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THE IMPACT OF CRYPTOCURRENCY ON THE SHADOW ECONOMY

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The article is devoted to the study of cryptocurrency and its impact on the shadow economy. Transactions related to cryptocurrencies are anonymous, so it is very difficult to control them.It is cryptocurrencies that are used in the shadow economy, and this raises the problem of how to control transactions and what laws should be applied to regulate digital currency.
The article analyzes the peculiarities of the cryptocurrency market, as well as the peculiarities of peer-to-peer payment systems such as Bitcoin, Namecoin, Litecoin, PPCoin, and Novacoin. The attitude to cryptocurrencies in the world is ambiguous; due to the pseudo-anonymity of cryptocurrencies, their use can be carried out through fraudulent schemes, in particular, financing the shadow sector - terrorism and drug trafficking. The author examines the possible interrelationships between cryptocurrencies and the shadow economy, highlights the main distinctive characteristics of cryptocurrencies and payment schemes using them, and analyzes the pros and cons of having competitive money in the country's economic cycle.

ВПЛИВ КРИПТОВАЛЮТИ НА ТІНЬОВУ ЕКОНОМІКУ

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Ключові слова:
тіньова економіка, криптовалюта, гроші, державне регулювання, поняття тіньової економіки, податок, незаконна діяльність, фінансова система, безпека, загрози, виклик, ризики, біткоїн, блокчейн, правове регулювання, капіталізація.

Статтю присвячено дослідженню криптовалюти та її впливу на тіньовий сектор економіки. Операції, пов'язані з криптовалютами, є анонімними, тому контролювати їх дуже складно.Саме криптовалюта використовується в тіньовій економіці, а це спричиняє проблему, як контролювати транзакції та які закони слід застосовувати для регулювання цифрової валюти.
У статті аналізуються особливості ринку криптовалют, а також особливості піринговых платіжних систем, таких як Bitcoin, Namecoin, Litecoin, PPCoin, Novacoin. Ставлення до криптовалют у світі неоднозначне, у зв'язку з псевдоанонімністю криптовалют їх використання може здійснюватися за шахрайськими схемами, зокрема фінансування тіньового сектора – тероризму та наркоторгівлі. Досліджено можливі взаємозв'язки криптовалют та тіньового сектора економіки, виділено основні відмінні характеристики криптовалют та платіжних схем з їх використанням, проаналізовано плюси та мінуси наявності конкурентних грошей у господарському циклі країни.

Statement of the problem

In economic theory, most researchers consider competition as a provision that meets the interests of the consumer and stimulates the producer to innovate and improve quality. However, there are industries that are declared to have special characteristics for which the presence of a single player or the desire for monopolization is seen as an inherent attribute. One of these industries is the financial system of a country, region, or the world.

Different items have been used as a means of payment in different time periods and institutional settings: "zimbos" made from sea snail shells, cotton cloth in Guinea and Africa, tobacco in Virginia, sugar in the West Indies, nails in Scotland, fur, iron and copper products, linen cloth, etc. Cash is most often (but not necessarily) characterized by portability, durability, divisibility, and standardization. When concluding a transaction in the form of cash, the number of monetary units increases for one person and decreases for the other.

However, there were monetary units that had only certain characteristics or none at all. An example is the "fairies" of the Caroline Islands – circles with a hole in the center, the diameter of which could reach several meters, the weight

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could be up to 1 ton. A striking difference between these monetary units is the complexity, limited production, difficulty of transportation, and the inability to obtain portability without losing value. When making a transaction using such monetary units, there was no physical movement of the fairy from the buyer to the seller, the fairy was simply marked with the sign of another owner. In this sense, fairies are somewhat similar to money based on cryptographic methods. In both cases, there is no physical movement of the payment unit, only the sign of its owner changes.

According to some researchers, today "only 2% of all transactional operations are accompanied by the movement of real commodities, the rest are speculative operations with liquid material, which allows the banking and financial sector to extract currency rent. However, transaction costs cannot exist without transaction income," which is 'appropriated by the initiators of various financial transactions' [1].

There are different views on the phenomenon of money: for example, in the textbook of economics edited by G. Manckew, "money is proposed to be considered what people recognize as a means of payment" [1; 2, p. 587], according to P. Samuelson: money is an "artificial social convention" [3, p. 64], money is also understood as funds used in settlements.

Analysis of recent articles and publications

Today, there is no single regulatory act governing the circulation of virtual currencies in the global economy, but there is a sufficient number of scientific developments on this topic, both domestic and foreign. The following domestic scholars have made an important contribution to the development of the issue of cryptocurrency circulation: T. Kovalchuk, K. Palyvoda, S. Volosovych, V. Lukianov, M. Vlasenko, Z. Farhadov; among foreign scholars – V. Paulman, A. Maslova. However, in our opinion, too little attention is paid to the connection between virtual capital and real capital, namely, the possibilities of forming fictitious capital for laundering "dirty" money.

Formulating the objectives of the article

The purpose of the article is to examine the main problems, opportunities, risks and consequences of using cryptocurrency in the economy, and to provide recommendations on the regulation of cryptocurrency transactions and recommendations on legislative restrictions on the use of cryptocurrency.

Presentation of the main material

The emergence of the term "cryptocurrency" is closely linked to the emergence of the peer-to-peer payment system Bitcoin. The system was developed in 2009 by Satoshi Nakamoto. It is not actually established whether this is the name of the inventor or a pseudonym of the development team. Later, competing developments appeared: Namecoin, Litecoin, PPCoin, Novacoin, and others (Table 1).

There are various views on the nature of cryptocurrency: it can be a convenient tool for shadow business, a type of pyramid scheme, and a way to reduce the state's monopoly on the monetary system. We will highlight the main distinguishing characteristics of cryptocurrencies and payment schemes using them, analyze the pros and cons of having competitive money in the economic cycle of a country, and consider the features of cryptocurrencies that can be used in the shadow economy.

Among the features of cryptocurrencies are the following:

– decentralized issuance: as a rule, most existing cryptocurrencies are generated by a large number of "miners" distributed around the world, the generation capabilities depend on a specific type of currency, capacity and other characteristics of computer equipment and the process of "mining" from time to time, the consequence of this characteristic is the possibility of participation in the issuance by any entity;

– absence of a central administrator;

– non-cash form (except for some attempts to create a physical medium);

– availability of information on the history of all transactions in the network to all users with a coin client installed on their computers;

– limitation of the volume of emission in most cryptocurrency systems;

– mostly open source software;

– inability to cancel a transaction, funds cannot be withdrawn, withdrawn, frozen, inability to revoke a payment (you cannot change your mind or return funds if you are dissatisfied with the quality of a product or service): this condition fundamentally distinguishes any cryptocurrency from conventional payment systems that provide for the possibility of blocking, rolling back a transaction, canceling a transaction, etc;

– anonymity of payment (or rather, pseudonymity, the payer is unknown, but can be identified by additional information, if any): anonymity is actually relative in nature, and if the name of the payer of one payment is known, it will be easy for any user of the labor system to trace the rest of the payments;

– making a payment only with technical consent and with the possibility of making it by the majority of the system's clients: any payment is technically verified by the coin clients, and if the data of the majority of them coincide, new information about the availability of currency for each client is recorded;

Table 1 – The most popular cryptocurrencies

Currency	Year of appearance	Market capitalization	Price	The total offer
Bitcoin	2009	$11,634,216,330	$965.93	12,044,575BTC
Litecoin	2011	$645,025,963	$27.58	23,389,742LTC
PPCoin	2012	$77,344,278	$3.72	20,798,011PPC
Namecoin	2011	$57,632,949	$7.79	7,402,700NMC
Primecoin	2013	$15,569,041	$4.84	3,217,203XPM

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– interconnection of cost and network effect;

– impossibility of counterfeiting;

– information on all transactions in the system is stored for the entire life of the system;

– openness of the system to other payment instruments: the ability to exchange cryptocurrency for other currencies (both state currencies – dollars, euros, rubles, and private currencies) through electronic platforms, unless otherwise dictated by the formal institutions of a country;

– the impossibility of stealing a part of it, but the possibility of stealing the entire wallet of a system client or even a group of clients (Table 2);

– the exchange rate depends only on the network effect and the ratio of supply and demand;

– limiting the volume of emission hides the consequence – deflation of the currency value in the presence of the network effect.

The world's attitude to cryptocurrencies is ambiguous. Due to the pseudo-anonymity of cryptocurrencies, some researchers believe that the use of cryptocurrencies may involve fraudulent schemes, in particular, financing the shadow sector, i.e., socially dangerous phenomena such as terrorism and drug trafficking (for example, the anonymous online trading platform SilkRoad – Silk Road, most of the goods sold – more than 70% – during its operation were illegal, monetary transactions were conducted through Bitcoin). The concentration of the volume of a particular cryptocurrency is not too different from the concentration of other resources in society (for example, data on Bitcoin).

Currently, there is a tendency to increase the share of non-cash payments. According to research by Forrester, 90% of British top managers estimate that the UK will "become a cashless country by 2016". Seventy-three percent of Britons (according to VisaEurope) believe that "contactless technology will become a more common payment method than cash", according to a study by Skrill: "5% of Britons never carry cash with them, and 13% would gladly give it up today". However, according to Birch, "even in cashless economies, most of the remaining cash does not circulate anywhere: it simply disappears into the gray and black economy."

As a disadvantage of cryptocurrencies, they point out the possible negative impact of demand for them on the demand for government money: according to some estimates, demand for cryptocurrencies may lead to a decrease in demand for government currencies, a weakening of the banking system, and destabilization of the economy. In fact, the demand for cryptocurrencies, while reducing the demand for government money, will definitely lead to a reduction in the ability of the government to intervene in the economy. The problem of tax collection when cryptocurrencies are used as payments also raises many questions. The introduction of a formal rule requiring employers making salary payments in cryptocurrency to indicate the addresses of clients will lead to the loss of anonymity of the system and the ability to track all client payments.

Regulators of the financial and monetary system of many, including democratically developed countries, oppose the operation of cryptocurrencies on their territory, attributing to this mechanism a high probability of a shadow component. In countries with predominantly, in the terminology of D. Asemoglu and D. Robinson, extractive institutions, certain cryptocurrencies were banned by the regulator, for example, on December 5, 2013, the Central Bank of China introduced a ban on transactions using Bitcoin by Chinese banks and other financial institutions, but "individuals are free to participate in online transactions at their own risk".

The advantages of cryptocurrencies include openness, reliability, and the impossibility of counterfeiting. At the same time, reliability is achieved not by keeping information confidential, excluding other market participants from knowledge and controlling access, but by allowing each client to calculate the correctness of the transaction.

In addition, the positive aspects of payments through cryptocurrency include the advantages inherent in the development of cashless payments in general:

– absence of "stocking" savings and attraction of investments into the economy

– reduction of society's costs for processing and storing banknotes and coins for collection (for example, the lack of cashless payments in Italy alone costs $10 billion a year)

– increasing transparency and security of payments for all market agents;

– under certain conditions, a certain tax collection can be achieved.

There is an opinion that the existence of a currency that is not controlled by government agencies can lead to imbalance and instability, and that uncontrolled currency can be used in transactions outside the legal economy. Most experts believe that currency issuance should be controlled by the state. Supporters of this postulate rely in their argumentation on the "Gresham's Law", according to which "bad money drives out good money" (a stricter formulation: "Money artificially overvalued by the state displaces money artificially undervalued by it"). Thus, "the free market cannot be trusted to provide society with good money." Another argument is the loss of stability.

Opponents of government intervention in money issue make other arguments. For example, according to M. Rothbard, Gresham's Law is "a direct result of government intervention", and, according to him, "when the government began to monopolize coinage, the royal coins were backed by the guarantee of private bankers, whom the public trusted much more than the government". M. Rothbard believes that "there is no reason to interfere with the market to change a certain supply of money". According to Guido Hulsman: "...paper money is the most important tool for realizing the interests of privileged groups", fiat money gives the state unlimited possibilities for emission, which "is necessary for the state to redistribute income at its own discretion", in addition, "all central banks exist to rob the population, redistributing money in favor of political elites", while "money has usurped the role of true values".

However, there are many examples when the regulator, when making financially significant decisions, acted by lobbying the interests of individual entities to the detriment of the public interest, for example, the work of Nobel laureate M. Alle points out that "a growing disconnect between the financial system and the real economy is being generated",

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"states live in a budget prison from which there is no way out". The banking system of most countries has two consolidated levels – the Central Bank or Federal Reserve system and commercial banks. However, "the banking system is predominantly, approximately 5/6, composed of depositors who for some reason are not part of the formally classified system," while in F. Brodel's terminology "money flows to the service of technologies that??? manage their turnover." Therefore, it is not surprising that the followers of the Austrian economic school, on behalf of M. Rothbard, argue that "in the sphere of money circulation, as in other areas of human activity, coercion does not generate order, but conflicts and chaos."

Conclusions

In our opinion, despite the large number of advantages and innovations, the issue of legislative regulation of cryptocurrency circulation remains a major problem. Some countries and organizations have already taken the first steps towards regulation, but the specific nature of cryptocurrencies and the method of their issuance implies decentralized management, which makes this task difficult. In Ukraine, the circulation of virtual currencies has no official status, which creates a wide field for the development and introduction of cryptocurrencies into the shadow economy and requires immediate correction.

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