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CENTRAL BANK DIGITAL CURRENCY UNDER THE STATE THEORY OF MONEY: A PRELIMINARY LEGAL ANALYSIS

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Abstract

Innovations in digital payments have triggered many central banks to apprehend and consider central bank digital currency (CBDC). CBDC is believed to be the next milestone in the evolution of money because many studies have shown the significant advantages of using government-issued digital currency. However, to function as money, CBDC must fulfil the fundamental role of money, among others, contended by the state theory of money. This paper addresses the applicability of the state theory of money to CBDC as digital money, which is prefaced by the discussion on money as legal tender and the theory of sovereign power over money. After analysing these theories, this paper offers a preliminary legal analysis of CBDC, mainly from the perspective of Indonesian law. This paper concludes that the concept of CBDC as money and legal tender may fulfil the notion of money under the state theory of money and can serve as legal tender. Applying this theory to CBDC and assuming CBDC is used as legal tender, the State should create a legal framework to regulate CBDC as a valid medium of exchange and legal tender. However, it is also acknowledged that various designs of CBDC must be supported by different legal environments. Furthermore, this paper recommends the preparation of an Indonesian legal ecosystem for CBDC, consisting of a solid regulatory framework and clear legal relationships among relevant parties, that are needed to ensure the legality of the issuance, distribution and transference of CBDC once the design of CBDC is determined. Furthermore, to accommodate the use of CBDC, a thorough assessment of the relevant Indonesian laws should be undertaken relating, among other factors, to the central bank, money, currency, and technology.

Keywords: *CBDC, digital currency, virtual money, digital currency, central bank money*

I. INTRODUCTION

Technology has altered how financial systems work.[1] Technological development has also spawned rapid changes in the payment landscape and remarkable growth in the use of digital payments for purchasing goods and services, including in Indonesia. For example, in 2019, Indonesia's four major

[1] Morten Bech and Rodney Garratt, "Central Bank Cryptocurrencies," *BIS Quarterly Review* (September 2017), https://www.bis.org/publ/qtrpdf/r_qt1709f.pdf.

e-commerce platforms doubled their electronic transactions to about IDR 429 trillion as consumers turned to e-commerce and contactless payment methods, especially after the outbreak of Covid-19.[2] This shows that the public has become comfortable using digital payments.

Evolution of technology has also triggered innovation in digital payment, such as virtual currencies created by private entities (cryptocurrency). The lack of a uniform regulatory framework on private virtual currencies in larger countries, such as the United States, shows that these countries are not well suited to recognise the global phenomenon of cryptocurrencies.[3] Likewise, in Indonesia, for example, cryptocurrencies are not considered legal tender, but are rather currently recognised only as commodities under the Indonesian Ministry of Trade Regulation No. 99 of 2018 on General Policy for the Implementation of Crypto-Asset Futures Trading. According to the Bank for International Settlements (BIS), cryptocurrencies are considered speculative assets instead of money and, in many cases, are linked to money laundering.[4] Despite the uncertainty, Bitcoin, as the top cryptocurrency by market capitalisation, currently has a market capitalisation of over USD896 billion.[5]

In general, the decline of the use of cash in daily transactions and the rise of digital payments, especially during the pandemic, and the significant rise of private virtual currency in the market[6] have become the primary impetus for the central banks to engage in research on Central Bank Digital Currency (CBDC) either for retail or general-purpose CBDC and wholesale CBDC.

The central bank of Indonesia (Bank Indonesia) as the central bank of Indonesia is also planning to issue Indonesian CBDCs, namely Digital Rupiah.[7] Bank Indonesia has expedited its research on Digital Rupiah and expects to issue a white paper on Digital Rupiah by the end of 2022.[8] In the global

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[2] "The Accelerating Digital Payments Landscape in Indonesia," Deloitte Indonesia Business and Industry Update, accessed July 18, 2022, https://www2.deloitte.com/id/en/pages/technology-media-and-telecommunications/articles/accelerating-digital-payments-landscape-in-indonesia.html.

[3] D. Towne Morton, "The Future of Cryptocurrency: An Unregulated Instrument in an Increasingly Regulated Global Economy," *Loyola University Chicago International Law Review*. Vol. 16, (2020): 132, https://lawecommons.luc.edu/cgi/viewcontent.cgi?article=1219&context=lucilr.

[4] Bank for International Settlements, "BIS Annual Economic Report 2021," 29 June 2021, 67. https://www.bis.org/publ/arpdf/ar2021e.htm.

[5] "Top Cryptocurrency 2022," Statistics and Data, accessed July 1, 2022, https://statisticsanddata.org/data/top-10-cryptocurrency-2022-to-invest/.

[6] Bank for International Settlements, "BIS Annual Economic Report 2021," 67.

[7] "News Release: CBDC Role in Strengthening Implementation of Central Bank Mandate," Bank Indonesia, Accessed July 18, 2022, https://www.bi.go.id/en/publikasi/ruang-media/news-release/Pages/sp_2417722.aspx; M. Taufan Rengganis, "Bank Indonesia Highlights Three Major Benefits of Digital Rupiah," *Tempo.Co*, 20 August 2021, https://en.tempo.co/read/1496802/bank-indonesia-highlights-three-major-benefits-of-digital-rupiah.

[8] Ibid.

community, under Indonesia's G20 Presidency in 2022, Bank Indonesia and BIS Innovation Hub have launched G20 TechSprint 2022, which aims to explore the most practical and deployable solutions in designing and implementing Indonesia's CBDC.[9] It is clear that that an assessment of CBDC under this theoretical construct, laws and regulations are necessary to form an adequate legal environment for CBDC in Indonesia. This assessment, however, should be conducted carefully to support the monetary system and policy, financial stability, as well as a digital payment landscape that has significantly developed in Indonesia, the world's fourth most populous country with more than 270 million citizens.

It is commonly known that many central banks, institutions, and scholars have published studies on CBDC of the concept, design, and technology of CBDC, including legal perspectives on CBDC. This paper is intended to complement those studies by delivering legal analysis on CBDC under theories of money that has not yet been previously addressed. Moreover, this paper can act as a starting point for further research on the legal aspects of CBDC that are needed in formulating a legal ecosystem to ensure the legality of the issuance, distribution, and transfer of CBDC, especially in Indonesia.

Although the design of CBDC may develop over time, the fundamental concept of CBDC as money remains constant. Therefore, it is necessary to discuss CBDC from the perspective espoused in *The State Theory of Money* by G.F Knapp in 1905, since it emphasizes the prerogative authority of the State in creating money. Furthermore, this theory also uses a legalistic approach that correlates relevant laws and the creation of money by the state, which is essential to provide further legal analysis related to CBDC. Arguments from F.A Mann (1992) and Charles Proctor (2012) support the ideas in Knapp's theory and emphasized that the State has immense power to create money regardless of its materials, including declaring it legal tender. This paper then concludes that CBDC as digital money can serve as lawful money and be proclaimed as legal tender[10].

After understanding the applicability of Knapp's theory to CBDC, this study examines CBDC from the perspective of legal theories and laws, particularly in Indonesia. Currently, there is no law or regulation in Indonesia that specifically covers CBDC as money or legal tender. Therefore, this paper attempts to address legal concerns about preparing the Indonesian legal ecosystem for the future issuance of CBDC.

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[9] "Press Release: BIS and Bank Indonesia Invite Global Innovators to take up CBDC Challenges," Bank for International Settlements, Accessed July 1, 2022, https://www.bis.org/press/p220425.htm.

[10] Proctor, Mann on the Legal Aspect of Money (7th ed. Oxford: Oxford University Press, 2012).

The remainder of this paper is constructed as follows. Section II elaborates on an overview of CBDC that comprises the concept of CBDC and its current state. Section III provides a legal analysis on CBDC, primarily under the state theory of money, while Section IV provides legal analysis and concerns about CBDC under Indonesian law. Concluding remarks are found in section V.

II. OVERVIEW OF CBDC

II. A. Understanding CBDC

In 2018, the BIS stated that the term CBDC is used to refer to several concepts of central bank money.[11] However, the design of CBDC may advance in the future as technology changes and thus, the concept of CBDC may change accordingly. Research on CBDC conducted among others by central banks has been growing significantly, whereas some central banks have elucidated their understandings of CBDC as elaborated below.

As an example, the Bank of England defines CBDC as money issued by the central bank in digital or electronic form (not in traditional banknotes and coins) stored on a computer or similar device.[12] The United States Federal Reserve similarly describes CBDC as a digital form of central bank money that is widely available to the public, bearing digital liability to central banks.[13] Meanwhile, the People's Bank of China (PBOC) defines its digital fiat currency or e-CNY as a digital version of fiat currency circulated by PBOC that is operated by authorized stakeholders.[14] E-CNY covers a value-based, quasi-account-based and account-based hybrid payment instrument with the status as legal tender and loosely-coupled account linkage.[15]

A study by Bordo and Levin concluded that CBDC functions as a costless medium of exchange, a secure store of value, and interest rates on borrowing CBDC can be used as a tool for monetary policy.[16] With the stability of the value of CBDC over time in terms of a broad consumer price index, the

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[11] Bank for International Settlements, "Central Bank Digital Currencies," (March 2018). https://www.bis.org/cpmi/publ/d174.pdf.

[12] "What is Central Bank Digital Currency," Bank of England, accessed April 1, 2022, https://www.bankofengland.co.uk/research/digital-currencies.

[13] "FAQs," Board of the Governors of the Federal Reserve System, accessed April 1, 2022, https://www.federalreserve.gov/faqs/what-is-a-central-bank-digital-currency.htm.

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

[15] Ibid.

[16] Michael D. Bordo and Andrew T. Levin, "Central Bank Digital Currency and The Future of Monetary Policy," *NBER Working Paper Series*, no. 23711 (August 2017): 4, https://www.nber.org/papers/w23711.pdf.

framework of monetary policy that includes CBDC as a tool for providing systematic and transparent monetary policy.[17]

Regarding the design of CBDC, in 2017, Bech and Garratt[18] introduced the money flower as a concept of CBDC by combining the taxonomies of cryptocurrency and the virtual currency of central banks, resulting in four fundamental elements of CBDC, namely, that it is universally accessible, in electronic form, central bank issued, and peer-to-peer in its exchange mechanism. These taxonomies may be considered when issuing CBDC. In addition, BIS offered the possible key design features of CBDC that cover its availability, anonymity, transfer mechanisms, interest-bearing character, and caps. These features also determine how a CBDC may function as a means of payment and a store of value and its implications for payments, monetary policy, and financial stability.[19]

To understand more about the design of CBDC, Kumhof and Noone have set out core principles of creating CBDC in a way that avoids runs on banks:[20] CBDC pays an adjustable interest rate; CBDC and reserves are not convertible into each other; convertibility of bank deposits into CBDC can be made (although this is not guaranteed); and the central bank issues CBDC only against eligible securities. These principles will be the foundation for the central bank in creating and designing CBDC in the future.

Based on its purpose, CBDC can be either "wholesale" or "general purpose." Moreover, a study by BIS and the Center for Latin American Monetary Studies (CEMLA) explains that "wholesale" CBDC is limited to wholesale payments and is accessible only to particular firms, while the "general purpose" CBDC is universally accessible to everyone, such as for making retail payments.[21] Joint research published by the Bank of Canada, the Bank of England, and the Monetary Authority of Singapore concludes among other things that wholesale CBDC limits its use to financial institutions and

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[17] Ibid.

[18] Bech and Garratt, "Central Bank Cryptocurrencies."

[19] Bank for International Settlements, "Central Bank Digital Currencies," (March 2018). https://www.bis.org/cpmi/publ/d174.pdf.

[20] Michael Kumhof and Clare Noone, "Central Bank Digital Currencies – Design Principles and Balance Sheet Implications," Bank of England - Staff Working Paper, no. 725, (May 2018): 30, https://www.bankofengland.co.uk/-/media/boe/files/working-paper/2018/central-bank-digital-currencies-design-principles-and-balance-sheet-implications.

[21] Bank for International Settlements, "Central Bank Digital Currencies," 13, and Center for Latin American Monetary Studies, "Key Aspects around Central Bank Digital Currencies Policy Report," CEMLA Fintech Forum, (May 2019): 7, https://www.cemla.org/fintech/docs/2019-06-KeyAspects AroundBankDigitalCurrencies.pdf.

markets.[22] Meanwhile, "general purpose" CBDC could be implemented in two designs - deposit accounts with the central bank and digital currency tokens.[23] In 2020, studies on "general purpose" CBDC or "retail" CBDC projects in several countries demonstrated a variety of conceptual design choices for CBDC (e.g., direct or indirect claims), the infrastructure of technology of CBDC (e.g., conventional central bank infrastructure, Distributed Ledger Technology/DLT and so on), accessibility of technology (e.g., account-based or token-based) and scope of use of CBDC (e.g., domestic or international).[24]

When considering the technology used for issuing and developing CBDC, technological innovations can be varied, including conventional central bank infrastructure or other technology. Some argued that blockchain technology might work for CBDC, although some features would not be entirely applicable.

In summary, there are various features and designs of CBDC including technology or networks that can be used to facilitate CBDC transaction. Furthermore, these features and designs of CBDC may also need to be adjusted to accommodate the economy and legal system of the issuing country.

II.B. The Current State of CBDC

In 2021, a survey from BIS indicated that 86% of central banks were conducting research on CBDC, whereas 60% were experimenting with technology and 14% were conducting pilot projects.[25] Currently, the majority of central banks and institutions are conducting or have finished many projects on CBDC. These include project Jasper, project Stella, project Ubin, project Dunbar, project Helvetia, project Jura, project Multiple CBDC Bridge, and a two-tier distribution model of retail CBDC in Hong Kong. There are several countries that have launched CBDC such as the Bahamas with its Sand Dollar or Digital Bahamian Dollar, Nigeria with its e-Naira, and Jamaica with its Jam-Dex.[26] Additionally, there are advanced CBDC projects underway by many central

[22] Bank of Canada, Bank of England and Monetary Authority of Singapore, "Cross-Border Interbank Payments and Settlements: Emerging Opportunities for Digital Transformation," (November 2018): 28, https://www.mas.gov.sg/-/media/MAS/ProjectUbin/Cross-Border-Interbank-Payments-and-Settlements.pdf.

[23] Bank for International Settlements, "Central Bank Digital Currencies," 6.

[24] Raphael Auer and Rainer Bohme. "The Technology of Retail Central Bank Digital Currency," BIS Quarterly Review, (March 2020), https://www.bis.org/publ/qtrpdf/r_ qt2003j.pdf.

[25] "BIS Innovation Hub work on Central Bank Digital Currency," Bank for International Settlements, accessed April 5, 2022, https://www.bis.org/about/bisih/topics/cbdc.htm.

[26] See Sand Dollar, available at https://www.sanddollar.bs/; eNaira, available at https://www.enaira.gov.ng/, and Bank of Jamaica, "Jamaica's Central Bank Digital Currency (CBDC) – JAM DEX, available at https://boj.org.jm/core-functions/currency/cbdc/.

banks, including China, Canada, Sweden, and Uruguay.[27] Some of the results of CBDC projects are explained below to demonstrate a variety of CBDC concepts.

Seven central banks (the Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank, the United States Federal Reserve, the Riksbank, and the Swiss National Bank) and BIS have investigated CBDC and issued a joint report in 2020 that outlined foundational principles and core features, and highlighted three fundamental principles for CBDC as follows: (i) coexistence with cash and other types of money in a flexible and innovative payment systems; (ii) any introduction should support broader policy objectives and avoid diminishing to monetary and financial stability; and (iii) promotion of innovation and efficiency.[28]

The e-Krona project in Sweden promulgates the use of central bank money or CBDC. This project was launched by the Riksbank in early 2017 and showed that CBDC can successfully complement existing cash currency. After producing three reports on e-krona in 2017, 2018, and 2021, the Riksbank has continued its research in 2022 by investigating among other things the impact of the e-Krona on the economy, its relevance to Swedish legislation and the central bank's role, technical solutions for e-Krona, and relevant procurement of e-Krona.[29]

In the United Kingdom, the Parliament stated in 2021 that the government and the Bank of England had not made any decision on the issuance of CBDC.[30] However, a thorough assessment and sequenced phases of work on CBDC is needed and any rollout would span several years. In its discussion paper, the Bank of England notes that CBDC would allow households and businesses to make direct electronic payments using money issued by the Bank of England. Moreover, the Bank of England has found that CBDC can support monetary policy and financial stability in the following ways, shown in Figure 1.[31]

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[27] Gabriel Soderberg, "Behind the Scenes of Central Bank Digital Currency: Emerging Trends, Insights, and Policy Lessons", *International Monetary Fund*, Fintech Notes, (February 2022), https://www.imf.org/en/Publications/fintech-notes/Issues/2022/02/07/Behind-the-Scenes-of-Central-Bank-Digital-Currency-512174.

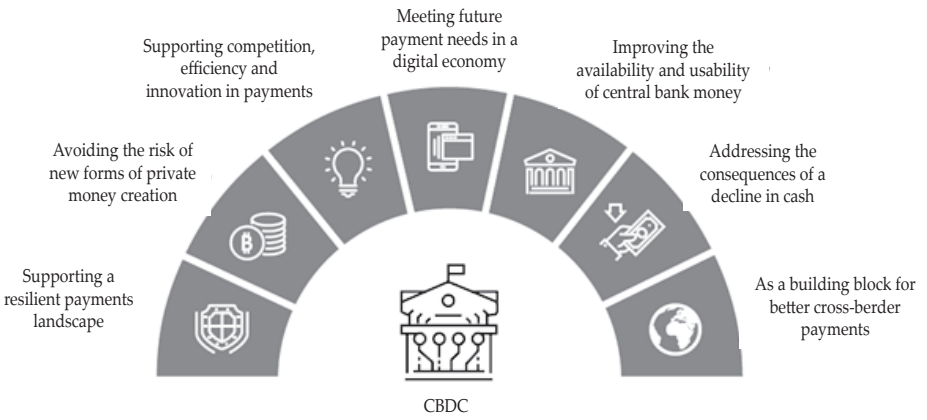
[28] Bank for International Settlements, "Central Bank Digital Currencies: Foundations Principles and Core Features," 2020, https://www.bis.org/publ/othp33.pdf.

[29] "The E-krona – Digital State Money," The Sveriges Riksbank, accessed April 1, 2022, https://www.riksbank.se/en-gb/payments--cash/e-krona/

[30] "Central Bank Digital Currency: Statement made on 9 November 2021," UK Parliament, accessed March 30, 2022, https://questions-statements.parliament.uk/written-statements/detail/2021-11-09/hcws381.

[31] Bank of England, "Central Bank Digital Currency: Opportunities, Challenges and Design*," Discussion Paper*, (March 2020): 16, https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf.

Figure 1.



Source: Bank of England (2020)

The Bank of England also argued that the distribution and decentralization of CBDC (as used in DLT) may enhance its resilience and availability but could diminish performance, privacy, and security.[32] In April 2021, the Bank of England and HM Treasury announced the creation of a joint CBDC task force to coordinate UK authorities, monitor international CBDC development, and assess use cases, risks, and opportunities of a potential UK CBDC.[33] In preparing to roll out CBDC, the Bank of England has also created CBDC Engagement and Technology Forums to engage with senior stakeholders in all aspects of CBDCs.

Meanwhile, China is still investing substantial efforts in developing CBDC with an eye toward becoming the largest economy to implement a government digital currency. Its pilot project for implementation of digital yuan has started across several cities. According to The People's Bank of China (PBOC) report of July 2021, the PBOC has made progress in researching and developing its digital fiat currency known as e-CNY. The PBOC stated its purposes for creating e-CNY are:[34] (i) to satisfy the public's demand for digital cash and support financial inclusion; (ii) to support fair competition, efficiency, and safety of its retail transactions; and (iii) to reiterate the international initiative and advance the improvement of cross-border payments. The PBOC has also joined a project for exploring a digital currency cross-border payment

[32] Bank of England, "Central Bank Digital Currency: Opportunities, Challenges and Design," 41.

[33] "Bank of England Statement on Central Bank Digital Currency," Bank of England, published on 19 April 2021, accessed April 1, 2022, https://www.bankofengland.co.uk/news/2021/april/bank-of-england-statement-on-central-bank-digital-currency.

[34] The People's Bank of China, "Progress of Research and Development of E-CNY in China," 4-5.

using DLT together with the central bank of Saudi Arabia, Hong Kong, and Thailand.[35] Related to CBDC as cross-border payments, a BIS study shows how CBDC could facilitate enhanced cross-border payments. In contrast, the arrangements facilitating such payments indicate different degrees of international integration and cooperation, ranging from essential compatibility with common standards to establishing international payment infrastructures.[36] The study also highlights the necessity for multilateral collaboration and the significance of interoperability among CBDCs.

In Indonesia, Bank Indonesia is still researching CBDC, citing six main objectives of CBDC as:[37] providing a risk-free means of digital payment using central bank money; mitigating the risks of non-sovereign digital currency; expanding and accelerating financial inclusion; providing new monetary policy instruments; and facilitating the distribution of fiscal subsidies. Also, there are three stated prerequisites for the issuance of CBDC in Indonesia, including:[38] a CBDC design that avoids triggering monetary and/or financial instability; such design should facilitate implementation of 3i principles (integrated, interconnected and interoperable) with the financial market-payment system infrastructures; and the experimental stages of technology are compulsory to ensure the smooth processing on CBDC (either using DLT-blockchain or non-DLT). It is estimated that the white paper of CBDC in Indonesia will be published this year.

III. CBDC UNDER THE STATE THEORY OF MONEY

III.A. Concept of Money and Legal Tender

Before discussing CBDC under the state theory of money, it is necessary to understand the concept of money and its functions. Currently, there is no legal definition of "money" under English law.[39] However, several definitions of money are acknowledged under English law and in another country including:[40]

a. in *Moss v. Hancock*, money was viewed as: "*that which passes freely from hand to hand throughout the community in final discharge of debts and full payment for commodity, being accepted equally without reference to the character or credit of the person who offers it and without the intention of the person who receives it to consume*

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[35] Robert Auer, Haene Philip and Henry Holden, "Multi-CBDC Arrangements and the Future of Cross-Border Payments," *BIS Working Papers*, no. 115, 19 March 2021.

[36] Bank for International Settlements, "Central Bank Digital Currencies for Cross Border Payments: Report to the G20," (July 2021), https://www.bis.org/publ/othp38.pdf.

[37] Bank Indonesia, "News Release: CBDC Role in Strengthening of Central Bank Mandate".

[38] Ibid.

[39] Simon Gleeson, *The Legal Concept of Money* (Oxford University Press, England, 2018), 116.

[40] Proctor, *Mann on the Legal Aspect of Money*, Para 1.10.

it or apply it to any other use than in turn to tender it to others in discharge of debts or payment for commodity."

b. The Supreme Court of Canada described money as: "*any medium, which, by practice, fulfils the function of money which everyone will accept in payment of a debt is money in the ordinary sense of the words, even though it may not be legal tender.*"

It is also recognized in economics that there are at least three general functions of money, which are as a medium of exchange, a store of value, and a standard for deferred payments.[41] However, money has a variety of meanings in different contexts and therefore, the law should provide a framework within which money has a role and its use has quantifiable legal consequences.[42] Specifically, bank deposits may be categorized as money to an economist but in private legal analysis, it may be seen as a debt or an obligation to repay money to a bank.[43]

We understand from these views that money is any kind of medium that aims to discharge debts. It may or may not be legal tender. Legal tender is generally defined as money that a creditor is not privileged to reject if it is tendered by a debtor to repay its debt, whereby this obligation on the creditor can be created only by law.[44]

Aside from money, commodities such as grains were made legal tender during the civil war as Caesar in ancient Rome ordered that creditors under certain conditions must accept movable and immovables from debtors in lieu of money.[45] This legal order by Caesar, which can be perceived as law, shows that anything can be designated as legal tender. In a modern economy, a legal tender is perceived as money set by national law that will be effective in settling debts expressed in the national currency and thus, a legal tender will be categorised as "money" but not all money will be legal tender.[46] This view emphasizes the fact that legal tender laws most likely refer to physical notes and coins whilst "money" can include other forms of notes and coins such as demand deposits and bank cheques. Moreover, according to Fox, legal tender is indeed a quality conferred by the State or by law on certain forms of a medium of exchange that distinguishes it from others.[47]

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[41] Nussbaum, *Money in the Law National and International: A Comparative Study in the Borderline of Law and Economics*, 11.

[42] Proctor, *Mann on the Legal Aspect of Money*, Para 1.08.

[43] Ibid., Para 1.08.

[44] Nussbaum, *Money in the Law National and International: A Comparative Study in the Borderline of Law and Economics*, 45-46.

[45] Ibid., 54.

[46] Charles Proctor, "Legal Tender Under English Law," in T*he Euro as Legal Tender: A Comparative Approach to a Uniform Concept*, ed. Robert Freitag, Sebastian Omlor. Berlin, (De Gruyter, 2020), 91.

[47] David Fox, *Property Rights in Money*, (Oxford University Press, 2008), para. 1.90.

In Indonesia, the definition of currency and money can be found in the Indonesian Currency Law which regulates currency as money issued by the State and money as a legal tender or a legal payment instrument.[48] This law, however, only regulates specific forms of money that are declared as legal tender. From the concept of money as we discussed above, we may conclude that money is any kind of medium that serves a function of discharging debts, making payments, or settling financial obligations. Money may or may not be legal tender.

III.B. The Sovereign Power Over Money

As articulated earlier, the state theory of money also correlates with the theory of sovereign power over money. According to Fox, this theory was initially acknowledged along with the right to strike coins (*ius cudendae monetae*) in the western legal system, as the minting of the coin was an exclusive prerogative of the sovereign.[49] The rules derived from the Roman Emperor, Constantine and became codified in the Codex of Justinian later in the 17th and 18th centuries. Later, Sir William Hale and Sir William Blackstone, introduced the right to issue coinage as the sovereign's prerogative that was associated with the right of the King to mint coinage as part of his sovereign power.[50]

Moreover, English legal sources in the 17th century explicitly acknowledged the right to fix the value of a coin as the sovereign's prerogative, and the formal valuation of money with a stamp did not aim to show the monetary valuation but rather to prove legally that the sovereign was solely authorized to mint a new issue of coins.[51] Furthermore, under an English case in 1861, *Emperor of Austria v. Day*, the court emphasized that the emperor's authority was to control the circulation of money within his territories and the right to issue notes, from the notion of *ius cudendae monetae*, was attached to the supreme power in every State.[52]

The historical background related to sovereign power over money is in line with the state theory of money by Knapp that every State is authorized to create and define a monetary system and issue money therein, whereby money as an institution created by the State or its representative falls within the jurisdiction of the State. A king's authority to mint coins in the 17th and 18th centuries may be the staple of the State's authority to create money under Knapp's theory. Another scholar, F.A. Mann, similarly proposed that the

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[48] See Article 1 paragraph 1 and 2 Indonesian Currency Law.

[49] David Fox, "Money, Law and Institutions," in *Handbook of the History of Money and Currency*, ed. Stefano Battilossi, Youssef Cassis, and Kazuhiko Yago (Springer, 2020), 161.

[50] Fox, "Money, Law and Institutions," 161.

[51] Ibid., 161.

[52] Ibid., 168.

state theory of money is the necessary consequence of the sovereign power's monopoly on currency.[53] The concept of the sovereign right over money has been modernized to include the right to circulate money and moreover, to proclaim it as legal tender, as this will be discussed in the state theory of money.

III.C. The State Theory of Money

In laying the foundation for his theory, Knapp described money as a creature of law, with the legal consequence that any theory of money must be reconciled with legal history.[54] He then conceptually articulated the state theory of money, which has general principles as follows:[55]

a. The State has the authority to choose means of payment;
b. The State has the authority to denominate the means of payments based on new units of value; and
c. The State has the authority to define the new units.

These principles have also been heavily relied upon in German cases and literature in the early 1900s, in which money was perceived as both: (i) a measure of value and medium of payment only under the command of the State; and (ii) includes every medium of payment which the government or its agents declare has a value and is circulated publicly as legal tender.[56] Knapp's theory proposed that the State can create money, and therefore the State has immense power to determine money as means of payment, designate the means of payment, and define new units as money.

Furthermore, Knapp argued that the State has the capacity as "the guardian and maintainer of law" to proclaim money as a means of payment.[57] Knapp also tried to assert that the status of money could be proclaimed through legal ordinances, as he explained:

> *When legal ordinances give the name to the unit of values (as mark, franc or rouble) and define it by reference to the earlier unit, there is nothing to prevent us from giving the morphic means of payment a validity dependent not on weight but on fiat.*[58]

We can infer from this theory that there is no limitation on the power of the State to choose the type of object to be used as its means of payment and moreover, it highlights the power of the State to proclaim money through

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[53] F.A. Mann, *The Legal Aspect of Money: with Special Reference to Comparative Private and Public International Law* (Fifth edition, Oxford: Clarendon, 1992), 19.

[54] Georg Friedrich Knapp, *The State Theory of Money* (Abridged edition, London: Published on behalf of the Royal Economic Society by Macmillan, 1924), 1.

[55] Knapp, *The State Theory of Money,* 24.

[56] Arthur Nussbaum, *Money in the Law National and International: A Comparative Study in the Borderline of Law and Economics* (The Foundation Press, Inc, 1950), 9.

[57] Knapp, *The State Theory of Money,* 39.

[58] Ibid., 30.

the enactment of laws. This proclamation on the units of value confirms that the validity of means of payment is not based on the weight or any material of money but rather on the order of the State through its law-making authority. While the State is authorized to create or categorize money, the legal environment, which consists of among other things, laws and regulations, should be created to support the issuance of money as a valid legal tender. Although, the State can also proclaim certain mediums of exchange that can be functioned as money such as discharging debts, without necessarily declaring them as legal tender.

Knapp introduced a general theory of money that covers both "specie" and paper money, whereas this movement, from metal to money, was evolutionary.[59] Knapp also compared money to other payments such as tickets, stamps, and tokens that do not have intrinsic value but still can derive their value under the law.[60] Under this notion, even though a "thing" does not have intrinsic value, it still can function as money through a legal proclamation made by the State. The circulation of money lies within the State's monetary prerogative.[61] Mann supported Knapp's theory by explaining that the state theory of money has dual aspects as follows:[62]

- *Circulating media of exchange in law constitute money only if they are created by or with the authority of the State or such other supreme authority as may temporarily or de facto exercise the sovereign power of the State; that supreme authority also confers upon the circulating media their minimal value which is independent of the value of the material they are made of their purchasing power and their external value.*
- *In law, money cannot lose its character except by virtue of formal demonization.*

Proctor also agreed with Mann's view that money is issued under the authority of the law in force within the state of issue, (i) under the terms of that law, (ii) denominated by reference to a unit of account and (iii) under the terms of that law, to serve as the universal means of exchange in the state of issue.[63] It emphasizes the role of the State in establishing a monetary system and issuing notes and coins.

As another perspective on the origins of money, an approach to money was offered under "*the credit theory of money"* whereby it stated that good credit will pay any debt.[64] This theory espoused that the value of money does not depend on its raw materials but on the right that a creditor acquires for "payment," and a debtor can discharge his debt by the tender of an equivalent debt owed

[59] Ibid, 32.

[60] Ibid, 38.

[61] Mann, *The Legal Aspect of Money: with Special Reference to Comparative Private and Public International Law,* 19.

[62] Ibid., 20.

[63] Proctor, *Mann on the Legal Aspect of Money*, Para 1.17.

[64] A. Mitchell Innes, "The Credit Theory of Money," the Banking Law Journal, Vol. 31 (1914).

by a creditor, whereby a creditor should accept this tender in satisfaction of his outstanding debt.[65] This theory is worth considering when analysing legal treatment for CBDC as digital money to discharge debts, and legal treatment of other forms of "money," including credit.

From the above explanation of money including its relevant theories, we can observe that no other party can create money as legal tender except the State and such creation is executed through legislation. The circulation of money is also determined by the State regardless of the material, purchasing power and external value of money. It is, therefore, possible to conclude that there are several essential aspects of money that should be fulfilled in order to be legal tender: (i) the State is the authorized issuer of money, (ii) the circulation of money is needed for the validity of legal tender, (iii) the intrinsic values are not essential for money to be declared as means of payment, and (iv) the need for a legal proclamation of money as legal tender. Hence, CBDC as digital money basically may fulfil these aspects based on the following arguments.

First, CBDC as legal tender should be issued by the State that is represented by the central bank under relevant constitutional framework. The central bank as the agent of the State has sovereign power over currency including creating a monetary system that circulates a variety of forms of money including digital. In Indonesia, Article 23D of the Constitution of 1945 mandates establishment of a central bank under central bank law and furthermore gives the central bank the authority to issue money as legal tender. Currently, the Indonesian Currency Law provides such mandate to the central bank to issue money as legal tender and stipulates certain aspects of money as legal tender to be coordinated with the Ministry of Finance. Related to this, Article 1 of Indonesian Currency Law also defines (Indonesian) currency as money of which issued by the Unitary State of the Republic of Indonesia, named the Rupiah. From this provision, it is clear that in Indonesia, money is issued by the central bank in coordination with the Ministry of Finance for certain aspects of process as stated under the Indonesian Currency Law.

If CBDC is declared legal tender in Indonesia, ideally, a sufficient regulatory framework should be created to authorize the central bank to issue CBDC, including how it is positioned in the Indonesian monetary system. In Sweden, the Riksbank has stated that e-krona as its CBDC is issued by the State as the trusted actor that can guarantee the value of the means of payment.[66] Furthermore, compared with cash, the Riksbank claims that e-krona is uniquely

[65] Inness, "The Credit Theory of Money".

[66] The Sveriges Riksbank, "E-Krona Pilot Phase 1," (April 2021), https://www.riksbank.se/globalassets/media/rapporter/e-krona/2021/e-krona-pilot-phase-1.pdf

recognizable and can only be created by the Riksbank.[67] The central bank plays a significant role in the issuance of CBDC. The same circumstances perhaps apply to all central banks, whereas the central bank is the State's representative and, therefore, it is authorized under its relevant constitutional arrangement to issue CBDC.

Second, similar to traditional money, CBDC, if it is intended to be treated as legal tender, should be "circulated" or available for the public in the designated network or platform by the central bank as the agent of the State. The circulation of money as legal tender is needed to underline the State's sovereign power. Furthermore, the regulatory framework should also ensure that virtual circulation is deemed lawful circulation or distribution under the law. Under Mann's theory, because the circulation of money may disregard the value of material, purchasing power, and external values of money,[68] other possible questions to be addressed in the future are whether the CBDC has a material value, purchasing power, and external values like traditional money.

Third, whether CBDC has the intrinsic value, which is an issue that might need to be explored in another discipline, it will not impact its status as a means of payment. If the State or the central bank determines its status as means of payment, CBDC will be the lawful means of payment regardless of its appearance, and actual value which may be calculated based on the cost of the creation and maintenance of technology. However, assuming that there is no intrinsic value of CBDC, it would not affect its status as legal tender. Related to means of payment, the study of Riksbank also explains that in order to function as a means of payment, the end-user of e-krona has the exclusive right via a private security key to use the e-krona, which is similar to using physical cash. Moreover, e-krona will be represented by tokens that are digital and require technology to enable the transactions, whereas this idea can be seen as a new type of means of payment that differs from cash.[69]

Fourth, If CBDC is intended as legal tender, then it should be proclaimed as legal tender by relevant laws/regulations. Bossu et al. have conducted a study on the legal foundations of CBDC under the central bank and monetary law. In this study, Bossu et al. sought to address the legality of the central bank issuing CBDC, including its liabilities, and whether CBDC can be considered a means of payment under monetary law. The study shows that most central banking laws currently only authorize the issuance of currency in the form of (paper or plastic) banknotes and metallic coins and not in the form of a digital token; therefore, an assessment of the central bank law is needed to accommodate

[67] The Sveriges Riksbank," E-Krona Pilot Phase 1," 5.

[68] Mann, *The Legal Aspect of Money: with Special Reference to Comparative Private and Public International Law*, 20.

[69] Ibid., 6.

the issuance of CBDC.[70] Moreover, related to CBDC as legal tender, Griffoli et al. throws some light on the definition of a CBDC by clarifying that it is '*a new form of money, issued digitally by the central bank and intended to serve as legal tender*' and which is distinct from other forms of money typically issued by a central bank, i.e., banknotes and traditional reserve accounts maintained by banks with the central bank.[71] In the case of Indonesia, the proclamation of rupiah as a valid legal tender in Indonesia is regulated under Indonesian Currency Law. Therefore, when the central bank launches CBDC as a legal tender in Indonesia, Indonesian Currency law or other relevant law should be able to accommodate clear provisions on CBDC as legal tender.

IV. CBDC UNDER INDONESIAN LAW

The legal environment for CBDC can be created differently in accordance with the designated conceptual design and operating models of CBDC and may be varied, such as unilateral CBDC, intermediated CBDC, and synthetic CBDC, all of which engages different parties and furthermore, create a different ecosystem.[72]

As mentioned earlier, there is no legal framework in Indonesia that specifically regulates CBDC as money or legal tender. Indonesian Currency Law only regulates Rupiah in the form of notes and coins that function as Indonesian currency and legal tender for economic activities. Such paucity of a digital currency law triggers legal concerns about the introduction of CDBC in Indonesia, including the potential impact on the central bank, commercial banks, the public, and other relevant parties. Also, noting that transactions of CBDC in Indonesia may be conducted using blockchain technology or other technology, there is a need to undertake an analysis of the legality of the process, including smart contracts, based on relevant laws and regulations. Despite the various features and designs as well as technology or platforms/infrastructures of CBDC that will be used in Indonesia, the legal analysis of this paper primarily relies on the simple design of CBDC as legal tender and attempts to identify several core legal issues.

Using a simple scheme for the implementation of CBDC, there are several legal concerns that will need to be explored related to the issuance of CBDC in Indonesia as follows: (i) legal basis including compliance with laws and

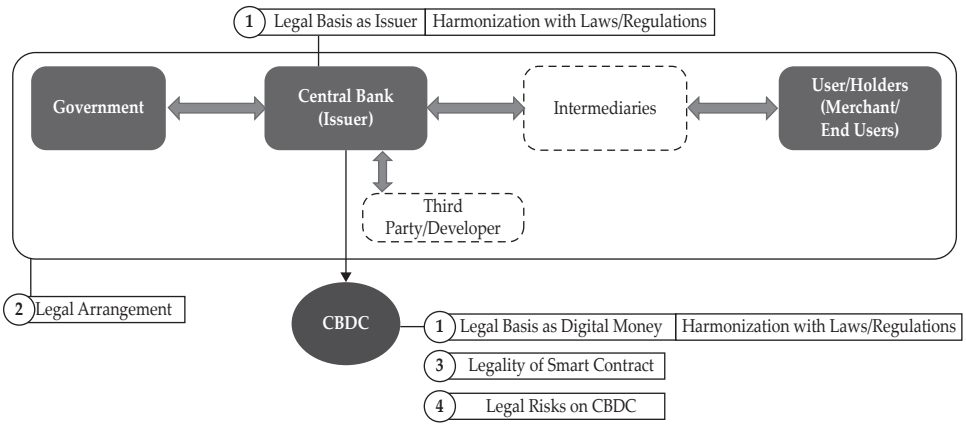
[70] Wouter Bossu et al., "Legal Aspects of Central Bank Digital Currency: Central Bank and Monetary Law Considerations," IMF Working Paper, no. WP/20/205, (November 2020).

[71] Tommaso Mancini Grifolli et al., "Casting Light on Central Bank Digital Currency," IMF Staff Discussion Note (November 2018).

[72] Soderberg, "Behind the Scenes of Central Bank Digital Currency: Emerging Trends, Insights, and Policy Lessons," 9.

regulations; (ii) legal arrangement between relevant parties, (iii) legality of smart contract used in technology; and (iv) legal risks on CBDC, as depicted in Figure 2.

Figure 2. Legal Concerns



IV.A. Legal Basis

We note that Indonesia is a civil law country with ample laws and regulations specifying all matters capable of being brought before the court, the defined procedures, and the appropriate punishments or penalties for any breaches of these laws and regulations. Given Indonesia's legal system, in order to provide legal certainty to all parties especially in accommodating the changes in technology, the creation or amendment of laws and regulations might be unavoidable. This study is also shown by Garrido et al. whereby development in technology instantly results in changes in business practices and thus ultimately creates changes in law.[73]

In line with the state theory of money by Knapp as elaborated earlier, the State, in issuing money under the Indonesian Constitution, as represented by the central bank, has a sovereign power to issue money including digital forms of money and therefore it should be supported by a solid legal basis. Related to the issuance of CBDC in Indonesia, the legal basis on the CBDC as money and legal tender, and the legal basis for the central bank as an issuer of CBDC, including assuring the compliance or harmonization of CBDC with other relevant laws and regulations, are crucial in establishing the legality of CBDC in Indonesia.

[73] Jose Garrido, Yan Liu, Joseph Sommer, and Juan Sebastian, "Keeping with Change: Fintech and the Evolution of Commercial Law," *International Monetary Fund*, Fintech Notes, (January 2022), https://www.imf.org/en/Publications/fintech-notes/Issues/2022/01/27/Keeping-Pace-with-Change-Fintech-and-the-Evolution-of-Commercial-Law-511100.

Related to the legal basis of CBDC in other countries, the Bahamas is the only country that has enacted law reforms related to CBDC while Jamaica is still undertaking a process to amend its law to enable the Bank of Jamaica to issue CBDC.[74] Nigeria has also enacted regulatory guidelines for the operation of its CBDC, namely e-Naira. The guidelines are issued to execute the Central Bank of Nigeria's mandate to issue a legal tender in Nigeria.[75] Other countries such as Sweden, China, and Eastern Caribbean Currency Union are still preparing for legal reform while Uruguay and Canada have not planned any law reform to address CBDC.[76]

IV. A.1. Legal Basis of CBDC as Money in Digital Form

Indonesian Currency Law stipulates that the currency of the Republic of Indonesia is limited to the "Rupiah," which consists of Rupiah banknotes and Rupiah coins.[77] Under this provision, the law limits legal tender in Indonesia only to Rupiah banknotes and Raupiah coins, omitting electronic currency. Assuming CBDC would be used in daily transactions by the public in Indonesia as legal tender and applying the state theory of money by Knapp to this design, CBDC should be proclaimed by the central bank as money that serves its function as legal tender, discharging debts or settling any monetary obligation. This proclamation should be undertaken through legislation in order to provide legal certainty for participants in Indonesia CBDC's ecosystem.

In order to be issued as a valid legal tender under Indonesian law, therefore, Indonesian Currency Law should extend the forms of Rupiah as legal tender to cover digital formats, not only in the form of banknotes and coins. Furthermore, Digital Rupiah should be regulated in more detail related to among other things its legal tender status, its issuance, distribution and transference, legal consequences of non-acceptance of CBDC, as well as any limitation or prohibition on the use of CBDC. The scope of regulations related to CBDC in the form of Digital Rupiah can be varied depending on the design of CBDC that will be issued.

As a comparison, the central bank of the Bahamas has issued a retail CBDC and furthermore, it has clearly stated that virtual money issued by the bank, Bahamian Dollar Digital Currency (known as the Sand Dollar), serves as a legal tender of Bahamas based on Article 8 of Central Bank of the Bahamas

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[74] "Senate Approves Central Bank Digital Currency," Bank of Jamaica, accessed July 1, 2022, https://jis.gov.jm/senate-approves-central-bank-digital-currency/.

[75] "Regulatory Guidelines on the e-Naira," The Central Bank of Nigeria, accessed July 1, 2022, https://www.cbn.gov.ng/Out/2021/FPRD/eNairaCircularAndGuidelines%20FINAL.pdf.

[76] Soderberg, "Behind the Scenes of Central Bank Digital Currency: Emerging Trends, Insights, and Policy Lessons," 18.

[77] Article 2 of Indonesian Currency Law.

Act 2020 (CBBA 2020) issued on July 27, 2020, which reads "[t]he currency of the Bahamas shall comprise notes, coins and electronic money issued by the Bank under the provisions of this Act."

In the CBBA 2020, the electronic form of money has been included as a new form of currency in the Bahamas. Furthermore, for its implementation, the central bank of Bahamas issued BDDC Regulations 2021 that stipulates among other things wallet providers, issuance and distribution of BDDC including the prohibition of interest payments and limits for its circulation and withdrawal of deposits.

IV.A.2. Legal Basis for the Central Bank as the Issuer of CBDC

The issuance and implementation of CBDC should be conducted by an authorized institution under relevant law or regulation. A solid institutional framework for Bank Indonesia as a central bank should be prepared if Bank Indonesia intends to issue CBDC as legal tender. This framework should cover at least a clear objective, strong legal mandate, clear tasks, and instruments related issuance and implementation of CBDC.

Under the Bank Indonesia Law, the objective of Bank Indonesia is to achieve and maintain the stability of the Rupiah (price stability).[78] The issuance of CBDC may have an impact on financial stability[79] and Bank Indonesia as the central bank should have financial stability as its objective, in addition to price stability. This suggestion is also in line with Warjiyo and Juhro (2021) that recommend that the central bank has dual objectives: price stability and financial stability, considering the impact of the macroprudential policy conducted by the central bank.[80] Although current laws and regulations in Indonesia have provided a solid legal basis for Bank Indonesia to regulate monetary, payment systems, and macroprudential policy that aim to support financial stability, the suggestion for accommodating financial stability in the Bank Indonesia Law is valid since Bank Indonesia needs to have a clear and robust mandate in financial stability.

Moreover, under the Bank Indonesia Law, the scope of the Bank's tasks to achieve its objectives has been defined. When issuing CBDC, it is necessary to determine whether CBDC can be a tool for the monetary, payment systems, and macroprudential policies. Thorough and comprehensive research should be conducted on these issues before deciding whether it is necessary to amend the scope of Bank Indonesia's authority as stated, among others, in Articles 8, 10, and 15 of the Bank Indonesia Law.

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[78] Article 7 of Bank Indonesia Law.

[79] Bank of England, "Central Bank Digital Currency: Opportunities, Challenges and Design."

[80] Perry Warjiyo and Solikin Juhro, *Central Bank Policy Mix: Issues, Challenges, and Policy Responses*, (Bank Indonesia Institute, 2020).

Regarding the institution authorized to issue and control the circulation of the Rupiah, Indonesian Currency Law regulates Bank Indonesia to determine the nominal value, characteristics, design, and materials of the rupiah as a central bank of the Republic of Indonesia in coordination with the government.[81] Furthermore, the process of planning, printing, issuing, distributing, revocation and retraction, and destruction of the Rupiah (both banknotes and coins) should comply with such law.

Under Indonesian Currency Law, the process of issuing, distributing, revocation, and retraction of rupiah solely the purview of Bank Indonesia, whereas the remaining process is conducted by Bank Indonesia in coordination with the government.[82] Should Indonesian Currency Law include Digital Rupiah as one of the forms of the Rupiah aside from banknotes and coins as suggested above, then the process of planning, printing, issuing, distributing, revocation and retraction, and withdrawal of rupiah should also cover digital form of rupiah to provide a basis for Bank Indonesia in conducting its tasks related to the Rupiah.

Comparing the regulations related to CBDC in other countries, in the Bahamas for example, according to Article 1 para. (p) of CBBA 2020, the functions of the Central Bank of the Bahamas included regulation and oversight of the issuance, provision, and functioning of payment instruments, operating either with or without the opening of an account, including the issuance of electronic money or any other forms of stored value. Under this law, the Central Bank of the Bahamas has a solid legal foundation for issuing the Sand Dollar as virtual currency. Furthermore, based on Article 12 par. (5) of CBBA 2020, the Central Bank of Bahamas has the power: *to issue notes and coins and electronic money simultaneously or electronic money in the place of notes and coins*. This clause strengthens the legal basis of the Central Bank of Bahamas to issue any kind of electronic money including virtual currency.

IV.A.3. Harmonization with Existing Laws and Regulations

As mentioned before, the issuance of CBDC may have implications for central bank policies beyond regulation of payment systems. Therefore, Bank Indonesia should ensure that the issuance of CBDC complies with Bank Indonesia policies and regulations related to monetary, payment systems, and macroprudential matters.

Moreover, the issuance and implementation of CBDC, including the technology used for CBDC in Indonesia, should be harmonized with relevant laws and regulations related to contract law, property law, consumer protection,

[81] See Articles 3, 5, 9, and 10 of Indonesian Currency Law.
[82] See Article 11 of Indonesian Currency Law.

money laundering, anti-terrorism, and protection of data and privacy. To ensure the protection of the rights of consumers/holders of CBDC, technical guidelines or core rules available for CBDC transactions should be reviewed regularly to accommodate the development of technology used in CBDC.

Garrido et al. have also reminded us of the potential legal issues resulting from financial technology's impact on current commercial law. Their study shows that these potential legal issues are related to ownership title, formation, the enforceability of contracts, securities instruments, protection and rights of shareholders from an entity law perspective, and insolvency.[83] Therefore, an in-depth legal assessment of these issues should also be conducted before issuing CBDC as legal tender in Indonesia.

The Existing property law framework should also be observed in determining the legal treatment of CBDC as (digital) assets. Indeed, a concern about CBDC is the legal treatment of money as property in Indonesia. As a comparison, in English law, Gleeson proposed that virtual currency may be categorized as property for private law purposes, whereas property itself can be defined as goods that have an actual presence and can be possessed or owned.[84] Moreover, Gleeson explained the basic rules of law to categorize a thing as property as follows:[85]

a. Based on National Provincial Bank v. Ainsworth, Lord Wilberforce summarized that:
   "Before a right or an interest can be admitted into the category of property, or of a right affecting property, it must be definable, identifiable by third parties, capable in its nature of assumption by third parties, and have some degree of permanence or stability."
b. In First Victoria National Bank v. United States, the 5th Circuit Court of Appeals stated that:
   ""Property" evolves over time. It can be described as the bundle of rights attached to things conferred by law or custom, or as everything of value which a person owns that is or may be the subject of sale or exchange. Both of these definitions contemplate the possibility that law, or custom may create property rights where none were earlier thought to exist."

UK Courts have adopted a more expansive approach in defining property including in the Lawtech Delivery Panel, which stated that:[86]

a. cryptoassets have all the indicia property;

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[83] Garrido et al., "Keeping with Change: Fintech and the Evolution of Commercial Law."

[84] Gleeson, *The Legal Concept of Money*, 164.

[85] Ibid., 164.

[86] UK Jurisdiction Taskforce, "Legal Statement on Cryptoassets and Smart Contracts," *The Lawtech Delivery Panel*, November 2019.

b. the novel or distinctive features possessed by some cryptoassets – intangibility, cryptographic authentication, use of a distributed transaction ledger, decentralization, rule by consensus – do not disqualify them from being property;
c. nor are cryptoassets disqualified from being property as pure information, or because they might not classifiable either as things in possession or as things in action;
d. cryptoassets are therefore to be treated in principle as property.

The analysis of CBDC as property or an asset necessitates an extensive analysis of legal issues in property law, such as legal ownership and how such assets are legally transferred. Fox explained that the fundamental rule related to the transfer of title to property is that the transferee can have no clearer title than the transferor had and thus if the property is stolen, such property will still belong to the original owner (victim of the theft).[87] Related to this rule, an extensive study on how CBDC is transferred legally will be essential because it is intrinsically linked to how to recover when there is fraud or negligence in transferring the ownership of CBDC. Under English law, currency allows the title in money to be renewed whenever the money passes on to the person who receives it in good faith and in return for a valuable consideration. Related to this principle, it is necessary to explore a general principle of good faith in receiving items including money in Indonesia. To sum up, the legitimacy of transfers and transactions using CBDC should be investigated thoroughly from the perspective of Indonesian private law[88].

In Indonesia, money is considered a movable and tangible asset; therefore, the ownership of money falls under Article 1977 of Indonesian Civil Code (ICC), which states that the status of absolute ownership of money can be made through possession. Meanwhile, for intangible assets, the ownership and transfer of such goods can be made through a private deed as regulated under Article 613 of ICC. Concerning the status of ownership of CBDC in Indonesia as a movable and intangible asset, there should be a thorough assessment on whether the existing articles of the ICC can also prevail for CBDC or perhaps, the issuance of new laws/regulations to extend the concept of ownership of digital money or the concept of moveable assets may be the solution.

The other prevailing law in Indonesia related to CBDC is the Fund Transfer Law. This law provides provisions for funds transfer activities in Indonesia, including the number of transactions, values, and types of media used. Furthermore, this law aims to provide a safe and smooth national

[87] Fox, "Money, Law and Institutions," 171.
[88] David Fox. "Bona Fide Purchase and the Currency of Money." *The Cambridge Law Journal* 55, no. 3 (1996): 547–65. http://www.jstor.org/stable/4508252.

payment system. However, the legal principles, schema, liability, and treatment of funds including finality of payments under the Fund Transfer Law should be assessed to see whether we can apply a similar legal construction to CBDC in Indonesia. This assessment might address Gleeson's concerns related to the transfer of digital currency as property as addressed earlier and considering the idea that the funds transferred are debts owed to accountholders.

Furthermore, the Federal Reserve study shows that it is essential to consider how privacy and personal data are respected and protected in a CBDC arrangement.[89] Related to this concern, Nabilou suggested that the use of the technology of CBDC, which is likely to be programmable money capable of accommodating various features and smart contracts, raises concerns relating to privacy and therefore requires central bank public accountability, adequate safeguards, and standards of judicial scrutiny.[90] There is also a need to create a regulatory framework for CBDC that can accommodate technical safeguards for data protection by prohibiting data collection by front-end applications.[91]The concern on privacy and data protection related to CBDC in Indonesia should be addressed in relevant laws.

The legislature should also consider assessing the current civil law and criminal procedure when there are cases related to CBDC transactions in the future, among others related to proof of evidence, confiscation, and enforceability of the smart contract (including cross-border transactions).

IV.A.4. Legal Relationships Among Relevant Parties

When a central bank decides to issue CBDC then it creates legal relationships among relevant parties such as the government, intermediary institutions, holders of CBDC, and third parties as developers of the systems/platforms or providers of infrastructure (if any) depending on the design and purpose of CBDC.

As mentioned above, a legal arrangement between the central bank and the government for issuing CBDC is provided under the Indonesian Currency Law related to planning, printing, and exterminating of rupiah. However, it would be necessary to define the scope of such coordination to acquire support from the government and relevant ministries. Learning from the coordination between the Bank of England and HM Treasury in 2021 on the issuance of CBDC,[92] the coordination between the central bank and the ministry of

[89] Gleeson, *The Legal Concept of Money*, 164.

[90] Nabilou, "Central Bank Digital Currencies: Preliminary Legal Observations."

[91] Auer and Bohme, "The technology of Retail Central Bank Digital Currency."

[92] "Terms of Reference, April 2021, Central Bank Digital Currency Taskforce," HM Treasury, 19 April 2021, accessed April 1, 2022, https://www.gov.uk/government/publications/terms-of-central-bank-digital-currency-taskforce-terms-of-reference

finance in Indonesia may encompass the principal reasons for issuing CBDC, including its long-term objectives of CBDC, and list of efforts for promoting innovation and financial inclusion to support the economy.

Related to intermediary institutions, holders of CBDC, and third parties, the legal arrangement depend on the features and design of CBDC, whether it is wholesale or retail CBDC, direct or indirect, account-based or token-based, or other designs, and whether the central bank will cooperate with the third party in building the infrastructure, platform or technology for CBDC. The scope of any legal arrangement may be stated in regulation(s) that cover the responsibility or liabilities and obligations between parties, including treatment of CBDC as a legal claim to central bank or intermediaries/agencies, mechanism of authentication and transfer, the finality of the transaction, payment, intellectual property rights, and so on. In addition, the rules of ownership and transactions using CBDC and mechanism for consumer protection would also be determined in advance by the central bank as an issuer of CBDC, tailored to the types of networks or technology, infrastructure, and platforms used for CBDC.

Nabilou studied the potential legal challenges that the central bank may face in issuing its digital currency and concluded that the nature of the legal challenges of CBDC would ultimately depend on its features.[93] For example, retail CBDC may call for the central bank to step into roles and responsibilities regarding the general public that private-sector banks shouldered today by private-sector banks vis-à-vis their customers.[94]

IV.B. Smart (Legal) Contracts Related to CBDC

Assuming that processing CBDC as legal tender in Indonesia uses DLT, it would primarily employ smart contracts to support these transactions, and thus, the legality of this smart contracts is vital to facilitating these transactions. The LawTech UK defined a smart contract as a computer code that runs on the nodes participating in the network of DLT that is functioned to execute a transaction or operation that will be resulting changes on the distributed ledger.[95] The UK Law Commission defines a smart contract as a computer

[93] Hossein Nabilou, "Central Bank Digital Currencies: Preliminary Legal Observations," *Journal of Banking Regulation*, (6 February 2019). https://dx.doi.org/10.2139/ssrn.3329993

[94] "Preconditions for a General Purpose Central Bank Digital Currency", Board of Governors of the Federal Reserve System, FEDS Notes, 24 February 2021, accessed April 1, 2022. https://www.federalreserve.gov/econres/notes/feds-notes/preconditions-for-a-general-purpose-central-bank-digital-currency-20210224.htm.

[95] LawTech UK, "UK Jurisdiction Taskforce of the LawTech Delivery Panel: Public Consultation-the status of cryptoassets, distributed ledger technology, and smart contracts under English Law," *The Law Tech Delivery Panel* (May 2019): 30 and 31, https://www.lawsociety.org.uk/en/campaigns/lawtech/news/cryptoassets-dlt-and-smart-contracts-ukjt-consultation.

program that runs automatically without human interference.[96] A smart contract is represented by a code scripting language that can run distributed virtual machines, and the process conducted by this code will be recorded on the relevant blockchain.[97] The code will be included in the transaction, and such transaction will have to be documented on the distributed ledger.[98]

The LawTech UK concluded that a smart contract may be legally enforceable and since a smart contract is merely computer code, it might not have legal consequences.[99] A smart legal contract, that is a binding legal agreement and may be varied in its implementation, can be classified as follows:[100]

a. **Solely code model**. For this model, the high-level code itself is the contract. When the parties agree to exchange code, they in essence have consented to how it is written and record the code on the relevant distributed ledgers. When the code runs, the transaction will be executed, e.g., transfer or payments between parties, and recorded on the distributed ledger afterwards.
b. **Internal model**. The contract is written in a document comprising natural language and code. Under this model, the parties agree on the natural language contract before running the codes that have been set out. After the performance, the code would be logged on the relevant distributed ledger.
c. **External model**. In this model, the natural language document and the code are separate.

In Indonesia, a smart contract can be considered legally enforceable when it fulfils the fundamental criteria of a contract under Article 1320 of Indonesian Civil Code, i.e., assent of the relevant parties, the legal capacity of the parties, a legal subject matter, and a legal cause. Furthermore, a smart legal contract may be recognized under Article 1 of Law No. 11 of 2008 as amended by Law No. 19 of 2016 on Information and Electronic Transaction (ITE Law) under the interpretation of "electronic contract." An electronic contract under ITE Law is defined as an agreement made by the relevant parties through an electronic system.

According to the clarification of ITE Law, an electronic system is defined as a computer system in a broad sense that includes not only computer hardware and software but also telecommunications networks and/or electronic

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[96] The Law Commission, "Smart Legal Contracts: Advice to Government. Law Com No. 401 – Presented to Parliament," (November 2021).

[97] LawTech UK, "UK Jurisdiction Taskforce of the LawTech Delivery Panel: Public Consultation-the status of cryptoassets, distributed ledger technology, and smart contracts under English Law," 30-31.

[98] Ibid.

[99] Ibid.

[100] Ibid. 32

communications systems. Additionally, software or a computer program is a collection of instructions embodied in the form of language, code, scheme, or other forms in which they are interfaced with computer-readable media; then it would make computers work to execute unique functions or to deliver remarkable results, including preparation in writing such instructions. From this explanation, we can conclude that ITE Law provides a broad understanding on an electronic system that may also include a computer system that deploys technology such as DLT. Having said that, it is reasonable to conclude that an electronic contract may be construed as a smart legal contract. Nevertheless, the Indonesian telecommunication ministry is the authorized institution to confirm this interpretation.

Whether a smart legal requires a digital signature or not, ITE Law, and Government Regulation No. 82 of 2012 as amended by Government Regulation No. 71 of 2019 on Implementation of Electronic System and Transaction, have stipulated the legality of a digital signatures to support the lawfulness of electronic contract (or smart legal contract).

Noting that different types of DLTs may deploy different models of smart legal contracts, this condition raises various legal concerns since each model may have a different formation and process for entering into and executing contracts. Thus, it may lead to diverse legal consequences. DLT can be in form of "permissioned," "permissionless"[101] systems or "consortium or permissioned DLT systems.[102] Assuming that CBDC is created through DLT, the central banks almost certainly use "permissioned" DLT networks whereas the central banks can fully control the participants including provide access to them on the network as well as set the rule of the transactions[103]. On the contrary, "permissionless" DLT networks that are commonly used for Bitcoin and Ethereum, permit public and full transaction transparency. For "consortium or permissioned" DLT, it similar with the permissioned DLT but the network is owned by a group the network.[104]

If CBDC is created through an authorized network, then the central banks, as the controlling authority, should carefully set the rules on the networks including the process of transaction, authentication and recording processes when performing transactions related to CBDC.[105] Creating the "how-to"

[101] World Economic Forum, "Central Banks and Distributed Ledger Technology: How Are Central Banks Exploring Blockchain Today?", *White Paper*, (March 2019) and The Law Commission, "*Smart Legal Contracts: Advice to Government,"* Law Com No. 401 – Presented to Parliament, (2021).

[102] Garrido et al., "Keeping with Change: Fintech and the Evolution of Commercial Law," 12.

[103] World Economic Forum, "Central Banks and Distributed Ledger Technology: How Are Central Banks Exploring Blockchain Today?" 5.

[104] Garrido et al., "Keeping with Change: Fintech and the Evolution of Commercial Law," 12.

[105] World Economic Forum, "Central Banks and Distributed Ledger Technology: How Are Central Banks Exploring Blockchain Today?" 5.

rules would impact the legal consequences of smart legal contracts, including their enforceability.

IV.C. Legal Risks on CBDC

As already mentioned, CBDC should be designed as a risk-free means of digital payment. In line with this idea, CBDC as a monetary object should also be free from any risks that can prevent it from being accepted at its face value[106] because without risk or with mitigated risk, CBDC might be accepted at a discount.[107] Thus, the design or feature of CBDC should be able to avoid these kinds of risks and furthermore, it should consider all related risks including legal risks that might be posed. Some of the legal risks are explored in the following scenarios.

Parties related to CBDC, such as the State or the central bank as issuer and public or financial institution as holders of CBDC, will be exposed to many risks such as fraud/theft, money laundering, cyber fraud, and any legal disputes or legal risks arising from transacting using CBDC. Related to the legal risk in technology, digital identification systems that might be used in CBDC to ensure the legality of payments would be worth exploring.[108] The scope/type of digital identification might be various and for CBDC to use as cross-border payment, it might need uniformity among participating countries. Noting the importance of digital identification in CBDC transactions, the legal ecosystem in Indonesia should be able to identify and mitigate the risk related to digital identification, such as breach of privacy and data fraud, in order to provide legal certainty and protection to relevant parties in CBDC process as well to ensure legal liabilities of those parties.

The design of CBDC should also avoid or minimize the risk of a person losing their ownership for whatever reason. The risk of loss through "ownership" of what may be the first proper form of digital money would also be challenging to protect against because cybercrime or cyber theft is conducted without no boundaries whereas no physical vicinity between perpetrator and victim, unlike theft of physical money.[109] To mitigate this risk, the security features should be developed in any platforms or infrastructures used for CBDC.

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[106] Corinne Zellweger-Gutknecht et al., "Digital Euro, Monetary Objects, and Price Stability: A Legal Analysis". *Journal of Financial Regulation*, No. 7 (2021): 284-318, https://doi.org/10.1093/jfr/fjab009.

[107] Zellweger-Gutknecht et al., "Digital Euro, Monetary Objects, and Price Stability: A Legal Analysis," 294.

[108] The House of Lords Economic Affairs Committee, "Central Bank Digital Currencies: A Solution in Search of a Problem?", 3rd Report of Session 2021-2022, January 31, 2022, 31.

[109] Kelvin F.K Low and Ernie Teo, "Chapter 10 – Legal Risks of Owning Cryptocurrencies," In *Handbook of Blockchain, Digital Finance, and Inclusion, Volume 1*, edited by David Lee Kuo Chuen and Robert Deng, (Academic Press, 2018): 242, https://doi.org/10.1016/B978-0-12-810441-5.00010-5.

To conclude this part of the discussion, the central bank and government, including relevant third parties, should be able to identify any legal risks and provide mitigation steps for those risks. These can be made including through (i) creating laws and regulations that aim to provide necessary provisions and to settle or deal with any risks derived from the use of CBDC, and (ii) preparing procedures for the settlement of issues among relevant parties.

V. CONCLUDING REMARKS

Breakthroughs in digital payments have become one of the reasons for most central banks to engage with research on CBDC and we note that several central banks have launched CBDC while others are still preparing and researching CBDC, including Indonesia. However, the design of CBDC should be adjusted to accommodate the needs and characteristics of the economy and jurisdiction of each country. That said, each country has its own complexities regarding the issuance, distribution and transference of CBDC and thus, it would require interdisciplinary research focusing on the legal aspects of this novel currency. In-depth legal research that covers all legal aspects including legal risks of CBDC is still needed to conduct.

Regarding the creation of CBDC, from the ideas under the state theory of money, which is also associated with the concept of legal tender and the sovereignty power over money, it can be concluded that the State has the prerogative authority to determine the monetary system and to create CBDC as money. Under this theory, the concept of CBDC as a digital version of money, in general, fulfils essential aspects of money in order to be lawful money and thus, it can serve its function among others as a medium of exchange, means of payment as well as legal tender. Furthermore, a legal framework is needed by the State or the central bank to declare CBDC as money and legal tender.

Related to the concept of CBDC under of Indonesian law, in order to have a lawful process for the issuance, distribution and transference of CBDC, this process should be conducted within a supportive legal environment consisting of a comprehensive regulatory framework and clear legal arrangement among participants in CBDC. This regulatory framework would consist of at least (i) an institutional framework on the central bank supported by the relevant laws and regulations as the legal basis for the central bank that regulates mandates, objectives, and roles of the central bank in CBDC, and (ii) legal basis for CDBC as digital money.

After determining the design and ecosystem of CBDC that is suitable for Indonesia's economy and jurisdiction, it is necessary to identify any regulatory challenges related to CBDC including reassessing the relevant

laws and regulations that govern, among others, the central bank as issuer of CBDC, currency and legal tender, technology and smart (legal) contracts, legal treatment of CBDC as property or (digital) assets. Assessment of these laws and regulations is essential to ensure the legality of CBDC in Indonesia.

Any risks in CBDC, including legal risks, should also be identified in detail and mitigation of such risks in CBDC should be anticipated. Mitigation for legal risks can be undertaken, among others, through the creation or amendment of laws and regulations and standard operating procedures applied for relevant parties in issuing and transacting CBDC. In the context of legal arrangements among relevant parties involved in the ecosystem of CBDC in Indonesia, it is necessary to delineate each party's roles, liabilities, and responsibilities. The scope of these legal arrangements may be stated in relevant regulations, agreements, and any legal relationships.

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