

## Analysis on Underlying Cryptocurrency Assets as Investment Instruments (A Case Study of Bitcoin, Ethereum, Tether and USDC)

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### **Abstract:**

Cryptocurrencies experienced a huge surge whose value reached more than US \$ 191 million or Rp. 2.7 trillion. Interestingly, almost all types of cryptocurrencies do not have an underlying asset as a common underlying asset in ordinary investments. Bitcoin and Ethereum claims that its underlying asset is the coin miner charges from the amount of hardware and electricity used in the transaction. Tether and USDC claim that their underlying assets are in US dollars. This article examines Islamic law regarding the underlying assets in the form of coin mining fees and US Dollars. The questions that arise are, how is the study of Islamic law regarding the underlying asset in the form of coin mining fees and US Dollars? Furthermore, the ideal pattern of a cryptocurrency scheme that includes assets in the form of tangible goods refers to *manafiul a'yan*? This research uses the gate of legal philosophy approach, looks at the business scheme in terms of values and principles and then provides legal conclusions based on that assessment. From the research conducted, first, the underlying asset of coin mining costs cannot be said to be an underlying asset that is truly economically useful for coin owners, except for the technology access costs which are clearly experienced by all technologies. Second, the underlying asset in the form of US Dollars has clearer benefits, but this is contrary to Islamic law. Third, for the underlying asset in the form of tangible goods, ownership must always be included in every coin purchased.

### **Keywords:**

Cryptocurrency; Investment; Underlying Asset



## **Introduction**

Since the era of the 70s, the forerunner of cryptography began to form for the sake of communication security. Its emergence is driving progressive progress towards the digital age that has increased the needs of individuals, security and privacy including in the case of electronic payments <sup>1</sup>. At first, the problem of controlling transaction security was dominated by the government alone, for cryptography activists, this needs to be drawn into the realm of the wider community independently <sup>2</sup>.

Over time, cryptographic technology is increasingly developing. In 1983, David Chaum <sup>3</sup> developed a cryptographic system known as eCash, a payment system using blind signatures that separates user identities. This development aims to increase the privacy of security services in electronic payments more than those offered by banks <sup>4</sup>.

The development of cryptography continued until 2008, a programmer who introduced himself as Satoshi Nakamoto had rolled out the idea of a digital currency, then he launched the idea in the form of the Bitcoin network <sup>5</sup>. The open source features on which the Nakamoto project is based allow the participation of many developers to contribute to the practice of Bitcoin <sup>6</sup>.

From 2009 to 2016, Cryptocurrencies developed into many types. Commodity Futures Trading Regulatory Agency Regulation No. 11 of 2022 states that as many as 383 types of crypto assets are licensed for trading on the physical crypto asset market. The most traded crypto commodities by the digital market are bitcoin, coinbase, ethereum, usdt and various other crypto coins<sup>7</sup>.

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<sup>1</sup> Goldman Sachs Asia L L C, "Overview of Digital Assets and Blockchain," no. November (2021); Alexander Lipton et al., "From Tether to Libra : Stablecoins , Digital Currency and the Future of Money," no. May (2020).

<sup>2</sup> Sheng Chiong Hong, "History and Evolution of the Ophthalmoscope," 2018; Pablo Hernández De Cos, "Crypto- Assets : A Financial Authority ' s View Masters in Finance Closing of the Speakers Series , ESADE," 2022.

<sup>3</sup> Peter J Bush, "Cryptocurrencies," 2022.

<sup>4</sup> Hong, "History and Evolution of the Ophthalmoscope."

<sup>5</sup> Chris Rose, "The Evolution Of Digital Currencies: Bitcoin, A Cryptocurrency Causing A Monetary Revolution," *International Business & Economics Research Journal (IBER)* 14, no. 4 (2015): 617, <https://doi.org/10.19030/iber.v14i4.9353>.

<sup>6</sup> Florian Glaser, "BITCOIN - ASSET OR CURRENCY ? REVEALING USERS ' HIDDEN INTENTIONS," no. January (2014); Hong, "History and Evolution of the Ophthalmoscope."

<sup>7</sup> Bush, "Cryptocurrencies."

Since 2016 until now crypto has become one of the attractions for investment that is quite in demand by the public today. According to Aspakrindo's calculations, the estimated number of people investing in the crypto sector in Indonesia until the end of 2021 is 10 million <sup>8</sup>.

After the Government of Indonesia issued CoFTRA Regulation No. 7 of 2020, the growth of crypto assets in Indonesia has become a way of developing. Crypto trading on futures exchanges is becoming more massive than ever <sup>9</sup>. It is recorded that the daily trading value of crypto assets in Indonesia grows eight times or 754% in 2021, the value reaches more than US \$ 191 million or Rp. 2.7 trillion. Data obtained as of February 2022, registered crypto market customers have exceeded 12.4 million or an increase of 532,102 every month. According to a report compiled by Bappeti, the value of crypto transactions reached IDR 83.8 trillion <sup>10</sup>.

In the midst of the development of the value of crypto transactions in Indonesia, the legal discourse on the use of crypto has not yet reached a meeting point. The problem is, the legality of crypto as digital money and the assets that underlie crypto cannot be clearly identified from a legal perspective, especially Islamic law. Almost all types of cryptocurrencies do not have an underlying asset as a common underlying asset in ordinary investments.

Bitcoin and Ethereum claim that their underlying asset is the coin miner costs of the amount of hardware and electricity used in the transaction <sup>11</sup>. USDT and USD Coin claim their assets are based on US Dollars <sup>12</sup>, while other cryptocurrencies do not yet have a clear underlying asset.

Given the legality of crypto to date, crypto is a traded commodity (not virtual currency), while the underlying asset is

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<sup>8</sup> Indeks Nasdaq, "DI TENGAH KETERBATASAN RUANG GERAK Oleh: Tim Riset Stabilitas LPPi Lembaga Pengembangan Perbankan Indonesia," 2021, 1–5.

<sup>9</sup> Bappebti, "Peraturan Badan Pengawas Perdagangan Berjangka Komoditi Nomor 7 Tahun 2020," Bappebti § (2020).

<sup>10</sup> Lona Olavia and Nabil Al Faruq, "Transaksi Aset Kripto Diprediksi Tumbuh 8%," 2022.

<sup>11</sup> Macro-financial Drivers and Erik Feyen, "Crypto-Assets Activity around the World," no. March (2022); Glaser, "BITCOIN - ASSET OR CURRENCY? REVEALING USERS' HIDDEN INTENTIONS."

<sup>12</sup> Angelos Delivorias, "Stablecoins Private-Sector Quest for Cryptostability," [europarl.europa.eu](http://europarl.europa.eu), 2021.

generally in the form of tangible goods (buildings, land, or water), in the form of benefits (services or uses) or in the form of business activities that generate income profit. One of the fundamental elements of an investment underlying asset is that it has a useful value (*manafiul a'yan*), which in turn triggers further investigation into the underlying crypto asset.

Some of the questions that arise are, how is the study of Islamic law regarding the underlying assets in the form of coin mining fees and US Dollars? Furthermore, the ideal pattern of a cryptocurrency scheme that includes assets in the form of tangible goods refers to *manafiul a'yan*?

### **Method**

This study uses a legal philosophy approach, which intends to look at the business scheme in terms of values and principles, then provide legal conclusions based on that assessment. The first step is to dissect the cryptocurrency transaction model. Second, track the assets underlying the cryptocurrency from Bitcoin, Ethereum, USDT and USDC. Third, the search results will look in accordance with the ideal concept of investment assets that refers to *manafiul a'yan*.

The theory used is the concept of basic assets in sharia investment called *manafiul a'yan* and sharia investment provisions in virtual goods. The analysis will conclude that the underlying assets of the four best-selling cryptocurrencies meet the criteria or not. In addition, it can provide an ideal pattern of crypto assets that are acceptable in Islamic investments.

### **Crypto Transactions**

Cryptocurrency is a digital asset designed as a medium of exchange with a working system using cryptography to secure transactions and to control the creation of additional units of currency<sup>13</sup>. Cryptocurrency is here to be offered as a currency in the category as part of a digital currency or virtual currency<sup>14</sup>

The transaction system uses a peer to peer scheme, in other words, it does not require an intermediary as a third party such as a

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<sup>13</sup> Hassan Sarhan, "Crypto-Assets : An Overview Crypto-Assets : An Overview," no. June (2020), <https://doi.org/10.13140/RG.2.2.20551.73120>.

<sup>14</sup> Alexander Okhuuse Victor, "INTRODUCING CRYPTOCURRENCY READS Capital , Schemas Group," no. October (2016): 11–12.

particular bank or institution. When one party transacts with a second party, management and processes can run independently. Faster and cross-country coin transfer <sup>15</sup>.

Cryptocurrency technology works based on a specially created encryption algorithm and is used to validate and verify transactions. The encryption process is used to strengthen the security of cryptocurrency digital coin transactions <sup>16</sup>. Some cryptocurrencies that are currently in high demand are Bitcoin (BTC), Ethereum (ETH), Tether (USDT), USD Coin (USDC) and BNB. <sup>17</sup>.

Of all the cryptocurrencies, Bitcoin is one of the most widely recognized. Bitcoin introduces a technology called Blockchain, a technology designed to evolve with the concept of world transactions without intermediaries (Ilmiah & Islam, 2021, p. 2). Blockchain acts as a system for recording the value and transaction of coins from Bitcoin which more or less describes distributed ledger technology <sup>18</sup>.

Blockchain is like a large notebook that provides a database, but is not controlled by a single institution. Distributed blockchain database decentralized to everyone who owns Bitcoin, so they get access to records <sup>19</sup>. Blockchain technology allows anyone to join or leave the network at any time, without having to wait for approval from any entity <sup>20</sup>.

In the initial stage, the blockchain database will be started by one of the members (network nodes), which creates a new "block" of data, which contains all kinds of information. Next, the new block is broadcast to each party on the network in an encrypted form (taking advantage of cryptography) so that transaction details are not published <sup>21</sup>.

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<sup>15</sup> Jurnal Ilmiah and Ekonomi Islam, "Melirik Dinamika Cryptocurrency Dengan Pendekatan Ushul Fiqih" 7, no. 03 (2021): 1682–88.

<sup>16</sup> OECD, "Crypto-Asset Reporting Framework and Amendments to the Common Reporting Standard," 2022; Delivorias, "Stablecoins Private-Sector Quest for Cryptostability."

<sup>17</sup> id.investing.com, "Mata Uang Crypto," 2022.

<sup>18</sup> Jean-Paul Delahaye, "Cryptocurrencies and Blockchains," *Inference: International Review of Science* 2, no. 4 (2016), <https://doi.org/10.37282/991819.16.38>.

<sup>19</sup> M.Si. Dra. Nandiyah Abdullah, *Uang Masa Depan, Kekerasan Terhadap Anak "BOM Waktu" Masa Depan*, 2022.

<sup>20</sup> Delahaye, "Cryptocurrencies and Blockchains."

<sup>21</sup> Steven Dryall, "Cryptocurrencies and Blockchain," in *The WealthTech Book*, 2018, 158–61, <https://doi.org/10.1002/9781119444510.ch38>; Mariell Landaas Sunde, "Bitcoin – a Currency or an Asset?," 2019.

The blockchain working system allows transaction information to be monitored by multiple users and transactions can be carried out independently of a single authority<sup>22</sup> However, there is a term miner who performs mining activities, the miner's job is to verify and record a transaction. Miners who successfully validate transaction activity for the first time will get a number of new cryptocurrencies as a reward<sup>23</sup>.

Understanding the working system of cryptocurrencies in transactions and the process of issuing new coins as above, it can be understood that the process of doubling crypto money from time to time is based on digital technology. So what the investment world knows as an underlying asset becomes unclear in cryptocurrency practice.

In general, investments are divided into two, namely tangible assets and financial assets. Tangible assets can be land, property, buildings or gold. Financial assets can be in the form of deposits, stocks, bonds or mutual funds<sup>24</sup>. The most famous discussion of investment in financial assets is securities, besides that securities are also commonly traded in the capital market<sup>25</sup>.

The strongest characteristic of Islamic economics is the process of struggle between the financial sector and the real economic sector, guided by the fact that the function of money in Islamic finance is as a medium of exchange, not as a commodity. Continuing this understanding, the Islamic economic system stipulates that every economic transaction must be based on clear and measurable real assets. In another discussion, every transaction must be protected from the elements of *maysir*, *usury* and *gharar*<sup>26</sup>. The same applies to Islamic investments, securities issued must have tangible assets that back them up<sup>27</sup>.

Securities in the Islamic economic system require the existence of real assets that are the basis for the issuance transaction, so that these securities are proof of ownership of these assets. The asset on

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<sup>22</sup> Maria Demertzis, Guntram B Wolff, and Maria Demertzis, "The Economic Potential and Risks of Crypto Assets : Is a Regulatory Framework Needed ? Executive Summary," no. September (2018).

<sup>23</sup> Dryall, "Cryptocurrencies and Blockchain."

<sup>24</sup> BPKH, *Investasi Surat Berharga BPKH* (BPKH, 2020).

<sup>25</sup> Desintya fryda Lucyani, *Investasi Syariah*, vol. 10 (Universitas Jember, 2019).

<sup>26</sup> BPKH, *Investasi Surat Berharga BPKH*.

<sup>27</sup> Lucyani, *Investasi Syariah*.

which the issue is based is hereinafter referred to as the underlying asset. Without underlying assets, securities issued will only be debt instruments<sup>28</sup>.

The underlying asset position becomes important as the main basis for securities issuance transactions. Some of the underlying asset functions are as follows:<sup>29</sup>:

1. As a basis for transactions and compliance with sharia principles so that investments are avoided from money to money transactions and tend to be usurious;
2. As the basis for the issuance of securities and transfer of ownership of the value of assets;
3. In accordance with the basic characteristics of the Islamic financial system, where transactions are carried out in the real sector, so as to create added economic value and benefits for the community.

If cryptocurrency is used as an investment product, the underlying asset should be one of the parts under investigation. Without the underlying assets of cryptocurrency coins, the basis of transactions, the basis of issuance and the characteristics of the Islamic financial system in the cryptocurrency business are not in accordance with the provisions of Islamic investment.

Underlying assets in sharia investment have the following provisions<sup>30</sup>:

1. Has benefits or can be utilized (*manafiul a'yan*);
2. Must be free from things that are prohibited;
3. Free from burdens/ dependents or not guaranteed;
4. Known clearly the specifications or descriptions, locations and others.

Following the guidelines for Islamic investment underlying asset requirements above, underlying assets that have been claimed by each cryptocurrency need to be further investigated for compliance. Especially regarding what is meant by *manafiul a'yan*, as a follow-up step to respond to clarification from cryptocurrency developers. If the underlying asset claimed by each cryptocurrency meets the requirements, it means that the doubts about the clarity of the crypto coin are clear.

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<sup>28</sup> BPKH, *Investasi Surat Berharga BPKH*.

<sup>29</sup> BPKH.

<sup>30</sup> BPKH.

## **Analysis Of Underlying Cryptocurrency Assets**

As is known, the cryptocurrency working system uses Blockchain as a large notebook that provides a database. In the search that has been carried out, several cryptocurrencies claim that their products have underlying assets.

### **1. Bitcoin**

Bitcoin is one of the most popular cryptocurrencies, as well as a pioneer in blockchain technology. The Bitcoin transaction method is carried out peer to peer, the steps of the Blockchain system are as follows. (1) Each new transaction will be published by the node on a peer-to-peer basis; (2) All new transactions will be combined into one block; (3) All nodes will validate transactions for their blocks. At this stage the work becomes more difficult; (4) When successfully validating a transaction or finding a proof of work, the block will be broadcast to all nodes; (5) The node receives validation evidence that indeed bitcoin has not been used. This stage ensures that there will be no double spending in bitcoin transactions; (6) Node declares block acceptance and then creates new block<sup>31</sup>.

For anyone who manages to validate the first time by solving complex algorithmic formulas, then that party gets some bitcoins. Bitcoins sent to those that have been successfully validated are new bitcoins, not old coin shares. Based on that process, bitcoin claims that the hardware, software, and electricity used in bitcoin transactions and issuance are bitcoin's underlying assets. The mining process requires fast hardware and a lot of electricity.

### **2. Ethereum**

Ethereum is the second most popular cryptocurrency used by the public after bitcoin. The system works similar to bitcoin, which uses blockchain technology and peer to peer transactions. However, innovations in the use of ethereum have undergone changes, including ETH has been used as a means of payment in the OpenSea market<sup>32</sup>.

In principle, ETH technology is the same as bitcoin, the things that are most likely to be considered as underlying assets

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<sup>31</sup> Achmad Dwi Afriyadi, "Ini Lho Yang Bikin Harga Bitcoin Itu Mahal Banget," detikFinance, 2021.

<sup>32</sup> Afriyadi.



are hardware, software and electricity. Although in its development, ETH has become the only payment instrument from the NFT market in OpenSea which is a virtual product trading market.

### 3. USDT

USDT is a cryptocurrency whose price is often linked to the US Dollar exchange rate. USDT price fluctuations are not far from the US Dollar exchange rate. The belief of cryptocurrency market users that USDT is supported by the US Dollar drives the USDT price to tend to be stable<sup>33</sup>.

Based on this, many believe that the underlying asset of USDT is the US Dollar. In other words, USDT is virtual money based solely on US Dollars. At this point, it is understandable that USDT assets are nothing but money to money.

### 4. USDC

USDC has similarities to USDT, its value is also associated with the price of the US Dollar. Price susceptibility from rising to falling will be closely related to the price of the US Dollar. Some cryptocurrency users also believe that USDC is more stable than other cryptocurrencies<sup>34</sup>.

Understanding the scheme, USDC underlying assets are valued in US Dollars. Having similarities with USDT, USDC has the same business scheme, namely money to money. USDC virtual currency based on US Dollar.

Bitcoin and Ethereum claim the software and hardware used to mine coins on blockchain technology is the underlying asset of every coin. Tether (USDT) and USD Coin claim that each coin is based on US Dollars, so price fluctuations per coin are not far from the US Dollar exchange rate.

Armed with the results of the research above, bitcoin and ethereum types of cryptocurrencies still have the opportunity to be classified as cryptocurrencies that have economic value and have clear specifications. As is known, the cost of hardware, software and electricity used in the process of mining new coins has an economic value and the specifications can be explained.

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<sup>33</sup> Achmad Jatnika, "Mengenai Aset Kripto United States Dollar Tether (USDT)," *Kontan.Co.Id*, 2021.

<sup>34</sup> Jatnika.

In addition, claims that Bitcoin and Ethereum have an underlying asset in the form of technology and the fees for using the technology are also free from money-to-money schemes. However, the problem is the value of the benefits or economic value that can be used by the general public so that it is not clear what coins are worthy of respect. Given that in general, any underlying asset is something that can be enjoyed by the owner of the investment.

Both the hardware, software, and electricity costs that Bitcoin and Ethereum claim as underlying assets make more sense as technology capital costs, so the owner or buyer of the coin does not benefit from the technology fee once the coin is issued. In fact, generally investment assets are always accompanied by the benefits of the underlying assets. Ownership of assets is also accompanied by ownership of the benefits of the underlying asset.

For example, investing in shares of a gold selling company, the underlying asset is gold and the company clearly has economic value and value that can be utilized by the owner, even after the shares have changed ownership. The general public can take advantage of the use of gold as jewelry as well as run companies that provide benefits to the community in terms of economic activities.

As is known, *manfaatul a'yan* for underlying assets is very important, the intended benefit is as in the explanation of the Qur'an about assets that can be used as jewelry (QS Ali Imran; 14) and needs (QS al-Dhuha; 8). If the underlying asset cannot be utilized, at least in both cases, then the underlying asset claim does not meet the Islamic investment criteria.

The relationship with USDT and USDC is still stuck with the money-to-money scheme because the underlying assets of the two cryptocurrencies are US Dollars. This is a concern of the Islamic economic system regarding investment. At this stage, USDT and USDC, which most cryptocurrency investors consider to be stable investments, have become blunders.

Sharia investment criteria fell because of the money to money scheme, besides that the only strong foundation of USDT and USDC is from the public's belief that they are backed by the US dollar, without that trust, this type of cryptocurrency is actually as vulnerable as other cryptocurrencies that do not yet have clear assets. base it.

Ideally in Islamic investing, the underlying asset should be listed on every cryptocurrency coin purchased. The process of buying and selling or transferring ownership of cryptocurrency coins is also accompanied by the process of transferring benefit rights or economic rights from the assets underlying the cryptocurrency.

### **Conclusion**

From the research conducted, firstly, the claim of Bitcoin and Ethereum to have an underlying asset in the form of technology usage fees cannot be said to be an underlying asset that has value to the coin owner, it is more reasonable to say that it is a technology access cost that is clearly borne by all technologies.

Second, the underlying assets of USDT and USDC in the form of US Dollars have clearer benefits, but this is contrary to Islamic law, because this is money to money. Third, the underlying asset should ideally be ownership which should always be included in every coin purchased.

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