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CRYPTOCURRENCY AS A MEANS OF MONEY LAUNDERING

The article reveals the origin of cryptocurrency, its importance for world monetary circulation. Moreover, the author considers the value of Bitcoin as a peer-to-peer electronic cash system and its utilization in the process of money laundering.

Key words: cryptocurrency, money laundering, Bitcoin, peer-to-peer electronic cash system, crimes investigation.

Apparently, money necessarily came into use, when the inhabitants of one country became more dependent on those of another and they imported what they needed, and exported what they had too much [1]. Thus, at all times society has needed the mean of exchange of relationships and the way to measure the goods and services price. Without aforementioned elements polysyllabic human economic activity, functioning of national economies and global economic management cannot be possible.

In addition, according to Confucius, signs and symbols rule the world, so national currency can be considered as one of the most important symbols and criterion of independence, the real sovereignty of the state. However, in the conditions of permanent globalization, which is increasing the interdependence between countries, the existence of currency pluralism can be viewed as a barrier on the way to create free market.

It should be noticed that the fundamental cause of monetary globalization as one of the economic forms and financial globalization is rooted in the contradiction between the internationalization of the process of social reproduction and the preservation of its national specifics. The immediate cause of monetary globalization is, on the one hand, the contradiction between the increased degree of internationalization of currency relations and their organization in the form of a world monetary system, and on the other hand, the preservation of national peculiarities of international currency relations between countries and the monetary system [2].

According to the theory of R. Mundell, the introduction of a single currency is advantageous because eventually more transparent and more optimal prices are formed because of removing barriers to the implementation of competitive advantages. Moreover, transaction costs are reduced, trade relations and the

labor market are developing. Besides, fortified currency is beneficial to investors for reasons of macroeconomic stability, in addition products from the enterprises into which money was invested, will reach a maximum wide consumer [3].

Nowadays, because of the high speed of globalization the issue of «Global currency» [4], is very relevant. However, at the same time, we have to take into account that present conditions do not have historical precedent according to the factor of total digitalization of all spheres of a human being.

Currently, modern society is witnessing «The Forth Industrial Revolution» [5], which causes a transformation in different fields, including world economy. The Internet and new technologies have started the era of digital economy. Digital economy is a series of economic, social and cultural activities that are performed online and are related to the use of information and communication technology [6]. It includes activities like banking, buying and selling, and accessing education or entertainment using the Internet and connected devices [7]. Digitalization of economy changed its framework establishing boundless space with new rules of game for trading. Back into 1999 Milton Friedman in his interview mentioned that «...the Internet is going to be one of the major forces for reducing the role of government. The one thing that's missing, but that will soon be developed, is a reliable e-cash, a method whereby on the Internet you can transfer funds from A to B without A knowing B or B knowing A, the way I can take a USD 20 bill and hand it over to you and then there is no record of where it came from» [8]. He was right, digested assets and innovative financial channels, instruments and systems are creating new paradigms for financial transactions and forging alternative conduits of capital [9].

So, as far as existing bank system could not satisfy escalating demand of digital trade market, the necessity of creation of the appropriate tool for high-speed transactions via the Internet regardless any jurisdictions was obvious. This role of such means of payment was occupied by virtual currency.

According to the report of the Financial Action Task Force virtual currency is a digital representation of value that can be digitally traded and functions as (1) a medium of exchange; and/or (2) a unit of account; and/or (3) a store of value, but does not have legal tender status (i.e., when tendered to a creditor, is a valid and legal offer of payment) in any jurisdiction. It is not issued nor guaranteed by any jurisdiction, and fulfils the above functions only by agreement within the community of users of the virtual currency [10].

Virtual currencies represent both the emergence of a new form of currency and a new payment technology to purchase goods and services [11]. Its value is founded on the agreement between the users of the system operating on the Internet and with confidence [12]. Unlike gold or silver virtual currencies have no non-monetary use or value – they are just bits of data [8]. One of the most modern form of virtual currency is cryptocurrency.

Cryptocurrency refers to a math-based, decentralised convertible virtual currency that is protected by cryptography. – i.e., it incorporates principles of cryptography to implement a distributed, decentralized, secure information economy [10].

Currently, hundreds of cryptocurrencies exist in the online market for trade purposes. The common element of these different cryptocurrency systems is the public ledger ('blockchain') that is shared between network participants and the use of native tokens as a way to incentivise participants for running the network in the absence of a central authority [9]. Unlike the fiat currency where the federal banks or governments are responsible for the generation and printing of money, the cryptocurrency is generated by a process called mining. Cryptocurrencies use complex hashing and time stamping methodologies to uniquely identify each coin within that currency [13]. The key innovation is the implementation of cryptographic identification techniques into a "distributed ledger," i.e., a digital record that allows the tracking and validation of all payments to be made. This allows cryptocurrencies to be used in a decentralized payment system while avoiding the possibility of "double spending" [11]. Moreover, cryptocurrencies provide certain anonymity of a user - «pseudonymous». It is reached by following fea-

tures: it is not attached to the user's personal information; for transactions via blockchain networking, users do not have to submit any personal information, which means that transactions do not contain identifying information about their participants. So, «the public can see that someone is sending an amount to someone else, but without information linking the transaction to anyone» [14].

It should be noticed, that classical money performs several basic functions: a measure of value, a means of payment, a medium of circulation and a means of accumulation.

However, what is now understood by cryptocurrency, in fact is a software-digital complex consisting of a payment system, in which transactions can be made, cryptocurrency tokens - exchange units of value in the blockchain system and at the same time, data transfer protocols and transaction verification codes, and also the public database of all transactions that have ever been committed in this system. The database is maintained by all participants and is updated on all computers after each transaction.

So, cryptocurrency is not money in a classical understanding, but it has a market value determined by the demand and supply of account units and an internal cost equivalent to the price of services or goods obtained in this exchange chain. Thus, two of the four main functions of money cryptocurrency fulfils: means of circulation and payment, since they act as an intermediary in the circulation of goods and services and as a registrar of the fact of payment.

As an example, Bitcoin can be taken as the most known and costly, based on blockchain cryptocurrency. Its occurrence coincided with the world economic crises in 2008, when the world observed insolvency of the world banking system. Despite sustainable position, which dollar occupied at that time, its trustability was reduced in consequence of the economic crisis. Dollar's fluctuation affected most of fiat currencies, which precipitated instability of the world economy. Moreover, it became more obvious that global monetary and bank system was totally dependent and guided by governmental institutions, which were not able to prevent the formation and repercussion of the economic crisis. The centralized global system of financial management failed. As a result, people lost their credence in the reliability of the banking system. Currently, the value of currency is based on the population's trust. Apparently, if citizens do not trust a government, they will not trust its currency. So, eventually the central challenge appears: how to design a system that most effectively facil-

itates the exchange of goods and services and generates prosperity while preventing the institutions, that manage that system, from abusing the trust that comes with that role [15].

Most likely, the emergence of Bitcoin was a response to the existing social demand for a currency independent from the influence of banking institutions, as far as they lost their reliability. While the world economy was suffering from the effect of economic crisis, Satoshi Nakamoto (still unknown person or group of people) released an article «Bitcoin: A Peer-to-Peer Electronic Cash System». He had proposed anonymous payment network, served by its users without central authorities and agents, which can be used as a system for electronic transactions without relying on trust [15], which year after began to be exploited as a currency via the Internet. Nowadays it is an information technology breakthrough that facilitates both a secure, decentralized payment system and a tool for the storage, verification and auditing of information [16].

Without going into details of the description of the principles and methods of Bitcoin's work, it is important to point out, that Bitcoin provides certain anonymity of a user. It is reached by following features: Bitcoin is not attached to the user's personal information; for transactions via Bitcoin networking, users do not have to submit any personal information, which means that transactions do not contain identifying information about its participants.

However, it should be taken into consideration, that Bitcoin does not give the anonymity of transactions since this contradicts one of the basic principles of its work as outlined in the article by Satoshi Nakamoto in accordance with which «the public can see that someone is sending an amount to someone else, but without information linking the transaction to anyone [14], so-called – «pseudonymous».

Aforementioned Bitcoin's characteristics make it extremely convenient to use it to commit economical crimes via the Internet, for instance, money laundering.

It is obvious, that for many years offenders have tried to find ways to legitimize or «launder» illegal income for its further unlimited use in different fields of economy. First articulation of the «money laundering's» definition was released in the report of the President's commission on organized crime in 1984, which considered it as the process by which one conceals the existence, illegal source, or illegal application of income, and then disguises that income to make it appear legitimate [17]. Thirty three years later that definition still reflects the characteristics of «money laundering» with the only necessary addition regarding the

digitalization of economy and respectively the ways of «money laundering» which currently gets new term – digital money laundering.

Nowadays digital money laundering can be successfully committed by using such Bitcoin's feature as pseudonymous which allows any user «to transfer money at near instantaneous speed at little or no cost, with very low barriers to entry, while remaining virtually anonymous without what could otherwise require a public paper trail» [18]. On the other hand, the same feature can be successfully used for investigation purpose. As far as any Bitcoin transaction can be tracked back to the block from which it was mined, so, «antimoney laundering in Bitcoin has to deal with imperfect knowledge of identities, but may exploit perfect knowledge of all transactions [19]. Eventually, if law enforcement agencies connect an individual to particular Bitcoin wallet addresses, they can have a complete view into that individual's transactional activity [20]. This target can be reached by using Transaction Fingerprinting approach. Moreover, in blockchain any transaction is time-stamped. If law enforcement agency has particular suspects and knows approximate time of transaction, they can identify the address, which belongs to criminal's wallets according to the relevant transactions, which were made at certain time. Also, some information can be indicated according to the unusual amount. Firstly, because of the size and secondly, the unusual set of numbers that identifies the amount, which can be tracked back via blockchain. Thus, investigation via blockchain should be dedicated to the determination of the transaction's directions, which ultimately might allow identifying a particular individual.

Currently, aforementioned approaches in combination with other methods, are successfully implemented into the investigation process. Confirmation of this is the guilty verdicts on resonance world known cases as *United States v. R. Ulbricht* [21]; *United States v. Faiella* [22], *Florida v. Espinoza* [23] etc.

However, we should admit that nowadays investigation faces the challenges, which do not have historical precedent: dramatically increasing the amount of technical and intellectual features which aid process of crimes committed and slow the speed of the methods and means development for combatting crimes which by the time of their introduction become morally outdated and useless. Aforementioned points have impact on the need of developing completely new approaches dealing with criminal investigation, taking into account the constantly changing conditions for the crimes committed.

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У статті розкривається походження криптовалюти, її значення для світового грошового обігу. Також визначається значення Bitcoin як пірінгової електронної готівкової системи та її використання у процесі легалізації доходів, одержаних злочинним шляхом.

Ключові слова: криптовалюта, легалізація доходів одержаних злочинним шляхом, Bitcoin, пірінгова електронна готівкова система, розслідування злочинів.

В статье раскрывается происхождение криптовалюты, ее значение для мирового денежного оборота. Также определяется значение Bitcoin как пиринговой электронной наличной системы и ее использование в процессе легализации доходов, полученных преступным путем.

Ключевые слова: криптовалюта, легализация доходов полученных преступным путем, Bitcoin, пиринговая электронная наличная система, расследование преступлений.

