformation of Ukraine deals with all this legislation.

The Law "On Virtual Assets" defines crypto as intangible goods that are objects of civil rights, have value, and are expressed as a set of data in electronic form.

At the same time, virtual assets can be of two types:

- secured (that can testify to property rights, in particular, rights of claim to other objects of civil rights; cryptocurrencies that are used to collect funds or certify the conclusion of a certain contract fall under this definition);
- unsecured (do not certify any property or non-property rights (unsecured are most cryptocurrencies, for example, Bitcoin or Ethereum).

The law will create legal guarantees for the protection of property rights of virtual assets market participants; regulates the professional activities of market participants and the mechanism of control over the virtual assets circulation.

The Ministry of Finance of Ukraine, the National Securities and Stock Market Commission, as well as the State Financial Monitoring Service of Ukraine, will be the regulators of the cryptocurrency market (Fig. 5).

Currently, National provisions (standards) of accounting do not regulate the accounting of cryptocurrencies, since legal entities in Ukraine cannot officially own them due to the lack of legal status. However, the problem of accounting for cryptocurrencies has an international level. Today, there is a

decision from the agenda of the Interpretive Committee of the IFRS Council "Holdings of Cryptocurrencies - June 2019", according to which:

- cryptocurrency meets the definition of an intangible asset in IAS 38 "Intangible Assets";
- if cryptocurrency is held for sale in the ordinary course of business, then IAS 2 "Inventories" applies to it, if not applies IAS 38 "Intangible assets";
- cryptocurrencies cannot be counted as money, and financial assets.

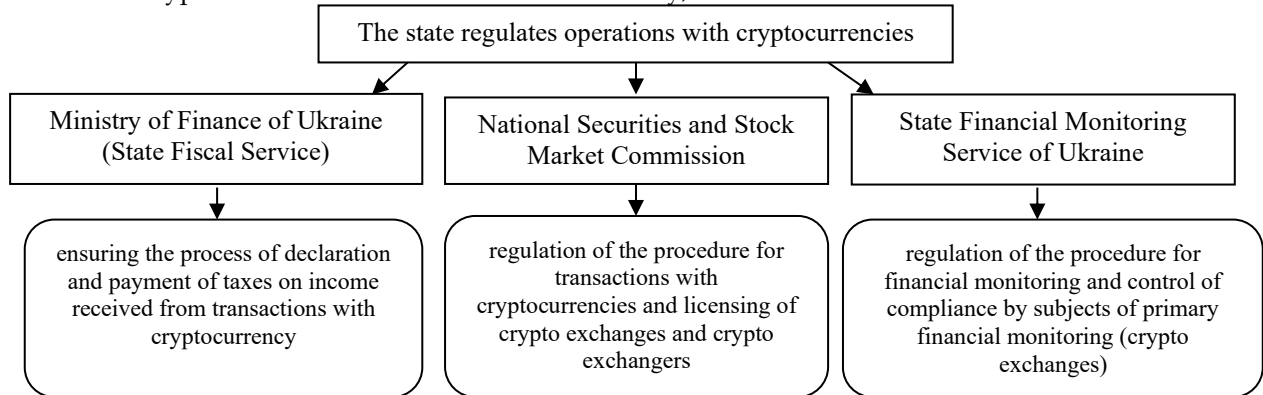


Fig. 5. State authorities in the regulation of transactions with cryptocurrencies

Source: compiled by the authors based on [16]

In national practice, in accordance with the Plan of Accounts for Accounting of Assets, Capital, Liabilities, and Business Operations of Enterprises and Organizations, account 12 "Intangible Assets" should be used to account for cryptocurrencies owned by the business entity. For this account, sub-account 126 "Held cryptocurrency" should be opened. Analytical accounts should be opened according to the types of cryptocurrencies. As for the taxation of transactions with cryptocurrencies, the issue is still not settled. The project "On Amendments to the Tax Code of Ukraine on Taxation of Transactions with Virtual Assets" was developed. It lists changes to the content of the relevant provision (norms) of the draft act, which are summarized in Table 2.

Table 2

Changes in the Tax Code of Ukraine regarding the taxation of transactions with cryptocurrencies

Article	Characteristic
1	2
Section I. General provisions	
Articles 14. Definition of concepts	<ul style="list-style-type: none"> - virtual assets, their types, in accordance with the Law of Ukraine "On Virtual Assets" (clause 14.1.33; clause 14.1.61-62); - profit from these operations is income in the form of a positive difference between the income received by the taxpayer from conducting operations with virtual assets and the costs of their acquisition (clause 14.1.196-1); - the concept of goods will include virtual assets used in any operations, except for their issue (emission) and use (clause 14.1.244).
Chapter III. Corporate income tax	
Article 134. Object of taxation	<ul style="list-style-type: none"> - profit from sales or other alienation of virtual assets (clause 134.1.8).
Articles 136. Tax rates	<ul style="list-style-type: none"> - a tax rate of 5% (clause 136.8) is applied to the object of taxation according to clause 134.1.8; - the profit of a provider of services related to the turnover of virtual assets is taxed at a tax rate of 5 percent, provided that such a provider of services related to the turnover of virtual assets does not receive other income, except for income from the provision of services, associated with the turnover of virtual assets, and income arising from the accrual of exchange rate differences (clause 136.9).
Article 141. Peculiarities of taxation of certain types of activities and operations	<ul style="list-style-type: none"> - to the list of non-revenues, revenues from the sale or other alienation of virtual assets have been added (item 141.4.1); - added features of taxation of profit from sales operations or other disposal of virtual assets, regarding the determination of the overall financial result in accordance with National provisions (standards) of accounting or IFRS – the financial result is determined based on the original (historical) cost of their acquisition without taking into account revaluation (markdowns, reassessments), regarding increase or decrease of the financial result before taxation (clause 141.9)
Section IV. Income tax	
Article 164. Tax base 164.2. The total monthly (annual) taxable income of the taxpayer is included	<ul style="list-style-type: none"> - profit from transactions with virtual assets (clause 164.2.19);

1	2
Article 167. Tax rate	– 5% for profit from transactions with virtual assets
Article 170. Peculiarities of accrual (payment) and taxation of certain types of income	– added an item on the taxation of profit from transactions with virtual assets – accounting for this profit is carried out by the taxpayer independently and separately from other income and expenses, the tax period is considered a calendar year, the positive value of the profit from transactions with virtual assets is subject to mandatory declaration, if the taxpayer received during the reporting period of a loss from these operations, then he has the right to declare such a loss in order to receive the right to take it into account when determining profit in subsequent tax (reporting) periods (without limiting the number of such periods) (clause 170.2-1)
Chapter V. Value Added Tax	
Article 196. Transactions that are not subject to taxation 196.1. Transactions with:	– introduction into circulation (first sale) of unsecured virtual assets (item 196.1.21); – sale, other alienation and termination of turnover of virtual assets, transfer of virtual assets within the scope of intermediary contracts, provision of services related to the turnover of virtual assets (clause 196.1.22).
Chapter XIV. Special tax regimes	
Article 291. General provisions 291.5. The following cannot be single tax payers of the first – third groups:	– activities in the field of financial intermediation, except for activities in the field of insurance, which are carried out by insurance agents defined by the Law of Ukraine "On Insurance", surveyors, accident commissioners and adjusters defined in Section III of this Code, and activities in the provision of services related to the turnover of virtual assets (clause 291.5.1.b); – insurance (reinsurance) brokers, banks, credit unions, pawnshops, leasing companies, trust companies, insurance companies, pension fund institutions, investment funds and companies, other financial institutions defined by law; registrars of securities; investment funds and companies, other financial institutions defined by law, except business entities that provide exclusively services related to the turnover of virtual assets; securities registrars (clause 291.5.4)
Article 292. The procedure for determining incomes and their composition for taxpayers of the single tax of the first – third groups	– in the case of providing services related to the turnover of virtual assets, the income is the amount of remuneration of the provider of services related to the turnover of virtual assets (clause 292.4)

Source: compiled by the authors based on [17]

While the Tax Code of Ukraine does not contain special rules for the taxation of cryptocurrency, the income received from the sale of cryptocurrency is taxed according to the general rules – 18% income tax and 1.5% military tax.

Since today it is impossible to ignore cryptocurrencies, and in Ukraine a state cryptocurrency fund was created to collect donations to support the Armed Forces and citizens affected by the war, and many other supporting crypto projects, it is necessary to consider the obvious reasons for the popularity of cryptocurrencies among individuals and business owners, but do not forget that along with the advantages, there are also certain disadvantages, which we considered in Table 3.

Table 3

Advantages and disadvantages of using cryptocurrencies

№	Advantages
	Security and speed
1	Transactions using cryptocurrency, compared to fiat money, are much faster and easier. Cryptocurrencies use ciphers to verify transactions. A special code key is used during data transmission and processing. It is fast, simple, safe.
	Reducing the number of intermediaries
2	The possibility of refusing intermediaries in the form of banks. The main idea of cryptocurrency is decentralization, and therefore neither banks nor the state have control over them. The user can see every transaction in the blockchain.
	Low commission
3	Market-based payment services charge a certain fee for processing transactions. For example, PayPal charges about 4% per transaction. With cryptocurrency, these fees are virtually zero, which is a big advantage, especially for small businesses.
	Disadvantages
	High volatility
1	Cryptocurrencies are very volatile, that is, their value can change a lot in a fairly short period of time.
	Lack of regulation
2	Cryptocurrency is decentralized, and this has both advantages and certain disadvantages. Decentralization means the lack of regulation by any central security authority, such as the Financial Regulation and Supervision Authority or the National Bank. Thus, there are no rules and regulations protecting the business.
	Vulnerability
3	Crypto-assets can also be subject to cyberattacks and hacks, which can lead to the loss of funds. There are trojans to steal cryptocurrencies from mobile devices.
	Loss of virtual wallet and data theft
4	Losing the key or access code to the virtual wallet, or their falling into third hands, can cause the loss of funds.

Source: compiled by the authors based on [18]

Based on this list, we can say that cryptocurrencies have certain advantages, such as high transaction speed, low commission and transparency. On the other hand, these platforms also have disadvantages: volatility and lack of mass recognition and use.

CONCLUSIONS FROM THIS RESEARCH AND PROSPECTS FOR FURTHER EXPLORATION IN THIS DIRECTION

The interdependence between the exchange rate of bitcoin and pairs of the most influential world currencies, world prices for precious metals and, securities rates on the largest stock exchanges is determined. The most significant influencing factors on the bitcoin price are determined using correlation and regression analysis. The advantages of using cryptocurrencies have been identified, including high speed of transactions, reduction of the number of intermediaries, and low fees. The threatening nature of the crypto-industry development for the economic potential of the state is also determined, taking into account available with current global challenges such as cyberattacks and fraud and data theft. It was determined that for the legal circulation of cryptocurrencies, the creation of a financial institution or a special state body, which should exercise control over the cryptocurrencies circulation, must be ensured as a minimum; introduction of taxation for companies whose activities are related to the crypto industry; establishing the obligation of users to declare their income and profits from crypto-assets, etc. Given this, the functions of state authorities in regulating operations with cryptocurrencies are characterized, changes that will be introduced to the Tax Code of Ukraine are analyzed, regarding the taxation of transactions with cryptocurrencies, which in the future will make it possible to increase budget revenues, regulate and facilitate accounting and taxation of transactions with cryptocurrencies, use legal remedies for virtual assets, reduce possible tax evasion, etc.

The current legalization of the cryptocurrency market in Ukraine will also lead to changes in the Tax Code of Ukraine, changes in the specifics of taxation of operations using virtual assets, and the adoption of a number of other legislative acts that specify all these interactions between subjects when using cryptocurrency at different hierarchy levels. As a result, there should be the following result from the law:

- crypto exchanges will work legally, both foreign and domestically;
- banks will open accounts for crypto companies;
- owners of savings in cryptocurrencies will be able to legally protect them;
- legal protection will be extended to virtual assets, i.e. they can be sued like ordinary property, for example, virtual assets will be able to be distributed in case of divorce, etc.;
- virtual assets will have to be declared, this will also apply to tax returns.

In the opposite case, problems related to non-receipts to the budget, difficulties with taxation and accounting of operations and possible tax evasion and abuse by regulatory authorities will remain.

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СИСТЕМНИЙ АНАЛІЗ ОПЕРАЦІЙ З КРИПТОВАЛЮТАМИ СУБ'ЄКТІВ В УМОВАХ ГЛОБАЛЬНИХ ВИКЛИКІВ

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В статті розглядається криптовалюта як новий вид нематеріальних активів та нормативно-правове забезпечення її впровадження. Особливу увагу приділено визначенню змісту, правового статусу, особливостям обліку та оподаткуванню операцій із такими активами. Проаналізовано ринкову капіталізацію й прогноз курсу біткоїна. Визначено взаємозалежність курсу криптовалюти біткоїна та пар найбільш впливових світових валют, світових цін на дорогоцінні метали та курсів цінних паперів на найбільших фондових біржах. Визначено найбільш вагомі фактори впливу на ціну біткоїна за допомогою кореляційно-регресійного аналізу. Визначено переваги використання криптовалют, серед яких висока швидкість здійснення транзакцій, скорочення кількості посередників та низька комісія. Визначено також загрозливий характер розвитку криптоіндустрії для економічного потенціалу держави, враховуючи наявні сучасні глобальні виклики на кшталт кібератакам та шахрайству й крадіжки даних. Розглянуто реальні схеми шахрайства в сфері криптообігу. Зазначено, що без визначення чіткого правового статусу криптовалют в країні, неможливе вирішення юридичних, облікових та податкових наслідків даних операцій. Визначено, що для законного обігу криптовалюти мінімально має бути забезпечено створення фінансової установи або спеціального державного органу, який має здійснювати контроль за обігом криптовалют; запровадження оподаткування для компаній, чия діяльність пов'язана із криптоіндустрією; встановлення обов'язку користувачів задекларувати свої доходи та прибутки від доходів щодо криптоактивів в національній валюті тощо. З огляду на це, охарактеризовано функції органів державної влади в регулюванні операцій із криптовалютами, проаналізовано зміни, що будуть впроваджені до Податкового кодексу України щодо оподаткування операцій із криптовалютами, що в перспективі дозволить збільшити надходження до бюджету, врегулювати та полегшити ведення обліку та здійснення оподаткування операцій із криптовалютами, використовувати засоби судового захисту щодо віртуальних активів, зменшити можливе ухилення від сплати податків тощо.

Ключові слова: глобальні виклики, кібератаки, крадіжка даних, кореляційно-регресійний аналіз, криптовалюта, оподаткування, регулювання, суб'єкти господарювання, фактори, шахрайство.