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Bitcoin, Altcoins, Digital Ruble: On the Economic Nature of Cryptocurrencies

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ABSTRACT

Cryptocurrencies are a type of financial instrument that has been widely used by financial market participants since the early 2010s. Despite their growing popularity, their status within financial systems across different countries remains a topic of ongoing discussion. There is still no consensus on how to best understand the economic nature of these digital assets. This paper uses discourse analysis and content analysis to explore the various interpretations of cryptocurrencies' economic nature. The paper argues that the interpretation of cryptocurrency's economic nature depends heavily on the perspective of the stakeholder and the intended purpose of using the term. It considers arguments both for and against treating cryptocurrencies as commodities, currencies (including electronic and private currencies), or properties (assets, such as financial assets). It concludes that traditional cryptocurrencies do not meet the criteria for being considered money, and only central bank-issued digital currencies can fulfill all the functions associated with money. Decentralized cryptocurrencies, such as Bitcoin, cannot be classified as securities because there are no companies or organizations that issue these assets and bear any obligations under them. Instead, these assets have the characteristics of commodities. Different types of cryptocurrencies can be treated as either commodities or securities for tax purposes, depending on the specific circumstances. At the same time, assets with unique characteristics and behavior in the financial market may be included in a separate category for accounting purposes, or if the state allows for the use of cryptocurrencies in transactions without restrictions, they can be considered equivalent to cash.

Keywords: cryptocurrency; bitcoin; altcoins; money; central bank digital currency; financial asset; electronic currency; digital currency; virtual currency; decentralized currency

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INTRODUCTION

The terms given in the title of our article have been found quite often in the media, the blogosphere, professional and academic publications, and conversations among fellow economists over the past few years. In addition to investors and researchers, legislators and central banks from different countries[1] are actively interested in the problems of digital instruments, which is primarily due to the desire to integrate them into national tax systems. Cryptocurrencies themselves and transactions with them can be used as the basis for determining taxable bases. In addition, there are currently several countries (including Russia) central banks' digital currencies are already being tested.

Today, there is a wide variety of opinions on the nature of cryptocurrencies and how they should be regulated. Depending on who we ask, the answer to the question of whether or not to legalize cryptocurrencies for economic agents varies. Should governments allow the use of these currencies? Should they create centralized or decentralized systems based on cryptography? Should they encourage the development of cryptocurrency markets? These are all important questions that require attention and discussion. The main research issues of our work:

1) How are different money market instruments related to each other and what is the place of cryptocurrencies among other non-traditional instruments?

2) What is the economic nature of cryptocurrencies and how do they compare to other forms of money?

This paper examines the arguments for and against treating cryptocurrencies as commodities, currencies (both electronic and private), property (including financial assets), and games.

[1] See, for example, the development of the digital asset market in the Russian Federation. A report for public consultation. URL: https://cbr.ru/Content/Document/File/141991/Consultation_Paper_07112022.pdf (accessed on 08.01.2025).

ELECTRONIC, DIGITAL, AND VIRTUAL MONEY

The term "cryptocurrency", which is attached to the financial instrument we are discussing, has a reference to "currencies", that is, money. However, there are discrepancies in the literature regarding the place of cryptocurrencies among money,[2] and whether they relate to money [1].

Academic publications often confuse the concepts of "electronic money",[3] "digital money"[4] and "virtual money".[5] From a technological point of view, the content of the units of account designated by these terms is the same [2, p. 127]. However, there are such differences in financial practices, and for the sake of completeness of definitions related to money, we should clarify them. The correlation of the main terms with each other can be traced in *Figure 1*.

The most widely used term is "electronic money" — a representation of a fiat currency, a legal mechanism that allows transactions with it through computer networks.[6] But, unlike regular cash and non-cash money, they arise as a result of an advance payment made by the owner of the funds, who can dispose of them.[7] They exist in the form of records on electronic media, are denominated in the national currency, are part of the country's monetary system and are regulated by its legislation. Issuers and operators of electronic money can only be considered as technical intermediaries in the relationship between the owner of electronic money and its counterparties. The obligations of the issuer can be expressed in both monetary units and physical goods.

Electronic money includes:

1) funds on physical media (plastic card or paper certificate), such as:

a) prepaid bank cards issued by banks without opening a bank account[8];

b) prepaid cards issued by non–banking organizations and intended for receiving goods and/or services (transfers are not possible on them):

- denominated in monetary units, for example, gift cards of stores;
- denominated in physical units, for example, fuel cards, the limit of which is expressed in liters of fuel;
- denominated in different units, for example, transport cards, the balance of which can be expressed both in trips and in monetary units. They can be replenished or not;

2) funds that exist exclusively in electronic form, such as:

a) electronic (digital) wallets intended for money payments and transfers, which can be replenished;

b) non-cash money in the country's banking system — accounts, deposits, reserves (money in the traditional sense of the word)[9];

c) digital currencies of central banks.

Issuers of electronic money can be banks and financial organizations (instruments 1a, 2a and 2b), as well as any other economic entities, including states.

Instruments 1a, 1b, and 2a are not linked to bank accounts. The absence of such a link makes payments using electronic money, on the one hand, anonymous, fast and secure, and on the other hand, the issuer's obligations are not subject to deposit insurance.

Digital money (digital currency) is money that exists exclusively in digital form, in the form of account entries. The definition of digital currency is fixed in Russian legislation.[10]

In addition to the above-mentioned electronic money (instruments 2a, 2b, 2c), digital money also includes virtual currency.

Virtual money (virtual currencies) is a type of digital currency that functions as a means of exchange and payment, but does not have the status of legal tender in any jurisdiction and is accepted only by agreement within the community of users of a particular type of currency. This circle of people can be: communities of computer game players

[2] In this section, defining the location of the CC, we will understand "money" by default, in the broadest sense.

[3] Electronic money or electronic currency.

[4] Digital money or digital currency.

[5] Virtual money or virtual currency.

[6] FATF Report. Virtual Currencies Key Definitions and Potential AML/CFT Risks. June 2014. P. 4. URL: https://www.fatf-gafi.org/content/dam/fatf-gafi/reports/Virtual-currency-key-definitions-and-potential-aml-cft-risks.pdf (accessed on 27.12.2024).

[7] The definition is provided in article 3, paragraph 18 of Federal Law No. 161-FZ, dated 27 June 2011, as amended on 24 July 2023, "On the National Payment System", as amended and supplemented and effective from 21 October 2023.

[8] It should be noted that ordinary bank cards and online banking are not money themselves, but rather a technical tool that allows users to access fiat currency in their accounts.

[9] Committee on Payments and Market Infrastructures. 2015. Digital Currencies. Bank for International Settlements. https://www.bis.org/cpmi/publ/d137.pdf (accessed on 27.12.2024).

[10] Federal Law No. 259-FZ, dated July 31, 2020, "On Digital Financial Assets, Digital Currency, and on Amendments to Certain Legislative Acts of the Russian Federation," article 1, paragraph 3.

<table>
<tr><td colspan="3">Electronic Money</td><td colspan="2">Virtual Money</td></tr>
<tr><td rowspan="2">1a and 1b
(prepaid cards issued by banking and non-banking organizations)</td><td rowspan="2">2a and 2b
(electronic wallets and other forms of non-cash payment methods in the banking system)</td><td rowspan="2">2c
(CBDC)</td><td rowspan="2">Bonuses from banks and platform companies.</td><td>Cryptocurrencies: instruments of financial markets</td></tr>
<tr><td>Game currencies</td></tr>
<tr><td colspan="4">Centralized</td><td>Decentralized</td></tr>
<tr><td></td><td colspan="4">Digital Money</td></tr>
</table>

Fig. **Electronic Money, Digital Money, Virtual Currency: How they Relate Each to Other**

Source: интерпретация автора / Author's interpretation.

who have a "game currency" (such as in World of Warcraft); customers of a bank, marketplace, or airline who receive bonuses or prize miles; owners of cryptocurrencies.

Just like all electronic money, virtual money can be centralized. The administrator of each virtual money project issues units, sets the rules for their use, maintains a register of transactions with them, sets the exchange rate for real or virtual goods, and has the right to change the rules for the circulation of virtual money or stop using them altogether. Examples of centralized virtual currencies include:

- bonuses that exist in the ecosystems of banks;
- all kinds of "credits", "coins", etc., used inside computer or mobile games[11];
- tokens (cryptoassets) issued by persons who control their turnover. Tokens, as a rule, are cryptocurrencies in themselves; they are often built on well-known blockchains for specific purposes, for example, participation in the management of decentralized projects or to preserve the uniqueness of real or virtual assets;
- stablecoins are projects linked to fiat currencies implemented by specific companies in the crypto market to support and hedge financial transactions.

Decentralized virtual currencies are peer–to-peer (based on the principles of distributed ledgers) networks that do not have a central regulatory authority or person. All transactions with monetary units in such networks are carried out without intermediaries in the person of a bank or other organization, and all participants in such a network have equal status. Decentralized virtual currencies include bonuses in rare open source games and a reward system, as well as classic cryptocurrencies (bitcoin, etc.).

Private Money: Cryptocurrencies and Their Markets

Cryptocurrencies are a type of virtual money, the functioning of which is provided by a network of a large number of independent users. Sometimes only decentralized instruments are called cryptocurrencies, denying this to stablecoins and most tokens. A more lenient approach refers to cryptocurrencies all tools built on cryptographic protocols, including stablecoins [3]. The term "cryptocurrency" was first used in 2011,[12] and in March 2018 it was included in the Webster Dictionary.[13]

The main idea that originally underlay bitcoin and other early cryptocurrencies is decentralized money, the control over the issue and turnover of which is distributed over a network of equal participants.

The idea of a decentralized currency — private money — is not new. Periods of "free banking" have occurred at different times in many countries. The most

[11] URL: https://app2top.ru/game_development/11-tipov-vnutriigrovoj-valyuty-182072.html (accessed on 27.12.2024).

[12] URL: https://www.forbes.com/forbes/2011/0509/technology-psilocybin-bitcoins-gavin-andresen-crypto-currency.html (accessed on 27.12.2024).

[13] URL: https://www.merriam-webster.com/wordplay/new-words-in-the-dictionary-march-2018 (accessed on 27.12.2024).

famous is the American Era of free banking (1837–1866) [4]. More modern discussions about the fate of private money began with the publication in 1976 of a book by the economist F. Hayek's "Denationalization of money"[14] [5], in which the expediency of decentralizing monetary mechanisms, private money and the complete abandonment of government regulation of this market were substantiated.

Almost simultaneously with the idea of decentralized money, the interest of mathematicians and programmers in the issues of cryptography, anonymity and confidentiality in the transmission of information has increased dramatically.[15]

The decentralization of each cryptocurrency is provided by distributed ledger technologies, the most famous of which is the blockchain, an ever–growing chain — a list of records (blocks) connected to each other and cryptographically protected. The declaration that initiated the creation of the bitcoin network was published in late 2008,[16] and the first blockchain was formed in early 2009.

Initially, crypto enthusiasts were involved in the bitcoin network, motivated by a pure sporting interest. However, by the end of 2009, the opportunity to monetize this technology became apparent. The New Liberty Standard website took over the exchange of bitcoins for money.[17] The first bitcoin quote took place on 5.10.2009 with the ticker BTC, and six months later the first transaction took place for the sale of real goods for virtual money (two pizzas for 10.000 BTC),[18] however, such cases remained entertainment within the community of crypto enthusiasts for a long time. By and large, neither bitcoin nor other cryptocurrencies have become a means of payment until now.

In 2011, the cryptocurrency transactions became a real-world market. Firstly, this was followed by the emergence of alternative bitcoin projects, or altcoins, which differ from bitcoin in technical specifications. Since then, various types of blockchain have been developed, and thousands of digital tools have been introduced, transforming the global financial landscape.

Secondly, the bitcoin market itself experienced its first bubble: its price increased from $ 0.39 at the beginning of the year to $ 31 in the summer and then dropped to $ 2 at the end of the year.[19] Later, similar price bubbles (rapid growth and subsequent significant decline over several months) occurred in 2013 (twice), at the turn of 2017 and 2018, in 2021 and 2022.

The rapid growth of bitcoin's popularity among financial market practitioners in the early 2010s is attributed by some authors to the results of the global financial crisis of 2008–2009 and the European sovereign debt crisis of 2010–2013 [7]. In the following years, bitcoin and some other cryptocurrency projects became part of the global financial market [8], which led to the development of regulatory regulation of this segment.

In all countries, the regulatory regulation of cryptocurrency markets is carried out in different ways, but it is always based on an understanding of the economic nature of cryptocurrencies.

THE NATURE OF CRYPTOCURRENCY

Cryptocurrency as an Asset

Is cryptocurrency an asset? If we are talking about assets, it would be advisable to refer to the definitions and regulations of financial and civil law and see how cryptocurrencies fit within these frameworks. According to the accounting definition, an asset is a resource (tangible or intangible) with the following characteristics:[20]

1) owned or controlled by the owners (individuals, legal entities or the state) as a result of past events (clause 4.3 of the Conceptual Framework for the presentation of financial Statements.[21] Here and further

[14] The book was published in Russian translation in 1996 under the title "Private Money".

[15] The pioneer in the development of digital signatures was David Chaum. In 1982, he proposed the idea at a cryptography conference [6].

[16] Nakamoto S. (2008). Bitcoin: A peer-to-peer electronic cash system.

[17] URL: https://www.bankrate.com/investing/bitcoin-price-history/ (accessed on 27.12.2024).

[18] URL: https://www.marketwatch.com/story/bitcoin-pizza-day-laszlo-hanyecz-spent-3–8-billion-on-pizzas-in-the-summer-of-2010-using-the-novel-crypto-11621714395(accessed on 27.12.2024).

[19] URL: https://www.bitcoin2040.com/bitcoin-price-history/ (accessed on 27.12.2024).

[20] "Conceptual foundations of Financial reporting", official translation into Russian. URL: https://minfin.gov.ru/common/upload/library/2015/01/main/conceptual.pdf (accessed on 27.12.2024).

[21] "Conceptual foundations of financial reporting", official translation into Russian. URL: https://minfin.gov.ru/ru/document/?id_4=117374; URL: kontseptualnye_osnovy_predstavleniya_finansovykh_otchetov_dokument_kontseptualnye_osnovy_predstavleniya_finansovykh_otchetov_prinyat_sovetom_po_msfo. _nastoyashchaya_publikats (accessed on 27.12.2024).

in this section there are links to the paragraphs of this document). For cryptocurrencies, these events can be mining, purchase on exchange platforms for fiat currency, or transfer from previous owners in exchange for other benefits. The use of the term "in ownership" may be controversial when there is no legal registration of the rights to CC. This poses some legal difficulties, but from an economic point of view, whoever has access to operations with CC controls this asset;

2) having the potential to bring economic benefits determined by various rights (clause 4.6), related or unrelated to the obligations of third parties. Cryptocurrencies also correspond to this feature, since they create economic benefits by giving the owner the right or the opportunity to perform one or more of the following actions (paragraphs 4.16, paragraphs (a), (b), c(i)), (d), (e)):

- to receive cash flows from sales of cryptounits for fiat currency;
- to exchange for other economic resources (goods, services, or other digital assets, if the owner of these resources agrees to it) on favorable terms;
- to ensure the flow of funds or reduce costs, "for example, by using this economic resource either individually or in combination with other economic resources to produce goods or provide services" — this is possible when executing smart contracts or hedging risks using cryptocurrencies.;
- to repay obligations by transferring this economic resource, if the counterparty agrees to such a repayment method.

As an economic benefit, one can understand the possible profit (the difference between income and costs) of mining companies, as well as the positive difference between the purchase and subsequent sale rates of crypto units by their owners. The fact that such a difference may be negative does not mean that a cryptocurrency cannot be recognized as an asset in the accounting sense of the word (clause 4.15).

In addition to the two main features of an asset, to analyze its economic nature, it is important that the object has economic value, that is, it has a monetary value. With the advent of exchange platforms where cryptocurrencies can be exchanged for fiat money, this condition is also fulfilled.

So, based on the accounting definition of assets, cryptocurrencies are certainly assets. But what type?

Is Cryptocurrency Money?

The phenomenon of money has been of interest to economists for more than a century. Money is often defined as "universally recognized maximum liquid wealth with instant liquidity when paying for transactions."[22]Among the generally accepted functions of money in Russian publications, as a rule, five are distinguished: (A) a measure of value, (B) a means of circulation, (C) a means of payment, (D) a means of accumulation (treasure formation) and (E) world money. The performance of all these functions by fiat money at the present stage of the development of the global economy is seriously criticized [9], nevertheless, there is a definite consensus among practical economists and politicians about what money is.

The question of whether cryptocurrency is money has been debated since the early 2010s, when bitcoin moved beyond the community of enthusiasts. The subsequent transformation of bitcoin and some altcoins into a tool in the financial markets has stimulated a discussion about government regulation of transactions with these assets. The first authors considered bitcoin as a currency and proposed regulating it in a similar way to regulating money turnover [10], however, later, especially with the advent of a large number of altcoins and new types of cryptographic protocols, other arguments and alternative approaches to understanding the nature of this phenomenon appeared.

To be money, an asset must have the following properties:

a) purchasing power, and their general recognition in this capacity[23] in the economy of at least one country. Cryptocurrencies do not meet this quality. Payments for real goods and services are extremely rare and are typical only for special, often criminalized, markets. CC is not considered by economic entities as a widespread means of payment and is not regulated by States. The lion's share of cryptocurrency transfers is related to their movement within the Forex market and withdrawals into fiat currency. Therefore, the functions of money (A), (B), (C), (E) are not fulfilled;

[22] Ivanov V.V. and others. Banks and banking operations: textbook and workshop for universities / edited by B.I. Sokolov. Moscow: Yurait Publishing House; 2024. P. 18.

[23] Ivanov V.V. and others. Banks and banking operations: textbook and workshop for universities / edited by B.I. Sokolov. Moscow: Yurait Publishing House; 2024. P. 6.

b) it must retain its value over (at least some) time. In our opinion, the biggest problem with cryptocurrencies is their enormous volatility, which is expressed in rapid fluctuations in the value of cryptocurrency units, bubbles in the markets of individual cryptocurrencies, and the ease of launching new, unsecured, cryptocurrency projects. It is almost impossible to guess whether the next project will "take off", which of the "sleeping" cryptocurrencies will suddenly be actively traded, and which of those trading today will completely cease circulation in the foreseeable future. On the one hand, all this makes it extremely risky to play in this market and the idea of preserving the value of a CC asset in the short term is questionable. However, if we talk about the top ten or two largest cryptocurrencies in terms of turnover, then the general trend of their prices is certainly upward. If we talk about bitcoin, then for almost 15 years of its exchange trading, only two calendar years (2018 and 2022) ended with a lower exchange rate than they began. Thus, cryptocurrency can be considered as a completely reasonable tool for long-term savings. This tool does not depend on time, state borders and political changes, however, it strongly depends on the availability of the owners of CC units of the Internet, stable power supply and reliable operation of computer equipment. In general, this means that the cryptocurrency partially performs the accumulation function (D);

c) uniformity, qualitative identity of units; divisibility into small fractions; units and their fractions do not deteriorate with time. For cryptocurrencies, this is certainly the case;

d) difficulty of forgery. Counterfeiting cryptocurrencies is extremely unlikely, as this is hindered by both the ideas of the blockchain and the distributed registry underlying them, as well as specific cryptographic protocols. In addition, individual CC units do not have a physical carrier. The difficulty of counterfeiting distinguishes cryptocurrencies from ordinary money;

e) portable (easy to carry), easy to use. There are similarities and differences with fiat currencies in these qualities. On the one hand, exchange interfaces are quite simple, do not require special equipment other than a regular computer or smartphone, and are not difficult for an experienced user. Even hardware cold wallets[24] don't take up much space. On the other hand, a necessary condition for working with cryptocurrency is to have some, non-zero, level of technical and IT literacy, to be able to work at least in user interfaces and the Internet.

As a result, if we apply the definition of money given at the beginning of the section to cryptocurrencies, then money is not a "generally recognized" asset, and the remaining features — "maximum liquidity", "wealth", "instant liquidity when paying for transactions" — can only be discussed within a limited circle of entities involved in the turnover of this asset.[25]

At the same time, there is a noticeable movement in different countries towards the "transformation" of cryptocurrencies into money, some states have been considering bitcoin as a virtual currency for quite some time and allow it to be used as a means of payment between individuals and through online stores that agree to accept such payments.[26] Thus, the Court of Justice of the European Union in 2015 acknowledged that "bitcoin is a means of payment used similarly to legitimate means of payment," and exchange transactions with it "are exempt from VAT in accordance with the regulation regarding transactions involving "currency, banknotes and coins used as legal tender".[27]

In our country, from 2022, it was expected to allow the use of mobile phones as a means of cross-border payments.[28] The laws on the regulation of mining and on experimental settlements in cryptocurrencies, adopted by the State Duma of the Russian Federation

[24] A cold wallet is a physical device or application designed to store and manage cryptocurrencies without a regular internet connection. URL: https://finance.mail.ru/card/kholodnyy-hoshelek-dlya-kriptovalyuty-725/#card-54443 (accessed on 27.12.2024).

[25] Note that our argument specifically applies to cryptocurrencies and private money, and not to central bank digital currencies, which are being discussed and tested by many countries, including Russia. These are the third type of money, and they are a different concept.

[26] Numerous corporate companies (Microsoft, Intuit, PayPal) accept payments in cryptocurrency; the client of this company Overstock.com, which opened in January 2014, followed by Microsoft in December 2014. (Holbrook E. 2018. Will Bitcoin turn the business upside down? Risk management. URL: https://www.rmmagazine.com/articles/article/2018/03/01/-Will-Bitcoin-Turn-Business-on-Its-Head (accessed on 27.12.2024).

[27] URL: https://curia.europa.eu/jcms/upload/docs/application/pdf/2015–10/cp150128en.pdf (accessed on 07.01.2025).

[28] URL: https://lenta.ru/news/2022/09/22/cryptotrans/ (accessed on 25.07.2025).

on July 30, 2024, fill this gap at least partially, allowing foreign trade settlements and exchange trading in cryptocurrencies within the framework of experimental legal regimes.[29]

In any case, cryptocurrency is not yet money in the full sense of the word, many economists agree with this [11]. Cryptocurrency is not money, but an asset. What kind of property is it?

Is Cryptocurrency a Commodity?

Bitcoin and other private cryptocurrencies are not backed by real assets and have no intrinsic value, but they are successfully created for the first time and change their owners subsequently. Opportunities to become a crypto asset owner include:

1) mining on own or leased facilities. From an economic (and accounting) point of view, the creation of "something" (some kind of asset) through the operation of equipment and using electricity as an incoming raw material is akin to production. The cryptocurrency obtained as a result of mining is usually intended for sale on the stock exchange. This way of using the asset obtained as a result of "production" makes it a finished product (commodity);

2) purchase on exchanges, including during the ICO, for fiat currency. In the vast majority of cases, crypto assets are purchased for the purpose of further resale and in the hope of increasing their value. In this case, they can be considered as goods for resale;

(3) a simple transfer of crypto units or their shares between participants as a reward for something. Such an operation is akin to a barter exchange of goods, and in this case cryptocurrencies can also be considered as a commodity;

(4) as a gift. This is a one-sided transaction, and it is the only way to purchase crypto assets in which they cannot be considered as a commodity. However, for the new owner, with the opportunity to sell them, these units again acquire the property of a commodity.

An additional argument for understanding cryptocurrencies as a commodity is the fact that a significant part of cryptocurrencies are traded on exchanges. Their prices are difficult to predict, but analysts do not give up trying to find patterns, correlations, or at least qualitative similarities in the behavior of crypto assets with traditional assets and exchange-traded commodities. Researchers find that bitcoin behaves more like gold and silver than as a currency [12]. There is a significant causal relationship between cryptocurrencies and commodity futures [13], an inverse relationship with oil prices [14], while the relationship of cryptocurrencies with traditional financial market instruments and fiat currencies is weak [15]. Currently, cryptocurrencies, primarily bitcoin, are widely used to hedge risks associated with other, more traditional financial instruments [14, 16].

So, cryptocurrencies can be considered as a commodity (finished goods or goods for resale) in cases where their owner has the opportunity to sell them for fiat currency.

Is Cryptocurrency a Security?

The Civil Code of the Russian Federation (Articles 142 and 149) defines a security (hereinafter referred to as the CB) as a document certifying the property and non–property rights of its owner. In order for a financial instrument to be considered a security, there must be a specific person responsible for fulfilling the obligations associated with it. Therefore, if a cryptocurrency is a distributed ledger, similar to bitcoin, and does not have a person responsible for fulfilling financial obligations, then such an instrument cannot be considered a security.

If a cryptocurrency project (and there are many of them) is implemented by specific companies operating in certain jurisdictions, and their issues are carried out in accordance with the laws of a particular country, then such instruments can be considered as securities. If a financial instrument is offered to investors as a share in a common enterprise based on profit, which depends on the efforts of third parties (in our case, other investors in the cryptocurrency market), it meets all the criteria of the Central Bank (Howie test).[30] This is how the nature of cryptocurrencies is understood in the United States, where securities laws are widely used to regulate crypto assets and transactions with them.

However, not all cryptocurrencies, even those with an issuing center, can be considered as a central bank.

[29] URL: https://pravo.ru/news/254384/ (accessed on 25.07.2025).

[30] URL: https://www.economist.com/finance-and-economics/2021/08/07/the-sec-sets-its-sights-on-the-crypto-wild-west, https://www.theblock.co/learn/251857/are-cryptocurrencies-securities (accessed on 25.07.2025).

Stablecoins pegged to conventional currencies or assets do not meet the Howie test. Each stablecoin, with Tether being the most well-known example, has an issuer that is responsible for ensuring its level of stability. However, the stablecoin itself does not function as an investment but rather serves as a means of exchange, helping to solve other investment challenges, including reducing volatility when trading other cryptocurrencies.

To a first approximation, cryptocurrencies that are not stablecoins and have a single issuer can be considered as securities.

However, there are several other considerations that support doubts about whether cryptocurrencies can be classified as securities. Traditional central banks issue securities to finance the activities of their issuer, and the success of these activities significantly affects the value of the securities of "ordinary" issuers, both during the initial offering and during their subsequent trading.

The purpose of cryptocurrency projects, on the other hand, is simply to launch a mechanism for creating and circulating corresponding units. These projects do not conduct operational activities, and the funds received from the initial sale are not used for these activities. Instead, they are used to support the functioning of the cryptocurrency protocol. Therefore, the financial results of these projects have no impact on the price movements of cryptocurrencies.

Another feature of traditional central banks is the way they are interpreted and reflected in the accounting and financial statements of those who purchase them on the market and of issuing companies. For those who acquire property, whether securities or cryptocurrencies, either on the market or through other means, this property represents an asset with a monetary value that will generate future benefits.[31]

There are significant differences between the issuers of cryptocurrencies and traditional central banks. For the latter, these securities represent liabilities, obligations to shareholders and other holders of central banks. In contrast, for most cryptocurrencies, even with a nominal issuer, project launches do not create specific obligations for the issuer to repay or pay something under specific conditions. In other words, the issuance does not create liabilities. If the initial public offering (IPO) prospectus only involves maintaining a record of transactions with cryptocurrency, then this is similar to an ordinary sale with post-sale support. Therefore, the lack of issuers' recognition of most of their obligations towards their owners prevents cryptocurrencies from being equated with traditional securities.

From an economic perspective, not all cryptocurrencies possess the characteristics of securities. This depends on the specific details of their creation and operation.

Is Cryptocurrency a Financial Asset?

Cryptocurrencies do not have a tangible form, but they are not traditional intangible assets (IA), whose characteristics are well known. In the scientific literature and financial regulations of different countries, CCs are often referred to as financial assets. Is this justified?

The definition of a financial asset (hereinafter referred to as the FA) is given by paragraph 11 of the International Financial Reporting Standard 32,[32] which classifies into this category: "(a) cash; (b) an equity instrument of another entity; (c) the contractual right to: (i) receive cash or other financial asset from another entity; or (ii) exchange financial assets or financial liabilities with another entity on terms potentially beneficial to the entity" (IAS 32, paragraph 11). Rosstat provides a list of such assets recognized for statistical purposes:[33] financial assets include, in addition to cash, bank deposits, accounts receivable (in the Russian Federation), equity and debt securities, etc.

[31] This point of view has long been held by the US Internal Revenue Service (IRS), which decided on 25.03.2014 that bitcoin would not be considered as a currency, but as property, for tax purposes. This means that bitcoin, followed by many other cryptocurrencies, is subject to capital gains tax. URL: https://www.bloomberg.com/news/articles/2024–07–01/turkey-turns-to-ai-to-crack-down-on-rampant-tax-evasion (accessed on 25.07.2025).

[32] "International Financial Reporting Standard (IAS) 32 "Financial Instruments: Presentation" (introduced in the Russian Federation by Order of the Ministry of Finance of the Russian Federation dated December 28, 2015 No. 217n) (as amended on December 14, 2020). URL: https://minfin.gov.ru/common/upload/library/2017/01/main/MSFO_IAS_32.pdf (accessed on 07.01.2025).

[33] The list of financial assets recognized as such for statistical purposes is given in Order No. 159 of the Federal State Statistics Service dated February 27, 2014 "On Approval and Implementation of the Classifier of Financial Assets (CFA) in Statistical Practice." URL: https://www.garant.ru/products/ipo/prime/doc/70509702/#100 (accessed on 07.01.2025). The value of an asset is determined by both real assets and the market. For some stocks, the price is volatile and is determined only at the time of exchange for money.

Obviously, they are neither bank deposits nor accounts receivable (paragraph 11 c(i)). We have already shown that cryptocurrencies are not money (paragraph 11 (a)), and only some cryptocurrencies can be considered as securities under certain conditions (paragraph 11 (b)). With regard to paragraph 11 (c) in general, the definition of IAS 32 implies contractual requirements. However, traditional cryptocurrencies as decentralized networks do not have an emission center, are built on trust, and therefore do not imply contractual requirements of the owners of CC units to anyone. Classical cryptocurrencies (bitcoin and similar fully decentralized cryptocurrencies) cannot be classified as financial assets.

It would seem that cryptocurrencies do not meet the established accounting definition of financial assets. However, in recent years, first in Russian legislation and then in financial practices, a new asset class has emerged — **digital financial assets (CFAs)** — "digital rights that include monetary claims, the issuance, accounting and circulation of which are possible only by making (changing) entries in an information system based on a distributed registry, as well as to other information systems."[34] Centralized cryptocurrencies, therefore, could be classified as digital financial assets if their turnover were regulated by Russian legislation. This recognition began with the adoption of Russian laws on the mining of cryptocurrencies and the experimental use of them in international transactions on July 30, 2024.

Is Cryptocurrency a Special Asset?

For issuers who launch cryptocurrency projects, the tokens they create can be classified as either securities or commodities, depending on the specific obligations of the issuer to market participants. For holders of decentralized cryptocurrencies, in addition to these two categories, there is a third approach to understanding the economic nature of these assets.

From an accounting perspective, if resources have been invested in a cryptocurrency (either through acquisition or creation) and this asset belongs to a legal entity, it is considered property, even if it does not fit into any specific category and is not currently being used in the entity's operations. These "dormant" cryptocurrencies, which are not currently in circulation, are still valued and reported on in financial statements. Determining the monetary value and fair value of these assets is a separate topic outside the scope of this discussion. However, if a company acquires or creates CC units, they must be included in its financial statements.

There is still no agreement on the interpretation of which asset class cryptocurrencies should be classified for the purposes of regulating their turnover. In addition to the interpretations of CB as a commodity, security, and other property discussed above and adopted in a number of countries, there were proposals to introduce a special class of assets (pseudo-currency) into commercial legislation [10, p. 638] or even consider them as something special (sui generis) [17].

An argument for considering cryptocurrencies as a special asset class may be the behavior of their prices and their correlation with other financial instruments. An asset class is defined as "a stable set of investment units that is internally homogeneous and externally heterogeneous, which, when added to a portfolio, increases its expected usefulness and can be accessed efficiently in terms of costs and benefits" [18, p. 2]. In general, cryptocurrencies satisfy this definition.

The leader in price and trading volume from the very beginning to the present day is bitcoin, which defines the nature of the entire cryptocurrency market. The correlation of alcoin prices with bitcoin is high in all studies, and the direction of this relationship is always such that the price and dynamics of bitcoin determine the prices and price dynamics of altcoins [19], that is, the behavior of investment units within the class is homogeneous. At the same time, the correlation of CB with other instruments is low [15, 20], which indicates a strong difference from other groups of investment units and makes it possible to use cryptocurrencies for portfolio optimization [16] and hedging [15].

Econometric studies of cryptocurrencies as a special class of market assets based on archived data in recent years have yielded a lot of interesting results and opportunities to test new quantitative methods. Approaches to cryptocurrencies as something special are interesting from a purely theoretical point of view, however, they are difficult to apply for regulatory and tax purposes, so legislators from different countries choose for each specific case an interpretation of the

[34] Federal Law No. 259-FZ dated 31.07.2020 "On Digital Financial Assets, Digital Currency and on Amendments to Certain Legislative Acts of the Russian Federation." Art. 1.

nature of cryptocurrencies by analogy with the already well-known types of assets discussed above. Differences in understanding of the nature and, consequently, taxation of transactions with cryptocurrencies in different countries lead to the emergence of "tax havens" and allow global investors to use them in tax minimization schemes.

CRYPTOCURRENCY RESEARCH

The first academic publications on bitcoin and blockchain issues in English appeared in 2011, and researchers' interest in crypto assets has been steadily growing since then (see, for example, reviews of publications in various discourses [21–23]).

All research projects and aspects of consideration in publications can be roughly divided into three groups of areas.

1) From a technical perspective, cryptocurrency is a software program based on open source code, consisting of sequences of zeros and ones. Despite its simplicity, it creates a powerful tool with extensive functionality. Scientific research focuses on the principles, challenges, and techniques of developing software applications that enable cryptocurrency projects, including digital assets, payment systems, and security systems. These areas are not relevant to the goals of this article.

2) Research on the economic aspects of operations with cryptocurrencies includes the following topics:

- pricing (of particular interest here is the analysis of price bubbles in the markets) and the analysis of the mutual influence of these instruments with other financial market instruments;
- diversification of portfolios, both consisting of different cryptocurrencies and combined (from cryptocurrencies and traditional financial instruments);
- the effectiveness of cryptocurrencies as a financial instrument (analysis of risk, profitability, the nature of price time series dynamics, etc.).

3) The third group of research areas of cryptocurrencies concerns legal aspects such as:

- the legal nature of cryptocurrencies, the nature of rights and transactions with cryptocurrencies;
- cybercrimes related to cryptocurrencies and ways to combat them;
- regulatory regulation of the turnover of cryptocurrencies.

A special group of works consists of research at the intersection of economics and regulatory regulation, devoted to the possibilities of recognizing cryptocurrencies and cryptocurrency projects for tax purposes and reflection in the financial statements of companies. It is this area that is directly related to the research issues of our work.

The number of journal publications can serve as a quantitative measure of researchers' interest in certain topics. As for English-language publications, the authors of the reviews [21, 23] write about the exponential growth of interest in the topics of cryptocurrencies from 2013 to 2020, and [24] notes a change in rhetoric and the evolution of the discourse on cryptocurrencies in 2019–2020.

The picture seems to be similar for Russian-language publications.[35] There has been a sharp, almost exponential increase in the number of publications in the period from 2012 to 2018, and then some stabilization of the authors' interest in the topics of cryptocurrencies. The data on two sections of the NEL, which are the main interest of our work, are the categories "Economics. Economic Sciences" and "State and Law. Legal Sciences" show similar dynamics. Note, however, that the number of publications in the NEB database does not reflect the quality of their content — out of more than 5 thousand. Of the works included in our sample, only 73 were published in journals included in the RSCI index (46 articles from the category "Economics. Economic Sciences" and 28 articles from the category "State and Law. Legal Sciences"). The dynamics of these publications is not as variable as the dynamics of the total number.

In the topics of cryptocurrencies and blockchain, we see a new research object for several sections of socio-economic sciences. Speaking about research programs [25], it can be noted that from an epistemological point of view, almost all publications, both Russian and English, so far follow the line of functionalism. At the same time, from a methodological point of view, two classes of work are easily distinguishable — positivist (mainly quantitative financial studies of risk, profitability, volatility and arbitrage opportunities of CC) and

[35] Data on the number of publications posted on the NEB, by year. URL: https://www.researchgate.net/publication/387789239_Tablica_s_dannymi_NEB_dopmaterial_k_state (accessed on 07.01.2025).

normative, performed in a "legal" discourse and related to the possibilities of regulating these financial instruments. Different ideas about the nature of cryptocurrencies (which is the subject of our article) can form ontological paradigms, but there is no certainty about the nature of the objects being studied yet. We discussed some of the possible ontologies in our work from the perspective of traditional businesses, i.e. economic entities that should reflect transactions with cryptocurrencies in their reporting to external users, including tax authorities. The list of options we have considered is not exhaustive, and when viewed from other perspectives — for example, from various government agents — there may be a different understanding of the nature of the objects under study. We did not consider, in particular, centralized blockchain projects — both state-owned (digital currencies of central banks) and private (issuance of cryptotokens), and here the interpretation of nature may be completely different.

Further prospects for research in the field of cryptocurrencies seem to us to be quite wide. In addition to the functionalist research that has been developing for about a decade on the possibility of using cryptocurrencies to hedge and build infrastructure for new segments of financial markets, there is already a need to understand and discuss more broadly the non–quantitative aspects of the functioning of these markets and instruments, taking into account the interests of different stakeholders — from individual investors to society as a whole. We anticipate significant interest in interpretive and critical research in this area in the near future. Researchers will have to answer the following questions: is it worth legalizing operations with CC? Is cryptocurrency ethically neutral? How justified are the energy costs in the production (mining) of cryptocurrencies? Can such production be considered "green" and sustainable? Will the cryptocurrency markets expand and in which direction? What is the role of cryptocurrencies in the architecture of global finance? Can I trust a centralized and/or decentralized blockchain?

CONCLUSIONS

A decentralized monetary unit, bitcoin, created in 2009 as a tool for small, anonymous private payments, has now evolved into the ancestor of a whole class of investment instruments — cryptocurrencies. These tools, based on the idea of the blockchain, have formed a segment of financial markets. However, their economic nature remains debatable.

The question of whether most crypto assets are securities, commodities, or other forms of assets may seem academic, but if the answer is clear, it will have significant consequences for financial markets and investors. Not only investors who work in the cryptocurrency market will be affected, but also those in other market segments as cryptocurrencies are widely used for both speculation and risk management.

We have demonstrated that the interpretation of cryptocurrencies' economic nature depends on the perspective of the stakeholder and the purpose of the discussion.

We have considered the arguments for and against recognizing cryptocurrencies as commodities, currencies (including electronic and private money), and property (assets, including financial assets). Despite the term "currency" in the name of this financial instrument, traditional cryptocurrencies are not money. Only digital currencies issued by central banks meet all the criteria of money.

Decentralized cryptocurrencies, such as bitcoin, cannot be considered securities either, as there are no issuers with any obligations under these instruments. These cryptocurrencies have the characteristics of a commodity. Therefore, from an economic perspective, for the purpose of regulation and taxation, different types of cryptocurrencies could be classified as either commodities or securities. At the same time, assets with unique properties and behavior in the financial market should be allocated to a special category for the purposes of financial reporting. In the case where the government allows the use of cryptocurrencies for settlements without restrictions, they should be considered equivalent to cash.

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