THE USE OF CRYPTO COINS TO FINANCE TERRORISM

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Abstract: *It is not a coincidence that cryptocurrencies coincide with the date of their release in 2009. As a result of the global crisis experienced in 2008 and the money printing policies of the central banks, inflation created worldwide. Although the inflation experienced did not cause the decrease in trust in money and banks, it was not the only reason that brought the idea of crypto money, but it was largely effective in ensuring the trust of people against cryptocurrencies. The decentralized and transparent structure of cryptocurrencies, low taxation, limited production, and the fact that exchanges are open 24 hours have attracted people to these platforms. The potential of financial markets to integrate with technology also contributes to the fact that it has become so widespread today. Although the technology used in the production and networks of cryptocurrencies is old, the working principle as an is explained in an article published in 2009. Bitcoin (BTC) is the first peer-to-peer and decentralized currency on the blockchain. Therefore, it is the most famous one. Later, many central and decentralized coins and exchanges are created where they are traded. Terrorist organizations develop various camouflage methods to bypass the firewalls created by legal institutions in order to generate income. These earned revenues are converted into other forms of monetary value (for example: digital/cryptocurrency), making it difficult to trace them. In this study, cryptocurrencies, which are frequently referred as the currency of the future and the illegal usage areas of cryptocurrencies will be discussed.*

Key words: Blockchain, Crypto Coin, Financing of Terrorism.

JEL Classification Codes: F30, G15, K42

1. DEFINITION AND HISTORY OF CRYPTOCURRENCY CONCEPT

Money, which has become a tool of economic policy today, was first used as a means of exchange. The main purpose of the Central Banks, which is the central financial institution of the states, is to create an effective money market stability. The 'banknote', which is a representative currency, means a bank note (see Figure 1). Banknotes are documents issued by banks and promised to be paid at the time they are presented to the bank. With the general definition of paper money, it is the nominal money in circulation today, whose printing and valuation policies are adjusted by the central banks of the countries. Virtual currencies are assets that have emerged as a result of the globalization of the financial world and the increase in high-tech applications, and are shaped by new consumer demands. Virtual currencies are basically differentiated whether they are centered or not. Electronic money is the money in which the institutions that replace and issue fiat money are established by law and their records are kept in a center. It is

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difficult to imitate that it is not in a physical structure, the details of which are not known to everyone. They are assets that are committed by the organization that produces the money and are therefore accepted by a particular virtual group that is meaningful to those who produce it. Today, electronic money, internet banking, virtual gift checks, credit and deposit cards are turning into mobile banking applications and gradually replacing metal and paper money. In the future, it is thought that the word 'money' will have a virtual meaning rather than a physical one. For the first time in the world, the Marshall Islands issued a national virtual currency and removed their physical currency from circulation (https://tr.wikipedia.org/wiki/Elektronik_para).

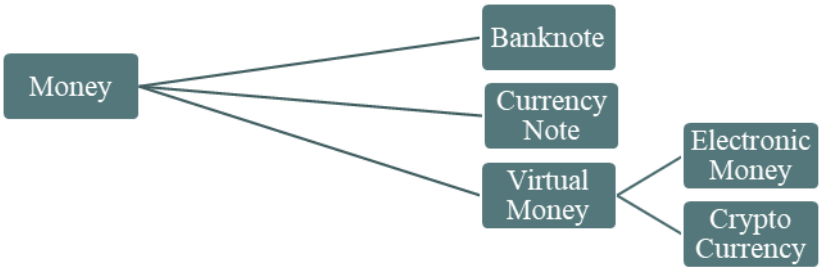


Figure 1. Classification of Money
Source: (Cetinkaya, 2018)

The term crypto derives its name from the encryption (Cryptography) program used for both the security of the system and the production of crypto assets. Crypto assets are decentralized. This distinguishes them from electronic money and the central banking system. Its decentralization comes from the transaction database. This database consists of a blockchain that acts as a distributed ledger. BITCOIN, the first decentralized coin, was produced in 2009 by the person or persons pseudonymous Satoshi NAKAMOTO. In addition, the first blockchain database was designed during this production process (https://tr.wikipedia.org/wiki/Kripto_para).

2. WORKING PRINCIPLE OF CRYPTOCURRENCIES

2.1 BLOCKCHAIN (BLOCKCHAIN TECHNOLOGY)

Blockchain, in its most general definition, is a technology which has no center and the record is not kept from one place. Blockchain contains three pieces of information. These are data (hold information such as receipent name, hash (a unique password), and the hash of the preceding block (unique password). New and unique hashes are generated when data changes. Date and time information is also added with the block. Therefore, a digital signature chain is formed in parallel with the number of transactions (see Figure 2). The first block in the chain is called 'genesis'. Since each block carries both its own hash and the previous hash, a sequential record structure is formed. (https://ba-works.com/blog/analistler-icin-teknolojik-perspektif-blockchain-blok-zinciri-bolum-2/).

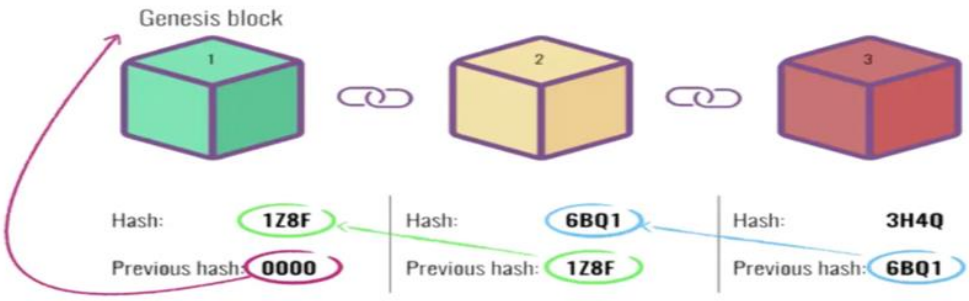


Figure 2. Block Chain

Source: https://ba-works.com/blog/analistler-icin-teknolojik-perspektif-blockchain-blok-zinciri-bolum-2/

Cryptocurrency is a digital signature and its transfers form blockchains. The generated record chain is accessible to all users. A person who wants to transact on the blockchain validates/signs the hash of the transaction made before him, and when the transaction is completed, the other party (eg, the recipient of the payment) completes the blockchain by verifying the signature/hash. Here, for example, the problem of proving that the person making the transaction in a money transfer transaction does not use the money more than once arises. The most common solution is to delegate this task to a central authority or a third party agency that controls such duplications. Here, money is centralized and all registration information is transferred to the records of an authority other than the transactors. Removing this third party from intermediation not only increases reliability but also reduces time and cost. In Satoshi NAKAMATO's article Bitcoin: Peer-to-peer Electronic Cash Payment System, "…the main purpose in the blockchain structure is that the transaction is not counted more than once. The only way to prove the absence of a transaction is if the transaction is within the knowledge of all users' and defines the logic of the Peer-to-Peer Electronic Cash Payment System (https://bctr.org/wp-content/uploads/2019/03/t%C3%BCrk%C3%A7e_bitcoin.pdf).

In order to prevent duplication of transactions in this system without the use of an intermediary institution, there are several important functional add-ons of the system; Time Stamp Server (the system that stores the time of each transaction and adds it to the chain in time order), Proof of Work (PoW-) is a protocol that prevents cyber attacks or spam messages aimed at disrupting or stopping system operation. The main purpose is to protect the continuous functioning and sustainability of the network. Proof-of-work is a mechanism that allows the system to work decentralized)(https://www.btcturk.com/bilgi-platformu/proof-of-work-is-kaniti-nedir-nasil-calisir/).

In Network Principle, the transactions are sent to all nodes by the unit called 'node', each node collects the transactions into the block in turn, the nodes look for proof of work in their own blocks, when proof of work is found, this information is broadcast to other nodes, after the transactions are verified within the block, the node accepts the block, proceeds to create a new block using the hash value of the accepted block, which means that the previous block has been accepted.

Blockchain or Blockchain technology basically means connecting encrypted data with nodes in a way that cannot be exchanged. It is almost impossible to delete, corrupt and rewrite this data. The reason for this is that in order to make changes in the chain, it is necessary to make the change from the block to be changed to the first block of the chain (genesis). In order for a change made by outside intervention to be successful, at least 51% of the existing blocks must be changed. Although experts say how to make the change in theory, it is said that there is no computer yet to do this in practice. Considering these features, the blockchain structure is a very

safe and durable system in terms of data storage (BTK, Kripto Para Araştırma Raporu, https://www.btk.gov.tr/uploads/pages/arastirma-raporlari/kripto-para-raporu-5f11dfe709c25.pdf).

2.2 PEER TO PEER MONEY TRANSFER (P2P)

It is a software protocol that does not need any central server, and two or more computers on the same network can directly exchange data with each other. In the service provider option connected to the central server, data is accumulated in the center, while data is stored by most of the participants in networks that are not connected to a central system such as Peer-to-Peer. In this case, the data will continue to be stored and protected in case of any cyber attack or virus. Users in the network are both producers, service providers and consumers. If a user remains on the network after downloading data, that user also acts as a server. (https://tr.cointelegraph.com/news/what-is-peer-to-peer-p2p-and-how-does-bitcoin-p2p-network-protocol-work).

2.3. DISTRIBUTED LEDGER TECHNOLOGY

It is a database that all users on the network can access, verify and update. It is a technological infrastructure defined long before Bitcoin and blockchain technology. The most important features of this technology are that it contains the date, time and details, gives information about the time of the transaction, is accessible and transparent to everyone, and is decentralized. Every transaction made and verified in this technology, which is not subject to a central registry system, is given a timestamp and recorded in the ledger. The notebook can be accessed and audited by everyone, but the information cannot be updated or corrected (BTK, Kripto Para Araştırma Raporu, https://www.btk.gov.tr/uploads/pages/arastirma-raporlari/kripto-para-raporu-5f11dfe709c25.pdf).

2.4. WALLET TECHNOLOGY

Crypto programs downloaded to phones, tablets, computers or internet-connected technological devices are called 'hot wallets' because of their internet connection. Cryptocurrency transactions can be made through programs downloaded from anywhere with internet access. The downside of these wallets is that they run the risk of being lost, stolen, or cyberattacked. There are also 'web wallets' where we access our data via web browsers. These include security risks since we enter our passwords on online servers. There are 'offline wallets' that we can disconnect from the internet, but when trying to transact from these wallets, it is necessary to download the entire blockchain and the most up-to-date block each time. It is a time-consuming and costly method in terms of energy. Cold wallets are a technological device that physically resembles a flash memory without an internet connection. It is the safest alternative for medium and long term investors. It requires three or more steps of identity/user authentication in each option. Without a password or authentication, the wallet is virtually impossible to access and transfer or change data (https://www.btcturk.com/bilgi-platformu/bitcoin-ve-diger-kriptoparalar-icin-saklama-alternatifleri-soguk-ve-sicak-cuzdan-nedir/).

2.5 MINING

Theoretically, anyone who has internet and a computer can be rewarded with crypto money as a result of verifying crypto transfer transactions by solving the problems / passwords in the system, with high data processing capacity, and the latest technology in software and hardware (https://www.btcturk.com/bilgi-platformu/quiz/kriptopara-madenciligi-mining-nedir/).

Mining is very difficult to detect. In addition, from a legal point of view, the "Regulation on the Non-Use of Crypto Assets in Payments", which entered into force on 16.04.2021. From this point of view, crypto transactions (Wallet, Mining, Transfer etc.) made without intermediating the aforementioned institutions are in legal transaction status.

2.6 EXCHANGES WHERE CRYPTO ASSETS ARE TRADED

Cryptocurrencies, which have a notional value that can be traded digitally, are treated as a unit of account and a medium of exchange, are not defined and guaranteed by any jurisdiction, are valid and legal payment offers when requested to be given to the payee, are valued only among their users, They are digital assets that have the ability to be distinguished from the national currency by their characteristics (https://www.fatf-gafi.org/media/fatf/documents/reports/Virtual-currency-key-definitions-and-potential-aml-cft-risks.pdf).

Exchanges where digital assets are traded are basically based on two distinctions. These are: Centralized (Centralized Exchange -CeX) and Decentralized (Decentralized Exchange-DeX) exchanges. Transactions on these exchanges are called Centralized Finance (CeFi) for Centralized exchanges, and Decentralized Finance-(DeFi) for Decentralized exchanges. In centralized exchanges, the currencies are in the accounts of the infrastructure-owning organizations and the identity information of the users is recorded in the databases of these organizations. Centralized exchanges operate purely for profit. They can be established as individuals or company partners. They take the decisions for the development of system activities and control all activities on the platform themselves. In contrast, in decentralized exchanges, users can manage important decision-making processes. There is a direct interaction between users on decentralized platforms. The processing and storage of data is recorded in the distributed ledger. No personal information is stored; it just finds matches for transactions. Both exchanges have advantages and disadvantages. Centralized exchanges have advantages such as easier to use platform interfaces, higher transfer speed and transaction volume compared to decentralized exchanges, access to customer representatives or authorized persons, while being more affected by cyber-attacks, not having full information for users (transaction records are only central data). It has disadvantages such as being kept on the soles of the Likewise, despite the disadvantage that decentralized exchanges have low transaction speed and transaction volume, they are more resistant to cyber-attacks. Users can only generate new crypto assets in addition to the transactions of crypto units registered in the system. The user interface demands more expertise. Transactions are seen by all users in the network, and in the system, everyone is responsible for their own funds as the most authoritative person. In case of forgetting the account password or an erroneous transfer, there is no third party to address (https://tr.cointelegraph.com/news/what-is-decentralized-exchange-dex-how-it-is-work). Most of the investigations in terms of money laundering and financing of terrorism have been tried to be exemplified through decentralized exchanges, since it is almost impossible to reach any record despite their risks and disadvantages.(https://www.resmigazete.gov.tr/eskiler/2021/04/20210416-4.htm).

3. RISKS OF CRYPTOCURRENCIES IN TERMS OF MONEY LAUNDERING AND FINANCING OF TERRORISM

All non-convertible virtual currencies are centralized in nature. It is given by the central organization with a certain number and limitation. It is this central authority that makes virtual currencies non-convertible and sets the rules. In contrast, convertible virtual currencies circulate centralized and decentralized. In virtual currency networks, there are investors, people and

organizations seeking financing for their projects, people who make profit-oriented transactions or representatives of institutions, or users who want to pay a reasonable transfer fee, as well as smugglers, those who sell criminal goods / services, those who aim to finance terrorism, those who support terrorism or sympathizers can be found in those who transact for money laundering activities. Whether centralized or decentralized networks, there are several methods identified in the FATF (Financial Action Task Force) reports used by criminals or their supporters who act in order to anonymize their transactions, hide their source, and distance them from the source (https://www.fatf-gafi.org/documents/documents/virtual-currency-definitions-aml-cft-risk.html).

The first of these is Tor Browser, a network structure and software project developed to ensure the security of the US Navy's communications. Basically, it allows browsing the internet like Google Chrome, Safari. Unlike these browsers, the risk of users being tracked is low and it allows users to make transactions over the internet by hiding their identities. The name Tor comes from the English word The Onion Routher, which describes complex encryption and redirects to increase anonymity (https://tr.wikipedia.org/wiki/Tor_(anonim_a%C4%9F).

The Tor program complicates the user's footprints on the internet, making it difficult to track. Another is the Mixer. It is done by users who do not want the transaction to be tracked via Blockchain, in order to hide the buyer and seller. In 2021, US authorities detained Roman STERLINGOV, who is alleged to be the founder of the BitcoinFog agitator program. It is thought that he laundered more than 1.2 million Bitcoins during his 11-year period as the manager of BitcoinFog, and 23% of this amount was transferred to DarkNet (dark network)-based crime markets. It is stated that the data flow over the blockchain is examined in order to determine these issues. (https://tr.cointelegraph.com/news/alleged-366m-bitcoin-mixer-busted-after-analysis-of-10-years-of-blockchain-data).

This shows that each new technology creates the idea of creating another technology that provides its own resolution. Today, these programs can be accessed over the internet and with an easy interface. In addition, these programs have names such as laundry and tumbler. Dark Wallet was also an underground site that needed to be added to internet browsers like Chrome and Firefox. After the installation was completed, passwords were defined for the wallet and pockets were created. These pockets, which will be created in unlimited numbers, have separate and unique secret addresses where crypto transactions will be made. The main working principle of the program was to mix and combine the transactions of random users who were trading at the same time. For this transaction, Bitcoin (BTC), the cryptocurrency with the highest transaction volume and number, was especially chosen because it is difficult to track transactions from the ledger. Considering the simultaneous transactions, for a simultaneous transfer from A to B and X to Y and C to D, the blockchain ledger records three transactions for each address, while for the user with the DarkWallet plugin, A, X The transfer from users C to users B, Y and D appears to be a single transaction. For this reason, it is not known exactly from whom to whom the transfer was made (https://www.investopedia.com/terms/d/dark-wallet.asp).

Another method that increases anonymity, offers ease of transportation and transfer despite the risk of theft, loss of passwords and hacking, and which has important risky usage gaps in terms of money laundering and financing of terrorism is Cold Storage technology. Also called hardware wallet and offline wallet. Compared to online wallets, it is more resistant to cyber-attacks. Most hot wallets are free, while cold wallets cost between $50-100. Brokers and exchanges usually keep their cryptocurrencies in a cold wallet. In addition to password prevention, it has the feature of signing with a private key. When connecting to an online server with a cold wallet, the hacker cannot access his private key even if he encounters this transaction. This is another aspect that makes cold wallets costly. Cold wallets are a physical

device similar to a USB device. It signs all transactions with its private key. Cryptocurrencies in the wallet are only managed by the owner of the device and its private key (password) (https://cryptotips.eu/en/knowledge-base/what-is-a-cold-wallet/).

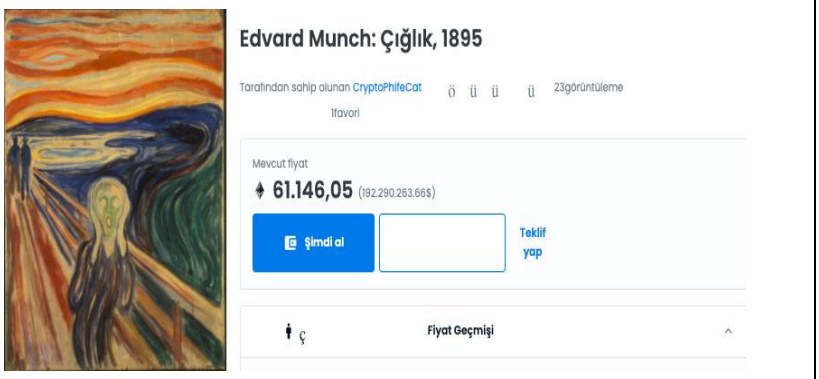
Due to their inconspicuous physical structure, these devices can be stored, shipped by cargo, and transported internationally by air without attracting attention. Due to the difficult and unobtrusive physical nature of its possession, it creates security gaps in the use of goods and services resulting from crime, money laundering or to finance a terrorist organization.

NFT (non-fongible token) – This word, which means Immutable Token, describes a unique and unchangeable asset, unlike a standard coin on a Bitcoin blockchain, although it has the characteristics of some type of cryptocurrency such as Bitcoin or Ethereum. NFTs come in many varieties, from digital artwork to a music file. Anything unique that is considered to have recorded value on the network that can be stored digitally can be sold on NFT exchanges. It can essentially be thought of as a physical collector's item, but here instead of a canvas hung on the wall, for example, a JPEG (Joint Photographic Experts Group - digital extension of the painting) file is taken. They can be traded just like any other form of art, and as with physical art, its value is largely determined by market volume and demand. Copies of these digital items are publicly available. But the downloaded NFT is a non-networked copy. As NFTs are uniquely and non-replicably registered on blockchains, copyright is tracked on that chain. For example, while the first tweet sent by Twitter's founder J.Dorsey in 2006, "I'm just setting up my twttr", can be seen and imitated by anyone with internet access in the world, these words have taken the form of a unique possibility with the emergence of NFT technology connected to the blockchain and this tweet was sold for 1,630.58 Ethereum (ETH) worth 2.9 million (https://www.mrllp.com/blog).

There are some steps to follow to create an NFT. First of all, you need to have a virtual wallet supported by NFT platforms, and in order to start the design (create) process, there must be a specified amount of crypto currency supported by the exchange in this wallet. Afterwards, you become a member of NFT platforms and the folder (MP3, JPEG, GIF, etc.) to be converted to NFT is uploaded to the system. Then, the commission fees information form is approved electronically and a price is determined for the work. The sale is made by bidding and the highest bidder buys the work (https://www.creativebloq.com/how-to/make-and-sell-an-NFT).

Another thing to know about NFT is that it has a secondary market and as of the beginning of 2020, this market has reached a very large volume. The chart below displays the 30-day number of users and transactions and the trading volume of the site named “OpenSea”, which is one of the largest NFT markets (see Figure 3).

Figure 3. 30 day Chart of the Site, https://opensea.io/
Source: https://dappradar.com/ethereum/marketplaces/opensea



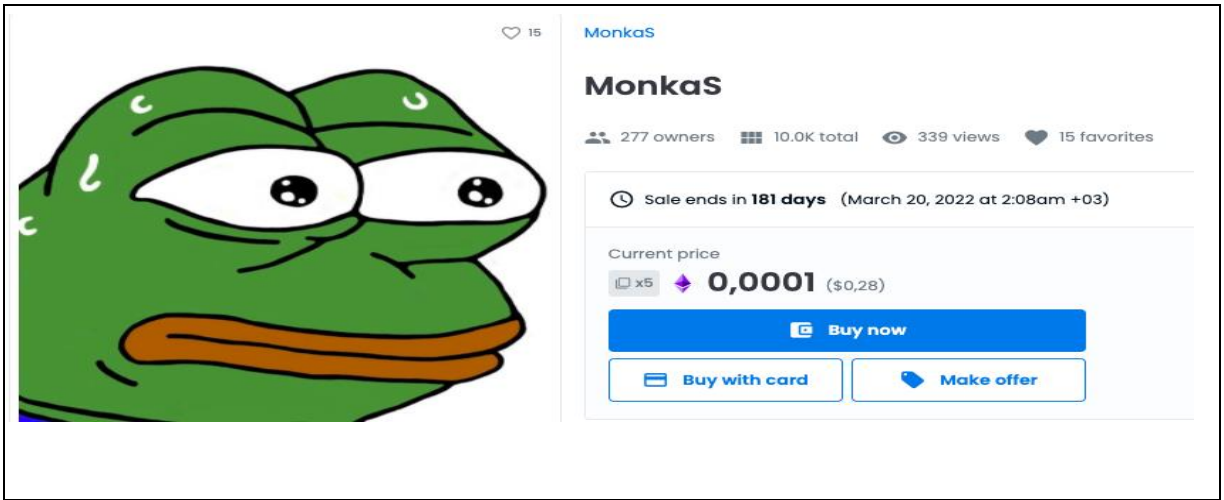
The owner of this work named 'The Scream', made by the artist Edvard Munch, which is a unique and unique work registered on the Ethereum network on the OpenSea site, is seen as the user named CryptoPhifeCat on the platform where it was uploaded. Value It was entered as 61,146.05 ETH, that is, $ 192,290,263.66.

Figure 4. NFT JPEG Example

Source:
https://opensea.io/assets/0x495f947276749ce646f68ac8c248420045cb7b5e/87586561765939108091921742894997886212485130165162723984897004372667559575553

As not all NFT Platforms are yet regulated by a regime, most of these platforms do not implement authentication procedures. This is just one of the ways in which an anonymous person or organization can purchase an NFT at high prices in exchange for a criminal good and service, and then sell it for a smaller amount, thereby reducing the tax burden. In parallel with this, the owner of the work is seen as a user due to the lack of identification in the NFT (see Figure 4 and 5).

The fact that there is a lot of forgery in physical art and the existence of a large and secret market have made such platforms popular lately. So far, there is no recorded case of the use of NFT in terms of money laundering and terrorist financing. Still, experts think that this area will attract the attention of the criminal world sooner or later. It is thought that these platforms carry a greater risk of money laundering and financing of terrorism than the physical art world, due to their deficiencies in security procedures, low taxation, lack of an effective control mechanism yet, no restrictions on pricing, and being traded in the secondary market.



• If we examine the price change of the NFT named “Monkas”, which is on the NFT Platform named OpenSea, whose current value is 0.0001 ETH, that is, $0.28, after a few transactions, the first price in 6 months is 0, from the price level of 420.69 ETH, that is, $1.286.423,74. It went down to the price level of $28.

Figure 5. NFT Transaction Example

Source:
https://opensea.io/assets/matic/0x2953399124f0cbb46d2cbacd8a89cf0599974963/31829071364963484048699576208222794119262271860484188012863400956751012439824

Because of their artistic nature, NFTs have a very subjective value. Essentially, the price of an NFT is determined by how much one is willing to pay for it, and unlike traditional artworks where an artist can spend weeks on a single piece, a few NFTs can be created in minutes. It is difficult to argue that the given example is the subject of money laundering or terrorist financing. However, such a price change, which is not in any market, is suspicious. It is assumed that money laundering may be easier as it is tied to a decentralized currency and is not a physical work of art that requires transportation and storage in offshore tax haven warehouses. Also, buying an NFT with illegal funds is seen as a practical way to evade taxes and relocate money, while giving the appearance of using the money for a legitimate purchase of art.

4. CONCLUSION

In our country, there is no system that recognizes and approves crypto money platforms, and there is no rule that prohibits it. The only exception is the prohibition of the use of cryptocurrencies as a direct and indirect means of payment. However, considering the number and volume of cryptocurrency transactions at this point, it is clear that a limited number of measures cannot compete with a world of unlimited opportunities and imagination. In these platforms, as well as investors, there are launderers whose main purpose is not to make a profit, and terrorist organizations that seek support even if they do not gain militants, aiming to spread their ideology and be recognized. For this reason, it is clear that a determination based only on the transaction volume will be insufficient. However, paying a fortune to a digital picture that can't stay on the wall, to a sound recording or a username just because it's unique and unique on a blockchain when the internet possibilities are so advanced will continue to be suspicious for many people in the world for a while.

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8. https://cryptotips.eu/en/knowledge-base/what-is-a-cold-wallet/
9. https://dappradar.com/ethereum/marketplaces/opensea
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13. https://tr.wikipedia.org/wiki/Elektronik_para
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18. https://www.btcturk.com/bilgi-platformu/proof-of-work-is-kaniti-nedir-nasil-calisir/
19. https://www.btcturk.com/bilgi-platformu/quiz/kriptopara-madenciligi-mining-nedir/
20. https://www.creativebloq.com/how-to/make-and-sell-an-NFT
21. https://www.fatf-gafi.org/media/fatf/documents/reports/Virtual-currency-key-definitions-and-potential-aml-cft-risks.pdf
22. http://www.fatf-gafi.org/media/fatf/documents/COVID-19-AML-CFT.pdf
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