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COMPLEXITY OF SELLING PRODUCTS AND SERVICES FOR CRYPTOCURRENCIES

Cryptocurrencies are earning their place in the world. It is increasingly common to see the requisites of companies and organizations not only with traditional bank details but also with references to their crypto addresses. This can be explained by the desire of companies to diversify their client base, gain a larger market share, and diversify financial risks, among other factors. The article studies cryptocurrencies as a means of payment and the risks for companies that use cryptocurrencies in their sales.

Cryptocurrencies today are approaching the fulfillment of the economic functions of money, but they have not yet fully reached this level. Despite this, virtual currencies can be used to pay for goods or services in many countries. Cryptocurrencies are stored and accepted by thousands of individuals, institutions, and companies. This creates a kind of monetary system that is much less dependent on central banks and governments. Cryptocurrencies can bypass barriers and reduce transaction costs, and can be used directly or with the involvement of third-party financial intermediaries. For example, companies sell household goods such as appliances, tickets, fuel, etc., for cryptocurrencies.

However, transactions with cryptocurrencies create risks for companies. Fluctuations in cryptocurrency exchange rates can lead to economic losses in the event of sharp devaluation. According to our model, the relationship between the Bitcoin exchange rate and other market indices has been identified. Additionally, legal and tax risks associated with using cryptocurrencies as a means of payment have also been identified.

The lack of a regulatory framework creates uncertainty in operations involving cryptocurrencies. In practice, unclear definitions of cryptocurrencies pose risks regarding the taxation of income received in the form of cryptocurrencies. To minimize these risks, companies analyze different approaches when selling goods and services for cryptocurrencies. The involvement of intermediaries and the conversion of cryptocurrency into fiat money can help reduce legal, financial, and tax risks for companies selling goods and services for cryptocurrencies.

Keywords: cryptocurrency, payment tokens, virtual assets, means of payment, payment for goods and services

JEL classification: ***F30, E60, E44, G15***

Криптовалюти завойовують своє місце у світі. Все частіше можна бачити у реквізитах компаній не лише традиційні номери банківських рахунків, а й посилання на їхні криптоадреси. Це можна пояснити бажанням компаній диверсифікувати клієнтів, отримати більшу частку ринку, диверсифікувати фінансові ризики тощо. У статті досліджуються криптовалюти як засіб платежу та ризики для компаній, які приймають криптовалюти при продажах.

Криптовалюти сьогодні наближаються до виконання економічних функцій грошей, але ще не повністю досягли цього рівня. Незважаючи на це, віртуальні валюти можна використовувати для оплати товарів і послуг у багатьох країнах. Криптовалюти зберігаються та приймаються багатьма тисячами осіб, установ і компаній. Це створює певну грошову систему, яка набагато менше залежить від центральних банків і урядів. Криптовалюти можуть уникати бар'єрів та знижувати транзакційні витрати, можуть використовуватися безпосередньо або із залученням сторонніх фінансових посередників. Наприклад, компанії продають такі товари за криптовалюту: техніку, квитки, пальне тощо.

Однак операції з криптовалютами створюють ризики для компаній. Коливання курсів криптовалют можуть призвести до економічних втрат у разі їх різкої девальвації. Відповідно до нашої моделі визначено зв'язок курсу Біткойна з іншими ринковими показниками. Також визначено правові та податкові ризики використання криптовалют як засобу платежу.

Відсутність нормативної бази створює невизначеність для операцій з криптовалютами. На практиці нечіткі визначення криптовалют створюють ризики щодо оподаткування доходів, отриманих у формі криптовалют. Щоб мінімізувати ризики, компанії аналізують різні підходи до продажу товарів і послуг за криптовалюти. Залучення посередників і конвертація криптовалюти у фіатні гроші може зменшити правові, фінансові та податкові ризики для компаній, що продають товари та послуги за криптовалюти.

Ключові слова: криптовалюта, платіжні токени, віртуальні активи, платіжні засоби, оплата товарів і послуг

JEL classification: ***F30, E60, E44, G15***

Introduction. The relevance of the topic is driven by the rising popularity of cryptocurrencies among individuals, companies, and financial institutions. Many economic actors use cryptocurrencies to attract more clients or suppliers, diversify risks, generate investment profits, and gain more economic freedom by avoiding restrictions imposed by authoritarian countries, among other reasons. Despite these advantages, the economic nature of crypto assets and cryptocurrencies remains unclear and requires further examination. Additionally, the legal framework surrounding cryptocurrencies is still developing and varies from country to country. The issues addressed in this article include whether cryptocurrencies function as a means of payment and whether companies can use them as payment for goods and services today. It is also important to define the risks associated with selling products and services for cryptocurrencies and explore ways to mitigate these risks.

Statement of the problem. The article examines the function of cryptocurrencies as a means of payment, explores whether they are similar to fiat money, and identifies the risks that companies face when selling goods and services in exchange for cryptocurrencies.

The purpose of the article is to determine whether cryptocurrencies have the economic and legal foundation to be used by businesses as a means of payment (similar to fiat money) when selling goods and services. Additionally, the study focuses on the types of risks faced by companies that sell goods and services for cryptocurrency in their business activities, as well as the approaches to mitigate these risks. The methodological framework of the research includes formal-logical analysis, historical-legal analysis, system analysis, and the statistical method (Group Method of Data Handling).

Literature Review.

The literature review is organized into two main directions. First, we examine studies on cryptocurrencies as a means of payment, their ability to perform functions similar to fiat money, and their potential use by businesses as payment for goods and services. The second direction focuses on the risks and factors that businesses should consider when selling goods and services for cryptocurrencies.

As stated by the creators of cryptocurrencies, they are a digital mechanism designed for secure transactions over the Internet [1]. Cryptocurrencies were

developed as a digital transfer mechanism that mirrors the direct transfer of physical cash used for payments or other financial assets, which, like cash, change hands through physical transfer [2]. Anyone with Internet access can use cryptocurrency to transact with any other user globally. Graf K. (2013) argues that Bitcoin derives its value from its underlying technology, an open-source ledger that tracks ownership rights and allows the transfer of these rights. Therefore, Bitcoin serves as both a payment system and a form of money [3].

Spytska L. (2023) describes cryptocurrencies as a form of payment that can be exchanged for conventional currency. As a result, various goods and services, including those essential for daily life, can be purchased using cryptocurrencies. Cryptocurrencies are an effective tool not only for legal entities and their expansion but also for ordinary citizens [4].

Merinova S. and Polovenko L. found that some countries are granting cryptocurrency the status of a legal means of payment, with some even equating it to electronic money [5].

Zianko V.V., Nechyporenko T.D., and Waldshmidt I.M. (2022) discussed the advantages of cryptocurrency as a means of payment, including anonymity, high transaction speed, and low transaction fees. However, they also highlighted certain disadvantages, such as the risk of hacker attacks, the instability of its exchange rate, the complexity of legal regulation, and the potential for tax evasion, financing of criminal activities, and speculation in the virtual currency market [6, 83]. Cheraghali H., Molnár P., Storsveen M., and Veliqi F. analyzed the impact of cryptocurrency-related cyberattacks on the return, volatility, and trading volume of cryptocurrencies and traditional financial assets. They found that cryptocurrency-related cyberattacks have a negative impact, leading to decreased prices, increased volatility, and higher trading volumes. This risk should be closely monitored by cryptocurrency owners for effective risk management and hedging [7].

Cermak V. (2017) questions whether Bitcoin can become a viable alternative to fiat currencies and argues that the absence of a central bank, which typically minimizes systemic risk and stabilizes exchange rates, means that Bitcoin may never reach the stability of fiat currencies. In his view, if Bitcoin were to approach the volatility levels of fiat currencies, it would meet the criteria for being a functioning currency and, as a result, would be ready for mass adoption [8].

Later, Poynton A. (2022) discusses the governmental regulation of cryptocurrencies and reveals that, nearly a decade and a half after the creation of the first cryptocurrency, crypto regulation in the United States remains fragmented, with different measures being implemented at the federal and state levels, and even within and among agencies [9].

Oliinyk O.I. and Krupko Ia.M. discussed the disadvantages of using cryptocurrency in the event of certain force majeure situations (such as new economic crises, wars, or state-level bans and restrictions). In particular, they noted that the value of cryptocurrencies in the stock market can quickly shift from a liquid asset to a “soap bubble.” They also emphasized the need to develop effective international mechanisms of cooperation, which should be enshrined in relevant international legal treaties or agreements regarding cryptocurrency circulation. Additionally, these mechanisms should aim to ensure effective crime prevention and establish legal liability for economic offenses, including financial fraud [10].

The volatility of cryptocurrency exchange rates has been discussed by many authors. Cheng H.P. and Yen K.C. (2020) analyze the relationship between economic policy uncertainty (EPU) and the cryptocurrency market, confirming that the EPU index can predict cryptocurrency returns [11].

Kufo A., Gjeci A., and Pilkati A. (2024) analyze the volatility of returns for Bitcoin, Ether, and XRP from 2016 to 2022 using the GARCH model. Their analysis of the factors influencing each coin revealed that decentralized and unbacked cryptocurrencies are positively related to trading volume,

information demand, and exchange rates, while being somewhat indifferent to stock market returns [12].

Bampinas G. and Panagiotidis T. find that under conditions of high uncertainty and falling prices, the correlation between the US and UK stock markets and both cryptocurrency markets increases significantly. This relationship is particularly pronounced during the Russian–Ukrainian conflict [13].

Almansour B. Y., Almansour Y. A., and In'airat M. (2020) explored the relationship between exchange rates for currency pairs and Bitcoin's returns. Since 2009, the Bitcoin market has been growing rapidly, but the associated risks with the currency impact its liquidity in relation to stocks issued by companies. The results showed a positive, though not significant, relationship between USD/EUR and Bitcoin returns, indicating that when the EUR value increases, Bitcoin returns tend to increase as well, and vice versa. The study also found that Bitcoin returns are not significantly affected by the values of foreign currencies such as USD/JPY and USD/AUD, suggesting that changes in foreign currencies do not significantly impact Bitcoin returns. In other words, the value of Bitcoin is generally not determined by changes in foreign currencies [14].

Dyhrberg A. H. (2015) studied the volatility of Bitcoin, gold, and the US dollar and found that many aspects of Bitcoin are similar to gold. Using the GARCH model, he demonstrated that Bitcoin and gold react to similar variables, possess comparable hedging capabilities, and respond symmetrically to both positive and negative news [15]. The overall findings suggest that Bitcoin occupies a middle ground between a currency and a commodity due to its decentralized nature and limited market size.

Presentation of the main research material.

Today, crypto assets perform various functions and can be classified into three categories: cryptocurrencies, crypto securities, and crypto utility assets [16]. The definitions of these types of crypto assets are provided in Table 1.

Considering the rapid development of various types of crypto assets, we anticipate that the classification outlined in Table 1 may expand in the future. Cryptocurrencies are generally regarded by governments as a form of intangible property rather than as currency [16]. However, with the design of Bitcoin (the anchor cryptocurrency), some might argue that cryptocurrency represents a new type of money. Several definitions of cryptocurrencies are summarized in Table 2.

The International Financial Reporting Interpretations Committee (IFRIC) states that virtual currencies should not be classified as financial assets or cash. Virtual currencies cannot be considered financial assets because they are neither equity nor do they give rise to contractual rights for their holders to receive cash or exchange financial assets or liabilities with another entity. While some virtual currencies can be used to exchange

Table 1

Types of crypto-assets

Payment tokens (i.e. virtual currencies or cryptocurrencies)	Security (or Asset and Financial) tokens	Utility (or Consumer) tokens
Intended to operate most similarly to traditional, fiat currencies. Payment tokens are usable as a means of exchange for goods and services, and possibly also as a store of value and unit of measurement *Examples include: Bitcoin, Litecoin, Ether etc.*	Designed as tradable assets that are held for investment purposes, and classified as a security (or equivalent) *Example includes: Spice, tZero, BCAP*	Act as a license to allow the holder access to a particular service, as a pre-payment or voucher for a good or service *Examples include: Storj - a token that provides access to a peer-to-peer network cloud storage*

Source: [16]

Table 2

Definitions of cryptocurrencies

Places	Definition
Official site of Bitcoin	Bitcoin is an alternative form of digital money that is not issued by nation states or corporations and is not controlled by financial intermediaries like banks. Bitcoin is perfectly legal to hold in most countries, including all Western democracies, where freedom of speech is enshrined (Bitcoin is, after all, nothing more than open-source code) [1]
USA	Cryptocurrency is a type of virtual currency that uses cryptography to secure transactions that are digitally recorded on a distributed ledger, such as a blockchain. The Internal Revenue Service of the USA would be classified as property rather than currency for federal income tax purposes [17]
EU	Cryptocurrency – a digital representation of value that can be digitally transferred, stored or traded and is accepted as a medium of exchange [16]

Source: composed by authors

goods and services, they cannot be classified as cash because no virtual currency is used as a medium of exchange or as the monetary unit for pricing goods or services to such an extent that it serves as the basis for measuring and recognizing all transactions in financial statements [16].

Since cryptocurrencies lack physical substance, they are generally considered intangible assets. Cryptocurrencies can be used as a medium of exchange if both parties agree to the transaction. However, they are not backed by a sovereign government and do not represent legal tender that must be accepted as a form of payment. Therefore, cryptocurrencies are not considered cash equivalents. They are not readily convertible to known amounts of cash and carry a significant risk of fluctuation in value [18].

At the same time, the OECD has mentioned that cryptocurrencies are becoming increasingly popular not only in developing countries with limited banking infrastructures but also in developed countries. Since cryptocurrencies are not issued by a public authority and remain largely unregulated, these characteristics attract users from various sectors of the economy, making them popular in foreign economic activities. Some users are particularly drawn to unregulated operations (for example, political opponents in countries with signs of authoritarian government). Additionally, major institutions, including the Federal Reserve, the World Bank, and leading investment companies, are paying close attention and integrating blockchain technology into their operations.

The exchange value of cryptocurrencies may soar in the future due to their superiority over government-issued money. They are relatively low-cost to exchange, have a predictable supply, and are durable, fungible, and divisible – key characteristics of money. The ledger records the amounts, times, and public addresses of every transaction. This information is shared globally and is constantly updated.

In Ukraine, cryptocurrencies are treated as intangible property or virtual assets. A special definition of cryptocurrency has not yet been adopted in Ukraine; however, the law defines *virtual assets* as a digital representation of value that can be traded in digital format or transferred and can be used for payment or investment purposes. Operations with virtual assets include the exchange, transfer, storage, and/or administration of virtual assets, as well as participation in and provision of services related to the offering and/or disposal of virtual assets [19]. The National Bank of Ukraine stated that the complex legal nature of cryptocurrencies prevents them from being recognized as money, as a currency or means of payment of another country, as a currency value, as electronic money, as securities, or as a monetary surrogate [20]. According to the Tax Code of Ukraine, cryptocurrency is considered a commodity

(as an *intangible asset*) [21]. At the same time, cryptocurrencies can be freely alienated or transferred. Ukrainian legislation does not impose additional restrictions or requirements regarding the alienation of cryptocurrencies. Therefore, in line with the general rules applicable to barter contracts, parties may exchange one cryptocurrency for another, or cryptocurrency for goods or works (services).

Today, in Ukraine, there is little evidence that virtual currencies are used as independent units of account, as they mostly represent an equivalent value in fiat currency [22]. For example, some online stores in Ukraine set prices for goods in Ukrainian hryvnia (UAH) and simultaneously recalculate these prices into Bitcoin, then accept payments in cryptocurrency.

Many Ukrainian companies accept cryptocurrency as a means of payment. For example, cryptocurrencies can be used to purchase tickets, household appliances, fuel, medicine, food, and more [23]. In other countries, the acceptance of cryptocurrencies for certain online transactions is also increasing [24].

In practice, two approaches are commonly used today: the direct sale of goods and services for cryptocurrencies, and the sale of goods and services through third-party financial intermediaries.

Payments for goods and services using cryptocurrencies are primarily carried out through two approaches: "crypto-crypto" or "crypto-fiat." The first approach means that the seller directly accepts payment in cryptocurrencies. The second approach involves an intermediary accepting the payment in cryptocurrencies, then converting it into fiat currency before transferring the payment to the seller of goods and services.

For example, when purchasing flight tickets, the "crypto-fiat" approach is typically used. Many airlines do not accept cryptocurrencies directly, but booking sites assist customers in finding and booking tickets, and they accept cryptocurrencies as payment (Fig. 1).

Demand for cryptocurrencies is growing due to limited opportunities to save money. After all, to own cryptocurrency, an individual does not even need a bank deposit. Low or negative interest rates on bank deposits encourage savings in cryptocurrencies. Additionally, the value of cryptocurrency may not be affected by falling economic indicators or payments from the Deposit Guarantee Fund. While the Ukrainian Parliament is finalizing the law on the legalization of cryptocurrency, Ukrainians continue to use it actively. Among the most popular are Bitcoin, Ethereum, and others [26].

Among the main risks related to operations with cryptocurrencies is the fact that cryptocurrency markets experience periods of price movements that can be described as explosive. At the same time, since the fundamental value of cryptocurrencies is unclear, their prices may also drop. These factors create risks for holders of

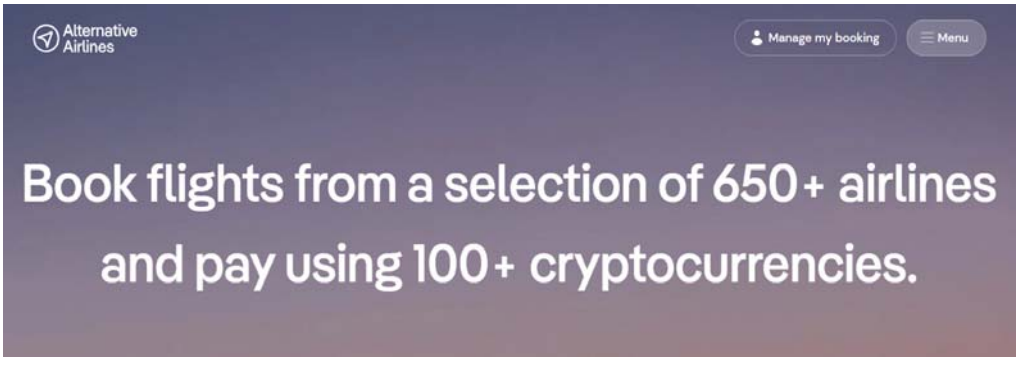


Fig. 1. An example of booking flights with cryptocurrencies [25]

cryptocurrencies. Cryptocurrencies are considered a risky asset today, implying the possibility of both significant gains and losses. The ability of virtual currencies to serve as a reliable store of value is limited by their high volatility and fluctuating purchasing power [27].

Many studies have examined the fluctuations in cryptocurrency prices in relation to various economic indexes, legal, and political factors. Additionally, fluctuations in currency exchange rates, commodity prices, or macroeconomic factors are important for the pricing of other assets, including cryptocurrencies [28]. However, the nature of cryptocurrency price fluctuations still requires further examination.

In our work, an attempt was made to construct the dependence of the price of Bitcoin in (*Btn)* dollars on the price of silver (*Slv)* and quotes of Nasdaq Composite from the National Association of Securities Dealers Automated Quotation *(Nsdq)*. We encompass a twelve-year duration period (from 1 March 2012 to 29 February 2024). The data was collected on a daily basis, given the absence of stock return records for weekends [29].

For constructing the mathematical model the Group Method of Data Handling (GMDH) [30] was used. In this case, as with classical approximation, the resulting model is represented as a sum of elementary functions *f*

$$F_{Btn}(Slv, Nsdq) = \sum_{i=1}^{m} C_i f_i(Slv, Nsdq),$$

where *C* are the coefficients of elementary functions, *m* is the count of the elementary functions.

The selection of the best set of elementary functions is carried out according to the smallest value of the root mean square error of approximation

$$E = \sqrt{\frac{1}{n}\sum_{j=1}^{n}\left[F_{Btn}(Slv_j, Nsdq_j) - Btn_j\right]^2},$$

where *n* is the data count used in the approximation.

Four sets of elementary functions were considered, with the following candidate functions:

1. *Slv, Nsdq,* (*Slv Nsdq*) and constant 1 (mean square error of approximation is designated as E_1), maximum number of elementary functions is $m_{max} = 4$;

2. *Slv, Nsdq, Slv*^{2}*, Nsdq*^{2}, results of their pairwise multiplication and constant 1 (error E_2), $m_{max} = 6$;

3. *Slv, Nsdq, Slv*^{2}*, Nsdq*^{2}, 1/*Slv,* 1/*Nsdq, 1/Slv*^{2}*,* 1/*Nsdq*^{2} results of pairwise multiplication, constant 1 (error designated as E_3) $m_{max} = 7$;

4. *Slv, Nsdq, Slv*^{2}*, Nsdq*^{2} *, Slv*^{3}*, Nsdq*^{3}, results of their pairwise multiplication and constant 1 (error designated as E_4), $m_{max} = 6$;

An information about obtained model is shown below.

Fig. 2 shows the dependence of the best value of parameter *E* on the model parameter *m*.

As one can see, at $m = 6$, the error of approximation of the original data by models using any set of functions except the first one, becomes the same and equal to 4449 US dollars. In this case, the simplest function using the second data set has the form

$$F_{Btn}(Slv, Nsdq) = C_1 + C_2 Slvr^2 + C_3 Slvr\, Nsdq + C_4 Slvr\, Nsdq^2 + C_5 Slvr^2 Nsdq + C_6 (Slvr\, Nsdq)^2. \quad (1)$$

The obtained coefficients C values are shown in table. 3.

Fig. 3 shows the obtained dependence (1).

We document the correlations among the Bitcoin exchange rates, Nasdaq Composite index and the market values of silver. Model can be used for the analysis of the cryptocurrency market information as well as for the further development of theoretical models.

The further development of forecasting models for cryptocurrency rates can improve the financial management of companies. In practice, some companies reduce the risk of sharp fluctuations in the exchange rates of cryptocurrencies by exchanging them for fiat

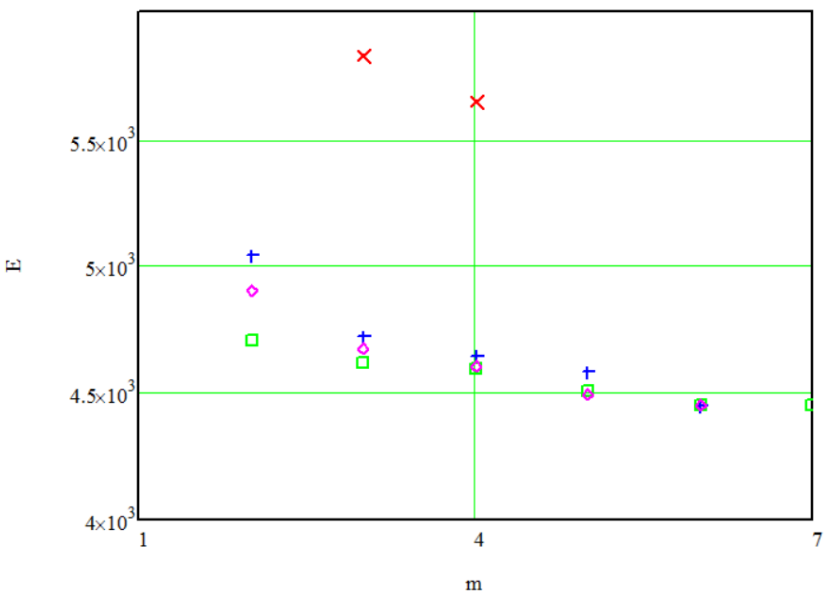


Fig.2. Dependence of the best value of parameter *E* on the model parameter *m*.
- relation for set of functions 1, - 2, - 3, - 4

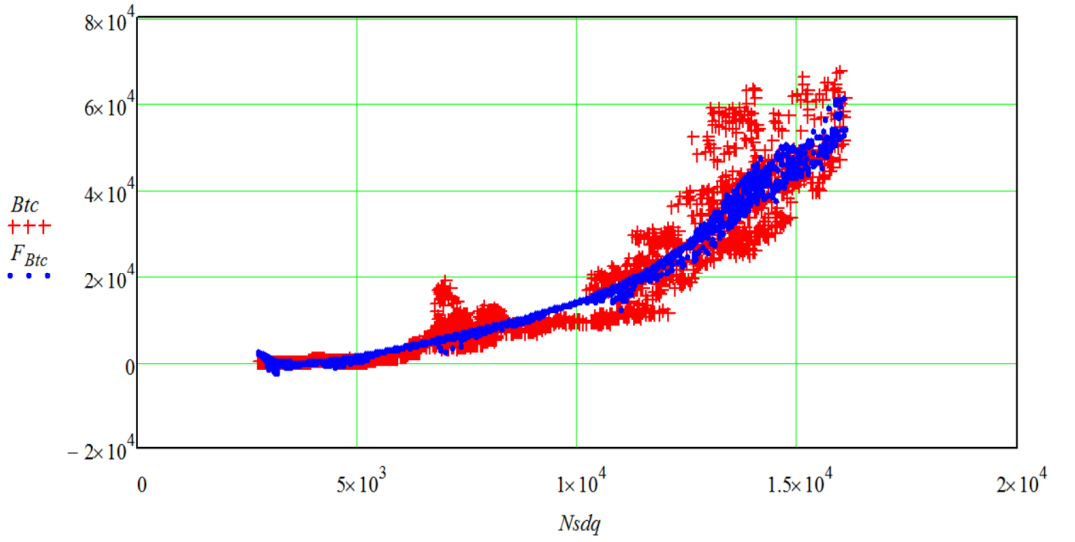
Table 3

Values of model (1) coefficients

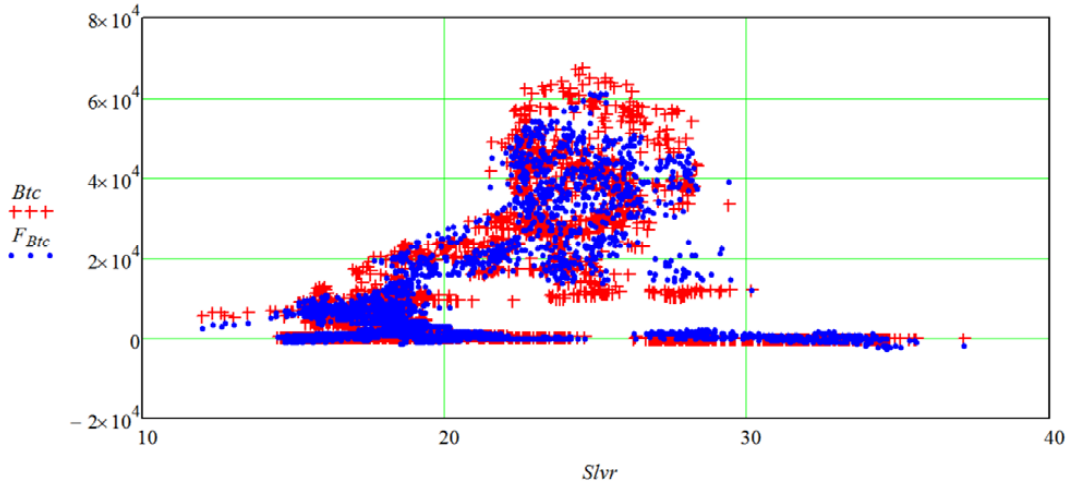
C_1	C_2	C_3	C_4	C_5	C_6
-24591.7	57.38013	0.7089977	-3.222287e-05	-0.0364868067	2.109272e-06

money after the sale of goods and services for cryptocurrencies.

Among other risks to consider is the unstable state regulation of cryptocurrencies [31]. In some countries, there is uncertainty over how virtual currencies are defined, which may lead to different interpretations of their tax treatment [32]. For the recipient of a virtual currency in payment for goods or services, the receipt of virtual currency should not alter the underlying tax treatment that would have applied had the purchase been made in fiat currency. A supplier who receives payment for goods and services in virtual currencies is required to include the value of the virtual currencies in their taxable income. For instance, in Australia payments received by individuals or businesses in the form of virtual currencies are taxable as ordinary income at the time of receipt [32]. Exchanges in payment for goods, services are treated as a taxable event in almost all countries; however, the taxation of the underlying transaction may be different due to different national treatment of cryptocurrencies. For example, there is no special effective legislation regarding cryptocurrencies in Ukraine to date of writing and this rise uncertainty for business operations with cryptocurrencies. And in China, for example, many operations with cryptocurrencies are prohibited [33]. With regard to cryptocurrency regulations, governments can ensure effective consumer protection. Effective crypto regulations should also focus on combating both global and domestic illicit activities [34]. Governments can strengthen their efforts to mitigate risks for companies using cryptocurrencies in their business operations by: providing clear definitions for cryptocurrencies, regularly updating guidance that ensures consistency with the treatment of other assets [35]; supporting improved tax compliance; and



a



b

Fig.3. Dependence of the Bitcoin exchange rate and value obtained with model (1) on the parameter *Nsdq* (a) and on *Slvr* (b)

developing appropriate guidance on the tax treatment of business operations involving cryptocurrencies. To manage the complex tax reporting of crypto transactions, crypto tax software can enhance accuracy and streamline compliance.

Conclusions

Cryptocurrencies today are getting closer to fulfilling the economic function of a means of payment similar to fiat money, but they have not yet fully reached that point. Nevertheless, virtual currencies can be exchanged in payment for goods or services, participate in international trade, and be involved in foreign currency exchange. In Ukraine, goods and services are sold for cryptocurrencies through a barter agreement. Cryptocurrencies are held and accepted by many thousands of individuals, institutions, and companies, creating a monetary system that is much less dependent on central banks and governments. The sale of goods and

services (such as tickets, fuel, household appliances, etc.) for cryptocurrencies can attract more clients and lead to lower transaction costs. Today, generally two approaches are used: direct peer-to-peer sales of goods and services for cryptocurrencies, known as "crypto-to-crypto", or the sale of goods and services via third-party intermediaries, referred to as "crypto-to-crypto-to-fiat money".

However, operations with cryptocurrencies involve risks. Fluctuations in cryptocurrency exchange rates can lead to economic losses in the event of sharp devaluation. According to our model, a link exists between the Bitcoin exchange rate, the Nasdaq Composite stock market index, and the market price of silver, which helps to better understand the nature of cryptocurrency. However, many other factors and potential risks associated with cryptocurrency operations must also be addressed.

The lack of a regulatory framework and the absence of common definitions can create uncertainty in cryptocurrency operations. Typically, a taxable event is considered when virtual currency is exchanged in payment for goods and services. However, in practice, the different national treatments of cryptocurrencies may create risks regarding the taxation of income received in the form of cryptocurrencies. Therefore, companies should consider both economic and legal risks and choose the approach that is most relevant for their business – either the direct sale of goods and services for cryptocurrencies (peer-to-peer), or the sale of goods and services via intermediaries, exchanging cryptocurrencies into fiat money.

Today, governments are working on improving the regulatory framework, providing timely tax recommendations, and developing specialized software for companies to report cryptocurrency transactions. These efforts may stimulate further involvement of cryptocurrencies in business activities.

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COMPLEXITY OF SELLING PRODUCTS AND SERVICES FOR CRYPTOCURRENCIES

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Introduction. Cryptocurrencies are gaining popularity among individuals, businesses, and financial institutions. They are used for various purposes, particularly to pay for goods and services. Selling goods and services for cryptocurrencies can help companies attract new customers, increase sales, expand market share, and more. This article explores whether cryptocurrencies today function as a means of payment similar to fiat money, and examines the risks faced by companies that accept cryptocurrencies for goods and services. While cryptocurrencies are approaching the fulfillment of the economic functions of money, they have not yet fully reached this level. Nonetheless, in many countries, cryptocurrencies can be used to pay for goods or services, exchanged for other currencies, and more. In Ukraine, some companies sell household appliances, tickets, fuel, and other goods and services for cryptocurrencies.

Problem Statement. Cryptocurrency developers emphasize that it is an alternative, private form of digital money that is not issued by national governments or controlled by financial intermediaries such as banks. The National Bank of Ukraine notes that the complex legal nature of cryptocurrencies prevents them from being recognized as cash, foreign currency, electronic money, securities, or a monetary surrogate. Cryptocurrencies offer certain advantages over traditional money, such as reducing transaction costs. However, transactions involving cryptocurrencies also carry inherent risks.

Purpose. The study identifies the main approaches to organizing the sale of goods and services for cryptocurrencies. Additionally, the article aims to identify the risks associated with the sale of goods and services for cryptocurrencies and outline ways to minimize these risks.

Materials and methods. We employed various research methods, including historical and legal methods, which involve the study of the legislative framework surrounding cryptocurrency transactions, as well as the empirical method, which investigates different practices of selling goods and services for cryptocurrencies. This approach also helps in identifying the risks companies face when engaging in such activities. One of the primary risks associated with cryptocurrency transactions is significant fluctuations in their exchange rates, which can result in economic losses in the event of a sharp devaluation. To better understand the nature of the risks associated with using cryptocurrencies, we conducted a statistical analysis of fluctuations in the Bitcoin exchange rate and built a correlation model with other market indicators, such as the Nasdaq Composite index and the exchange price of silver, for the period from March 1, 2012, to February 29, 2024. Using the Group Method of Data Handling (GMDH), we identified a connection between Bitcoin's value fluctuations and market indicators that differ in terms of technological orientation (Nasdaq Composite) and investment risk (silver).

Results. More and more countries are legalizing cryptocurrencies. In Ukraine, however, legislation regarding cryptocurrencies is still in development, and the sale of goods and services for cryptocurrencies is treated similarly to barter agreements. Depending on market characteristics and the specifics of their business, sellers of goods and services choose between directly selling for cryptocurrencies or using third-party intermediaries. This raises the question of what risks sellers face when accepting cryptocurrencies and how to mitigate or reduce those risks, such as the risk of sharp devaluation. Our model reveals a connection between Bitcoin's exchange rate and other market indicators, such as the Nasdaq Composite index and the price of silver. However, the potential risks associated with using cryptocurrencies as a means of payment warrant further exploration. The lack of a clear regulatory framework and consistent definitions also introduces uncertainty in cryptocurrency operations. In practice, varying definitions of cryptocurrencies can create additional risks, particularly regarding the taxation of income received in cryptocurrency. Therefore, selling goods and services via intermediaries and converting cryptocurrency into fiat money can help mitigate legal, financial, and tax risks for companies. Additionally, governments play a crucial role in improving the regulatory framework for cryptocurrency transactions.

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