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THE IMPACT OF CRYPTO-ASSET UTILISATION AS PAYMENT INSTRUMENT TOWARD THE RUPIAH AS LEGAL TENDER IN INDONESIA

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Abstract

The utilisation of Cryptocurrency increased across the globe. This phenomenon has led to varied responses from countries concerning whether this new phenomenon will affect the national monetary policy. As one of the countries where Cryptocurrency usage has flourished, Indonesia has reacted to its utilisation. To this day, Indonesia has clearly stated that Crypto-Asset (referring to Cryptocurrency) is considered as a tradable commodity, but not as a payment instrument. However, this policy does have not decreased the utilisation of Cryptocurrency in Indonesia, proven by its market capitalisation which has kept increasing over the years. This article thoroughly discusses Cryptocurrency utilisation as a payment instrument, and how it will affect the legal tender (The Rupiah) in Indonesia. This article also analyses the extent to which Cryptocurrency will affect the payment systems in Indonesia and how Bank Indonesia, Indonesian monetary authority, will counter the Cryptocurrency's utilisation as a payment instrument within Indonesia's jurisdiction.

Keywords: *Crypto-Asset, Cryptocurrency, Legal Tender, Monetary Policy, Payment Instrument.*

I. INTRODUCTION

Cryptocurrency has grown rapidly because it has accompanied recent technological advances. Cryptocurrency became very popular when it started to have better and faster versions of its wallet and transfer applications than previous generations. However, Cryptocurrency is still seen controversial for some people. The various types of Cryptocurrencies that exist in worldwide have gained interest from investors. In fact, data shows that Bitcoin, one of the most popular types of Cryptocurrencies, has a market capitalisation of over US$1 billion with a significant increase each day. It absolutely can have a major impact on the capacity of various countries' governments to provide oversight of all aspects, both legal and economic.

This phenomenon of rapidly growing Cryptocurrency has led to varied responses from countries. Some of them have been bold enough to react unusually to Cryptocurrency. For example, El Salvador, has become the first country to adopt Bitcoin as its legal tender alongside the US Dollar. One of the reasons for this decision was because this country has many cross-border and fast transactions. El Salvador believes that Bitcoin will be able to cut expensive transfer fees between countries. This advantage may seem huge and significant, but it should be noted that not all countries are able to follow what El Salvador is doing. Adoption of a Cryptocurrency as legal tender requires extraordinary consideration. There are some advantages and disadvantages in making Cryptocurrency as legal tender, especially due to its highly volatile valuation.

In sharp contrast to what El Salvador has done did, Indonesia has decided to not allow Cryptocurrency's utilisation as a payment instrument. There are two reasons behind this decision. First, the legal framework of currency in Indonesia does not allow any of any currency other than the Rupiah to be utilised as a payment instrument. Second, Indonesia predicts that using Cryptocurrency as a payment instrument would lead to an increase in financial crime. Related to these reasons, Indonesia has chosen to develop its own digital currency, which will be managed by Central Bank (Central Bank Digital Currency/the "**CBDC**"). The main purpose of CBDC is to adopt some of the concepts and technologies of Cryptocurrency without bringing its negative traits. Since Indonesia is currently still at the research stage of developing CBDC, its impact and implementation remained to be seen.

Several countries in Europe made an earlier decision of considering Cryptocurrency as a payment instrument. However, the implementation of this policy still causes debate because it has the potential to increase financial stability and increase risks faced by banks. Unlike in European countries, Cryptocurrency in Indonesia is only recognised as an investment asset or commodity that can be traded on the futures exchange, referred to as a Crypto-Asset. In its current legal status, Crypto-Asset transactions and trades in Indonesia are directly supervised by the Ministry of Trade ("**MOT**") and Indonesia's Commodity Futures Trading Supervisory Body (*Badan Pengawas Perdagangan Berjangka Komoditi*/"**BAPPEBTI**"). Earlier in 2020, BAPPEBTI determined 229 types of Crypto-Assets which can be traded in the physical Crypto-Asset market in Indonesia by the 13 Crypto-Asset merchants, which have been authorised and have received registration certificates from BAPPEBTI.

In writing this paper, several treatises were used as primary references to provide information and expert opinions. Hassan Sarhan provides comprehensive information and description of Cryptocurrency, and its

supporting technologies such as Blockchain and Distributed Ledgers. His paper also analyses the working method of Cryptocurrency, and other related matters around the topics of Cryptocurrency.[1] Moritz Holtmeier and Philipp Sandner analyse the impact of Cryptocurrency on developing countries. Their paper explains the general advantages and disadvantages of Cryptocurrency, its highly volatile value, and its development opportunity in developing countries. This paper analyses the correlation between Cryptocurrency's inclusive usage and the rate of internet penetration in every region in the world. This paper also analyses how well Cryptocurrency works as a payment instrument, through its fulfilment of the three main functions of money as interpreted by Nicholas Gregory Mankiw in his book, "Macroeconomics."[2] Another reference paper jointly published by the UNDP and UNCDF provides information and a comprehensive description, development and working method of CBDC. This technical paper also comprehensively explains the two types of CBDC and the differences between them.[3]

This paper aims to apprehend what Cryptocurrency is and how it is interpreted globally and particularly in Indonesia. In its very name, which contains word "currency," signifies that its original function is as a payment instrument. However, several considerations have led countries to consider it as tradable commodity instead. This paper will also analyse how well Cryptocurrency works as a payment instrument, and why some countries have decided not to authorise its use as such. This paper will find the correlation between the existence of Cryptocurrency and the development of CBDC, which is becoming a global idea as many countries have started to develop their own digital currencies instead of using Cryptocurrency. This paper is written addressing three main problems: (1) The development of Cryptocurrency as payment instrument globally and in Indonesia; (2) What is the impact if Cryptocurrency if deemed a legal payment instrument in Indonesia?; and (3) What should be the response of the Bank Indonesia toward the idea of legalising Cryptocurrency as payment instrument in Indonesia?

The result and analysis of this paper attempts to answer these three questions through a qualitative and quantitative research approach. A qualitative approach is used in conducting research toward non-numerical data, while a quantitative approach is used in conducting research toward numerical data. By answering the main problems above, the writer hopes this paper will bring

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[1] Hassan Sarhan, *Crypto-Assets: An Overview*, 2020, https://doi.org/10.13140/RG.2.2.20551.73120.

[2] Moritz Holtmeier and Phillip Sandner, "The Impact of Crypto Currencies on Developing Countries," *Frankfurt School Blockchain Center Working Paper*, 2019, http://explore-ip.com/2019_The-Impact-of-Crypto-Currencies-on-Developing-Countries.pdf.

[3] Katherine Foster et al., "Digital Currencies and CBDC Impacts on Least Developed Countries (LDCs)," *DIalogue on Global Digital FInance Governance*, 2021, https://doi.org/10.2139/ssrn.3871301.

essential information and result in research concerning how optimal is the idea of using Cryptocurrency as legal payment instrument in Indonesia, and if not, identify a better alternative provided by government to counter its usage in Indonesia's jurisdiction.

This paper uses a normative research method. In writing this paper, the writer primarily forms an opinion based on related and applicable regulations, books, and other journal articles. Other references are also being used as secondary reference, which comprises of (a) working papers and reports, (b) internet websites, and (c) other references (presentations). This paper uses data from several references, as a medium to describe ideas in a clearer way. Among this, data are in the form of charts, tables, schematics, and pictures. This paper includes information concerning Cryptocurrency, CBDC, three main functions of money according to Mankiw, table of design of CBDC, and other types of information in the form of pictures or shapes as attached in this paper.

One of the primary data sources used in this paper is the "Cryptocurrencies Market Capitalisation Chart data per November 1, 2021." This data shows Bitcoin ranked first as the Cryptocurrency with the highest market capitalisation. Below Bitcoin is Ethereum which ranked second in terms of market capitalisation. Meanwhile, other types of Cryptocurrencies have a fairly large market gap compared to Bitcoin and Ethereum.

II. PROGRESS OF CRYPTO-ASSETS GLOBALLY AND IN INDONESIA

II.A. Description of Cryptocurrency (Digital Currency)

The term 'Cryptocurrency' is derived from a combination of two words, (a) "cryptography" which means secret code, and (b) "currency." It is defined as a digital or virtual currency that is secured by cryptography which is derived from the encryption techniques used to secure the network so that transactions cannot be faked or manipulated. Cryptocurrencies are being used to transact one person to another by online.

Aside from Cryptocurrency, many countries also use the term "Crypto-Asset" to refer to the same matter. The reason why several countries have decided to use this term instead of Cryptocurrency, because of its purpose or utilisation. Indonesia uses this term since it is considered as a tradable commodity and not a payment instrument. Its function as a commodity makes the phrase "currency" irrelevant since it is not being used as payment

instrument. Other than Indonesia, countries which are using Crypto-Asset as a legal term are the United Kingdom[4] and United Arab Emirates.[5]

Cryptocurrency is a form of digital asset based on a network that is distributed across a large number of computers using algorithms and cryptography-basis technology, which are arranged algorithmically so that they can form various passwords and codes to print its currency virtually.[6] This decentralised structure allows them to exist outside the control of governments and central authorities. Many Cryptocurrencies are decentralised networks based on blockchain technology.

Cryptocurrency's existence is influenced by demand and supply. Therefore, fluctuations in its value are influenced by the holders themselves. Other than that, the holders trust the Blockchain system offered to the Cryptocurrency system from the community.[7] In general, fluctuations in value are influenced by market mechanisms. For illustration, if the volume of demand is high, but the supply decreases, then the value of the Cryptocurrency will increase.

The way Cryptocurrency works is linked to a digital, encrypted, and decentralised system. In that way, Cryptocurrency is not centrally control like conventional currencies. Thus, the entire system is controlled by Cryptocurrency users via the internet. The technology which assists users in Cryptocurrency is what is called as Blockchain Technology ("**BCT**").[8]

In a simple description, Blockchain is a network of blocks where each block contains at least three things, (a) data, (b) hash of the current block, and (c) hash of the previous block.[9] Data contained in each block depends on the type of the blockchain.[10] For example, data in Bitcoin contains the sender's and the receiver's encrypted identifiers.[11]

Hash in BCT is a value of text which is expressed as a mathematical function.[12] If there is a change in the block, it will also change the hash. The addition of a block to the network requires permission from the users

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[4] HM Revenue and Customs of United Kingdom use the term "Crypto Asset" in referring to cryptocurrency, in its self-published "Crypto assets Manual".

[5] United Arab Emirates, "The Chairman of the Authority's Board of Directors' Decision No. (23/ Chairman) of 2020 Concerning Crypto Assets Activities Regulation," 2020, https://www.sca.gov.ae/ Content/Userfiles/Assets/Documents/8004151b.pdf.

[6] F. Yudhi Priyo Amboro and Agustina Christi, "Prospek Pengaturan Cryptocurrency Sebagai Mata Uang Virtual Di Indonesia (Studi Perbandingan Hukum Jepang Dan Singapura)," *Journal of Judicial Review* 21, no. 2 (2019): 14–40, 21, https://doi.org/http://dx.doi.org/10.37253/jjr.v21i2.665.

[7] *Ibid.*, 23.

[8] Sarhan, *Crypto-Assets: An Overview*.

[9] *Ibid.*

[10] *Ibid.*

[11] *Ibid.*

[12] *Ibid.*

participating in the network. Every user participating in the network has a copy of all blocks in the network, hence it is called the distributed ledger technology ("**DLT**").[13]

DLT is a database of all transactions conducted across the network, which is not maintained or controlled by third parties.[14] 'Third parties' here refers to financial institutions or government which commonly play a part in a traditional payment system using fiat currency (traditional money). The main feature of DLT is its ability to work without any assistance from a third-party intermediary to manage the database. In other words, DLT does not need any role from a third party and will only involve the parties conducting the transaction (buyer and seller).

II.B. Types of Cryptocurrencies

The term Cryptocurrency nowadays is manifested in various forms. Despite being generally considered similar in terms of their working mechanism; each type of Cryptocurrency has its own design and unique characteristics. These characteristics resulting to the advantage that it offers to its user, which is the reason why people start to use it frequently and it is rapidly progressing into one of the most commonly used payment instruments.

Each type of Cryptocurrency has its own market capitalisation which represent how much is in circulation. The circulation is referred to the intensity of transaction using Cryptocurrency (both as tradable commodity and payment instrument).

As of 1 November 2021, there were roughly 13,379 different types of Cryptocurrency circulating in digital market.[15] On the same date, the market capitalisation of all Cryptocurrency has reached USD $2,602,952,557,993.[16] However, this market capitalisation is dominated by two types of Cryptocurrency, Bitcoin (own 44% of Cryptocurrency market capitalisation) and Ethereum (own 19.3% of Cryptocurrency market capitalisation).[17] In detail, most recent Cryptocurrencies' market capitalisation is described in the chart below:[18]

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[13] Tania H., "How the Blockchain Works," RubyGarage, accessed November 23, 2021, https://rubygarage.org/blog/how-blockchain-works.

[14] Sarhan, *Crypto-Assets: An Overview,* 6.

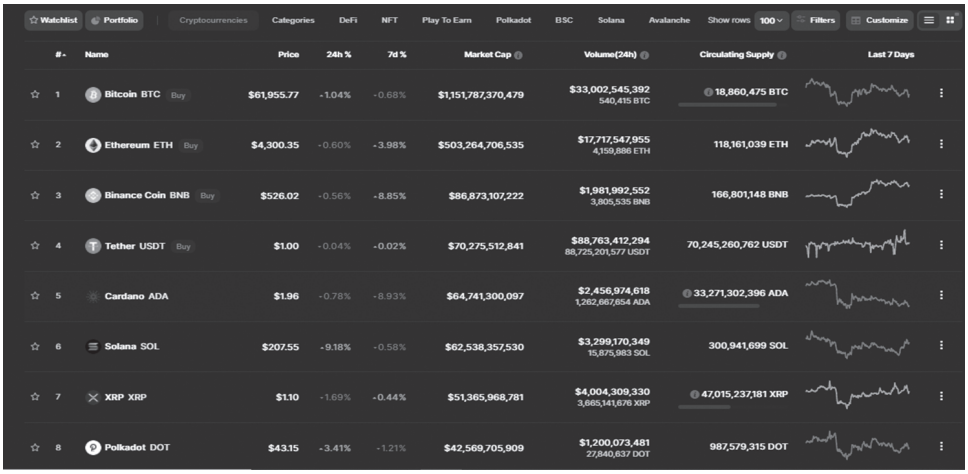
[15] "All Cryptocurrencies," CoinMarketCap, accessed November 1, 2021, https://coinmarketcap.com/all/views/all/.

[16] *Ibid.*

[17] *Ibid.*

[18] *Ibid.*

Data 1.1. Cryptocurrencies Market Capitalisation Chart – November 1, 2021



Watchlist | Portfolio | Cryptocurrencies | Categories | DeFi | NFT | Play To Earn | Polkadot | BSC | Solana | Avalanche | Show rows 100 | Filters | Customize

#	Name	Price	24h %	7d %	Market Cap	Volume(24h)	Circulating Supply	Last 7 Days
1	Bitcoin BTC Buy	$61,955.77	-1.04%	-0.68%	$1,151,787,370,479	$33,002,545,392 540,415 BTC	18,860,475 BTC	
2	Ethereum ETH Buy	$4,300.35	-0.60%	-3.98%	$503,264,706,535	$17,717,547,955 4,159,886 ETH	118,161,039 ETH	
3	Binance Coin BNB Buy	$526.02	-0.56%	-8.85%	$86,873,107,222	$1,981,992,552 3,805,535 BNB	166,801,148 BNB	
4	Tether USDT Buy	$1.00	-0.04%	-0.02%	$70,275,512,841	$88,763,412,294 88,725,201,577 USDT	70,245,260,762 USDT	
5	Cardano ADA	$1.96	-0.78%	-8.93%	$64,741,300,097	$2,456,974,618 1,262,867,654 ADA	33,271,302,396 ADA	
6	Solana SOL	$207.55	-9.18%	-0.58%	$62,538,357,530	$3,299,170,349 15,875,983 SOL	300,941,699 SOL	
7	XRP XRP	$1.10	-1.69%	-0.44%	$51,365,968,781	$4,004,309,330 3,665,141,676 XRP	47,015,237,181 XRP	
8	Polkadot DOT	$43.15	-3.41%	-1.21%	$42,569,705,909	$1,200,073,481 27,840,637 DOT	987,579,315 DOT	

From this table, it can be seen that there are two dominant Cryptocurrencies, Bitcoin and Ethereum. Both cumulatively own 60% (sixty percent) of all Cryptocurrency market capitalisation, which shows that these two are currently the most circulated and utilised Cryptocurrencies on the market, both as tradable commodities and payment instruments. Other than Bitcoin and Ethereum, there are also other types of Cryptocurrencies which have significant market capitalisation. Among the 10 (ten) biggest Cryptocurrencies based on market capitalisation as of 1 November 2021 are:[19]

1. Bitcoin (BTC)
2. Ethereum (ETH)
3. Binance Coin (BNB)
4. Tether (USDT)
5. Cardano (ADA)
6. Solana (SOL)
7. XRP (XRP)
8. Polkadot (DOT)
9. Shiba Inu (SHIB)
10. Dogecoin (DOGE)

On the other side, there is an interesting fact which shows that intensity of usage is also significantly increasing outside the above list of largest Cryptocurrencies. The highest number of transactions happening in

[19] *Ibid.*

Cryptocurrency is described in table below which shows transactions during the first and second week of September 2021.[20]

Data 1.2. Number of Daily Transaction in 11 Different Cryptocurrencies - September 13, 2021

Characteristic	Bitcoin (BTC)	Ethereum (ETH)	Chainlink (LINK)	Stellar (XLM)	Litecoin (LTC)	Dogecoin (DOGE)	DASH	Bitcoin Cash (BCH)	Monero (XMR)	Ethereum Classic (ETC)	Ripple (XRP)	Cardano (ADA)	Polkadot (DOT)
Sep 05, 2021	206,820	1,136,467	6,552	6,672,083	153,341	19,782	10,411	94,023	16,676	64,211	1,171,004	76,351	148,794
Sep 06, 2021	269,949	1,206,493	9,324	5,378,689	159,124	21,481	9,980	93,934	20,620	72,009	1,241,197	115,454	162,492
Sep 07, 2021	277,913	1,308,071	10,735	7,517,243	146,764	23,391	9,837	96,863	20,611	73,177	1,307,178	113,905	223,784
Sep 08, 2021	271,871	1,178,449	9,331	5,915,320	135,820	19,868	19,702	100,614	20,014	69,357	1,264,426	118,959	189,612
Sep 09, 2021	275,020	1,219,850	8,657	5,072,018	148,976	19,765	11,130	102,611	17,924	68,891	1,193,098	114,256	181,194
Sep 10, 2021	260,963	1,244,706	7,940	5,186,768	148,777	18,308	10,405	103,372	17,380	70,761	1,214,216	88,065	173,036
Sep 11, 2021	210,848	1,249,438	6,499	5,285,177	147,171	17,046	9,804	90,482	14,243	63,172	1,142,051	90,566	144,490
Sep 12, 2021	193,569	1,211,328	8,519	4,874,339	138,956	17,075	38,933	91,090	15,717	66,751	1,144,429	-	180,682
Sep 13, 2021	253,041	1,267,491	9,085	5,092,330	152,114	16,963	10,781	86,630	20,631	67,479	1,195,015	-	228,774

From data above, it can be concluded that Cryptocurrencies with the most transactions happening during the said period are Stellar, Ethereum and Ripple/XRP. Each of those three Cryptocurrencies has an amount of exceeding 1 million transactions from 5 – 13 September 2021. Below those three Cryptocurrencies, there are Bitcoin and others, with each Cryptocurrency having a daily transaction of below 1 million transactions during the said period of time. From this fact it can be concluded that Cryptocurrencies which are mainly involved in transactions in the current time are Stellar, Ethereum and Ripple/XRP.

II.C. The Development of the Crypto-Asset

II.C.1. The Development of Crypto-Assets Globally

The creation of Cryptocurrency developed from the desire of cryptography experts who tried to create various innovative forms of electronic money. Long before that, there was Cryptocurrency such as e-cash, digi-cash, b-money, bit-Gold which were formulated but never fully developed due to its lack of users. A cryptography expert named Satoshi Nakamoto created the first decentralised Cryptocurrency in 2008, named Bitcoin. In 2009, Cryptocurrency experienced rapid development and Bitcoin software was made available to public for the first time and mining the process though which new Bitcoins are created, and transactions are recorded and verified on BCT.

[20] "Number of Daily Transactions in Bitcoin, Ethereum and 11 Other Cryptocurrencies from September 5 – 13, 2021," statista.com, accessed November 3, 2021, https://www.statista.com/statistics/730838/number-of-daily-cryptocurrency-transactions-by-type/.

Since the creation of Bitcoin, the progress of Cryptocurrency has been huge. Its first creation in 2008 has led to another creation of Cryptocurrency, resulting in thousands of types of Cryptocurrencies which circulate in the market today. The estimated market capitalisation of Crypto-Assets reached a historical peak exceeding $800 billion in January 2017 and continues to increase to this date. While Cryptocurrency markets remains relatively small compared to the size of the global financial system, and bank's exposures to Cryptocurrency are currently limited, its absolute size is meaningful and continues to be developing rapidly, with increasing attention from a broad range of stakeholders.[21]

The European Committee ("**Committee**") is of the view that the growth of Crypto-Assets and related services have the potential to raise financial stability concerns and increase risks faced by banks. Crypto-Assets are an immature class given the lack of standardisation and constant evolution. Certain Crypto-Assets have exhibited a high degree of volatility, and present risks for banks, including liquidity risk, credit risk, market risk, operational risk (including fraud and cyber risks), money laundering and terrorist financing risk, and legal and reputational risk.

While certain types of Crypto-Assets are viewed as not reliably providing the standard function of money and can be unsafe to rely on as a medium of exchange or store of value. These types of Crypto-Assets are not legal tender and are not backed by any government or public authority. Therefore, if banks are authorised and decide to acquire Crypto-Assets and/or related services, the Committee is of the view that banks should apply a conservative, prudent treatment to such exposure, especially for high-risk Crypto-Assets.

The European Central Bank (ECB) acknowledges that Crypto-Asset speculation currently poses risks mostly with regard to money laundering/ terrorism financing, and consumer protection**.** In regard to these concerns, as well as on the broader assessment of the EU regulatory framework in light of Crypto-Asset, the ECB defers its analysis to the relevant authorities and supports their efforts as appropriate. In particular, the European Banking Authority (EBA) and the European Securities and Markets Authority (ESMA) in line with the European Commission's 2018 FinTech Action Plan, have recently published their advice to the European Union Institutions on Crypto-

[21] Basel Committee on Banking Supervision, "Designing a Prudential Treatment for Crypto- Assets," 2019, 1, https://www.bis.org/bcbs/publ/d490.pdf.

Assets.[22] As far as this paper is concerned, selected regulatory issues are covered as part of the risks assessment and gaps analysis.[23]

II.C.2. The Development of a Regulatory Framework in European Countries

The development of Cryptocurrency can best be described from its progress in European countries. As a continent with more mature financial and monetary policies, Europe was earlier in accepting and interpreting Cryptocurrency in its policies. The rapid scale of potential benefit of Crypto-Assets has driven regulators to consider how to mitigate the risks and enable meaningful innovation to thrive. Current regulatory frameworks are not equipped to harness the benefit of this new technologies. Meanwhile, the system simultaneously supports innovation and competition and mitigating risks to consumers, the financial system, and risks to banks from a safety and soundness perspective.

Financial services and products can be customised and targeted to the specific needs or functions including money. The function of money serves as a medium of exchange (i.e., currency), a store value in the form of security or asset, and as a unit of account such as credits and debits. The supporters of Crypto-Assets argue that it also fulfils these functions, and in time, they will play a greater role as they become more popular and are more widely used. However, several economic, usage, and regulatory challenges could stand in the way of Crypto-Assets becoming realistic alternatives or complements to money. The issue of whether Cryptocurrency will finally fulfil the function of money and able to be a complete payment instrument is still being questioned in many countries until now.

To be a complete payment instrument, Cryptocurrency requires adequate regulation. However, it should also be noted that political support and government perspective toward Cryptocurrency also plays big part in this issue. In other countries, the view of Cryptocurrency may not be as positive as what European countries have. Studies in most countries in Asia and Africa are somewhat divergent from the studies from European countries, leading to various responses from governments toward Cryptocurrency, including the rejection of Cryptocurrency to be utilised as payment instrument.

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[22] European Banking Authority, "EBA Report with Advice for the European Commission on Crypto-Assets," 2019, https://www.eba.europa.eu/sites/default/documents/files/documents/10180/2545547/67493daa-85a8-4429-aa91-e9a5ed880684/EBA Report on crypto assets.pdf.

[23] European Central Bank, "Crypto-Assets: Implications for Financial Stability, Monetary Policy, and Payments and Market Infrastructures ECB Crypto-Assets Task Force," *ECB Occasional Paper Series*, no. 223 (2019): 1–39, 5, https://doi.org/10.2866/162.

II.D. The Function of Crypto-Assets in Indonesia

II.D.1. Prohibited as a Payment Instrument

As of now, the Indonesian monetary authority (Bank Indonesia/"BI") has stated that Cryptocurrency is prohibited from use as payment instrument. It is stated that the only legal instrument of payment in Indonesia is the Rupiah, based on Article 1 Paragraph (1) of Law No. 7 of 2011 on Currency ("Law No. 7/2011") which stipulates: *"Currency is money issued by the Unitary State of the Republic of Indonesia, hereinafter referred to as the Rupiah."*

Beside the provision above, there are other legal bases supporting BI's statement. Among regulations which stipulate the same matters as Law No. 7/2011 are Bank Indonesia Regulation No. 23/6/PBI/2021 concerning the Payment Service Provider[24] and Bank Indonesia Regulation No. 22/23/PBI/2020 concerning Payment System.[25] Both regulations state that Payment Service Providers are prohibited from receiving and/or conducting transactions using virtual currency.

Another reason for this prohibition is that currency holds a sensitive place in the government's sovereignty. The currency used in country plays an important role in promoting the notion of national sovereignty.[26] It reflects the independence of the nation-state as a distinct unit in the global world order.[27] The presence of any unsupervised and uncontrolled payment instrument in the country could threaten the nation's sovereignty, since it will affect the circulation of the existing legal tender. As Cryptocurrency start to flourish, it will lower the usage and public circulation of the Rupiah. This phenomenon will lead to the weakening of sovereignty, as government will lose its power to control currency and payment systems. Therefore, the idea of making Cryptocurrency as a payment instrument may be a threat to a bigger issue toward the government.

However, the government especially the BI has not enacted any regulation to prevent the misuse of Cryptocurrency as a payment instrument. Therefore, any transaction which uses payment by Cryptocurrency in Indonesia may not be monitored or sanctioned since an applicable procedure is currently unavailable.

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[24] Indonesia, Bank of Indonesia Regulation No. 23/6/PBI/2021 on the Payment Service Provider, Art. 202.

[25] Indonesia, Bank of Indonesia Regulation No. 22/23/PBI/2020 on Payment System, Art. 73 (b).

[26] Yair Wallach, "Creating a Country through Currency and Stamps: State Symbols and Nation-Building in British-Ruled Palestine," *Nations and Nationalism* 17, no. 1 (2011): 129–47, 130, https://doi.org/10.1111/j.1469-8129.2010.00470.x.

[27] *Ibid.*

II.D.2. Allowed as Tradable Commodity

Fundamentally, Cryptocurrency trading activity is categorised as private activity, which only involves parties who are willing to participate. In that case, the government basically has no right to prevent or prohibit the trading activity of cryptocurrency. However, the current government has officially supported and allowed this activity.

Based on Ministry of Trade Regulation No. 99 Year 2018 on General Policy for the Implementation of Crypto-Asset Futures Trading ("MOT Reg. No. 99/2018"), Government of Indonesia has considered Crypto-Asset as an asset, which is tradable as a digital asset through Futures Exchange in Indonesia.

This regulation implies that Crypto-Assets are a tradable commodity, subjected to the Futures Contract and to be traded in Futures Trading Exchange.[28] With this legal term, Indonesia has put Crypto-Assets in the same bracket as other investment assets in Futures Exchange such as gold and foreign currencies.

Activities related to Crypto-Assets in Indonesia are currently authorised only by the Ministry of Trade and BAPPEBTI.[29] Other authorities, such as the Indonesia's Financial Service Authority ("OJK") and BI does not supervise these activities because Crypto-Assets are not considered as a payment instrument and/or issuance of a financial institution.

Under the umbrella regulation of Minister of Trade Regulation 99/2018, BAPPEBTI enacted several more specific regulations regarding the trade of Cryptocurrency. Among regulations linked to the Ministry's regulation are:

1. Indonesia's Commodity Futures Trading Regulator Agency Regulation No. 2 Year 2019 concerning Administration of Commodity Physical Market in Future Exchange (BAPPEBTI Regulation 2/2019);
2. Indonesia's Commodity Futures Trading Regulator Agency Regulation No. 3 Year 2019 concerning Commodities which can be the Subject of Futures Contracts, Sharia Derivative Contracts, and/or Other Derivative Contracts Traded in Futures Exchange (BAPPEBTI Regulation 3/2019);
3. Indonesia's Commodity Futures Trading Regulator Agency Regulation No. 7 Year 2020 concerning the Stipulation of the List of Crypto-Assets that Are Allowed to be Traded in Crypto-Assets Physical Market ("BAPPEBTI Regulation 7/2020");

[28] Indonesia, Commodity Futures Trading Regulatory Agency Regulation No. 3 of 2019 on Commodities That Can Be Subjected to Futures Contracts, Sharia Derivative Contracts, and/or Other Derivative Contracts Traded on Futures Exchanges, Art. 1.

[29] Indonesia, Minister of Trade Regulation No. 99 of 2018 on General Policy of Commodity Futures Trading on Crypto Asset (hereinafter Minister of Trade Regulation 99/2018), Art. 2.

4. Indonesia's Commodity Futures Trading Regulator Agency Regulation No. 8 Year 2021 concerning Technical Terms of Physical Market for Crypto-Assets in Futures Exchange (BAPPEBTI Regulation 8/2021).

The regulations above directly or indirectly stipulate the mechanism of Crypto-Asset trading in Indonesia. BAPPEBTI Regulation 2/2019 specifically regulates the overall administration and terms for commodity of physical market on the Futures Exchange. This regulation indirectly states that Crypto-Assets are one of the commodities authorised to be traded in the physical market.[30] This stipulation leads to BAPPEBTI Regulation 3/2019, which regulates the list of commodities allowed to be traded the Futures Exchange. The classification of Crypto-Asset as commodity is stipulated in Article 1 point (f) of this regulation. Additionally, the mechanism of Crypto-Asset trading is regulated specifically in BAPPEBTI Regulation 8/2021. Among the matters regulated in this regulation are:

a. Requirement of Crypto-Assets allowed to be traded;
b. Requirement of Futures Exchange which is allowed to accommodate Crypto-Asset trading;
c. Requirement for Crypto-Asset sellers;
d. Other related provisions.

Other than that, BAPPEBTI has also enacted BAPPEBTI Regulation 7/2020 which provides:[31]

a. Procedures include requirements for determining Crypto-Assets;
b. Mechanism of adding and delisting Crypto-Asset types and the list of Crypto-Assets which are tradable in the physical Crypto-Asset market; and
c. The settlement mechanism for the customer in the eventuality of the delisting of Crypto-Assets which are not registered under said regulation.

BAPPEBTI has also enacted BAPPEBTI Regulation 8/2021 with the purpose of preventing the use of Crypto-Assets for illegal purposes, such as money laundering, terrorism financing, or the development of weapons of mass destruction. This is in accordance with the recommendations of the International Financial Action Task Force (FATF) standards to protect Crypto-Assets' users and facilitate the innovation and growth of Crypto-Asset in Indonesia. Other than that, its purpose is also to determine certain type of Cryptocurrency that is allowed to be traded, and the ones which are not

[30] Indonesia, Commodity Futures Trading Regulatory Agency Regulation No. 2 of 2019 on Administration of Commodity Physical Market in Future Exchange, Art. 3 para. 10.

[31] Indonesia, Commodity Futures Trading Regulatory Agency Regulation No. 7 of 2020 on The List of Crypto-Assets Allowed to be Traded in Crypto-Assets Physical Market (hereinafter BAPPEBTI Regulation 7/2020).

allowed to be traded in Indonesia. The 229 types of Crypto-Assets than can be traded on the physical Crypto-Asset market in Indonesia is regulated in the Appendix II of BAPPEBTI Regulation 7/2020, as follows:[32]

Data 1.3. List of Crypto-Assets Tradable in Indonesia

No.	Type	No.	Type	No.	Type	No.	Type	No.	Type	No.	Type
1	Bitcoin	41	Compound	81	Verge	121	Coti	161	Storm	201	Sumokoin
2	Ethereum	42	0x	82	Pax gold	122	Fusion	162	Vertcoin	202	Honest
3	Tether	43	Basic attention token	83	Matic network	123	Dent	163	Ttc	203	Auroracoin
4	Xrp/ripple	44	Kusama	84	Kava	124	Airswap	164	Metadium	204	Vodi x
5	Bitcoin cash	45	Ok blockchain	85	Komodo	125	Civic	165	Pumapay	205	Smartshare
6	Binance coin	46	Waves	86	Steem	126	Metal	166	Nav coin	206	Exclusive
7	Polkadot	47	Digibyte	87	Aelf	127	Standard token protokol	167	Dmarket	207	Cosmo coin
8	Chainlink	48	Icon	88	Fantom	128	Mainframe	168	Spendcoin	208	Aidcoin
9	Lightcoin	49	Qtum	89	Horizen	129	12ships	169	Tael	209	Adtoken
10	Bitcoin sv	50	Paxos standard	90	Ardor	130	Lambda	170	Burst	210	Play game
11	Litecoin	51	Ren protocol	91	Hive	131	Function x	171	Gifto	211	Lunacoin
12	Crypto.com coin	52	Loopring	92	Enigma	132	Cred	172	Sentinel protocol	212	Staker
13	Usd coin	53	Ampleforth	93	V. Systems	133	Ignis	173	Quantum resistant ledger	213	Klaytn
14	Eos	54	Zilliqa	94	Z coin	134	Adex	174	Digix gold token	214	Flamingo
15	Tron	55	Kyber network	95	Wax	135	Moviebloc	175	Blocknet	215	Wing
16	Cardano	56	Augur	96	Stratis	136	Groestlcoin	176	District0x	216	Bella protocol
17	Tezos	57	Lisk	97	Ankr	137	Factom	177	Propy	217	Mil.k
18	Stellar	58	Decred	98	Ark	138	Nexus	178	Eminer	218	Bakery token
19	Neo	59	Bitshares	99	Syscoin	139	Lbry credits	179	Ost	219	Lyfe
20	Nem	60	Bitcoin gold	100	Power ledger	140	Gemini dollar	180	Steamdollar	220	Ionomy limited
21	Cosmos	61	Aragon	101	Stasis euro	141	Einsteinium	181	Particl	221	Smart chain solution
22	Wrapped bitcoin	62	Elrond	102	Harmony	142	Vidycoin	182	Data	222	Kryptovit

[32] Indonesia, BAPPEBTI Regulation 7/2020), Appendix II.

Data 1.3. List of Crypto-Assets Tradable in Indonesia (Continued)

No.	Type	No.	Type	No.	Type	No.	Type	No.	Type	No.	Type
23	Iota	63	Enjin coin	103	Pundi x	143	Nkn	183	Sirinlabs	223	Eautocoin
24	Vechain	64	Band protocol	104	Solve.care	144	Go chain	184	Tokenomy	224	Quantum
25	Dash	65	Terra	105	Gxchain	145	Cream finance	185	Digitalnote	225	Bankex
26	Ehtereum classic	66	Balancer	106	Coti	146	Medibloc	186	Abyss token	226	Chaincoin
27	Yearn. finance	67	Nano	107	Origin protokol	147	Fio protocol	187	Cake	227	Hara coin
28	Theta	68	Swipe	108	Xinfin network	148	Nxt	188	Veriblock	228	Venus protocol
29	Binance usd	69	Solana	109	Btu protocol	149	Aergo	189	Hydro	229	Alpha finance
30	Omg network	70	Bitcoin diamond	110	Dad	150	High performance blockchain	190	Viberate		
31	Maker	71	Dfi.money	111	Orion protocol	151	Cartesi	191	The Rupiah token		
32	Ontology	72	Decentraland	112	Cortex	152	Tenx	192	Vexanium		
33	Synthetix network token	73	Avalanche	113	Sandbox	153	Siacoin	193	Global social chain		
34	Uma	74	Numeraire	114	Hash gard	154	Raven coin	194	Ambrosus		
35	Uniswap	75	Golem	115	Bora	155	Status	195	Refereum		
36	Dai	76	Quant	116	Waltonchain	156	Storj	196	Crown		
37	Doge coin	77	Bytom	117	Wazirx	157	Electroneum (etn)	197	Daex		
38	Algorand	78	Serum	118	Polymath	158	Aurora	198	Cryptaur		
39	True usd	79	Iexec rlc	119	Request	159	Orbs	199	Spacechain		
40	Bittorrent	80	Just	120	Pivx	160	Loom network	200	Expanse		

In addition, there are 13 Crypto-Asset Merchants (Broker/Trader) who have received registration certificates from BAPPEBTI to trade Cryptocurrency enlisted above, as follows:[33]

1. PT Indodax Nasional Indonesia (INDODAX);
2. PT Crypto Indonesia Berkat (TOKOCRYPTO);
3. PT Zipmex Exchange Indonesia (ZIPMEX);
4. PT Indonesia Digital Exchange (IDEX);
5. PT Pintu Kemana Saja (PINTU);

[33] "Daftar Perusahaan Pedagang Aset Kripto Yang Terdaftar Di BAPPEBTI [Trader Companies of Crypto Asset Listed in BAPPEBTI]," accessed November 4, 2021, https://BAPPEBTI.go.id/aktualita/detail/7016.

6. PT Luno Indonesia LTD (LUNO);
7. PT Cipta Koin Digital (KOINKU);
8. PT Tiga Inti Utama (TRIV);
9. PT Upbit Exchange Indonesia (UPBIT);
10. PT Rekeningku Dotcom Indonesia (REKENINGKU.COM);
11. PT Triniti Investama Berkat (BITOCTO);
12. PT Plutonext Digital Aset (PLUTO NEXT);
13. PT Bursa Cripto Prima.

BAPPEBTI claims that its decision on allowing Crypto-Asset trading in Indonesia is based on several reasons.[34] Among those reasons are; (a) Crypto-Assets' fluctuating price, (b) non-intervention from the authorities, (c) the high amount of demand and supply, and (d) the available standard for Crypto-Assets as commodities.

III. CRYPTO-ASSETS AS PAYMENT INSTRUMENTS

III.A. Crypto-Assets from the Perspective of Currency

III.A.1. Functional Differences between Cryptocurrency and Traditional Payment Systems

As it has been explained before in Section I, BCT is linked to the concept where users participating in the network have copies of all blocks in the network within each BCT. This concept is what is called Distributed Ledger Technology (DLT).

In comparison to existing technology, DLT eschews a traditional centralised ledger.[35] The concept of a centralised ledger is commonly found and works in a system of payments managed by a financial institution managing its customer accounts.[36] In this system, the customer has no copy or information about the other customer accounts on the ledger. The party who knows and manages all of the accounts and information of customers is the financial institution, as the sole manager of the system. In detail, difference between DLT and centralised ledger is described in table below:[37]

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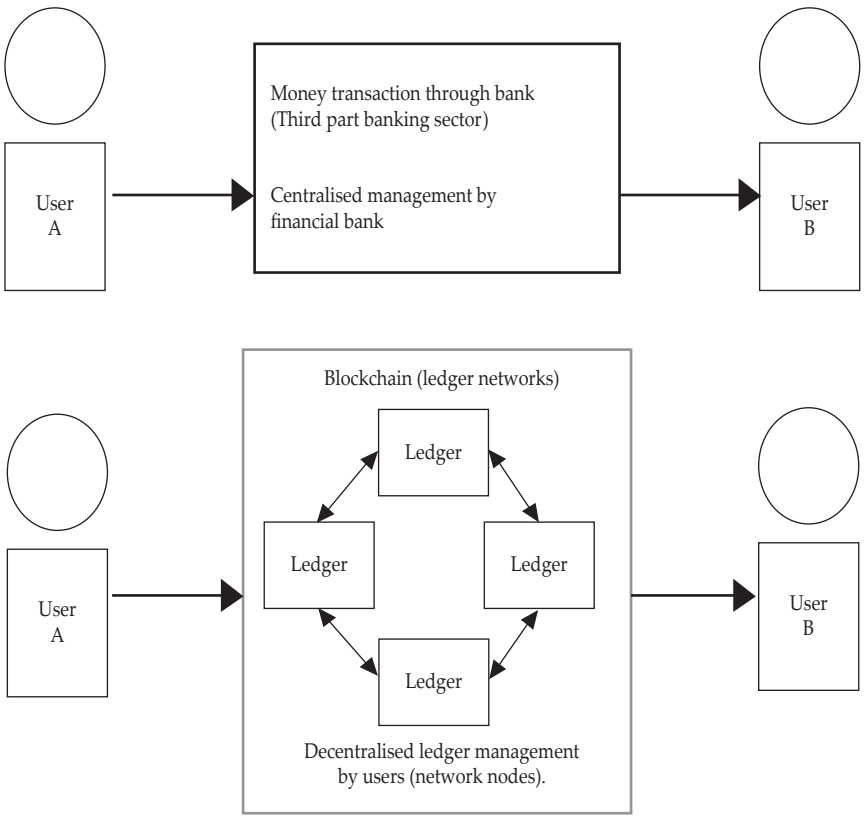
[34] Market Development Bureau BAPPEBTI, "Perdagangan Aset Kripto Di Indonesia [Crypto Asset Trading in Indonesia]," 2021, https://BAPPEBTI.go.id/resources/docs/artikel_2021_02_18_lne7p27t_id.pdf.

[35] Tania H., "How the Blockchain Works."

[36] *Ibid.*

[37] Nashirah Abu Bakar, Sofian Rosbi, and Kiyotaka Uzaki, "Cryptocurrency Framework Diagnostics from Islamic Finance Perspective: A New Insight of Bitcoin System Transaction," *International Journal of Management Science and Business Administration* 4, no. 1 (2017): 19–28, 21, https://doi.org/10.18775/ijmsba.1849-5664-5419.2014.41.1003.

Data 2.1. Comparison of DLT and Centralised Ledger



From the diagram above, it can be concluded that the core difference between DLT and centralised ledgers is the absence of a third-party intermediary. In DLT, the transactions only work between both parties (seller and buyer) as the sender and receiver of Cryptocurrency. This transaction is managed by a technology named BCT, which alternatively plays the role that is usually played by third-party intermediary. However, in a centralised ledger of a traditional payment system, the transaction is managed by third-party. Therefore, this system not only involves the seller and the buyer, but also a third party, which in this case is a financial institution.

The concept of DLT allows Cryptocurrency to offer certain advantages over traditional payment systems (money) in general, in that it ensures simplicity of functionality since it does not need any involvement of third party (intermediary). In contrast to BCT and DLT, a third-party intermediary exists in traditional payments, usually in the form of commercial bank. A bank acts as the sole manager of the fund transfer happening between parties in transaction. In other words, the bank has the authority to control the payment

system. In addition, this position has allowed the bank to know all information and identity of all parties involved in transactions. The role taken by commercial bank in this payment system, has led to several practices where fund transfer between parties in transaction, also involves additional charges assessed by the bank, usually called as transaction fees.[38]

In BCT and DLT, Cryptocurrency does not need this third party, hence it is simpler to conduct funds transfers. It will also automatically eliminate or minimise any processing fees/transaction costs which are usually collected by third parties.[39] Therefore, making it easier, faster, and cheaper to transfer fund to other parties. For many, this is a huge advantage and one of the leading plus point of using Cryptocurrency, in which becoming the reason of its rapid development as payment instrument.

However, it should be noted that BCT and DLT in Cryptocurrency only works if it is used as payment instrument. When it is functioned as tradable asset, the BCT and DLT within Cryptocurrency will not offer any benefit to its owner. Cryptocurrency as an asset works similarly to other investment instrument which only hold certain value.

III.A.2. Cryptocurrency Analysis: Three Main Function of Money

Despite being popular and having advantages as a payment system, Cryptocurrency still needs to fulfil three main functions of money in order to work as a complete payment instrument in the long run. According to Mankiw, the 3 (three) main functions of money are (a) as a medium of exchange, (b) as a unit of account, and (c) as a store of value.[40] The comparison between gold, fiat money, and Cryptocurrency as a f payment instrument is as described below:[41]

According to the table above, Cryptocurrency (particularly Bitcoin) does not fulfil three functions of money, which are centralisation, stability, and collateral, compared to gold and fiat money, both of which at least fulfil all of the traits despite being valued medium in several traits.

Cryptocurrency does not fulfil the function of centralisation, because it is not a centralised asset digital. Cryptocurrency is a digital asset which uses a decentralised type of technology within BCT and DLT. Cryptocurrency does not need a third-party intermediary. Therefore, there is no centralised authority which maintains the payment system and/or the information related to the transaction within Cryptocurrency.

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[38] Bakar, Rosbi, and Uzaki, 21.

[39] *Ibid.*

[40] Nicholas Gregory Mankiw, *Macroeconomics*, 9th ed. (New York: MacMillan Education, 2015), 82.

[41] Holtmeier and Sandner, "The Impact of Crypto Currencies on Developing Countries", 11.

Data 2.2. Comparison of Different Types of Money

Traits of Money	Gold	Fiat Money	Cryptocurrency (Bitcoin)
Way of Exchange	Physical	Physical and digital	Digital
Controlled	Market	Central Bank	Algorithm
Highly divisible			
Globally transferrable			
Durable			
Acceptable			
Centralisation			
Secure (Counterfeiting)			
Stability (volatility)			
Predictable supply			
Collateral			

: High : Medium : Low

While the distributed nature of Cryptocurrency feature gives several benefits, it also has disadvantages. Decentralisation is the reason why the Cryptocurrency price is not stable and fluctuates wildly over time. In a decentralised system, the price of Cryptocurrency is not controlled by intermediaries, but supply and demand from the people. The result is the low price-stability of Cryptocurrency compared to money and gold. A stable price is an important part of money, making it possible to function as a unit of account and store of value. With its highly volatile characteristic, it is difficult for Cryptocurrency to be a stable measurement of value for goods and services.[42] Further, the measurement using Cryptocurrency may make it difficult for parties in transactions to determine the price of the goods or services with a fluctuating price. Therefore, it is hard for Cryptocurrency to be a good measurement system for goods and services.[43]

This fluctuating price also affects Cryptocurrency's role as a store of value. With its volatile price, the value stored in Cryptocurrency cannot be determined over the long term. In a matter of days, the value may change drastically from high to low. The inability to maintain a stable value may result in Cryptocurrency being unable to allow the purchase approximately the same value of goods and services at some future date as it can purchase now, which is the requirement to fulfil this function.[44]

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[42] David W. Perkins, "Cryptocurrency: The Economics of Money and Selected Policy Issues," 2020, 2, https://sgp.fas.org/crs/misc/R45427.pdf.

[43] *Ibid.*

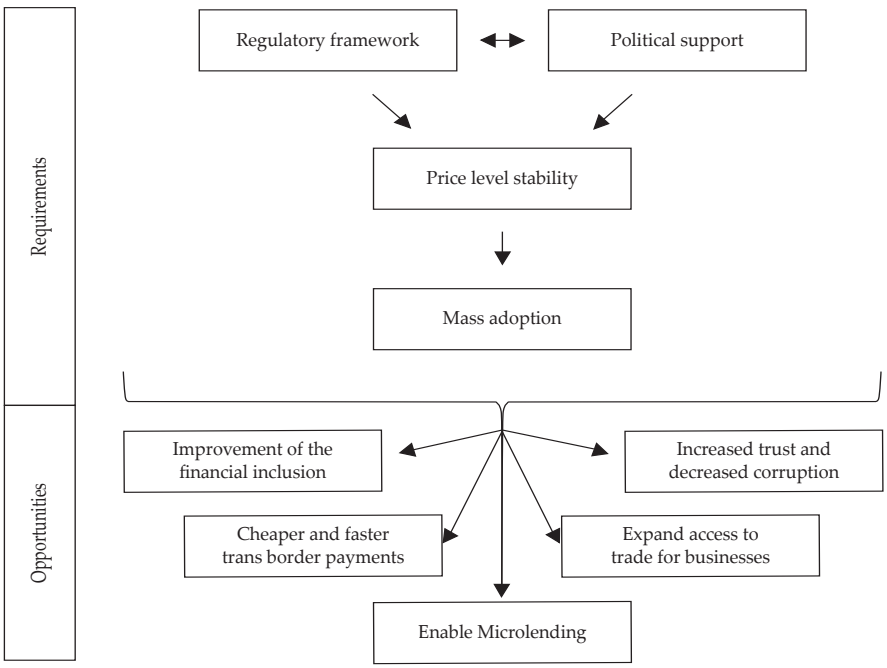
[44] Stefan Ingves, "Do We Need an E-Krona?," Speech at Swedish House of Finance, Stockholm, 2017, accessed November 3, 2021, https://www.bis.org/review/r180123c.pdf.

From the explanation above, it can be concluded that Cryptocurrency may fulfil the function as medium of exchange,[45] but fails to fulfil the functions as a unit of account or store of value.[46] The common phenomenon where there is extensive use of Cryptocurrency as a payment instrument is proof of how it is globally tradable and agreed to have value by many parties, which is the main requirement for it to be a medium of exchange. However, with its high price volatility and decentralisation, it is difficult for Cryptocurrency to fulfil the function as a store of value or unit of account.[47] This fact makes it impossible for Cryptocurrency to be utilised as a complete payment instrument in the long term.

III.A.3. Other Reasons why Cryptocurrency Does not Work Optimally as a Payment Instrument

In addition to the issues explained above, Cryptocurrency should fulfil other aspects to work optimally as a payment instrument. These aspects are as described below:[48]

Data 2.3. Requirements for Cryptocurrencies to become Payment Instrument



[45] Saifedean Ammous, "Can Cryptocurrencies Fulfil the Functions of Money?," *The Quarterly Review of Economics and Finance* 70 (2018): 38–51, 40, https://doi.org/10.1016/j.qref.2018.05.010.

[46] Holtmeier and Sandner, "The Impact of Crypto Currencies on Developing Countries", 10.

[47] *Ibid.,* 11.

[48] *Ibid*., 15.

There are two actions that need to be taken, (a) maintaining a stable price, and (b) ensuring widespread adoption. High price volatility is the main reason why Cryptocurrency fails to be a complete payment instrument. Hence it is necessary to make it more stable through (a) building an appropriate regulatory framework, and (b) ensuring political support for Cryptocurrency.

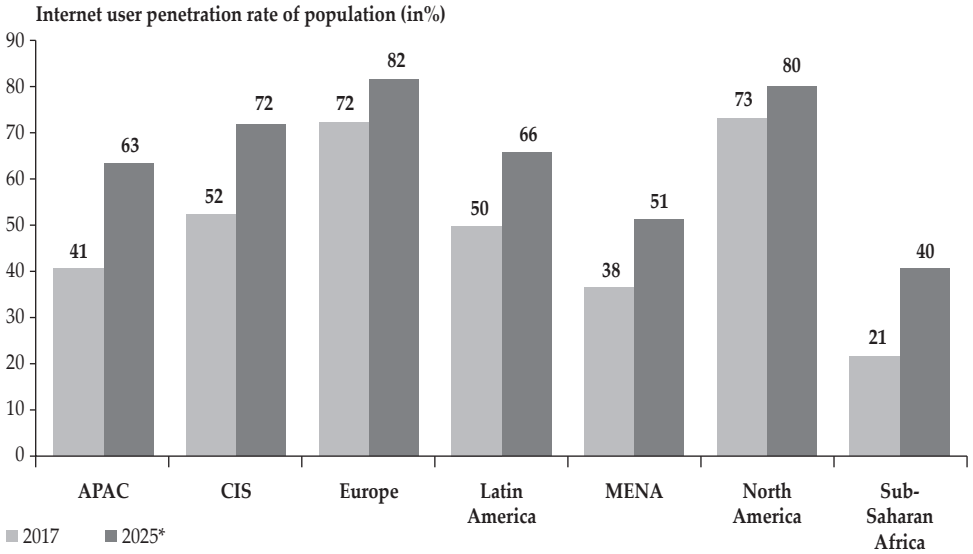
An appropriate regulatory framework could be the tool with which to control the supply and circulation of Cryptocurrency. As a digital asset, which depends fully on complete market mechanisms and technology, Cryptocurrency needs intervention from the government to gain a more stable and controlled price.[49] The involvement of a third party (government) in the circulation of Cryptocurrency would control the production and the price stability of Cryptocurrency. Other than that, Cryptocurrency also needs political support to legitimise its legal status for its utilisation as a payment instrument in a certain jurisdiction of a country.

However, the existence of a regulatory framework and intervention from the government may defy the essential nature of Cryptocurrency, which is inherently free from third-party intervention and decentralised systems.[50] Therefore, the main purpose of the actions above is to not change the Cryptocurrency's functionality, but to develop a similar digital currency by government or central bank which adopts the very same technology of BCT and DLT.

Other than that, it is also important to ensure the inclusive adoption of Cryptocurrency.[51] To do this, the government should ensure the full coverage of Internet accessibility in the country since the use of Cryptocurrency requires Internet and digital access.[52] This action is related to the fact that in most developing countries, particularly in Indonesia, Internet accessibility is limited. This limited access may render Cryptocurrency inaccessible by every individual in the country.

[49] *Ibid.*, 11.
[50] *Ibid.*
[51] *Ibid.*, 17.
[52] *Ibid.*, 7.

Data 2.4. Internet User Penetration Rate of Population in 2017 and 2025 by region[53]



Note: APAC - Asia Pacific; CIS - Commonwealth of Independent States, MENA - Middle East and North Africa; * - Forecast

Source: GSMA Intelligence data (2017)

According to the chart above, the prediction of internet accessibility in Asia Pacific by 2025 will only reach 63% (sixty three percent) of the population. Therefore, under even the most favourable conditions, Cryptocurrency would only be accessible and utilised by 63% (sixty three percent) of people in the Asia Pacific region. Moreover, in a developing country like Indonesia, the Internet penetration rate may be lower than the regional average as shown in the chart, which will make it even more difficult to reach Cryptocurrency ubiquity.

The facts above illustrate that Cryptocurrency lacks several things to work as a payment instrument to totally replace fiat currency. Therefore, governments in the world should find another way if they wanted to implement a form of digital currency. In response to this, countries should start to develop similar digital currency which already has its own regulatory framework and political support through CBDC. This idea will be further explained in Chapter III.

[53] *Ibid*., 8.

III.A.4. Cryptocurrency as a Legitimate and Illegitimate Payment Instrument worldwide

The presence and rapid development of Cryptocurrency has invited many responses globally. The responses vary depending on the purpose and economic needs of each country sought to be fulfilled through the use of Cryptocurrency.

Among the countries which have fully embraced Cryptocurrency as legal tender is El Salvador. To this date, El Salvador is still the only country to establish Cryptocurrency as legal tender alongside its existing payment instruments.[54] El Salvador enacted this policy on 8 June 2021, legalising Bitcoin as legal tender alongside its traditional money, the United States Dollar (USD).[55] One of the reasons for this policy is the prediction that Bitcoin will enhance the effectiveness of cross-border payments and fund transfers, from and to El Salvador.[56]

Other countries currently allow its people to use Cryptocurrency within their jurisdictions, but not as a legal tender. Among these countries are Australia[57] and the United Kingdom.[58] There are also countries which fully refuse the usage of Cryptocurrency in their jurisdictions since it is inherently violates the existing laws in each country. Among those are Russia, Bolivia, and Egypt. The Russian Central Bank has stated that the usage of virtual currency in any form, including Cryptocurrency is prohibited because it violates the existing Currency and Banking Law.[59] This statement is continued with the policy to limit the usage of Cryptocurrency by the Ministry of Finance in Russia.[60] Furthermore, in February 2015, the Government of Russia has stated that all forms of Cryptocurrency are prohibited to be used, both by individual

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[54] Ciphertrace Cryptocurrency Intelligence, "Cryptocurrency Crime and Anti-Money Laundering Report, August 2021," 2021, 43.

[55] *Ibid.*

[56] Joe Hernandez, "El Salvador Just Became The First Country To Accept Bitcoin As Legal Tender," npr.org, 2021, accessed on November 3, 2021, https://www.npr.org/2021/09/07/1034838909/bitcoin-el-salvador-legal-tender-official-currency-cryptocurrency.

[57] AUSTRAC, "New Australian Laws to Regulate Cryptocurrency Providers," austrac.gov.au, 2018, accessed on November 3, 2021, https://www.austrac.gov.au/new-australian-laws-regulate-cryptocurrency-providers.

[58] HM Revenue & Customs, "Tax Treatment of Activities Involving Bitcoin and Other Similar Cryptocurrencies," United Kingdom Government, 2021, accessed on November 3, 2021, https://www.gov.uk/government/publications/tax-on-cryptoassets.

[59] Karmila Sari Sukarno and Pujiyono, "The Use of Cryptocurrency as a Payment Instrument," in *3rd International Conference on Law and Governance (ICLAVE 2019)*, ed. Heru Susetyo, vol. 130 (Solo: Atlantis Press, 2020), 366–70, 368, https://doi.org/10.2991/aebmr.k.200321.048.

[60] *Ibid.*

and legal entities.[61] Other than that, the Government of Russia also blocked several Cryptocurrency websites.[62]

There are also countries which have proscribed Cryptocurrency as a payment instrument but have allowed it to be used as a tradable commodity in the form of digital assets. Among those countries are Singapore and Indonesia. Singapore has stated that Cryptocurrency is legal to be traded as a commodity, and therefore also subject to capital gains taxation.[63] Cryptocurrency is classified as an asset with a certain value and is exchangeable for fiat money, according to the procedure established by the Monetary Authority of Singapore (MAS).[64] The function of Cryptocurrency in Singapore is limited and use as a payment instrument is strictly prohibited.[65]

There are countries which have prohibited the use of Cryptocurrency as a payment instrument since they are developing their own Central Bank Digital Currency (CBDC). Among these countries are The Bahamas, The People's Republic of China, Sweden, and the others. In April 2021, China and Sweden were in the pilot-stage of developing CBDC.[66] Sweden has established its own retail CBDC named "E-krona," which is a digital version of its traditional money (Krona), in the form of token.[67]

III.B. Advantages and Disadvantages of Cryptocurrency

Cryptocurrency in general has several pluses and minuses when it is used as a payment instrument. The problems faced by many countries are that its advantages and disadvantages are not comprehensively understood by those in charge of regulating such things. With its rapid progress and involvement in various transactions, it is important for related authorities in countries to firstly identify its advantages and disadvantages before deciding to fully authorise or completely prohibit its utilisation. To put this into context, the following are the advantages of using Cryptocurrency as a legal tender in Indonesia:

1. Simple and Safe

   Using Cryptocurrency is very easy. Holding Cryptocurrency starts with a quick and easy registration, and without requiring approval of governmental authorities for its use. Quick buying and selling transactions can be carried

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[61] *Ibid.*

[62] Kumar Krishnan Thakur and G. G. Banik, "Cryptocurrency: Its Risks And Gains And The Way Ahead," *IOSR Journal of Economics and Finance* 9, no. 2 (2018): 38–42, https://doi.org/10.9790/5933-0902013842.

[63] Sukarno and Pujiyono, "The Use of Cryptocurrency as a Payment Instrument", 368.

[64] *Ibid.*

[65] *Ibid.*

[66] Foster et al., "Digital Currencies and CBDC Impacts on Least Developed Countries (LDCs)", 17.

[67] *Ibid.*

out directly and instantly through a peer-to-peer manner without any third party (bank) intervention.

Transaction security is also guaranteed because Cryptocurrencies, which use blockchain schemes, do not allow for counterfeiting, so they tend to be safe. This Cryptocurrency was deliberately created as a solution to the complexity of conventional financial and banking transactions. With Cryptocurrency, anyone can make transactions more quickly and practically. For example, funds transfers to and overseas account has to be done on working days and hours through traditional payment system. By using Cryptocurrency, however, cross border fund transfer can be done at any time without any limitations.

2. Secure and Private

   Protection of personal data is very important, as it is not uncommon in Indonesia for that information about personal data to be leaked and even sold on the black market. If Cryptocurrency is used as a means of payment, the potential for personal data breaches is very small due to the blockchain system.

   Cryptocurrencies also maintain user privacy because their ownership does not require personal information. This is possible with a public key and private key mechanism. The public key is a public address that is not tied to the real identity of the Cryptocurrency recipient. Secondly, the private key is the recipient's private password to cash out the Cryptocurrency. To prevent tracking, the public key and private key are also updated after each transaction.

Although it has several advantages as mentioned above, the use of Cryptocurrency as legal tender will also have disadvantages, including:

1. Uncontrollable and highly volatile market prices

   Cryptocurrency value is very volatile, so the movement of Cryptocurrency exchange rates cannot be controlled by the government, unlike the Rupiah, the exchange rate for which is fairly stable and can be influenced by the government. Moreover, Cryptocurrency is also a new currency, and has only been active for about 10 (ten) years.

   Thus, the volatility of this type of currency is still very high. As a result, Cryptocurrency values can suddenly experience drastic increases and decreases, in a very short duration of time. With uncontrolled currency values, BI can lose its monetary policymaking function and authority as a central bank.

2. The death of commercial banks
   Cryptocurrency transactions use a peer-to-peer system, so it does not require a third party, in this case a bank, to make transactions. Furthermore, if Cryptocurrency is used as legal tender, it will affect the operational activities (daily) of conventional banks. If people use Cryptocurrency and start leaving the bank in conducting transactions, it is very likely that conventional banks will collapse (go bankrupt) over time.
3. The Potential Increase in Financial Crimes
   If Cryptocurrency is authorised as legal tender, the potential for crimes in the financial sector will also increase, including money laundering, terrorism, and other financial crimes. These crimes are difficult to trace since the transactions are carried out in a peer-to-peer (decentralised) and untraceable manner, unlike when transactions are carried out through banks, in which the flow of money can be monitored/traced.

III.C. The Effect of Cryptocurrency When Used as a Legal Tender

Accepting Cryptocurrency as legal tender will have several effects on monetary policy, particularly the existing legal tender. In Indonesia, this policy will impact the Rupiah and the monetary authority, BI. Among the impacts that can happen if the government decides to authorise Cryptocurrency as legal tender are as follows:

1. Dualism in Payment Instruments between Cryptocurrency and the Rupiah
   If Cryptocurrency is used as legal tender in Indonesia, it will indirectly lead to dualism in payment instruments, the Rupiah and Cryptocurrency. With this dualism, there will be uncertainty about which payment instrument is to be used. Whether it's the Rupiah, which has more stable exchange rate, or Cryptocurrency which has the nature of volatile.
   In contrast to the value of the Rupiah, which very depends on the policies of the Central Bank, the value of Cryptocurrencies depends on market forces. Because of that, the fluctuation of Cryptocurrency will greatly affect its function when it used as payment instrument.
   For illustration, the price of one box of milk in the supermarket is IDR 10.000, which is equivalent to 10 Doge Coins. The next day the price of Doge Coin dropped, then the value to buy one box of milk will require 15 Doge Coins. This is what happened to El Salvador which use Cryptocurrencies as a legal tender.
   Therefore, although Cryptocurrency has been established as a legal tender, it may cause confusion around which payment instrument they should use on a daily basis.
2. The Effect on the Central Bank

The current financial system in Indonesia is controlled by the government through BI. The monetary authority has authority to influence the Rupiah exchange rate and the circulation of money (the Rupiah) in Indonesia. BI has a very important role in setting policies in payment system (in particular, The Rupiah), exchange rates, money circulation, inflation, and other policies related to the Rupiah.

If Cryptocurrency is used as legal tender, then BI as the central bank will lose its authority to influence these matters. This is because its prices are very volatile and cannot be controlled by monetary policy since they are highly dependent on market conditions (supply and demand). BI does not want to lose its authority over this matter, its concern is that the country's economy will collapse, causing chaos and possible crises.

IV. THE BANK OF INDONESIA'S NATIONAL AGENDA TOWARD CRYPTO-ASSETS

IV.A. Central Bank Response toward Crypto-Asset

Despite being legal as a commodity, Crypto-Assets are nowhere near being classified as payment instruments in Indonesia. BI has clearly stated that Cryptocurrency, which is categorised as a virtual currency, is not allowed to be utilised as a payment instrument.[68] There are two reasons for this rejection. The first is the legal reason explained in Chapter I, and the potency of it facilitating illegal activities and financial crimes.

BI concern that Cryptocurrency is not secure to be used inclusively as a payment instrument since it cannot be supervised by the government.[69] The high anonymity level in many kinds of Cryptocurrency transactions give it the potential to facilitate any transaction related to illegal activities, including but not limited to money laundering and terrorism funding.[70] According to the Cyphertrace Report in August 2021, money laundering and terrorism funding in the world facilitated through virtual assets (Crypto-Assets) are still involving a significant amount of fund.[71] It is reported that the funds circulated in said crimes is up to US $681 million by the end of July 2021.[72]

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[68] Bank Indonesia, "Mata Uang Kripto (Cryptocurrency)," 2021, accessed on November 3, 2021, https://bicara131.bi.go.id/knowledgebase/article/KA-01076/en-us.

[69] Bank Indonesia, *Bank of Indonesia Blueprint of Payment System 2025 - Bank of Indonesia: Navigating National Payment System in Digital Era* (Jakarta: Bank Indonesia, 2019), 16.

[70] *Ibid.*

[71] Ciphertrace Cryptocurrency Intelligence, "Cryptocurrency Crime and Anti-Money Laundering Report, August 2021," 6.

[72] *Ibid.*

IV.B. The Development of Central Bank Digital Currency (CBDC)

To counter the usage of Cryptocurrency in the world, many countries embrace the idea of developing their own digital currencies. The main purpose of this idea is to adopt BCT and DLT, whilst trying to prevent the negative impacts of Cryptocurrency. Through the utilisation of these newly developed digital currencies, it is hoped to bring a digital transformation for traditional fiat currency and as an alternative to the use of virtual currency.[73]

According to the report from the Bank for International Settlements (BIS), 86% central banks around the world are researching the possibilities to develop Central Bank Digital Currency (CBDC).[74] Progress of CBDC in the world is described in table below:[75]

Data 3.1. Retail CBDC Development Status across Countries in the World

Launched	The Bahamas (Sand Dollar) Cambodia (Bakong) Eastern Caribbean (DCash) (comprising St Kitts and Nevis, Saint Vincent and the Grenadines, Saint Lucia, Grenada, Dominica, Caribbean, Antigua and Barbuda)	
Pilot Stage	China Ecuador Jamaica Japan Republic of Korea	Singapore Sweden Turkey Ukraina Uruguay
Research	Australia Bahrain Brazil Brunei Canada Czechia Eurozone Finland Ghana Iceland India Indoneisa	Kenya Madagascar Mauritius Morocco New Zealand Norway South Africa Suriname Thailand Tunisia United Kingdom USA

[73] Foster et al., "Digital Currencies and CBDC Impacts on Least Developed Countries (LDCs)," 12.

[74] Codruta Boar and Andreas Wehrli, "Ready, Steady, Go? – Results of the Third BIS Survey on Central Bank Digital Currency," *Bank for International Settlements (BIS) Papers*, 2021, 3, https://www.bis.org/publ/bppdf/bispap114.pdf.

[75] Foster et al., "Digital Currencies and CBDC Impacts on Least Developed Countries (LDCs)," 16.

From the table above, it can be concluded that Indonesia is in the middle of the research-stage of developing CBDC. This is in line with the statement from BI itself, that Indonesia has taken some of the preliminary actions to develop CBDC.[76] However, BI has not yet determined the time to launch CBDC. BI is currently still focusing on other projects as stated in Blueprint of Payment System 2025.[77]

BI predicts CBDC will have several benefits. First, it will be easily manageable since it adopts the distributed ledger technology (DLT).[78] Second, CBDC may boost digital transformation, especially in monetary aspects in Indonesia. CBDC is simply a digital version of the Rupiah, which according to existing laws, is still considered as Rupiah and authorised for use as a legal payment instrument unlike any current form of Cryptocurrency.[79]

Besides Indonesia, there are countries that have implemented CBDC in their respective financial systems. These include the Bahamas, Cambodia, and Eastern Caribbean (comprising several countries in the area). The Bahamas is the first country to implement it in October 2020 with its currency, the Sand Dollar.[80] The Eastern Caribbean implemented CBDC through Eastern Caribbean Central Bank (ECCB) with its currency DCash in April 2021.[81] The digital currency is the valid payment instrument in many countries in the area. In Europe, Sweden has entered the trial stage of the CBDC implementation with its currency, E-krona.[82]

Many countries believe CBDC may offer multiple benefits when optimally implemented. Among those benefits are; (a) the digitalisation of the economy and payment system, (b) opportunity to conduct cross border fund transfer or payment in a more efficient and secure way, and (c) enhance financial inclusion. UNDP quoted, the latter benefit may be earned if CBDC has been implemented globally in many countries. That way, this innovation is hoped to be accessible to the unbanked population.[83]

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[76] Bank Indonesia, "The Rupiah Digital / Central Bank Digital Currency (CBDC)," 2021, accessed on November 3, 2021, https://bicara131.bi.go.id/knowledgebase/article/KA-01038/en-us.

[77] *Ibid.*

[78] *Ibid.*

[79] *Ibid.*

[80] Vipin Bharathan, "Central Bank Digital Currency: The First Nationwide CBDC In The World Has Been Launched By The Bahamas," Forbes, 2020, accessed on November 3, 2021, https://www.forbes.com/sites/vipinbharathan/2020/10/21/central-bank-digital-currency-the-first-nationwide-cbdc-in-the-world-has-been-launched-by-the-bahamas/?sh=13bd025f506e.

[81] Rachael King, "ECCB Launches Live CBDC Pilot," centralbanking.com, 2021, accessed on November 3, 2021, https://www.centralbanking.com/fintech/cbdc/7817766/eccb-launches-live-cbdc-pilot.

[82] Foster et al., "Digital Currencies and CBDC Impacts on Least Developed Countries (LDCs)", 12.

[83] *Ibid.*, 13.

The research conducted by many countries in CBDC mostly discusses how CBDC should be implemented, and how it should be designed. To date, there are two different designs of CBDC, retail and wholesale.[84] Retail CBDC is the model where it can be used by the public, especially individuals,[85] while Wholesale CBDC is the model where it is targeted only for the usage by financial institutions, and their activities related to the central bank.[86] Other than that, CBDC designs are also influenced by the policies of each country. Among these policies related to economic interest are the purpose of CBDC, and other matters. These decisions will lead to discussion of CBDC into these questions:

a. The technology used in CBDC (blockchain, distributed ledger, or other technologies);
b. Level of accessibility (retail or wholesale);
c. Level of anonymity;
d. Operational availability; and
e. The purpose of CBDC.

The details of a design for a CBDC, is described in table below:[87]

Data 3.2. Design Choice of CBDC

CBDC could be either retail issued to the public for retail payments or wholesale issued to financial institutions for exclusively interbank settlement purposes. Within retail and wholesale CBDCs, there are several design choices available as per the existing CBDC literature.

1.1. In terms of CBDC's ability to provide anonimity, it could be devided between account-based and token-based. In an account-based CBDC, funds are transferred from account to account, whereas in a token-based CBDC the transfer occurs via wallets. For an account-based CBDC, the central bank maintains a central ledger for settlement, while settlement in a token-based CBDC could be either centralised or decentralised. For both CBDCs, central banks could verity the user' identitas. Therefore, it is unlikely that CBDC would be fully anonymous like cash, yet some degree of pseudonymity is achievable through token-based CBDCs.

1.2. In terms of access snd legal claim,a retail CBDC could be direct, indirect orhybrid.

Direct CBDC	Hybrid CBDC	Indirect CBDC
● CBDC is a direct claim on central banks ● Central Banks handle payments directly	● CBDC is a direct claim on central banks ● Central Banks handle retail balances periodically	● A CBDC claim belongs to an intermediary ● Intermediaries handle retail payments and central banks deal with wholesale payments

1.3. Although, to date, none of the central banks are considering interest-bearing CBDC, theoretically. CBDC can be interest-bearing (with attributes similar to deposits) or non-interest-bearing (similar to cash). While an interest-baering CBDC could trigger bank disintermediation, it could alleviate the macroeconomic shocks arising from the disappearance of cash.

[84] *Ibid.*
[85] *Ibid.*
[86] *Ibid.*
[87] *Ibid.*, 14.

The core difference between a CBDC and a Cryptocurrency is the presence of government intervention. Unlike Cryptocurrency, CBDC mainly works as a national currency in digital version, having its supply controlled by authority and its price influence through policies. Its value is not merely affected by demand and supply of the people, which will result in a better price stability.

However, it should be noted that a CBDC in each country will not be globally implemented. Every CBDC has its own area of coverage, which usage is limited to only within those areas or jurisdictions. Therefore, it may have limited flexibility in terms of funds transfers compared to Cryptocurrency. For example, the CBDC developed by BI may only be legal to be used within Indonesia's jurisdiction. To counter this issue, several countries has developed the idea of connecting CBDC among countries to create a more flexible digital currency with a focus on cross-border transactions.

IV.C. The Implementation of Indonesia's CBDC

IV.C.1. Thorough Example of Existing CBDC: E-CNY of China

Indonesia should model its CBDC development on those from countries which have implemented it already, including China. China was early in developing CBDC, which according to some references, has been in development by the People's Bank of China (PBOC), since 2014. The name of China's digital currency is 'digital renminbi' or 'e-CNY.' While it has been widely used for several years, PBOC stated that it is still in the trial stage and will fully operate only once it has solved several problems.[88]

The working method of e-CNY is centralised through PBOC. It uses a two-layer system with the central bank controlling the core layer using conventional technologies and banks acting as intermediaries in the same way they do for cash.[89] Bank also can use smart contracts for programmable money. PBOC uses a conventional technology approach for CBDC. It decided to not use BCT because of the immaturity, performance, and scalability challenges that blockchain offered. Although e-CNY is planned to eventually use distributed ledger technology for its issuance, it will not use BCT because it is not appropriate for high concurrency, high performance, and strong privacy.[90]

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[88] Chen Jia, "E-CNY Trials Progress, Create Big Confidence," The State Council. The People's Republic of China, 2021, accessed on November 25, 2021, http://english.www.gov.cn/statecouncil/ministries/202109/11/content_WS613c11c1c6d0df57f98e0089.html.

[89] Ledger Insights, "China Explores Using Blockchain for Digital Yuan CBDC Issuance," ledgerinsights.com, 2021, accessed on November 25, 2021, https://www.ledgerinsights.com/china-explores-using-blockchain-for-digital-yuan-cbdc-issuance/.

[90] *Ibid.*

However, PBOC will explore the usage of blockchain for other projects. Those projects include:[91]

a. Exploring DLT for digital yuan issuance, which will help with reconciliation;
b. Participating in Multi-CBDC cross border trials with the BIS, Thailand, Hong Kong, and United Arab Emirates (UAE); and
c. Using blockchain for trade finance.

The e-CNY has been undergoing trials as a payment instrument in many cities in China over the last year. However, its usage is rapidly developing in many sectors. As of October 2021, it was reported that e-CNY has been used to conduct approximately 62 billion yuan ($9.7 billion) in transactions by both individuals and commercial entities.[92] PBOC officials also stated that 140 million people has opened wallets for the digital currency.[93] In addition to that, there are more than 1.5 million merchants both in China and Hongkong that have accepted payment using e-CNY wallets.[94]

IV.C.2. Working Method of Indonesia's CBDC (Digital the Rupiah)

Following the example of E-CNY, Indonesia's CBDC ("Digital the Rupiah") may work similarly if fully implemented in the country. Among important points of how it will work are as mentioned below:[95]

a. Digital The Rupiah will be another form of fiat currency issued by Central Bank

   Digital the Rupiah will have all basic function of money (unit of account, medium of exchange, and store of value). It will act as the same legal tender as The Rupiah, but in a digital form. Therefore, its issuance will not violate the Currency Law since legally Indonesia will only allow The Rupiah to be the sole nation's legal tender. The issuance of digital the Rupiah is basically issuance of another form of The Rupiah, as the result of digital innovation toward the legal tender. The issuance and circulation of digital the Rupiah will be identical with physical The Rupiah, while the value of physical the Rupiah will be transferred into a digital form.

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[91] *Ibid.*

[92] Jamie Crawley, "China's CBDC Has Been Used for $9.7B of Transactions," coindesk.com, 2021, accessed on November 25, 2021, https://www.coindesk.com/business/2021/11/03/chinas-cbdc-has-been-used-for-97b-of-transactions/.

[93] *Ibid.*

[94] *Ibid.*

[95] Working Group on E-CNY Research and Development of the People's Bank of China, "Progress of Research & Development of E-CNY in China," 2021, 3, http://www.pbc.gov.cn/en/3688110/3688172/4157443/4293696/2021071614584691871.pdf.

b. Digital The Rupiah will use centralised management model and two-layered operational system
   This management means that the issuance of digital the Rupiah will be authorised fully by BI. BI will issue digital the Rupiah to authorised operators which are commercial banks and manages digital the Rupiah through its whole life cycle. Commercial banks, and other authorised institution will play the role to exchange and circulate digital the Rupiah in the public, similar to the working method of physical the Rupiah.
c. Digital the Rupiah will act as substitution and coexist with traditional money (physical The Rupiah)
   Both digital and physical the Rupiah hold the same legal status and economic value. BI will issue digital and physical the Rupiah in parallel and will take account of both during daily data collection, analysis, and management.
   Along with the development in digital era, the needs of another form of payment which is more flexible appears. The issuance of digital the Rupiah is aimed to fulfil this need. However, it will not totally replace the physical the Rupiah since it has its own role and needs in the national payment system. Therefore, as BI starts to issue digital the Rupiah, it will not stop the issuance of the physical the Rupiah either.
   This also means that digital the Rupiah is different to banknotes (physical the Rupiah). Digital the Rupiah will work and circulate digitally through application or electronic wallet/account hence its ability to facilitate digital transaction. while banknotes circulate physically as physical money or through other medium such as Credit Card, Debit Card, or other form of medium.
d. Designed as Retail CBDC
   As it has been seen in China, the type of CBDC issued is in the form of retail. The retail CBDC aimed to be used similar as physical the Rupiah, whose usage is allowed for every individual and institution. Therefore, if the issuance of digital the Rupiah is aimed to be the alternative to Cryptocurrency, then it must be issued in retail form.
   As retail, digital Rupiah will be used in daily transaction. However, its usage will also be available in wholesale transactions. As a daily payment instrument, digital Rupiah will further improve the efficiency of the retail payment system and reduce the cost of retail payments.
e. Digital currency will be connected with physical money stored in bank accounts of authorised operators, and both constitute cash in circulation.
   Commercial banks and authorised non-bank financial institutions, which comply with certain requirements (anti money laundering, counter terrorist financing, risk management, and others) may participate in the digital

Rupiah payment system as permitted by BI. This way, the existence of digital Rupiah will not make financial institutions irrelevant. They will have the ability to operate on existing payment system, whilst also taking part in providing digital retail payment services for customers.

When fully operational, Digital Rupiah in Indonesia will be the answer to how the nation can innovate its payment systems in the midst of progressing digital era, while at the same time eschewing the use of Cryptocurrency as a legal payment instrument, as aligned with the prohibition made by BI.

On the other side, implementing Digital Rupiah will not work in the same way as Bitcoin in El Salvador. Bitcoin legalisation as legal tender in El Salvador is a policy which directly legalized the original form of Cryptocurrency as a payment instrument. El Salvador may benefit from Cryptocurrency use, but it should be noted that the nation's central bank will not have the control over Bitcoin. Its circulation, price volatility and issuance are still handled by private parties. Compared to digital Rupiah, digital Rupiah is basically a legal payment instrument (The Rupiah) but in a digital form. Its circulation, price, and issuance are handled by BI as the central bank. Therefore, its usage as a payment instrument is fully supervised by government, which as we have discussed before, plays an important aspect in making a complete payment instrument.

V. CONCLUDING REMARKS

The use of Cryptocurrency as a payment instrument has increased along with its rapidly growing market capitalisation. This increasing utilisation relies mostly on its function as a medium of exchange since it is globally tradable and commonly agreed to by transacting parties. However, it does not fulfil the function as a unit of account or store of value. With its highly unstable price, Cryptocurrency is difficult as a reliable measurement system to goods and service, and to purchase approximately the same value of goods and services in the future as they can purchase now. The lack of these functions leads to the conclusion that Cryptocurrency is not suitable to be a complete payment instrument.

There are advantages and disadvantages to using Cryptocurrency. However, to be used as legal tender (payment instrument), it must be seriously considered that Cryptocurrencies can provide benefits which can be felt by a country. Because every country has different financial conditions and challenges, it is impossible for Cryptocurrencies to be used as a legal tender in all countries in the world.

As the national monetary authority, BI has and will continue to refuse the utilisation of Cryptocurrency as a payment instrument, at least until 2027. The reasons behind this rejection are; (a) Cryptocurrency violates Currency Law and other related BI Regulations, which stated that The Rupiah is the only legal payment instrument in Indonesia's jurisdiction, and (b) Cryptocurrency has the potential to facilitate several crimes, including but not limited to money laundering and terrorism funding. As an alternative, the Bank Indonesia is developing CBDC to create its own digital currency controlled by the Central Bank. CBDC is said to be more secure and has a more stable price compared to Cryptocurrency, which may help it to be a more complete payment instrument in the digital era.

Despite its prohibition of Cryptocurrency utilised as a payment instrument, the Bank Indonesia should continue to thoroughly supervise its circulation in Indonesia. The purpose of this action is to prevent Cryptocurrency from being misused as a payment instrument in the future, and/or to prevent the development of any unsupervised transaction using Cryptocurrency as payment instrument. Further, it is important for BI to specifically regulate the procedure in the near future with the purpose to prevent and sanctions any parties misusing Cryptocurrency as a payment instrument.

Besides that, the decision to encourage Cryptocurrency trading on the futures exchange should be encourage. As an asset, Cryptocurrency gives many economic benefits both to government and public in Indonesia. In the other aspects, the trading activities toward Cryptocurrency in Indonesia is secured, as it is regulated and supervised by BAPPEBTI.

To boost the progress in developing CBDC, the Bank Indonesia may hold a comparative study to other countries that have successfully implemented CBDC for a considerable time. For example, Sweden, People's Republic of China, Cambodia, and other countries with their own CBDC. The purpose of this action is to give the Bank Indonesia a better understanding regarding the aftermath of CBDC implementation toward financial inclusion and digital transformation of the payment systems in Indonesia.

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