

Criminal liability for illegal possession of cryptocurrency in Ukraine

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Abstract. This study investigated the criminal liability for illegal acquisition of cryptocurrency in Ukraine, which is relevant in connection with the considerable spread of cryptocurrencies and cases of their illegal acquisition, as a result of which significant material damage is caused to the victims. Specifically, this is explained by the collapse of cryptocurrency exchanges and hacker attacks on cryptocurrency wallets. The purpose of this study was to investigate what criminal liability is prescribed for illegal possession of cryptocurrency in Ukraine. The study employed a dialectical approach and methods of system and technical and legal analysis, as well as a formal and logical method. Approaches to understanding the term “cryptocurrency” were defined, and its types were specified. The features of the functioning of blockchain technology were covered. This paper analysed the legal regulation of virtual assets in Ukraine, their relationship with cryptocurrency. It is noted that at its core, cryptocurrency is not a virtual asset and that it is advisable to consider it an electronic asset based on the blockchain – a decentralized public register of all cryptocurrency transactions conducted on the network. Shortcomings in the legal regulation of cryptocurrencies in Ukraine were highlighted, specifically, it was noted that the signs of virtual assets do not fully coincide with the signs of cryptocurrencies. The most common ways of illegal possession of cryptocurrency were specified, and problematic issues of bringing individuals who have come into illegal possession of cryptocurrency to criminal responsibility were outlined. This paper substantiated the impossibility of bringing individuals who have come into illegal possession of cryptocurrency to criminal responsibility in Ukraine, considering the principle of legal certainty and avoiding analogy in criminal law. The necessity of criminalizing illegal possession of cryptocurrency was proved. Practical recommendations on making appropriate amendments to the Criminal Code of Ukraine were formulated. The theoretical value of this study lies in the formation of an approach to the need to criminalize the illegal possession of cryptocurrencies, and its results can be used in law-making activities

Keywords: virtual assets; blockchain; cryptocurrency crimes; theft; criminalization

Introduction

Recently, cryptocurrency has become an integral part of people's lives both in Ukraine and in many countries around the world. It is traded on centralized and decentralized exchanges, where savings are kept, goods and services are paid for, donated, lent, and inherited, i.e., generally owned and disposed of at the discretion of the people possessing these cryptocurrencies. In 2022, Ukraine ranked third among the world leaders in mass implementation of cryptocurrencies (Chainalysis, 2022).

However, given its popularity, in Ukraine and the world there are increasingly more people who want to illegally take possession of it in one way or another. In terms of the functioning and circulation of cryptocurrencies, it can be argued that public relations have developed rapidly and considerably outstripped legal regulation in many countries of the world, specifically in the field of criminal proceedings. Ukraine is no exception.

The purpose of this study was to investigate the criminal liability for illegal possession of cryptocurrency in Ukraine

and find ways to solve existing problems. Cases of illegal possession of cryptocurrency have ceased to surprise law enforcement officers and ordinary citizens. News about the next collapse of the cryptocurrency exchange, hacker attacks on exchanges and cryptocurrency wallets, hacking of smart contracts, cross chain bridges and various kinds of fraud, the consequence of which is the illegal possession of cryptocurrency, appear daily. For instance, in early November 2022, cryptocurrency owners were stirred up by the news about the collapse of the FTX (“Futures Exchange”) cryptocurrency exchange. According to the rating of the 30 countries most affected by its collapse, published by the CoinGecko resource, Ukraine was in 22nd place because well over 72 thousand users from Ukraine used the services of this exchange (Ng, 2022).

It is quite difficult to imagine what property damage was caused by the latter, since there are currently no mechanisms for its establishment, let alone compensation. And there are many such examples. However, currently, Ukraine has not

Suggested Citation

Article's History: Received: 25.12.2022 Revised: 13.02.2023 Accepted: 29.03.2023

Kozii, V. (2023). Criminal liability for illegal possession of cryptocurrency in Ukraine. *Social & Legal Studios*, 6(1), 33-40. doi: 10.32518/sals1.2023.33.

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yet directly criminalized the illegal possession of cryptocurrency. At the same time, the monitoring of the Unified State Register of Court Decisions as of February 2023 confirms fairly common cases of conviction of individuals for infecting computers with malicious software for hidden mining (Verdict of Rivne City Court..., 2019; Verdict of the Dzerzhinsky District Court..., 2018); sale of narcotics for cryptocurrency (Verdict of the Starokostyantyniv District Court..., 2020); illegal sale of information with limited access for cryptocurrency (Verdict of the Kherson City Court..., 2018); cryptocurrency financing of terrorism (Verdict of the Krasnogvardiyskyi District Court..., 2021); legalization of criminally obtained funds using cryptocurrency (Verdict of the Pechersk District Court..., 2019), etc. But in Ukraine, there are no court decisions on finding individuals guilty of illegal possession of cryptocurrency itself, and not, for instance, money that was transferred to fraudsters in some kind of cryptocurrency project because in such a case there is a possession of money, and the actions of individuals are subject to qualification as fraud under the corresponding part of Article 190 of the Criminal Code of Ukraine (2001) (the CCU).

Presently, the investigation of crimes related to the illegal possession of cryptocurrencies is a new area in the work of law enforcement officers. In addition, in Ukraine, there are no scientific studies that relate to the investigation of illegal possession of cryptocurrencies. Scientists pay attention only to certain issues related to this topic.

Thus, in 2021, a team of scientists from the Kharkiv National University of Internal Affairs investigated the algorithm of actions of employees of pre-trial investigation bodies regarding the seizure of electronic assets, including virtual ones obtained by criminal means (Tsutskiridze *et al.*, 2021). S. Hrytsai (2022), investigating the legal regime of virtual assets in Ukraine, concluded that Ukraine has established a presumption of legality of ownership of a virtual asset. V. Cherniei *et al.* (2021), investigating criminal liability for cryptocurrency transactions, concluded that for the correct qualification of criminal offences related to the turnover of cryptocurrencies, it is advisable to recognize cryptocurrency as a type of property or money. Based on the results of the analysis, they concluded that relations regarding cryptocurrencies in most countries of the world are insufficiently regulated and are still outside the legal framework. This complicates the establishment of criminal liability for operations involving the turnover of cryptocurrencies. O. Karapetian and V. Bilynskyi (2018) investigated cryptocurrency as an object of illicit enrichment. S. Chaplian (2018), investigating the legal nature of cryptocurrencies, addressed the relationship between the concepts “cryptocurrencies” and “money”. V. Nosov and I. Manzhai (2021), investigating certain aspects of the investigation of cryptocurrency transactions in the prevention and investigation of crimes, formulated several main tasks for law enforcement agencies at the current stage of cryptocurrency development. This is primarily the identification of individuals involved in certain operations with cryptocurrencies. To better understand the processes in the blockchain system, tools for appropriate analysis should include appropriate visualization tools and as complete up-to-date data banks as possible to properly build associative relationships with particular individuals and legal entities. The study of criminal offences in the field of cryptocurrencies allowed D. Kaznacheyeva and A. Dorosh (2021) to conclude that

the physical sign of cryptocurrency as a subject of criminal offences lies in its specific form – a digital code.

As for foreign research, prominent are the works of such scientists as I.G.A. Pernice and V. Scott (2021), who, exploring the concept of cryptocurrency, concluded that cryptocurrency systems are unified because they are designed to host a medium of exchange for general or limited purposes, using an infrastructure that, to varying degrees, replaces trust in institutions with cryptography. J. Marinotti (2022), exploring digital asset ownership, refutes the idea that ownership requires physical control, separating ownership from another fundamental concept of things. It emphasizes the unique purpose of ownership in the ownership process: the transfer of the status of real claims. M. Guri (2018), investigating ways to steal private keys from cryptocurrencies, points out the vulnerability of even cold wallets, i.e., those that are not connected to the Internet.

C.N. Braaten and M.S. Vaughn, (2019), E. Reddy (2020), F.M.J. Teichmann and M.-C. Falker (2021), S. Kethineni (2020) refer to the use of cryptocurrencies in criminal finance, specifically as payment for narcotics. The study of C. Albrecht *et al.* (2019) refers to the tendency to increase the use of cryptocurrencies specifically for laundering funds obtained through criminal means. T. Thomas *et al.* (2022) introduced BlockQuery, a bitcoin network query system capable of detecting transactions generated by hierarchical deterministic (HD) wallets that many publicly available tools cannot find due to errors in address retrieval methods. V. Dyntu and O. Dykyj (2021), considering cryptocurrency as a tool for financing terrorism, note that for the fight against crime, the main issue is the deanonymization of the owner/user of Bitcoin, which allows identifying the criminal.

However, scientists have not conducted comprehensive studies of this topic. Agreeing in general with the need to determine the legal nature of cryptocurrency, it should be noted that cryptocurrency as a whole is characterized only by certain features of property or money.

To solve the questions: what cryptocurrency is, what are its types and specific features of functioning and circulation, what is the state of its legal regulation, and what are the methods of its criminalization, a dialectical approach, methods of systemic and technical-legal analysis, as well as formal logical method were applied.

Specifically, the provisions of the current Ukrainian legislation were interpreted in the appropriate manner: Law of Ukraine “On Virtual Assets” (2022), Civil Code of Ukraine (2003), Criminal Code of Ukraine (2001), Tax Code of Ukraine (2010), Laws of Ukraine “On Payment Services” (2021), “On Electronic Commerce” (2015), “On Capital Markets and Organized Commodity Markets”. Draft Law of Ukraine No.7183 “On Circulation of Cryptocurrency in Ukraine” (2017) was also examined.

Legal nature of cryptocurrency

First of all, the term “cryptocurrency” is commonly used, and in fact is an abbreviation for “cryptographic currency”, which means cryptographic money. In turn, in simple words, cryptography is the science of encryption.

The Encyclopedia of Modern Ukraine provides the following definition of cryptography: “Cryptography” – (from crypto... and ...graphy) – the art, science, and technology of ensuring the secrecy of information. It studies ways and methods of protecting information from changes and

unauthorized interference in transmission, processing, and storage (Homomai, 2014).

In 2008, an unknown person or group of people under the pseudonym Satoshi Nakamoto created the world's first cryptocurrency – bitcoin (BTC). All other cryptocurrencies that appeared after Bitcoin are called altcoins. From a technical standpoint, bitcoin is a digital electronic asset that rotates in a decentralized payment system based on the blockchain (“blockchain” stands for “chain of blocks”).

However, Bitcoin is not the only cryptocurrency, e.g., the Coinmarketcap resource as of 01.02.2023 tracked 22,405 cryptocurrencies (Today's Cryptocurrency Prices..., n.d.).

Any cryptocurrency conventionally consists of a set of characters – letters and numbers, and these same characters make up the address of the wallet, the so-called public key, which is generated by the system and which one needs to know who is going to transfer a certain amount of a particular cryptocurrency to it. However, there is also a private key that allows the blockchain to dispose of the corresponding amount of cryptocurrency located on the specified wallet, i.e., at the specified address, and there is also a hash of the transaction.

As stated on the EXBASE.IO project website (About EXBASE.IO Platform, n.d.), hash is a cryptographic term used to denote data obtained as a result of passing original information through a hash function. Furthermore, this result can also be called a hash value, hash code, or digest. Hash functions themselves are certain mathematical algorithms that convert any information to a hash of a fixed size (length). Most often, combinations of sixteen characters are used, which use numbers from 0 to 9 and letters from A to F. The alphabet used is exclusively Latin. As a simple example, it is worth considering the hash function SHA-256, which is used in Bitcoin – the most widely used cryptocurrency in the world. If we pass through it the sentence: “learning to understand cryptocurrency”, then we will get the following result: de469d52c87d4366b74c435044253a36b6397c8600772d-55828dad63dcbfa25d.

What is important is that it doesn't matter how many times you repeat this phrase, or on which machine to do it. The same source information always gives the same hash. However, if you change at least one letter, e.g., start the sentence with a capital letter or replace one Cyrillic letter “а” with the corresponding Latin letter, then there will be entirely different results: 9bc4aa82a9057cf-c9922641632bbf7d73cbf57addf8c303126f509af26baf31d and 59c7a3d152a739abe8adcb2925e9ff03237b7875cf210a b055770e5463b31cbf, respectively.

It can be argued that knowing the hash is extremely useful for verifying the accuracy of information, without disclosing its content. That is why these algorithms are used to search closed databases, analyse large files, and provide additional information protection. Furthermore, it is the hash function that underlies the operation of most blockchain networks (About EXBASE.IO Platform, n.d.). Therefore, every hash and every transaction is unique and unrepeatable.

Only a person who has a private key to a transaction for a certain amount of cryptocurrency can own a cryptocurrency. In this case, the private key decrypts the public key and hash of the transaction, but this does not work in the opposite direction. If the cryptocurrency is on the exchange, then the exchange also has private keys, and if the exchange is hacked or the cryptocurrency is stolen from it, respectively, the owner also loses it. In fact, the rule “not

your keys – not your cryptocurrency” applies here, but many cryptocurrency owners still keep it on exchanges for operational trading and making a profit from such activities. The rate of decentralized cryptocurrencies is constantly changing, sometimes very quickly and significantly, because neither the state nor its regulatory authorities have a direct influence on the rate of a particular cryptocurrency, since it is decentralized. There are also stablecoins – these are altcoins whose exchange rate is secured by assets, such as fiat currencies or commodity values, and the stablecoin exchange rate corresponds to the value of the asset that provides it, such as 1 US dollar, 1 euro, or 1 gram or ounce of gold.

The key features of most cryptocurrencies are decentralization, since in this case, there is no issuing centre, which is usually used by central banks and governments of countries around the world when issuing money, and that any cryptocurrency transaction, with some exceptions, cannot be cancelled. In general, cryptocurrencies are electronic assets that contain a set of characters whose existence is based on cryptographic rules. Summarizing all the above, from a technical standpoint, cryptocurrency is a code encrypted by a special program, i.e., a sequence of letters and numbers that are recorded electronically and accepted by users as a means of payment and exchange.

According to the findings of the International Group on combating dirty money laundering – Financial Action Task Force, FATF (2014), cryptocurrency is only one of the types of virtual currencies, namely a decentralized virtual currency.

As noted by O. Kreminskyi (2022), in general, all existing approaches to virtual currencies can be reduced to the following, where virtual currency is recognized as follows: 1) cash; 2) a monetary surrogate; 3) a commodity (property, asset); 4) a property right; 5) a form of payment service. In Kreminskyi's opinion, virtual currency, like electronic money, is a type of digital currency with one substantial difference: it is not related to fiat currencies.

However, the classification of cryptocurrencies as cash is questionable, since it does not correspond to their characteristics, the same applies to monetary surrogates, because by its essence and legal nature, cryptocurrency is not a virtual asset or virtual currency, and it is more correct to consider it an electronic asset based on blockchain. No blockchain – no cryptocurrency. It is the blockchain that is the difference and characteristic feature that allows distinguishing cryptocurrency from electronic money.

The Law of Ukraine “On Virtual Assets” (2022) introduces legal regulation of virtual assets. Analysis of its provisions irnyiei that a virtual asset is a special form of existence of an intangible good in electronic form, which has a value and certifies property rights. The Great Explanatory Dictionary of the Modern Ukrainian Language defines the word “virtual” (from the Latin *virtualis* – imaginary, possible) as an imaginary, non-existent object (*Virtualis*, n.d.).

However, cryptocurrency cannot be considered a fictional and imaginary category that is not present in the real world, since it objectively exists in our reality. It just exists in electronic form.

There are also reasonable doubts regarding the legislators' attribution of a virtual asset to intangible benefits. The concept and list of intangible assets are contained in Chapter 15 of the Civil Code of Ukraine (2003), according to Article 199 of which, the results of intellectual, creative activity, and other objects of intellectual property rights create civil

rights and obligations pursuant to the Book IV of Civil Code of Ukraine and other laws. According to Article 200 of the Civil Code of Ukraine, information is any information and/or data that can be stored on material media or displayed in electronic form. Apart from those mentioned above, the legislator includes personal non-property goods protected by civil law and which, according to Art. 201 of the Civil Code of Ukraine, are as follows: health, life; honour, dignity, and business reputation; name (designation); authorship; freedom of literary, artistic, scientific and technical creativity, as well as other benefits protected by civil legislation.

That is, the legislator understands intangible benefits as the results of intellectual and creative activities, information, as well as personal non-property benefits. However, only two of these signs are directly related to the cryptocurrency and, accordingly, are its signs. This is information, because cryptocurrency is a set of symbols – numbers and letters, and it is also the result of intellectual activity, because any cryptocurrency is based on program code. However, given the signs of cryptocurrency and the specific features of its functioning, the legislators' attribution of cryptocurrency to an intangible good is questionable. Especially given that almost any cryptocurrency on the stock exchange or online exchange has its own buying and selling rates, and the owner can instantly exchange it for cash, which can be immediately withdrawn from the stock exchange to a bank card.

Analysis of the Law of Ukraine "On Virtual Assets" (2022) indicates that the legislator in Ukraine actually meant cryptocurrency by virtual assets, but there is no mention of this in the Law, and this can only be guessed through analysis and interpretation of the norms of the Law. Thus, the signs of a cryptocurrency correspond to such signs of a virtual asset as the fact that it is recognized as an object of civil rights, has a value expressed by a set of data in electronic form, as well as the fact that its existence and turnover is ensured by the system of circulation of virtual assets and, furthermore, it can testify property rights, specifically the rights of claims to other objects of civil rights. But at the same time, it is doubtful whether cryptocurrencies are classified as intangible goods.

In addition, the question of on what basis the actions of individuals who came into illegal possession of cryptocurrency should be qualified according to the norms of the Criminal Code of Ukraine (2001) is still unresolved. Based on what legislation? What exactly did individuals get if there is no legal definition of cryptocurrency? What equivalent of cryptocurrency, in terms of monetary funds, should be determined for criminal liability, or is it possible that the mere fact of possession of cryptocurrency, regardless of its size, is sufficient? How to determine the value of the stolen cryptocurrency in terms of the national currency of Ukraine – the hryvnia – at the time of the commission of the criminal offence, if there is no corresponding methodology? The National Bank of Ukraine does not determine the exchange rates of cryptocurrencies, and at the same time, on different online exchanges and online exchange resources, the rates of the same cryptocurrencies can differ substantially and, moreover, constantly fluctuate. Does the jurisdiction of the state of Ukraine extend to the specified social relations, if, for instance, a citizen of Ukraine moved to an online cryptocurrency exchange, relatively speaking, 10 bitcoins, the value of which fluctuated within 15-16 thousand US dollars during November 2022, and the exchange went bankrupt

due to improper management of the entrusted cryptocurrency or as a result of a hacker attack, bitcoins were stolen, and the place of registration of this exchange was Virgin Islands, South Korea, Japan, Canada, or Liechtenstein, or Argentina. And finally, the main question is: what is the difference between taking possession of a cryptocurrency, in the above case, 10 bitcoins, and taking possession, relatively speaking, of an asteroid from a distant constellation or, in the end, a shell from a beach or a stone from a cobblestone near the closest house? And what fate awaits the criminal proceedings on illegal possession of cryptocurrency, which are being investigated and will undoubtedly be investigated by the pre-trial investigation bodies in Ukraine. Evidently, without criminalization of illegal possession of cryptocurrency, the solution to this problem is impossible.

State of legal regulation of illegal possession of cryptocurrencies

In Ukraine, the turnover of cryptocurrencies has been unresolved for many years. Only on February 17, 2022, the Law of Ukraine "On Virtual Assets" (2022) was adopted. The adoption of this law is perceived by society as a significant event that launched the legalization of cryptocurrencies in Ukraine. However, there is not a single mention of cryptocurrency in it, and this raises the question of what exactly then belongs to the subject of its legal regulation and what the legislator understands by virtual assets. To answer this question, it is necessary to analyse the main provisions of this Law. Thus, according to Item 1 of Article 1 of the latter, a virtual asset is an intangible benefit that is an object of civil rights, has a value and is expressed by a set of data in electronic form. At the same time, within the meaning of Part 3 of Article 2 of the Law of Ukraine "On Virtual Assets", it does not apply to legal relations related to the regulation of electronic money, securities, and derivative contracts. Furthermore, according to Item 1 of Section VI "Final and Transitional Provisions", this Law shall enter into force on the date of entry into force of the Law of Ukraine on Amendments to the Tax Code of Ukraine (2010) regarding the specific features of taxation of transactions with virtual assets, but not earlier than publication of this Law.

As of the beginning of February 2023, the relevant amendments to the Tax Code of Ukraine have not been made and, accordingly, the Law has not entered into force. Therefore, the legal status of virtual assets in Ukraine has not yet been determined *de jure*. The legislators also pointed out that the law does not apply to legal relations concerning the turnover of electronic money, securities, and derivative contracts. The definition of the concept of electronic money is contained in Item 14 of Article 1 of the Law of Ukraine "On Payment Services" (2021), according to the content of which they are units of value stored in electronic form, issued by the issuer of electronic money for payment transactions that are accepted as a means of payment by individuals other than their issuer, and is a monetary liability of such electronic money issuer.

Pursuant to Part 1 of Article 13 of the Law of Ukraine "On Electronic Commerce" (2015), settlements in the field of electronic commerce can be carried out using payment instruments, electronic money, by transferring funds or paying in cash in compliance with the requirements of the law on the execution of cash and non-cash settlements, as well as in another method prescribed by the legislation of Ukraine, which regulates the provision of payment services.

As for securities and derivative contracts, the definition of these concepts is contained in Articles 8 and 31 of the Law of Ukraine “On Capital Markets and Organized Commodity Markets” (2006), and accordingly, a security is a document of the prescribed form with the corresponding details, which certifies a monetary or other property right, determines the relationship of the issuer of the security (a person who issued a security) and a person who has rights to a security, and stipulates the performance of obligations under such a security, as well as the possibility of transferring rights to a security and rights to a security to other persons. Securities exist in electronic (electronic securities) and paper (paper securities) forms. In turn, a derivative contract is a contract whose terms stipulate the obligation of one or each of the parties to such a contract in relation to the underlying asset and/or the terms of which are set depending on the value of the underlying indicator, and may also stipulate the obligation to conduct monetary settlements.

The legislators have also normalized the issue of criminal liability in this area of public relations. Thus, Article 199 of the Criminal Code of Ukraine (2012) prescribes criminal liability for the sale of counterfeit money. In addition, Article 200 of the Criminal Code of Ukraine prescribes criminal liability for illegal actions with electronic money.

But the same cannot be said about cryptocurrency since the law does not provide a direct answer as to what cryptocurrency is and how it relates to virtual assets.

Ways and methods of criminalizing illegal possession of cryptocurrency

According to the requirements of Part 2 of Article 4 of the Criminal Code of Ukraine (2001), criminal illegality and punishability, as well as other criminal-legal consequences of an act, are determined by the law on criminal liability, which was in force at the time of the commission of this act.

The criminalization of acts means the implementation of constant monitoring of public relations that need to be protected by criminal law means. Criminalization is determined by the objective needs of society, because if there are gaps, public relations are harmed.

Reasons for criminalization are as follows: 1) the need to perform obligations under international treaties ratified by the Verkhovna Rada of Ukraine; 2) the need to create legal mechanisms for affirming and ensuring human rights and freedoms as the main duty of the state; 3) the need to ensure the implementation of certain provisions of the Constitution and other laws of Ukraine; 4) the results of criminological research on the dynamics and prevalence of a certain act, which substantiate the need for its criminal law prohibition; 5) public opinion (Melnyk & Klymenko, 2004).

In the case of illegal possession of cryptocurrency, it is evident that the development of public relations took place dynamically, while the legislation stayed static and the basis for criminalizing illegal possession of cryptocurrency is the prevalence of cases of illegal possession of cryptocurrency and causing material damage to its owners, which confirms the need for its criminal prohibition.

The authors of the Draft Law of Ukraine No. 7183 “On Circulation of Cryptocurrency in Ukraine” (2017) were the closest to the introduction of the term “cryptocurrency” and the regulation of cryptocurrencies in Ukraine, who proposed to define cryptocurrency as a program code (a set of symbols, numbers, and letters), which is an object of ownership,

can act as a means of exchange and information about which is entered and stored in the blockchain system as accounting units of the current blockchain system in the form of data (program code). Article 6 of the Draft Law made provision for the right of a subject of cryptocurrency operations to freely dispose of a cryptocurrency, specifically, to carry out operations on the exchange (exchange) of cryptocurrencies of any kind for another cryptocurrency, to exchange it for electronic money, currency valuables, securities, services, goods, etc. It was also assumed that the general rules that apply to cryptocurrencies apply to the right of private property.

This indicates both the urgent need to amend the already adopted Law of Ukraine “On Virtual Assets”, and the need to define in it, specifically, the concept of cryptocurrency, its types and features of its legal regulation. It is also urgent to supplement the Criminal Code of Ukraine with a corresponding article, which will make provision for criminal liability for illegal possession of cryptocurrency.

Therewith, the principle of legal certainty must be observed, as well as the inadmissibility of analogy in the criminal law.

In turn, this means that the legislative level should establish a criminal ban on illegal possession of cryptocurrencies, and not undefined virtual assets, which are referred to in the Law of Ukraine “On Virtual Assets” (2022). Given that cryptocurrency has exchange rates on exchanges and can be converted into cash, it is evident that due to illegal possession of it, the victim suffers material damage, and accordingly its size should be established, from which criminal liability begins. The optimal amount can be determined, e.g., 3 or 5 minimum wages at the time of committing a criminal offence, so that the resources of pre-trial investigation bodies are not spent on small amounts of damage.

The study of scientific literature and Ukrainian and world practices allowed N. Khak Siddiki and R. Movchan (2018) to conditionally highlight the main areas of use of cryptocurrencies for criminal purposes and to consider cryptocurrency as an object of criminal encroachment (theft of cryptocurrency from accounts, Internet fraud, extortion redemption in cryptocurrency, etc.).

Agreeing with the above, it is worth noting that the ways of using cryptocurrencies for criminal purposes are constantly being modified and supplemented with new ones.

An analysis of the methods of illegal possession of cryptocurrency suggests that they can be:

1) theft, i.e., the secret theft of cryptocurrency, which occurs in cases where, due to the hacking of the exchange by hackers or gaining access to the victim’s electronic wallet in another way, the cryptocurrency is sent from the victim’s wallet by criminals to their own cryptocurrency wallets or to exchanges or mixers to make it impossible to track the further movement of cryptocurrency and identification of criminals;

2) misappropriation or embezzlement of cryptocurrency, which occurs when the cryptocurrency is entrusted to it by the owner of the exchange or other online resources, such as exchangers or cryptocurrency companies, but employees or officials, as a result of dishonest management of the entrusted cryptocurrency, dispose of it at their discretion, e.g., pawn or exchange it to other assets or transferred to other electronic wallets, which leads to its loss to the victim;

3) fraud, which occurs when any individuals, by deception or abuse of trust, e.g., under the promise of large profits, receive cryptocurrency from the victim in any way, intending to illegally take possession of it.

The qualifying features should be its repeated or earlier conspiracy by a group of individuals or a criminal organization, as well as illegal possession that caused considerable damage to the victim or was committed on a large and especially large scale. Therewith, it is possible and appropriate to consider the approach of the legislator to determining the amount of damage in property crimes, as indicated in the note to Article 185 of the Criminal Code of Ukraine (2012).

Furthermore, the question of how to determine the amount of material damage caused due to the illegal acquisition of cryptocurrency also needs an urgent solution. Such damage must be expressed according to the exchange rate of the National Bank of Ukraine at the time of the completion of the crime in the national currency of Ukraine, the hryvnia. At the same time, on different online resources, the exchange rate may differ and fluctuate substantially over a short period of time (even a few seconds). A solution to this problem may be to determine the value of assets at the rates of the world's largest cryptocurrency exchange. Presently, this is Binance. However, among over 20,000 cryptocurrencies that exist in the world today, only more than 600 are listed on Binance. This means that this size can also be determined by the rates of the largest 10 or 20 or more exchanges, e.g., according to their rating by trading volume.

Conclusions

Therefore, the Law of Ukraine "On Virtual Assets" introduces the legal regulation of virtual assets, and despite the absence of any mention of cryptocurrency, the analysis of its provisions allows asserting that, specifically, it includes cryptocurrency as a virtual asset. At the same time, the correctness of the legal definition of virtual assets is questionable, since virtuality means something imaginary, i.e., something that does not exist in real life. However, cryptocurrency objectively exists in our reality and is not something imaginary, it just exists in electronic form. The legislator unreasonably refers virtual assets to intangible goods because, foremost, intangible goods are intellectual property rights and personal non-property goods.

The conducted study proves that cryptocurrencies are electronic assets. From a technical perspective, cryptocurrency is a code encrypted by a special program, i.e., a sequence of letters and numbers that are recorded electronically and accepted by users as a means of payment and exchange. Therefore, by its very nature, cryptocurrency is not a virtual asset because it is an electronic asset based on the

blockchain – a decentralized public register of all conducted cryptocurrency transactions on the network, which acts as an inherent feature that allows distinguishing cryptocurrency from electronic money.

The study of the issue of criminal liability for the illegal acquisition of cryptocurrency allows coming to well-founded conclusions that the urgent task of the legislators in Ukraine is to amend the Law of Ukraine "On Virtual Assets" and define the concept of cryptocurrency, its types and features of legal regulation, as well as establish a criminal responsibility for the illegal acquisition of cryptocurrency and the addition of the corresponding article to the Criminal Code of Ukraine. Presently, the Criminal Code of Ukraine does not prescribe any criminal liability for illegal possession of cryptocurrency. Therefore, the amendment of the Criminal Code of Ukraine with an article that establishes such liability for various forms of illegal possession of cryptocurrency (theft, misappropriation or embezzlement, fraud) will make it possible to bring the perpetrators to criminal responsibility and will contribute to ensuring respect for the rights of victims, especially in the context of the return of the stolen cryptocurrency from them.

Meanwhile, it can be stated that the owners of cryptocurrencies in Ukraine are not protected by the current legislation from their loss as a result of illegal possession by other individuals, since the legislators, in compliance with the principle of legal certainty, do not recognize the corresponding actions as criminal and despite the dynamic development of public relations in this area, the legislation was and still is static.

This study can serve as a solid basis for further scientific research on issues related to criminal liability for illegal possession of cryptocurrency. Equally important are further areas of research, which concern the specific features of proof in criminal proceedings regarding the illegal acquisition of cryptocurrency, the methods and tactics of their investigation, and the imposition of punishment for the commission of such crimes.

Acknowledgements

The author conducted the study independently, respectively, there is no acknowledgement to individuals or organizations for any technical support, ideas, financial (material) aid, etc., thanks to which the study became possible.

Conflict of interest

Since the author's study was conducted independently, there is no conflict of interest.

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Кримінальна відповідальність за незаконне заволодіння криптовалютою в Україні

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Анотація. Статтю присвячено дослідженню кримінальної відповідальності за незаконне заволодіння криптовалютою в Україні, що є актуальним у зв'язку зі значним поширенням криптовалют і випадків незаконного заволодіння ними, унаслідок чого потерпілим спричиняється значна матеріальна шкода. Зокрема, це відбувається внаслідок краху криптовалютних бірж та здійснення хакерських атак на криптовалютні гаманці. Мета статті – дослідити те, яку кримінальну відповідальність передбачено за незаконне заволодіння криптовалютою в Україні. У процесі дослідження застосовано діалектичний підхід і методи системного та техніко-юридичного аналізу, а також формально-логічний метод. Визначено підходи до розуміння поняття «криптовалюта», указано її види. Розкрито особливості функціонування технології блокчейн. Проаналізовано правове регулювання віртуальних активів в Україні, їх співвідношення з криптовалютою. Відзначено, що за своєю сутністю криптовалюта – це не віртуальний актив і що її доцільно вважати електронним активом на основі блокчейну – децентралізованого публічного реєстру всіх проведених криптовалютних транзакцій мережі. Висвітлено недоліки в правовому регулюванні криптовалюти в Україні, зокрема відзначено, що ознаки віртуальних активів не повною мірою збігаються з ознаками криптовалют. Наведено найпоширеніші способи незаконного заволодіння криптовалютою та окреслено проблемні питання притягнення до кримінальної відповідальності осіб, які вчинили незаконне заволодіння криптовалютою. Обґрунтовано неможливість притягнення до кримінальної відповідальності в Україні осіб, які вчинили незаконне заволодіння криптовалютою, з урахуванням принципу правової визначеності та недопущення аналогії в кримінальному праві. Доведено необхідність криміналізації незаконного заволодіння криптовалютою. Сформульовано практичні рекомендації щодо внесення відповідних змін до Кримінального кодексу України. Теоретична цінність дослідження полягає у формуванні підходу щодо необхідності криміналізації незаконного заволодіння криптовалютою, а його результати можуть бути використані в правотворчій діяльності

Ключові слова: віртуальні активи; блокчейн; злочини у сфері криптовалют; викрадення; криміналізація