



**JURNAL
POROS HUKUM
PADJADJARAN**

P-ISSN: 2715-7202
E-ISSN: 2715-9418

Volume 5, Number 1, November
2023

Submission:
27 July 2023

Published:
30 November 2023

DOI:
<https://doi.org/10.23920/jphp.v5i1.1423>

Link Publications:
<http://jurnal.fh.unpad.ac.id/index.php/JPHP/issue/archive>

Publisher:
Magister of Laws
Universitas Padjadjaran

**JURIDICAL STUDIES OF THE LEGAL STATUS OF
DIGITAL RUPIAH IN THE CONTEXT OF
MODERNIZING FINANCIAL MARKET
INFRASTRUCTURE**

Annisa Carolina Bakhtiyar^a; Sinta Dewi Rosadi^b; Tri Handayani^c

ABSTRACT

The rise of exchange rates other than the official state currency in the digital world raises its own problems. The development of the digital economy that is currently developing is supported by digital economic infrastructure, one of which is the official state medium of exchange. Therefore, this is a demand for the public's need for official state exchange instruments that can apply in the digital world. This was then answered by Bank Indonesia through the concept of Digital Rupiah and its derivatives in various Bank Indonesia Regulations. However, there are problems regarding the Digital Rupiah policy and the implementation of secure use of the Digital Rupiah system. This research was conducted using a normative juridical method, and the writing stage was carried out through a literature search which was carried out by examining secondary data including primary legal materials, literature, articles, opinions and teachings of experts and their implementation in laws and regulations. Based on the discussion, it can be concluded that policies related to Digital Rupiah as a modernization of financial market infrastructure are still contained in various regulations, including Law Number 4 of 2023, Bank Indonesia Regulation Number 23/11/PBI/2021, and Bank Indonesia Regulation Number 23/10 /PBI/2021. Digital Rupiah security arrangements in Indonesia refer to Bank for International Settlements (BIS) guidelines and include secure technology infrastructure, cloud-based cybersecurity services, risk management, and compliance systems, as well as application and infrastructure security integration through DevSecOps. Reliability certificates are regulated in Government Regulation Number 71 of 2019.

Keywords: settings; regulation; digital rupiah.

INTRODUCTION

According to Law 7/2011 Amended by Law 4 of 2023 states money is a legal means of payment. In Article 1 of Law Number 7 of 2011 on Currency (Currency Bill), money is defined as a legal means of payment¹ now applied directly to all buying and selling transactions.

^a Undergraduate Program Faculty of Law, Universitas Padjadjaran, Jalan Ir. Soekarno KM. 21 Jatinangor, Kab. Sumedang, Indonesia. email: annisa18030@mail.unpad.ac.id.

^{bc} Faculty of Law, Universitas Padjadjaran, Jalan Ir. Soekarno KM. 21 Jatinangor, Kab. Sumedang, Indonesia.

¹ Pasal 1 Undang-Undang Nomor 7 Tahun 2011 tentang Mata Uang.

Economic activity was formerly only done by exchange or barter to meet individual needs. As the time of money shape changed shape, value, fractions, names and mentions, and basic materials used such as paper, gold, and metals with various round and rectangular shapes.²

Money also developed with the Industrial Revolution 4.0, the means of payment transformed digitally.³ Rapid technological developments cause payment patterns in economic transactions to develop and change. Advances in technology have contributed to changing the role of cash (Cash currency) as a means of payment into a form of payment that is more effective, efficient, and economical for its use.

Digital rupiah is a rupiah that has a digital format and can be used as well as physical money (paper and metal). The digital rupiah itself is only issued by Bank Indonesia as the Central Bank of Nasional. The digital rupiah is different and does not fall under the category of crypto assets or stablecoins. Digital currency is different from cryptocurrency. Digital rupiah is issued by BI as a monetary authority while cryptocurrency is issued by private parties or non-banking institutions.

Digital Rupiah in Indonesia is issued and regulated by the central bank, Bank Indonesia, such as cards and electronic money. We know that the foundation of the establishment of the Digital Rupiah is Law No. 23 of the Year 1999 on Bank Indonesia and Law Number 4 of the year 2023 on the Development and Strengthening of the Financial Sector. But along with the development of this technology also develops problems in, such as the emergence of cryptocurrency that disrupts digital payment systems in various countries. Therefore, an integrative arrangement of national digital currencies is needed. In practice in Indonesia, Bank Indonesia has also regulated this digital currency in Digital Rupiah to overcome the problem of cryptocurrency.

Digital money payments have certain problems in the form of various forms of digital money that are not uniform in form. Cryptocurrency is one of the few examples. This in turn will cause difficulties in the aspect of setting the digital rupiah because each digital rupiah has its own rules. The condition is exacerbated by the absence of a major legal payment arrangement regarding the form of digital rupiah at the level of legal product legislation. Regulation on the digital rupiah is only found in Law Number 4 of 2023 on the Development and Strengthening of the Financial Sector (hereinafter referred

² Wening Purbatin Palupi Soenjoto, (2018). "Analisa Pengaruh Perubahan Pemakaian Uang Kartal ke Uang Giral terhadap Perilaku Konsumen", *Jurnal Istiqro: Jurnal Hukum Islam, Ekonomi dan Bisnis*, Vol. 4 No. 2, pp. 185-186.

³ Hendro Setyo Wahyudi dan Mita Puspita Sukmasari, (2014). "Teknologi dan Kehidupan Masyarakat", *Jurnal Analisa Sosiologi*, Vol. 4 No. 1, p. 13.

to: P2SK Law), which, but in the law, the shrimp is general and has not been specifically regulated related to the regulation of implementing digital rupiah.

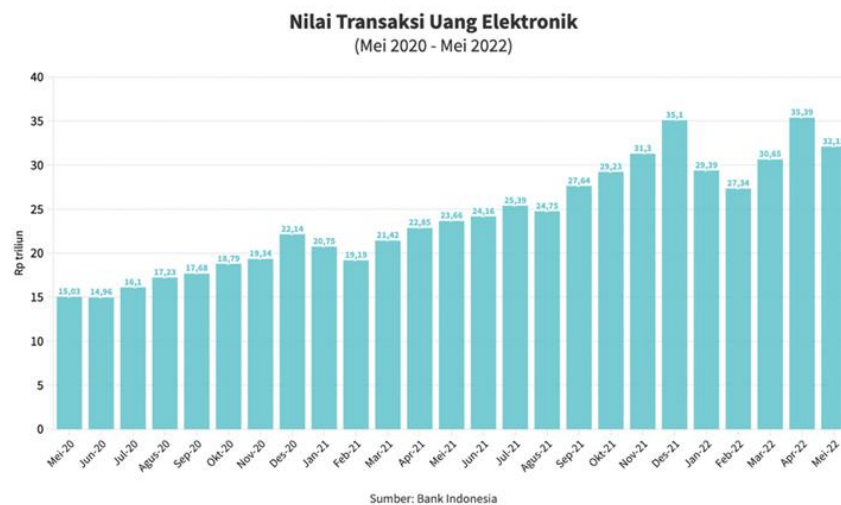
Bank Indonesia is an independent state institution in carrying out its duties and authorities, free from interference by the government and/or other parties, except for certain matters that are expressly regulated by this Law. One of the duties of Bank Indonesia as a central bank is to regulate and maintain the smoothness of the payment system, then further regulated in Article 15 (UU BI), to carry out the functions of the regulation and payment system, to carry out the functions of the payment system, so as specified in Article 8 letter b, Bank Indonesia has the authority one of which is to regulate and maintain smoothness in the payment system, which is done by using the means of payment, namely money.

The legitimate payment instrument arrangement in the Currency Act is the kartal money and the coin is a tool that is recognized as a means of payment. Indeed, the concept of digital money has been formulated in the Garuda project white paper in the form of the concept of central bank digital currency (CBDC). The concept of CBDC contained in the Garuda Bank Indonesia project white paper project is essentially a program of digital legal medium of exchange The legitimate medium of exchange in this case is interpreted as a medium of exchange with the value of the currency of the country concerned. The presence of state currencies in digital form is a response to the widespread use of other digital currencies in the form of crypto and bitcoin currencies whose exchange rates are free-floating and not certain.

Bank Indonesia (BI) noted, the value of electronic money spending transactions worth Rp32.11 trillion in May 2022. The value of electronic money shopping transactions in May 2022 was 48.39% higher than a year earlier. In May 2021, the value of electronic money transactions was recorded at Rp23.66 trillion.⁴

Digital rupiah is a rupiah that has a digital format and can be used as well as physical money (paper and metal). The digital rupiah itself is only issued by Bank Indonesia as the Central Bank of National. The digital rupiah is different and does not fall under the category of crypto assets or stablecoins.

⁴ Shilvina Widi, (2022). "Transaksi Uang Elektronik Capai Rp32,11 triliun pada Mei 2022", 2022, <<https://dataindonesia.id/digital/detail/transaksi-uang-elektronik-capai-rp3211-triliun-pada-mei-2022>> [4/12/2022]



To date, Bank Indonesia (BI) and the Financial Services Authority (OJK), does not provide a ban on the use of blockchain technology carried out in the financial services industry but Bank Indonesia provides a ban on the use of digital currencies other than Rupiah as a legal means of payment in Indonesia, as provided for in Article 21 of the Currency Act. The legal basis used by Bank Indonesia to prohibit the use of virtual currency in payment transactions is regulated in Bank Indonesia Regulation Number 18/40/PBI/2016 on Implementation of Payment Transaction Processing and Bank Indonesia Regulation Number 19/12/PBI/2017 on Financial Technology Implementation.

The ban does not automatically apply to the use of blockchain as a technology in the financial services industry. For example, OJK Regulation Number 77/POJK.01/2016 and OJK Regulation Number 37/POJK.04/2018 do not prohibit the use of blockchain technology. In line with the previous regulation, BI Regulation Number 18/40/PBI/2016 also does not provide a ban related to the use of blockchain technology in the financial services industry.⁵

In order to overcome the risks to the stability of crypto assets, a regulatory framework is needed to overcome them. In addition, the existence of crypto assets also grounds the central bank in exploring the design and issuance of Central Bank Digital Currency (CBDC) or digital currency issued by the central bank.⁶

In its digital form, the, so Article 15 paragraph (1) of the ITE law requires every electronic system organizer to be obliged to conduct electronic systems reliably and safely and be responsible for the implementation of electronic systems properly. Reliable

⁵ *Buletin Hukum Kebankesentralan*, (2019). Vol. 16, Nomor 1, Januari - Juni 2019, p. 46.

⁶ Bank Indonesia, (2022). "Peran CBDC Dalam Memperkuat Pelaksanaan Mandat Bank Sentral", 2022, <https://www.bi.go.id/id/publikasi/ruang-media/news-release/Pages/sp_2417722.aspx> [4/12/2022]

means trustworthy; and safe means free from danger, free from interference, and protected or hidden. Reliability that can be trusted or can perform consistently well.⁷

The implementation of CBDC has an impact on payment transactions that are faster, more efficient, real-time, and can be cross-country so that the economy is expected to be more advanced. The central bank can monitor the money supply effectively and facilitate transaction tracking.

Digital Rupiah in Indonesia in the future will be issued and regulated by the central bank, Bank Indonesia, such cards and electronic money. It can be known that the foundation of the establishment of the Digital Rupiah is Law No. 23 Year 1999 on Bank Indonesia and Law Number 4 of the year 2023 on the Development and Strengthening of the Financial Sector.

The implementation of the Digital Rupiah in Indonesia is organized by Bank Indonesia the central bank and the first initiator of this program. Because the Digital Rupiah is carried out electronically by BI, the automatic implementation is also subject to the legal rules governing the implementation of electronic systems and transactions contained in the PMSE PP. Article 61 of Government Regulation No. 80 Years 2019 About Payment Through Electronic System, payment system service providers must comply with Electronic System security level standards by the provisions of the laws and regulations. Also described in 42 paragraphs 1 and 2 PP Number 71 of 2019 regarding the form of the embodiment of electronic system security in the form of electronic certification provided for the electronic system in question. The purpose of granting this reliability certification is nothing but to realize an electronic system that functions safely and reliably.

From some of the above regulations, there is no legal instrument that regulates in detail related to the Digital Rupiah, then a legal instrument or tool is needed to regulate this situation. Because it is appropriate that this Digital Rupiah is arranged in detail.

For now, the regulation on the Digital Rupiah has a legal basis in Law Number 4 of 2023 on the Development and Strengthening of the Financial Sector, according to the statement, however, the Law on the Development and Strengthening of the Financial Sector has not accommodated in detail related to the arrangement of the Digital Rupiah and the nature of the arrangement is too general which brings the problem of vacancy norms that regulate details-details related to the Digital Rupiah and also cause problems related to the vagueness of norms in the field of Digital Rupiah security arrangements in Indonesia.

⁷ Charles Amirul (et.al.), (2021). "Reliability and Security in the Implementation of Digital Health Service Application with the Application of "Reliability Certification or Electronic Certification" based on Indonesian Law", *Padjadjaran Jurnal Ilmu Hukum*, Vol. 8 No. 3, 2021, p. 423.

Based on the above exposure, it can be identified several problems that arise related to the regulatory aspects of the existence of the Digital Rupiah in the payment system in Indonesia. The problem, among others: What is the policy of the Digital Rupiah to modernize financial market infrastructure? and What is the readiness of the Central Bank in securing the Digital Rupiah system?

RESEARCH METHODS

The method used in research is normative juridical by using secondary data obtained from data sources in the form of library materials or written data in the form of books, scientific journals, and so on, as well as encyclopedias and scientific works related to regulations and policies regarding the Digital Rupiah and regulations related to its security in Indonesia. The discussion of the problems in this article will be described in a descriptive-analytical way by describing the overall object studied in a sequence and systematically based on the data obtained.

DISCUSSIONS

Digital Rupiah Policy in the Framework of Modernization of Financial Market Infrastructure

The existence of the digital rupiah as a payment instrument is certainly not separated from the authority of Bank Indonesia. Positive legal recognition of the existence of the Digital Rupiah can be found explicitly in the P2SK Law, precisely Article 2 paragraph (2) which divides the Rupiah into three forms, namely, Rupiah paper, Rupiah metal, Rupiah metal, and Digital Rupiah. Although it has regulated the Digital Rupiah in its contents, this Law still has not elaborated further regarding the regulation of procedures and safety aspects of its use. Arrangements regarding the Digital Rupiah will be set out in the form of regulations issued further by Bank Indonesia which is referred to as Bank Indonesia Regulation (PBI).

According to Law Number 3 of 2004 concerning Changes to the Law of the Republic of Indonesia Number 23 of 1999 concerning Bank Indonesia as an independent state institution in carrying out its duties and authorities, free from interference by the Government and/or other parties, except for matters expressly provided for in this Act. In addition, Bank Indonesia is also designated as the Central Bank of the State of Indonesia in paragraph (1).

As Bank Sentra Republik Indonesia, BI has special powers granted to him for the smooth implementation of his duties as Central Bank. The authority of BI includes "a. implementing and giving consent and permission for the implementation of payment system services; b. requiring the payment system service provider to submit a report

about its activities; c. determining the use of payment instruments.” The authority of BI in determining the means of payment is then followed up in the regulatory product in the form of the Bank Indonesia Regulation.

Bank Indonesia Regulation that regulates the payment system is Bank Indonesia Regulation Number 23/11/PBI/2021 About the National Standard of Payment System. Bank Indonesia Regulation defines the payment system as a system that includes a set of rules, institutions, mechanisms, infrastructure, sources of funds for payments, and access to sources of funds for payments, which is used to carry out a transfer of funds to fulfill an obligation arising from an economic activity. In this case, this research will focus more on the rules regarding financial instruments that are the basis of regulation of financial market instruments.

The central bank provides supporting infrastructure for the financial system reserved for public banks and private non-banks. This strategy can be achieved through means: first, a service for public banks to settle interbank transactions using central bank money; second, a service for public banks to complete interbank transactions using central bank money; second, a service for banks, means for convertibility between private money and central bank money through the provision of banknotes and coins as anchors, and; third, through, provision of contingency liquidity through the lender of the last resort function⁸ Central bank money plays an important role in guarding public trust. Financial institutions can convert private money into the value of central bank money at an equivalent value.⁹

Economic activity in the period before the discovery of information technology was only done by exchanging goods. The way of exchange is done in the form of barter to meet their respective needs. Then the regulation related to national financial infrastructure is experiencing regulatory developments along with the times. Starting from the Rupiah currency arrangement contained in its law, namely the Currency Act No. 7 Year 2011, precisely Article 2 paragraph (2) which divides the Rupiah into two forms, namely Paper Rupiah and Metal Rupiah. The presence of state currencies in digital form is a response to the widespread use of other digital currencies in the form of crypto and bitcoin currencies whose exchange rates are free-floating and not certain. It is known that the foundation of the establishment of the Digital Rupiah is Law No. 23 of the year 1999 on Bank Indonesia and Law Number 4 year 2023 on the Development and Strengthening of the Financial Sector.

⁸ Bank for International Settlements, (2020). “Central Banks and Payments in the Digital Era. BIS Annual Economic Report 2020. Chapter III.”, <<https://www.bis.org/publ/arpdf/ar2020e.htm>> [06/2023].

⁹ Warjiyo, P. dan Juhro, S. M., (2019). “Chapter 10: Monetary Policy Credibility and Time Consistency” in: Warjiyo, P. dan Juhro, S. M., *Central Bank Policy: Theory and Practice*, Emerald Publishing Limited.

The initial step of the development of Rupiah Digital BI through the Garuda Project is to issue a White Paper as a communication to the public about the development plan of Rupiah Digital. In addition, the White Paper aims to get input from various related parties. After the White Paper, the BI then took a series of interactive and gradual developments that began by raising public views on the design of the Digital Rupiah starting from public consultation (Consultative Paper and Focus Group Discussion), technology experiments (proof of concept, prototyping, and piloting/sandboxing), as well as ending review on policy stance. The repeated series aims to open up a wide flexibility space for stakeholders and industries to prepare themselves and conduct trials together before the Digital Rupiah is implemented. Digital Rupiah will be issued in two types, among others; First, Digital Wholesale Rupiah (w-Digital Rupiah) with limited access coverage and only distributed for the completion of wholesale transactions such as monetary operations, and, forex market transactions, as well as money market transactions; and secondly, money market transactions, Rupiah Digital retail (r-Rupiah Digital) with coverage of open access to the public and distributed for various retail transactions both in the form of payment transactions and transfers, which can be utilized both by personal/individuals and businesses (merchants and corporations).

The first development is contained in the FMI or financial market infrastructure that contains it as a system that facilitates financial market transactions until its completion. According to the definition provided by IOSCO, FMI is defined as a multilateral system that provides services for trading, clearing, settlement, reporting, and recording in connection with payment transactions, securities, derivatives, etc, and other financial transactions. Some of these systems are assessed as systemically imported FMI according to the criteria set by each country. However, most refer to the system used after the transaction occurs (post-trade). Whereas when referring to the Principles for Financial Market Infrastructure,¹⁰ FMI is categorized as systemically imported including the multilateral system that performs functions: Payment System (PS), Central Securities Depositors (CSD), and so on, Securities Settlement System (SSS), Central Counterparty (CCP), and Trade Repository (TR). In its implementation, each country can have its considerations in categorizing the entry or absence of a system in a systemically imported FMI.

The Digital Rupiah is expected to emerge as a sustainable solution (future-proof). The Rupiah Digital as a form of development of Indonesian CBDC is a way for Bank Indonesia to still be able to fulfill its public policy mission in the digital era. With the

¹⁰ CPSS-IOSCO, (2012). "Principles for Financial Market Infrastructures", <<https://www.bis.org/cpmi/publ/d101.htm>>

Digital Rupiah, people will have access to risk-free and Rupiah-denominated digital money. On the contrary, the central bank can still maintain its public services with the best service level in the digital era while maintaining confidence in the Rupiah.

Rupiah Digital is expected to have a safer and more efficient quality compared to the quality of physical card money and current accounts in Bank Indonesia. With that character, the Rupiah Digital will be able to effectively become a core instrument for Bank Indonesia in carrying out its mandate in the digital era. It is in line with the explanation of the Group of Central Bank (2020) that CBDC is one of the instruments the core is for the central bank to carry out its mandate in providing a safe form of money to the economy.

Bank Indonesia also places the issuance of the Digital Rupiah in the context of strengthening the resilience of payments for Indonesian people. Digital Rupiah will add a treasure of means of payment that guarantees the public be able to transact in any condition. Digital Rupiah comes as a complement to money commonly used by the community, including physical card money. The task of Bank Indonesia in this case is to answer the needs and payment preferences of the community. The development of the Digital Rupiah is the answer of Bank Indonesia to present a form of currency in the form of Rupiah that is fast, easy, cheap, safe, and reliable in the digital ecosystem.

The law can be said as a whole set of rules or rules in a common life, in which the whole rule is intended to regulate behavior in common life, and can be imposed by a sanction. So in this case the law serves as a protection of human interests.¹¹ Then Mochtar Kusumaatmadja put forward further the definition of law from a wider angle. Law is not only the whole of the principles and rules that govern human life in society, but according to him, also includes the institutions and processes that embody the application of these rules in reality (Mochtar Kusumaatmadja, 1986).¹² Bank Indonesia as an Institution is one of the means to make legal updates. In this case Bank Indonesia must issue a policy regarding the Digital Rupiah. The contents of the Bank Indonesia Regulation are related to the Digital Rupiah that must be issued in the money market, which is entitled to issue the Bank of Indonesia itself, its purpose is to help stabilize the economy in Indonesia. The policy is one form of legal reform, where the Digital Rupiah is a development of payment equipment that occurs today and is regulated by Bank Indonesia as a central bank for the purpose of broad conditions to achieve prosperity.

Once it feels right and can be distributed to the community, the digital rupiah can begin to be circulated and can be used by the community. Regarding cooperation with

¹¹ Sudikno, Mertokusumo, (1999). *Mengenal Hukum Suatu Pengantar*, Yogyakarta: Liberty, p. 49.

¹² Mochtar Kusumaatmadja, (1986). *Pembinaan Hukum dalam Rangka Pembangunan Nasional*, Bandung: Bina Cipta, p. 11.

other countries, currently various central banks at the ASEAN level have only approached the conference and have not reached a firm setting in the form of positive law. Cooperation related to payment instruments at the ASEAN level is currently limited to the QRIS agreement.

Settings Related to Security of Digital Rupiah in Indonesia

Globalization is a driving factor in the birth of the era of information technology development. Its spread has spread to various parts of the world, ranging from developed countries such as in the European continent and America to developing countries such as in the Asian continent, Africa and Latin America have adopted its use for the development of their communities. Information technology in this case has a very important position for a country, so its development greatly determines the progress of the country concerned.

However, the development of information technology also poses various risks to the public. Such risks can be either negative or positive risks. But what will be the focus in this discussion is only a negative risk, so it requires the right response in dealing with it. Response to negative influences is one of which is adequate security measures for the negative risks of the technology.

The science that studies these security measures is commonly known as cybersecurity. Cybersecurity has a wide scope covering technical, organizational, and governance areas to protect information systems networks against intentional or unintentional threats. This coverage goes beyond just encryption issues, internet networks, and similar technical security devices. Indeed, there are several definitions of cybersecurity given by experts or international organizations, but in this study, the author takes the definition of cybersecurity from the International Telecommunication Union (ITU) which defines (ITU-T, 2008 p. 2):

“Cybersecurity is the collection of tools, policies, security concepts, security safeguards, guidelines, risk management approaches, actions, training, best practices, and assurance and technologies that can be used to protect the cyber environment and organization and user’s assets. Organization and user’s assets included connected computing devices, personnel, infrastructure, applications, services, telecommunications systems, and the totality of transmitted and/or stored information in the cyber environment. Cybersecurity strives to ensure the attainment and maintenance of the security properties of the organization and user’s assets against relevant security in the cyber environment”

The importance of cybersecurity to society has increased along with its use by various government agencies, the business world, and daily use in different parts of the world because today various life activities have been transformed in the form of

activities in cyberspace. Such activities certainly require an adequate security aspect known as cybersecurity. Cybersecurity is a multidisciplinary term.

The coverage aspect of cybersecurity consists of technical aspects, human and social resource aspects, and legal aspects. In this study, the author focuses more on the legal aspects of cybersecurity itself associated with the regulation of Digital Rupiah, especially security related to the implementation of Digital Rupiah in Indonesia

Although there is no Indonesian law or legislation product that states expressly regulate cybersecurity, regulations governing aspects of cybersecurity can be found scattered in various laws and regulations. The provisions of cybersecurity in national legislation products can be found in Article 3 paragraph (1) of Government Regulation Number 71 of 2019 concerning the Implementation of Electronic Systems and Transactions (PP PSTE). The article states "Each Electronic System Operator must hold the Electronic System reliably and safely and be responsible for the operation of the Electronic System as it should". In addition, cybersecurity-related arrangements can also be found in Article 61 paragraph (1) of Government Regulation Number 80 of 2019 on Trade Through Electronic Systems which stipulates that payment system service providers must comply with electronic System safety level standards and the provisions of the legislation. The determination of the standard level of security is then further regulated in paragraph (2) of the Article in question, that such determination is determined by the head of the Government Agency that conducts government affairs in the field of cybersecurity and state code, that such determination is determined by the head of the government agency that conducts government affairs in the field of cyber security and state code, Governor of Bank Indonesia, and/or Chairman of the Financial Services Authority.

The set of rules is a reflection of the nature of cybersecurity/cybersecurity settings. At the implementation level, Bank Indonesia as the Central Bank has also issued regulations related to cybersecurity, especially regarding the standard of transacting security in the digital world. The regulation referred to is Bank Indonesia Regulation Number 23/7/PBI/2021 About the Payment System Infrastructure Operator. Article 89 paragraph (1) Regulation of Bank Indonesia Number 23/7/PBI/2021 on the Implementation of Payment System Infrastructure sets some standard benchmarks related to cybersecurity which include a. aspects of governance; b. prevention aspects; and c. handling aspects.

In addition, Bank Indonesia has also issued a policy related to cybersecurity stipulated in Bank Indonesia Regulation Number 23/11/PBI/2021 About the National Standard of Payment Systems. Article 2 of the PBI sets out several objectives related to the national standard of payment systems, one of which is to encourage integration,

interconnection, interoperability, security, and reliability of the Payment System's infrastructure. The article formula indicates that the standardization of the national payment system must contain safe and reliable properties as one of its goals. This means reliability and security must be prioritized in the implementation of the payment system by Bank Indonesia.

Further elaboration of such an article is to set the scope related to national payment system standards, one of which is the "information system security standard". In the general explanation of information system security standards this is interpreted as "information system security standards, among others, information system security standards in data processing or payment transaction processing in the form of: 1. information system policies and procedures; 2. secure and reliable system; and/or 3. secure data and/or information". However, the various provisions referred to are not explained more deeply about the regulation of cybersecurity aspects in the content.

Referring to documents issued by the Bank for International Settlements (BIS) a paper related to A security and resilience framework for CBDC systems, this section discusses Participants' security and resilience capabilities, which in this section outlines various assumptions about security capabilities and resilience and expectations from different participants in the retail CBDC ecosystem.¹³ The central bank has strong capabilities and practices in physical and cyber security, resilience, external dependency management, and enterprise risk management, utilizing industry-standard risk and security management frameworks. In this case, the central bank (or other public authority) is involved in assessing and verifying the security measures and operational resilience of participants in the retail CBDC ecosystem, possibly as part of supervisory activities.

Then explained further that technology providers, including the Central Bank when issuing CBDC that have an important role in building a CBDC ecosystem that has the following capabilities:¹⁴

1. Secure and resilient technological infrastructure, compliant with regulations in certain jurisdictions, and guaranteed by independent parties.
2. Cyber security services such as cloud-based malware identification, distributed denial-of-service (DDoS) protection services, security monitoring, as well as intrusion detection and prevention systems.

¹³ Bank for International Settlements, (2023). *Project Polaris Part 2: A security and resilience framework for CBDC systems*, BIS Innovation Hub, p.12

¹⁴ *Ibid*, p. 13.

3. Expertise in the development and security of digital currency and payment systems, including independent security validation services.
4. Development of a digital wallet (software and/or hardware) to store CBDC and conduct CBDC transactions online and offline.
5. Risk management and compliance systems, including CBDC transaction monitoring and behavioral analysis tools.
6. DevSecOps (development, security, and operations) solutions to integrate application and infrastructure security in the system development, change, and operational lifecycle.

Overall, the security and robustness of CBDC systems are the responsibility of the entire ecosystem from start to finish, depending on the awareness and good practice of all participants, and it requires cooperation between the public and private sectors.

Therefore, the rules in question are considered still not enough to adequately regulate the risks of cybersecurity aspects. Cyber security risks are considered to have been met, while there are technical standards used as a reference in overcoming various negative risks in digital transactions. To be able to meet cyber security standards, a symbol or sign can be used as a sign of proof of the reliability and security of the electronic system, namely by proof of the certificate of reliability.

The certificate of reliability, according to Charles Amirul and Muhamad Amirulloh, is interpreted as a document stating that business actors who conduct electronic transactions have passed an audit or conformity test from a reliability certification institution. Therefore, an electronic system that has performed reliability certification means it has passed an audit or conformity test so it is entitled to a certificate of reliability. The certificate of reliability is an identity for electronic system organizers that the electronic system they implement can be trusted and safe. Any certificate of reliability of electronic systems can be interpreted as a document stating that the business actors who conduct electronic transactions have passed an audit or conformity test from a reliability certification body. Therefore, an electronic system that has performed reliability certification means it has passed an audit or conformity test so it is entitled to a certificate of reliability. The certificate of reliability is an identity for electronic system organizers that the electronic system they implement can be trusted and safe. Each operator's electronic system with a certificate of reliability is safe and reliable because there is a provision in the Government Regulation on the Implementation of Electronic Systems and Transactions, Article 76 paragraph (1), which

in essence states that reliability certificates issued by reliability certification bodies include the following categories:¹⁵

- a) Identity registration contains the limited assurance that the identity of the business person is correct (name the legal subject, status of legal subject, address, phone number, email address, business license, and/or NPWP).
- b) Electronic system security contains certainty about the process of delivering or exchanging data through the website of business actors with data exchange security technology such as SSL/secure socket layer protocol.
- c) The privacy policy contains a guarantee that the personal data of the consumer is protected confidentially as appropriate.

Regulations related to reliability certification in various national laws and regulations are spread at various levels of regulation. Starting from the level of the Law legislation product to the Implementation Regulation in the form of Government Regulation. Starting from Article 10 paragraph (1) of the ITE Act 2008 which states that "Any business person who conducts Electronic Transactions can be certified by the Reliability Certification Institute". In the general explanation related to this article, it is explained that the reliability certification is "The Reliability Certification is intended as evidence that business actors who trade electronically are worthy of trying after going through an assessment and audit of the authorized body. Evidence has been done Reliability Certification shown by the existence of a certification logo in the form of trust marks on the page (home page) of the business actor". Based on the general explanation, it can be interpreted that reliability certification is a sign of valid evidence of the reliability and security of an electronic system.

At the level of implementation regulations, the regulation related to reliability certificates is also found to be a form of embodiment of cybersecurity regulations. The Government Regulation on Trade Through Electronic Systems, precisely article 21 paragraph (1) letter (e) requires that the trade organizer through an electronic system meet the provisions of technical requirements set by the relevant agency and obtain a Certificate of Reliability by the provisions of the laws and regulations. But the rules, until now there has been no further arrangement related to the benchmark reliability certification standard determined by the relevant agency.

Explicit arrangements regarding reliability certificates are starting to be regulated in Government Regulation Number 71 of 2019 concerning Electronic Systems and Transaction Organizers. Article 1 figure 27 regarding the certificate of reliability is a document stating that Business Players who conduct Electronic Transactions have

¹⁵Charles Amirul, (et.al.), *Loc. Cit*, pp. 426-427.

passed an audit or conformity test from the Reliability Certification Agency. This certification is issued by professionals who work in the fields of a. Information Technology consultants; b. Information Technology auditors; and c. legal consultants in Information Technology. From this provision, it is seen that the certificate of reliability is issued by the parties who are experts in the field of information technology, namely experts in the field of information technology, auditors, and legal experts in information technology law who work as legal consultants in information technology. These provisions also indicate that reliability certification is issued by third parties who are experts in the field of information technology.

Similarly, Bank Indonesia Regulations should regulate related to the Payment System Infrastructure Operator, which, must be able to harmonize the settings related to the security of its electronic payment system with various rules regarding the certificate of reliability as one of the proofs that security standards have been achieved by electronic system organizers that are assessed and issued by third parties. It is hoped that Bank Indonesia Regulation in the future can regulate synchronization between the arrangements in the ITE Law, PP PMSE, and PP PSTE on the one hand and various Bank Indonesia regulations that regulate payment system infrastructure on the other hand. With the achievement of synchronization or harmony of the various regulations in question, it will be able to create reliable digital rupiah security in managing the negative risks that will occur in the future.

CONCLUSION

The policy related to the Digital Rupiah as modernization of financial market infrastructure is currently still found in various regulations, so to see the policy related to the Digital Rupiah which is Polaris can refer to the following rules: 1) Law Number 4 of 2023 on the Development and Strengthening of the Financial Sector Article 10, 2) Regulation of Bank Indonesia Number 23/11/PBI/2021 About the National Standard of Payment Systems, Indonesia, 3) Bank Indonesia Regulation Number 23/10/PBI/2021 on Money Market. The various regulations and policies in question are a form of the Digital Rupiah policy in modernizing financial market infrastructure, 3) Bank Indonesia Regulation Number 24/6/PBI/2022 on the Use of Rupiah Policy on International Activities.

The security arrangements of the Digital Rupiah in Indonesia, based on the documents of the Bank for International Settlements (BIS) of the Central Bank at least have the following means: 1) Secure and resilient technological infrastructure, and, by the regulations in certain jurisdictions, and guaranteed by independent parties, 2) Cloud-based cybersecurity services, distributed denial-of-service (DDoS) protection

services, security monitoring, and, 3) Risk and compliance management systems, including CBDC transaction monitoring and behavior analysis tools, 4) DevSecOps (development, security, and operations) solutions to integrate application and infrastructure security in the system development cycle, and, change, and operations. Currently, it has been regulated in Bank Indonesia Regulation Number 23/7/PBI/2021 About the Operator of Payment System Infrastructure article 89 paragraph (1) and Bank Indonesia Regulation Number 23/11/PBI/ 2021 About the National Standard of Payment System which is the main foundation in the security arrangements of Digital Rupiah and some positive laws governing related to the certificate of reliability. The regulation of reliability certificates can be found in a variety of positive legal products starting from Law Number 11 of 2008 on Electronic Information and Transactions and Government Regulation Number 71 of 2019 on System Operators and Transactions electronics. However, the most strict regulation defining and regulating reliability certification is Government Regulation Number 71 of 2019 concerning Electronic Systems and Transactions Organizers, because only this Government Regulation states that the certificate of reliability can be proof of the reliability and safety for the implementation of an electronic system.

Bank Indonesia follows Law Number 4 of 2023 on the Development and Strengthening of the Financial Sector related to the existence of the Digital Rupiah. Also to ensure the security of the Digital Rupiah in its use, harmonization measures are needed against various positive legal products that regulate it, starting from Law Number 11 of 2008 on Electronic Information and Transactions, which is also required, Government Regulation Number 80 of 2019 Concerning Trade Through Electronic Systems and Government Regulation Number 71 of 2019 concerning Electronic Systems and Transactions Operators to apply a neutral reliability certification as standard evidence security of the Digital Rupiah system in the Indonesian financial system.

REFERENCES

Books

- Atmasasmita, R. (2012). *Teori Hukum Integratif: Rekonstruksi Terhadap Teori Hukum Pembangunan dan Teori Hukum Progresif*. Yogyakarta: Genta Publishing.
- Bank for International Settlements. (2020). *Central Banks and Payments in the Digital Era. BIS Annual Eco-nomic Report 2020. Chapter III. Bank for International Settlements*.
- Bank for International Settlements. (2022). *The Future Monetary System. BIS Annual Economic Report 2022. Chapter III. Bank for International Settlements*.
- Bank for International Settlements. (2023). *Project Polaris Part 2: A Security and Resilience Framework for CBDC Systems*. BIS Innovation Hub.

- Bank Indonesia. (2022). *White Paper Rupiah Digital*. Jakarta: Bank Indonesia.
- Brunnermeier, M. K. (2019). The Digitalization of Money. *Working Paper 26300, National Bureau of Economic Research*.
- Budhijanto, D. (2019). *Cyberlaw 4.0*. Bandung: Logoz Publishing.
- CPSS-IOSCO. (2012). *Principles for Financial Market Infrastructures*. Bank for International Settlements.
- Dwipatna, I. M. (2016). *Pasar Keuangan & Pasar Modal*.
- Kusumaatmaja, M. (1986). *Pembinaan Hukum Dalam Rangka Pembangunan Nasional*. Bandung: Penerbit Binacipta.
- Kusumaatmaja, M. (2006). *Konsep-Konsep Hukum dalam Pembangunan*. Bandung: PT. Alumni.
- Sudikno, M. (1999). *Mengenal Hukum Suatu Pengantar*. Yogyakarta: Liberty.
- Susilowati S. Dajaan, d. (2020). *Hukum Perlindungan Konsumen*. Bandung: Cakra.

Journals

- Amirul, C. d. (2021). Reliability and Security in the Implementation of Digital Health Service Application with the Application of "Reliability Certification or Electronic Certification" based on Indonesian Law. *Padjadjaran Jurnal Ilmu Hukum*, Vol 8 No.3.
- Bank Indonesia. (2019). *Buletin Hukum Kebanksentralan*, Vol. 16, No. 1.
- Buletin Hukum Kebanksentralan*, (2019). Vol. 16, Nomor 1, Januari - Juni 2019.
- Soenijoto, W. P. (2018). Analisa Pengaruh Perubahan Pemakaian Uang Kartal Ke Uang Giral Terhadap Perilaku Konsumen. *Jurnal Istigro: Jurnal Hukum Islam, Ekonomi, dan Bisnis* Vol. 4 No.2.
- Wahyudi, H. S., & Sukmasari, M. P. (2014). Teknologi dan Kehidupan Masyarakat. *Jurnal Analisa Sosiologi*, Vol 4 No 1.
- Warjiyo, P., & Juhro, S. M. (2019). Chapter 10: Monetary Policy Credibility and Time Consistency. In *Central Bank Policy: Theory and Practice*. Emerald Publishing Limited.

Legislation

- Undang-Undang Dasar Negara Republik Indonesia Tahun 1945.
- Undang-Undang Nomor 23 Tahun 1999 tentang Bank Indonesia.
- Undang-Undang Nomor 21 Tahun 2011 tentang Otoritas Jasa Keuangan.
- Undang-Undang Nomor 7 Tahun 2011 tentang Mata Uang.
- Peraturan Pemerintah Nomor 71 Tahun 2019 tentang Penyelenggaraan Sistem dan Transaksi Elektronik.

Peraturan Bank Indonesia Nomor 20/6/PBI/2018 tentang Uang Elektronik.

PBI Nomor 18/40/PBI/2016 tentang Penyelenggaraan Pemrosesan Transaksi Pembayaran.

PBI Nomor 19/12/PBI/2017 tentang Penyelenggaraan Teknologi Finansial.

Other Sources

Shilvina Widi, (2022). *"Transaksi Uang Elektronik Capai Rp32,11 triliun pada Mei 2022"*, 2022, <<https://dataindonesia.id/digital/detail/transaksi-uang-elektronik-capai-rp3211-triliun-pada-mei-2022>> [4/12/2022].