

## ARE CENTRAL BANK DIGITAL CURRENCIES A WAY TO TARGET CRYPTOCURRENCIES?

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**Abstract:** *The authors discuss central bank digital currencies (CBDCs) in their article. First, they briefly discuss crypto assets and their characteristics. They then focus on emerging CBDCs, their nature and the various forms that CBDCs can take. Next, the authors address the question of how CBDCs may be regulated in legal systems and what their legal relationship to legal tender may be. In the last section, the authors then address whether legislatively sound CBDCs may threaten the use of digital currencies or stablecoins. They offer answers to this question at the end of the article.*

**Keywords:** *central bank, CBDC, central bank digital currencies, cryptocurrencies, crypto assets, stablecoins*

### INTRODUCTION

In recent years, central banks have responded to major developments in the field of cryptocurrencies and digital currencies. They have started to develop their own projects that would offer most of the same benefits associated with commercial cryptocurrencies, but at the same time differentiate themselves with the security of a trusted issuer. The existence of functioning central bank digital currencies would then also bring benefits to individual states and to state power as a whole, as the cryptocurrency field could be more under the control of state authorities.

In this article, the authors will compare commercial cryptocurrencies and central bank digital currencies, both from a theoretical perspective and in terms of possible solutions for how these digital currencies could be constructed. Subsequently, cases where such digital currencies are already in use will also be analyzed in terms of possible lessons to be learned for emerging digital currencies in the near future. An important part of this paper will then explore why these digital currencies should exist in the first place and how they are, or are not, competitors to established cryptocurrencies.<sup>1</sup>

### I. DIGITAL ASSETS

Digital assets are a type of property created, extinguished, changed, stored, disposed of and transferred in a virtual environment. This type of asset does not possess any material form and is entirely dependent on electronic technologies that allow users to dis-

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<sup>1</sup> The work on this paper was supported by the Czech Science Foundation grant 24-12864S.

pose of it, transfer it, or merely display it. However, it must be said that digital assets are a general category of assets, which then includes more specific digital assets, which can be crypto-assets, central bank digital currencies, electronic money, non-fungible tokens (NFT), tokenised assets or security tokens. Each of these more specific categories of digital assets will then have a distinguishing feature that differentiates them from the others, typically the type of technology or real-world usability.

## 1.1 Cryptocurrencies

Cryptocurrencies are a relatively new concept that has gained popularity and public interest mainly because of the possibility of speculative trades. For a relatively long time, cryptocurrencies went unnoticed by the legislative authorities. From a private law perspective, it is intangible movable property. Public law also considers cryptocurrencies to be intangible movable property, but the categorization from a public law perspective is slightly more complex than in private law.<sup>2</sup> However, it has been categorically rejected by the competent authorities in the Czech Republic to date whether it is money, electronic money, or any investment instrument.<sup>3</sup> However, if we focus on specific perspectives from very specific areas, such as the harmonized value added tax regime, we conclude that cryptocurrencies are considered alternative means of payment.<sup>4</sup>

In recent years, however, professional definitions of cryptocurrencies have begun to emerge, as have legal definitions.

The International Monetary Fund defines cryptocurrencies as: “*Crypto assets are digital representations of value that rely on cryptography and decentralized peer-to-peer architecture based on distributed ledger technology (DLT), which enables two parties to directly transact with each other without the need for trusted intermediaries.*”<sup>5</sup>

According to the Czech National Bank, cryptocurrencies are “*Digital assets that can be transferred between holders electronically using distributed ledger technology using cryptography to secure them.*”<sup>6</sup>

It is noticeable from the above definitions that they are meant to be generic, encompassing all types of cryptocurrencies that currently exist. The European legislature is tak-

<sup>2</sup> For the legal nature of cryptocurrency under Czech law, see: KOHAJDA, Michael, MORAVEC, Jiří. Legal aspects of Bitcoin and other digital currencies from the perspective of the Czech legal theory and recent legislation. *Daně a finance*. 2016, Vol. 24, No. 4, pp. 36–46.

<sup>3</sup> Je k obchodování s bitcoiny nebo k jejich směně potřebné povolení ČNB? [Is the CNB’s permit needed to trade or exchange bitcoins?]. In: Česká národní banka [Czech National Bank] [online]. 10. 2. 2014 [2024-07-26]. Available at: <<https://www.cnb.cz/cs/dohled-financni-trh/legislativni-zakladna/stanoviska-k-regulaci-financniho-trhu/RS2014-02>>.

<sup>4</sup> Court of Justice of the EU: Judgment of 22 October 2015, Skatteverket v David Hedqvist, C-264/14.

<sup>5</sup> ZWIJNENBURG, Jorrit, DERRICK, Allison, GIRON, Celestino, HARUTYUNYAN, Artak. *F.18 The Recording of Crypto Assets in Macroeconomic Statistics*. p. 3. In: *International Monetary Fund* [online]. [2025-01-23]. Available at: <[https://www.imf.org/external/pubs/ft/gfs/gfsac/pdf/Recording\\_Crypto\\_Assets\\_MacroStats\\_July\\_22.pdf](https://www.imf.org/external/pubs/ft/gfs/gfsac/pdf/Recording_Crypto_Assets_MacroStats_July_22.pdf)>.

<sup>6</sup> Digitální peníze centrálních bank (výstup pracovní skupiny ČNB k problematice CBDC) [Digital currencies of central banks (output of working group of CNB on issues of CBDC)]. In: Česká národní banka [Czech National Bank] [online]. [2025-01-23]. Available at: Available at: <<https://www.cnb.cz/export/sites/cnb/cs/platebni-styk/gallery/digitalni-penize-centralnich-bank-cbdc/download/digitalni-penize-centralnich-bank-CB-DC.pdf>>.

ing a different approach in its legislation and defines cryptocurrencies in more detail in order to distinguish between different types of cryptocurrencies.

Regulation (EU) 2023/1114 of the European Parliament and of the Council on crypto-assets markets stipulates that a cryptocurrency<sup>7</sup> is, for the purposes of the Regulation, *“a digital representation of a value or right that can be transferred and stored electronically using distributed ledger technology or similar technology.”*<sup>8</sup>

All cryptocurrencies are defined in this way, regardless of functionality or type of cryptocurrency. It is therefore a generic definition of all cryptocurrencies including Bitcoin and other alternative cryptocurrencies. The European legislature further focuses its attention on so-called stablecoins, which it then defines in the following two paragraphs, where stablecoins linked to an asset are referred to as *“asset-referenced token”*<sup>9</sup> which they define as *“means a type of crypto-asset that is not an electronic money token and that purports to maintain a stable value by referencing another value or right or a combination thereof, including one or more official currencies”*.<sup>10</sup> Stablecoins pegged to an official currency are then referred to as *“electronic money token”*,<sup>11</sup> defining this type of stablecoin as *“type of crypto-asset that purports to maintain a stable value by referencing the value of one official currency”*<sup>12</sup>

An asset-referenced token (ART) is a stablecoin whose value is linked to another asset, which can be gold, a crypto-asset or a combination of assets with legal tender of any official currency. An electronic money token (EMT) is a stablecoin whose value is pegged to only one official currency. To achieve the pegging of value, the number of stablecoins issued must be collateralised in some way, either with legal tender money, digital assets or commodities, where, depending on the type of collateral, one stablecoin is then exchanged at a rate of 1:1 (i.e. 1 EUR for 1 Stablecoin, the value of 1g of gold in stablecoins for gold of equivalent value).

In our opinion, the European legislature’s approach is correct, as the following provisions of the Regulation regulate specific types of cryptocurrencies according to their specific nature and the purpose for which they are created. It should also be mentioned that the categorization of cryptocurrencies in the legislation is necessary to ensure that the regulation is specific, direct, and achieves its purpose without affecting entities that would be disadvantaged by overly general regulation.

## 1.2 The evolution of cryptocurrencies

The most significant milestone in the development of cryptocurrencies is undoubtedly the invention of the most famous and popular cryptocurrency to date, namely Bitcoin. The first mentions of Bitcoin date back to a report that was published by anonymous

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<sup>7</sup> The European legislature uses the term “crypto-asset”, but it is not necessary to distinguish between the two.

<sup>8</sup> Article 3(5) of the Regulation of the European Parliament and of the Council on markets in crypto-assets and amending Directive (EU) 2019/1937.

<sup>9</sup> Ibid, Article 3(6).

<sup>10</sup> Ibid.

<sup>11</sup> Ibid., Article 3(7).

<sup>12</sup> Ibid.

creator Satoshi Nakamoto,<sup>13</sup> in 2008, in the form of an e-mail message.<sup>14</sup> In this short report, he also published the theoretical basis<sup>15</sup> for Bitcoin technology and also briefly described its practical workings, which he called “*Bitcoin: A Peer-to-Peer Electronic Cash System*”. The purpose of creating the Bitcoin system, according to Nakamoto, was to create a payment system that would eliminate the need for a third party, which would be replaced by a peer-to-peer network whose functionality would be provided by the underlying software in cooperation with users who would communicate directly with each other.<sup>16</sup>

However, this was not the first attempt to create cryptocurrencies. The first cryptocurrency can be considered the eCash payment system, which was created by DigiCash, a company headed by David Chaum.<sup>17</sup> This project was ultimately unsuccessful, but it did lay the groundwork for the use of cryptography in the form of blind signatures.<sup>18</sup> As this blind signature is partly based on cryptography, it is close to a public and private key, as in the cryptocurrencies case.

Since the creation of Bitcoin, thousands of projects have been created with the primary goal of revolutionizing payment in some aspect with or without DLT,<sup>19</sup> technology, using cryptography.

## II. CENTRAL BANK DIGITAL CURRENCIES (CBDC)

Central bank digital currencies are a new form of money that is issued by a state authority and can be enshrined as legal money if the state so chooses. In principle, it can be said to be the digital equivalent of cash. Some CBDCs are intended to provide enhancements other than just being this equivalent, which their technology allows.

Central bank digital currencies offer a range of different forms that can be used in the preparation of a particular national CBDC. These forms need to be distinguished primarily for two reasons. The first of these reasons is a technological perspective, which is rather complementary for this paper, but the second reason is that each form requires different legislation. The wording of the provisions of the relevant law may differ substantially depending on the form of CBDC chosen. Moreover, the use of different forms of CBDC may be completely precluded as it may conflict with existing and effective legislation already in force, which is, for example, data protection legislation or legislation whose purpose is to prevent money laundering or terrorist financing.

<sup>13</sup> This is an anonymous creator whose identity is still unknown. It is also possible that this is a group of creators, not a single creator.

<sup>14</sup> In: *Bitcoin P2P e-cash paper* [online]. 1. 11. 2008 [2025-01-23]. Available at: <<https://www.mail-archive.com/cryptography@metzdowd.com/msg09959.html>>.

<sup>15</sup> Called Whitepaper.

<sup>16</sup> NAKAMOTO, Satoshi. *Bitcoin: A Peer-to-Peer Electronic Cash System*. In: *bitcoin* [online]. [2025-01-23]. Available at: <<https://bitcoin.org/bitcoin.pdf>>.

<sup>17</sup> SCHULZ, Karsten. Digital cash. *The Future of Digital Cash. Banking Policy Report*. 1999, Vol. 18, No. 15–16, p. 10.

<sup>18</sup> The content of the message is hidden before sending.

<sup>19</sup> This is a technology that enables the operation and use of distributed ledgers, where these repositories of information then keep a record of the transactions that have taken place within the network.

The basic forms of central bank digital currencies can be divided on the basis of:

- accessibility to entities – retail<sup>20</sup> available to all entities in a given country and wholesale<sup>21</sup> available only to predefined entities;<sup>22</sup>
- the way in which a given unit of central bank digital currency is defined, either as a token-based CBDC,<sup>23</sup> where each unit of digital currency has its own unique identification number, or as an account-based CBDC,<sup>24</sup> which is closer to the functionality of a current payment account, which records a positive or negative balance that the user can dispose of; and
- whether or not the central bank is the only entity that initiates and finalizes all processes related to the issuance of CBDC;
- whether or not central bank digital currencies are based on DLT technology.

Of the above basic forms of CBDC, the authors of this paper consider the most useful distinction to be between retail and wholesale and token-based and account-based forms. Retail CBDC, as CBDC that is accessible to the public and generally anyone is allowed to dispose of this CBDC, will act as a type of digital legal money in many countries, complementing current payment options (cash, cards, bank transfers) on the other hand, wholesale CBDCs will mainly be used for bulk transactions between predetermined entities (usually banks, financial institutions, securities dealers) to settle securities trades or for facilitating the settlement of trades resulting from monetary policy discount instruments or open market operations. It should be mentioned at this point that any of the above forms of CBDC and their possible combinations will require a separate assessment in terms of meeting the legislative requirements. Any legislative adjustments will vary according to the form chosen.

There are three concepts that can be used here. The first of these concepts is the concept of direct CBDC,<sup>25</sup> whereby all CBDC-related processes are in the hands of the central bank or other CBDC-issuing entity. In the direct CBDC concept<sup>26</sup> there is no intermediary or financial institution that is mandated by law to carry out payments, KYC processes, AML/CFT processes, or maintain bank accounts. In the direct model, essentially the central bank or other monetary authority performs all the processes that commercial banks perform for payments and bank accounts. It should also be noted that the claim of a user holding a given unit of digital currency of the central bank is a direct claim against the issuer.

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<sup>20</sup> Denmark's Nationalbank. *New types of digital money*, p. 18. In: *Denmark's Nationalbanks* [online]. [2025-01-23]. Available at: <[https://www.nationalbanken.dk/en/%20publications/Documents/2022/06/ANALYSIS\\_no%208\\_New%20types%20of%20digital%20money.pdf](https://www.nationalbanken.dk/en/%20publications/Documents/2022/06/ANALYSIS_no%208_New%20types%20of%20digital%20money.pdf)>.

<sup>21</sup> Ibid.

<sup>22</sup> These are mostly financial institutions and securities brokers.

<sup>23</sup> POCHER, Nadia, VENERIS, Andreas. *Privacy and Transparency in CBDCs: A Regulation-by-Design AML/CFT Scheme*. In: *SSRN* [online]. [2025-01-23]. Available at: <<https://ssrn.com/abstract=3759144>>.

<sup>24</sup> Ibid.

<sup>25</sup> AUER, Raphael, BOEHME, Rainer. *The technology of retail central bank digital currency*, p. 89. In: *BIS Quarterly Review* [online]. [2025-01-23]. Available at: <[https://www.bis.org/publ/qtrpdf/r\\_qt2003j.pdf](https://www.bis.org/publ/qtrpdf/r_qt2003j.pdf)>.

<sup>26</sup> At least in the basic version. It is probably possible to think of a model that would delegate certain competences, but in the end it will always be the responsibility of the CBDC issuing authority.

The second concept is the CBDC hybrid concept<sup>27</sup> in which a certain competence is already foreseen, which will already be delegated by law to an entity other than the entity issuing the CBDC, including full liability for any non-compliance with the legal procedures delegated to that entity.

The third concept is the most complex of all, as it involves the issuance of derivatives of CBDC issued by an intermediary, i.e., a financial institution or other entity mandated to do so, where that entity then distributes to others a CBDC derivative in the amount of CBDC issued, which must be deposited with the central bank for safekeeping. This concept is referred to as the indirect CBDC model concept.<sup>28</sup> In this model, the central bank only clears the wholesale payments and supervises the activities of the intermediaries. It is important to note that in this concept, the CBDC user does not have a direct claim against the central bank, but only against the intermediary in the first tier. Given that the intermediary deposits with the central bank the same amount of CBDC from which it has created the derivative, it is apparent that there is some way in which the user can recover its money in the event of, for example, the liquidation of the intermediary, but this must be done by the central bank providing these reserves to another intermediary that issues the same amount of derivative.<sup>29</sup>

We believe that it is not possible to determine in general terms the best approach to be taken by a central bank among the above, but the following premises can be used. The direct CBDC model is not appropriate where the central bank does not have the staffing and facilities to handle all the processes required for the proper execution of a digital currency, which are mandated by other legislation. In particular, it can be said that the direct model is not suitable for any European country and other countries where a financial institution is required to carry out KYC, AML, or CFT processes, but only if it is a retail CBDC that is open to the general public. The wholesale direct CBDC model should then be easily applicable without restriction. The indirect and hybrid model is suitable for any state where there are sound financial institutions in which the state will only supervise. In conclusion, there is no best model, but it is necessary to assess the advantages and disadvantages of each model in a particular state.

According to the Czech National Bank, central bank digital currencies are “*digital money that represents a direct claim of the holder against the central bank.*”<sup>30</sup>

However, the Bank for International Settlements also offers a partially negative definition of central bank digital currencies, which is as follows: “*CBDC is a digital form of central bank money that is different from balances in traditional reserve or settlement accounts.*”<sup>31</sup>

<sup>27</sup> Ibid.

<sup>28</sup> Ibid.

<sup>29</sup> Indeed, the central bank cannot provide these reserves directly, as at that point the CBDC user would receive the original CBDC issued, which is not intended for these entities but only for intermediaries. The moment this would happen, the direct CBDC model can no longer be discussed, and it is likely that such a procedure would also have no support in law.

<sup>30</sup> Česká národní banka. *Digitální peníze centrálních bank (výstup pracovní skupiny ČNB k problematice CBDC)* [Digital currencies of central banks (output of working group of CNB on issues of CBDC)]. p. 4.

<sup>31</sup> Bank for International Settlements. *Central bank digital currencies*. p. 4. Committee on Payments and Market Infrastructures. In: *bis.org* [online]. [2025-01-23]. Available at: <<https://www.bis.org/cpmi/publ/d174.pdf>>.

We believe that given the forms of central bank digital currencies that can be used, the definition advocated by the Bank for International Settlements is more accurate, but also not entirely accurate from a financial theory perspective. If we examine the first definition in terms of direct, indirect, or hybrid forms of central bank digital currency, we must conclude that in the case of the indirect model of central bank digital currency, it is not possible to say that the person who will hold the central bank digital currency has a direct claim against the central bank. We are convinced that they will certainly have an indirect claim, but not a direct claim, because the intermediary acting in the indirect model issues its own derivative of the digital equivalent of an official currency. It should also be said that although the central bank is the monetary authority in the vast majority of countries, this is not the case in all. In some, it is possible to encounter so-called monetary authorities that are likely to have the power to issue such a digital equivalent of an official currency. We feel that the correct definition should be some hybrid between the above definitions, modified by a few more details, stating “*Central bank digital currencies are digital money that is issued by a central bank or other authority competent to do so, which represents a claim on the issuer, and which is also distinct from the balance in traditional reserve or clearing accounts*”.

On the other hand, there are already legal definitions of specific central bank digital currency projects that are either already in force and in effect or are in the process of being legislated. This is also the case in the island nation of the Bahamas, which was among the first to launch an official version of its digital currency called the “Sand Dollar”, where the Central Bank of the Bahamas has proposed that the definition of digital currency should be “[*The*] *electronic Bahamian dollar is electronic money issued by the Central Bank under regulation 13 pursuant to the authority conferred upon it by the Act, fully backed by reserves held by the Central Bank and represents a direct claim against the Central Bank.*”<sup>32</sup>

The European legislature, after a very long development of the digital euro, is also coming up with legislation that has not been adopted to date, which foresees that the digital euro will be defined as “*a digital form of the single currency available to natural and legal persons.*”<sup>33</sup>

It can be observed that all legal definitions are in principle based on the definitions provided by the profession or financial theory, but it is necessary to adapt this definition to the specific legal system. In the event that we focus on the definition of the electronic Bahamian dollar, we must conclude, based on the above, that it essentially reflects the definition we have put forward as ideal, using a purely linguistic interpretation. However, with the help of interpretation, we reach the same conclusion for the definition of the

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<sup>32</sup> The Central Bank of The Bahamas. *CONSULTATION PAPER: Proposed Legislation for the Regulation of the provision and use of Central Bank issued Electronic Bahamian Dollars*. In: *The Central Bank of The Bahamas* [online]. [2025-01-23]. Available at: <<https://www.centralbankbahamas.com/viewPDF/documents/2021-02-15-11-24-12-Central-Bank-Electronic-Bahamian-Dollars-Regulations-2021.pdf>>.

<sup>33</sup> Evropská komise [European Commission]. *Návrh Nařízení Evropského parlamentu a rady o zavedení digitálního eura* [Proposal for a Regulation of the European Parliament and of the Council on the establishment of the digital euro]. p. 39. In: *Evropská komise [European Commission]* [online]. 28. 6. 2023 [2025-01-23]. Available at: <[https://eur-lex.europa.eu/resource.html?uri=cellar:6f2f669f-1686-11ee-806b-01aa75ed71a1.0004.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:6f2f669f-1686-11ee-806b-01aa75ed71a1.0004.02/DOC_1&format=PDF)>.

digital euro. In practice, this definition only states that it is the digital equivalent of the physical euro,<sup>34</sup> which is accessible to all natural and legal persons<sup>35</sup> and all other questions, which are already apparent from the definition of the electronic Bahamian dollar, must be answered in the monetary legislation of the European Union.<sup>36</sup>

### III. THE MATERIAL SOURCE OF LAW OF CENTRAL BANK DIGITAL CURRENCIES

The emergence of central bank digital currencies is related, as with any technology or legal development, to a particular fact that has occurred in a given society. There are several facts associated with central banks' interest in a national digital currency, but it is necessary to identify the right one with a particular society.

As early as 2020, more than 86 % of central banks worldwide were exploring the benefits and challenges of central bank digital currencies.<sup>37</sup> The interest of central banks in their digital currency is evident across the world, with some countries already at a very advanced stage of development before issuing,<sup>38</sup> or have already issued a digital currency.<sup>39</sup>

Benefits such as financial inclusion, efficiency and security of domestic payments, ensuring monetary sovereignty, financial stability, and monetary policy<sup>40</sup> are often cited as the primary motivations of governments and central banks for issuing digital currencies. It goes without saying that for most of these motivations, it depends on various factors in the country in question. Most of these motivations will not be sufficient to justify the introduction of a digital currency in a particular country, as the financial and banking system will be so developed in that country that the introduction of its own digital currency would have very little impact. Motivations of financial inclusion, efficiency, and security of domestic payments therefore do not play a major role in countries where the banking and financial system is well developed.<sup>41</sup>

However, the fundamental motivation can be seen in the fear of a possible threat to monetary sovereignty, which can be seen in two areas in particular:

<sup>34</sup> We are therefore referred to Council Regulation (EC) No 974/98 of 3 May 1998 on the introduction of the euro.

<sup>35</sup> It is therefore a retail CBDC.

<sup>36</sup> For example, the aforementioned Council Regulation (EC) No 974/98 of 3 May 1998 on the introduction of the euro.

<sup>37</sup> BOAR, Codruta, WEHRLI, Andreas. *Ready, steady, go? – Results of the third BIS survey on central bank digital currency*. BIS Papers No. 114, p. 3. In: *Bank for International Settlements* [online]. [2025-01-23]. Available at: <[https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.bis.org/publ/bppdf/bispap114.pdf&ved=2ahUKEWjuufHGw86HAXGnf0HHWMAA4QQFnoECCIQAQ&usg=AOvVaw3N6NtzIpd8\\_0Jo9oSqcP4H](https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.bis.org/publ/bppdf/bispap114.pdf&ved=2ahUKEWjuufHGw86HAXGnf0HHWMAA4QQFnoECCIQAQ&usg=AOvVaw3N6NtzIpd8_0Jo9oSqcP4H)>.

<sup>38</sup> These include the Swedish e-krona, the digital euro and the Chinese digital yuan.

<sup>39</sup> For example, Jamaican JAM-DEX, Bahamian Sand-dollar, Nigerian eNaira.

<sup>40</sup> ROOSEBEKE Van, RYAN, Defina. *Central Bank Digital Currencies: The Motivation*. International Association of Deposit Insurers, 2021, p. 4. In: *Munich Personal RePEc Archive* [online]. [2025-01-23]. Available at: <<https://mpra.ub.uni-muenchen.de/111006/>>.

<sup>41</sup> The Czech National Bank takes a similar approach when assessing the impact of the introduction of the digital crown in the Czech Republic in its publication available here. In: *Česká národní banka* [online]. [2025-01-23]. Available at: <<https://www.cnb.cz/export/sites/cnb/cs/platebni-styk/.galleries/digitalni-penize-centralnich-bank-cbdc/download/digitalni-penize-centralnich-bank-CBDC.pdf>>.



1. Competition of private money with public money; and
2. Reduction of the volume of cash transactions.

Private money is a ubiquitous aspect of everyday life that can appear in various forms. The most common private money that is used across the world is deposits in bank and payment accounts and their subsequent use by bank transfers or other payment instruments.<sup>42</sup> At the same time, however, there are other competitors in the market that also provide payment services and payment systems, but which are not banking institutions. These include PayPal, Apple/Google Pay, and Venmo. All of these services are provided through mobile apps and have become the dominant means of payment in some countries, including in everyday payments, where, for example, in the People's Republic of China, payments through mobile apps already accounted for 66 %<sup>43</sup> of all payments made in 2019. When we focus on European countries, the situation is slightly different, mainly because it is not mobile applications as such that are used, but payment cards. For example, according to a study by the European Central Bank, in 2022, the number of transactions made by card in Finland corresponds to more than 70%<sup>44</sup> of all transactions made, while corresponding to 75 %<sup>45,46</sup> of the value of all transactions made in that country. A similar trend can also be seen in Luxembourg, where 52 %<sup>47</sup> of all transactions, corresponding to 63 %<sup>48</sup> of the value of all transactions, are made by card. Compared to a study conducted by the European Central Bank in 2019, the percentage of card use in transactions has increased by 12 percentage points<sup>49</sup> in Finland and 13 percentage point<sup>50</sup> in Luxembourg. This trend is evident in almost all European countries, except Estonia, and suggests a preference for private money in the POS area, which could be one reason for central banks' interest in a national digital currency of central banks to compete with private money.

Private money also includes stablecoins, which are often considered to be the initial idea behind central banks' interest in central bank digital currencies, with the general perception that central bank digital currencies are "*seen as the public sector's answer to stablecoins*."<sup>51</sup> However, the aforementioned payment methods are mostly regulated methods and, unlike stablecoins, are burdened with certain legislative boundaries and

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<sup>42</sup> E.g., credit cards or direct debit orders.

<sup>43</sup> Progress of Research & Development of E-CNY in China. Working Group on E-CNY Research and Development of the People's bank of China, 2021, p. 2. In: *People's Bank of China* [online]. [2025-01-23]. Available at: <<http://www.pbc.gov.cn/en/3688110/3688172/4157443/4293696/2021071614584691871.pdf>>.

<sup>44</sup> European Central Bank. Study on the payment attitudes of consumers in the euro area (SPACE) – 2022. p. 19. In: *European Central Bank* [online]. [2025-01-23]. Available at: <[https://www.ecb.europa.eu/stats/ecb\\_surveys/space/shared/pdf/ecb.spacereport202212-783ffd46e.cs.pdf](https://www.ecb.europa.eu/stats/ecb_surveys/space/shared/pdf/ecb.spacereport202212-783ffd46e.cs.pdf)>.

<sup>45</sup> Ibid.

<sup>46</sup> These data correspond to the Point of sale.

<sup>47</sup> Ibid.

<sup>48</sup> Ibid.

<sup>49</sup> European Central Bank. *Study on the payment attitudes of consumers in the euro area (SPACE)*, p. 109.

<sup>50</sup> Ibid., p. 127.

<sup>51</sup> GUSEVA, Yuliya, GAZI, Sangita, EAKELEY, Douglas. *Charting the Co-existence of Stablecoins and Central Bank Digital Currencies*. In: *Faculty of law blogs/UNIVERSITY OF OXFORD* [online]. 25. 7. 2024 [2024-09-30]. Available at: <<https://blogs.law.ox.ac.uk/oblblog-post/2024/07/charting-co-existence-stablecoins-and-central-bank-digital-currencies>>.

the possibility of other interventions by public authorities that could direct or influence the institution in question, in particular through monetary policy instruments. Stablecoins, as a largely unregulated cryptocurrency, offer a relatively easy, stable and secure peer-to-peer payment system. Although at present this type of cryptocurrency is used exclusively for the purchase of cryptocurrencies on cryptocurrency exchanges and stablecoins pegged to legal currency serve as the defacto digital equivalent of legal money, there is a real chance that stablecoins could be used in the future for other than speculative cryptocurrency trades, e.g., for everyday transactions in everyday life.

The decline in cash transactions is a phenomenon that has permeated economies around the world for many years. One of the most important catalysts, at least in European countries, was the Covid-19 pandemic, which caused a major habituation of the population to the convenience of cashless payments. A 2022 study by the European Central Bank shows that, compared to 2019, the percentage of cash use in total transactions has fallen by an average of 10 percentage points<sup>52</sup> in almost all countries surveyed (except Estonia and Slovenia).<sup>53</sup>

However, the value of these transactions made in cash decreased by 7.6 percentage points<sup>54</sup> on average. In Sweden, the situation is so severe that in 2023 cash was used in only 10% of all transactions.<sup>55</sup> However, it should be noted that the use of cash in Sweden had already taken a steep fall in 2010, when cash was still used in 40% of all transactions.<sup>56</sup>

If we focus on the material source in the real world, it can be seen in the Swedish e-krona, with the Swedish Central Bank stating in its publication that the development of the Swedish e-krona is necessary mainly because the use of cash in transactions continues to decline<sup>57</sup> and that it is necessary for the state to have a role in payment transactions. On the latter point, the Swedish Central Bank also states that *“If the State, through the central bank, has no payment services to offer as an alternative to the highly concentrated private payment market, this may lead to a less competitive and less stable payment system, as well as making it more difficult for certain groups to make payments.”*<sup>58</sup>

A similar stance can be seen in the European Central Bank’s initial report, but it is working through scenarios that may arise to make it appropriate to issue a digital euro.

<sup>52</sup> According to the above study, these are the following country-specific declines: Portugal – 17 percentage points, Spain – 17 percentage points, France – 7 percentage points, Belgium – 12 percentage points, Ireland – 14 percentage points, Luxembourg – 14 percentage points, the Netherlands – 11 percentage points, Germany – 13 percentage points, Austria – 9 percentage points, Italy – 13 percentage points, Malta – 12 percentage points, Greece – 18 percentage points, Cyprus – 23 percentage points, Slovakia – 13 percentage points, Latvia – 5 percentage points, Lithuania – 17 percentage points, Finland – 13 percentage points.

<sup>53</sup> European Central Bank. *Study on the payment attitudes of consumers in the euro area (SPACE)*, p. 20.

<sup>54</sup> *Ibid.*, p. 21.

<sup>55</sup> Cash is rarely used and the supply of cash services is decreasing. In: *Sveriges Riksbank* [online]. 14. 3. 2024 [2024-09-23]. Available at: <<https://www.riksbank.se/en-gb/payments--cash/payments-in-sweden/payments-report--2024/trends-in-the-payments-market/cash-is-rarely-used-and-the-supply-of-cash-services-is-decreasing/>>.

<sup>56</sup> *Ibid.*

<sup>57</sup> The Riksbank’s e-krona project, Report 2, 2018, p. 2. In: *Sveriges Riksbank* [online]. [2025-01-23]. Available at: <<https://www.riksbank.se/globalassets/media/rapporter/e-krona/2018/the-riksbanks-e-krona-project-report-2.pdf>>.

<sup>58</sup> *Ibid.*

One of these scenarios is also a reduction in the use of cash in transactions<sup>59</sup> and the second scenario is that some form of money other than central bank money, deposits in commercial banks or electronic money, will be used as a form of money.<sup>60, 61</sup>

#### IV. FORMAL SOURCE OF LAW OF CENTRAL BANK DIGITAL CURRENCIES

There are few formal sources of central bank digital currency law at this point. They can be found either in official central bank digital currencies that are already in common use, or in projects that are on the verge of becoming legal money, but at the present time this formal source has not yet gone through the legislative process to take effect.

However, the formal source of central bank digital currencies is accompanied by several requirements that must be met before CBDC can be considered a legal tender. The first essential requirement is to make sure that there is a legislative basis for the eventual issuance of a national central bank digital currency. Depending on the chosen technological<sup>62</sup> model for a central bank digital currency, it is necessary to consider whether there is a legislative basis authorizing a central bank or monetary authority to:

- a) the issuance of digital currency by central banks; and
- b) opening and maintaining accounts for entities that would use the central banks' digital currency.

In the absence of a legislative basis, the legislative basis must be created, usually through the normal legislative process, which will of its own course be different in each country. However, this scenario would need to be applied in the vast majority of countries considering a digital currency. In this respect, the IMF reports that of the 171 central banks surveyed, 104 central banks are authorized to issue only coins and banknotes,<sup>63</sup> 27 central banks are unclear as they also have the authority to issue other instruments<sup>64</sup> and only 40 central banks are not limited in the range of instruments they can issue.<sup>65</sup> At best, only 40 central banks have the legislative basis to issue token-based digital currency.

However, the situation described in b) is considerably more distressing, as 46 central banks are restricted from opening or maintaining bank accounts for entities other than

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<sup>59</sup> Report on a digital euro. Frankfurt am Main: European Central bank, 2020, p. 10. In: *European Central Bank* [online]. [2025-01-23]. Available at: <[https://www.ecb.europa.eu/pub/pdf/other/Report\\_on\\_a\\_digital\\_euro-4d7268b458.en.pdf](https://www.ecb.europa.eu/pub/pdf/other/Report_on_a_digital_euro-4d7268b458.en.pdf)>.

<sup>60</sup> European Central Bank. Report on a digital euro. [online]. Frankfurt am Main: European Central bank, 2020, p. 11. *Ibid.*, p. 11.

<sup>61</sup> Fulfilling the characteristics of money from the perspective of the theory of financial law.

<sup>62</sup> It is necessary to distinguish between token-based and account-based, as the specification of each model has a different impact in terms of legislation.

<sup>63</sup> BOSSU, Wouter, ITATANI, Masaru, MARGULIS, Catalina, ROSSI, Arthur, WEENINK, Hans, YOSHINAGA, Akihiro. *Legal Aspects of Central Bank Digital Currency: Central Bank and Monetary Law Considerations*. IMF Working Paper WP/20/254, 2020, p. 21. In: *International Monetary Fund* [online]. [2025-01-23]. Available at: <<https://www.imf.org/-/media/Files/Publications/WP/2020/English/wp2020254-print-pdf.ashx>>.

<sup>64</sup> *Ibid.*

<sup>65</sup> *Ibid.*

those enumerated in the law,<sup>66</sup> 15 central banks are unsure whether they can open and maintain bank accounts for entities other than those specified in the law,<sup>67</sup> and only 10 central banks have the authority to open bank accounts directly or indirectly for the public.<sup>68</sup> In conclusion, therefore, only 10 central banks are currently authorized to issue account-based digital currency.<sup>69</sup>

The wording of the legal regulation determining whether a certain form of money is legal tender or not can also be problematic. However, even if a central bank had the powers to issue both token-based, account-based digital currency, and to be the issuer of a legal tender, it would still be necessary to make some changes to the legislation or to issue a complete new piece of legislation setting out processes to ensure cybersecurity, user privacy, and delegation of authority for different models of digital currency design. The debate then turns to how to achieve a change in the legislation, i.e., whether by simply amending the law already in force or by issuing a *lex specialis* to the *lex generalis* enshrining the legal tender, where the special law will complement the general law in distinguishing digital currency from the legal tender.

Once again, it is not possible to say which of the above routes is generally preferable, but it is necessary to examine the situation in a particular country. The creation of a specific law building on the general law may be a clearer solution for the addressees if the specific law contains only the regulation applicable to the central bank's digital currency. Traditionally, legal tender legislation has not been extensive, so in such cases it seems more appropriate to introduce a digital currency through a special law. However, if the law governing the legal tender itself is sufficiently detailed and the introduction of a central bank digital currency requires only a simple addition to the legislation, the more appropriate route may be to simply amend this general legislation.

Focusing on specific countries that already have a formal source, we can note that Jamaica, for example, has chosen the path of expanding the diction of its Bank of Jamaica Act, which is conceived as the only law that regulates the issue, and a mere amendment added the definition of central bank digital currencies,<sup>70</sup> Jamaican digital currency was established as a legal tender and the issuer was authorized by the central bank.<sup>71</sup>

In contrast to the Bank of Jamaica's approach, one can examine the approach currently being proposed by the European Commission,<sup>72</sup> which is currently working with a system of special versus general legislation. The general legislation in this case is Council Regulation (EC) No. 974/98 of 3 May 1998 on the introduction of the euro, which regulates the fundamental aspects of the euro as such, establishing the euro as the unit of currency.<sup>73</sup> These aspects are not regulated by the proposed regulation on the introduction

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<sup>66</sup> *Ibid.*, p. 24.

<sup>67</sup> *Ibid.*

<sup>68</sup> *Ibid.*

<sup>69</sup> Of the total number of banks surveyed that are members of the International Monetary Fund.

<sup>70</sup> Sec. 2 Jamaica. Act. 5-2022 - Bank of Jamaica (Amendment) Act 2022. In: *Bank of Jamaica* [online]. [2025-01-23]. Available at: <<https://boj.org.jm/wp-content/uploads/2022/06/BOJ-Amendment-Act-Act-5-of-2022.pdf>>.

<sup>71</sup> *Ibid.*, Sec. 5.

<sup>72</sup> Not a valid and effective piece of legislation.

<sup>73</sup> Article 2 of Council Regulation (EC) No 974/98 of 3 May 1998 on the introduction of the euro.

of the digital euro<sup>74</sup> and, therefore, in this respect, the special legislation is dependent on the general legislation. In contrast to the general regulation, however, it regulates in a very comprehensive and specific way both the basic definitions and the processes involved in the introduction, issuance, distribution, as well as processes related to user privacy, counter-terrorism, and money laundering. The general regulation is also relatively brief compared to the very detailed and lengthy specific regulation, and it must therefore be concluded that leaving a single legal regulation on the euro, with provisions for both the physical euro and the digital euro, would be a rather negative alternative. We believe that the European legislature has taken the right approach in choosing the *lex generalis* and *lex specialis* and also that, from the point of view of clarity of legislation, it could not have chosen a similar path as Jamaica above.

## V. WHAT MUST THE REGULATOR DO TO MAKE THE ADOPTION OF CENTRAL BANK DIGITAL CURRENCIES SUCCESSFUL?

Setting aside the fact that any central bank digital currency project will need robust legislation incorporating the factors listed below, several other vital requirements must be met to adopt central bank digital currencies to succeed and compete with private money. These requirements undoubtedly include the creation of a high-quality and secure infrastructure that will be able to support all processes continuously and without any fluctuations or network congestion, that will be scalable without significant interference with the network itself, and, above all, that will be secure against attacks on this infrastructure or against cyber-attacks on the network that will operate on this infrastructure. These technological requirements are a prerequisite for ensuring that the CBDC operating on this infrastructure does not lose users' trust, as a loss of trust would mean a gradual or stepwise loss of users. However, the question is whether the regulator should provide all the infrastructure, including terminals at individual merchants, or adopt a similar distribution approach for card payment terminals.

Of course, it is also essential to ensure compatibility with other types of private money so that the use case is as large as possible. To achieve this, the regulator needs to ensure these types of money interconnectivity with other private money providers.

An equally important requirement is active communication between the regulator and the public that will use the CBDC. It is essential that the regulator communicates the usability of CBDC to the public gradually and humanely, encourages them to use it, and teaches them how to use this new technology. In the context of this requirement, it is necessary to ensure that the privacy of users (especially the public) is at the absolute top of the CBDC's values to ensure that users' data is not misused for any other purpose, whether by the state, by an entity participating in the CBDC, or by any other entity.

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<sup>74</sup> In: *Evropská komise* [online]. 28. 6. 2023 [2025-01-23]. Available at: <[https://eur-lex.europa.eu/resource.html?uri=cellar:6f2f669f-1686-11ee-806b-01aa75ed71a1.0004.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:6f2f669f-1686-11ee-806b-01aa75ed71a1.0004.02/DOC_1&format=PDF)>.

## VI. THREATS TO CRYPTOCURRENCIES AND STABLECOINS FROM CENTRAL BANK DIGITAL CURRENCIES AND RELATED LEGISLATION

Central banks' digital currencies present an entirely unique opportunity to disrupt the functioning of the crypto world, more or less from within. When we look at the functionality of individual cryptocurrencies, we conclude that cryptocurrencies are usually populated with various trading pairs that in the vast majority of cases correspond to a particular cryptocurrency vs stablecoin<sup>75</sup> (reflecting the real value of a particular currency), and sometimes of course also cryptocurrency vs cryptocurrency.<sup>76</sup> The moment a particular state legislatively enshrines the obligation to use its own digital currency (or an existing international digital currency) when purchasing cryptocurrencies, it will limit the most crucial area in which stablecoins perform, and in addition, the digital footprint on the digital currency network will be preserved when the transaction takes place.

Conversely, in the event that such an obligation is not enshrined in legislation, we believe that this option would be offered by cryptocurrency exchanges and subsequently used mainly by institutional buyers of cryptocurrencies. However, we believe that in the event that the state does not enforce the option by legislation, at least some retail customers would remain using the existing system.

From this perspective, it is therefore crucial whether or not, in the event of the creation of a CBDC in a particular state, the legislature imposes an obligation to use this digital currency in cryptocurrency trading.

In any case, as can be seen in the legislation of the European Union, it does not aim to ban cryptocurrencies or stablecoin, but rather to regulate them in a similar way to financial markets through the granting of permits and licenses. In particular, the European Union emphasises the security of users and buyers of cryptocurrencies by regulating individual cryptocurrency service providers and bringing certainty to the issuance of stablecoins, which are a safe haven escape route into the volatile world of cryptocurrencies. However, it is questionable whether this route will be chosen only until the regulator brings its equivalent that can be used in cryptocurrency trading to replace stablecoins in their core function.

## CONCLUSION

The creation of CBDCs in selected, especially economically developed countries, is an irreversible reality. As mentioned above, the central banks of the world's major economies are not only preparing for this but are already implementing it. Once such a CBDC is established in a given country, the most important circumstance will be whether the legislature intends to simultaneously favor this digital currency in some way (e.g., by making its use mandatory for certain transactions) or merely allow it to exist and function.

The primary reason why central bank digital currencies are emerging is in response to the current state of affairs, where the share of payments made electronically in some

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<sup>75</sup> BTC/USDT or ETH/USDT similarly functioning as Forex, in which pairs such as EUR/USD etc.

<sup>76</sup> BTC/ETH, i.e., Bitcoin against Ethereum.

private cryptocurrency is increasing substantially. States are thus gradually losing their influence and control over payments. In the previous situation, in which most payment services were carried out in private electronic money, but issued in national currencies, the position of the state was not threatened to such an extent, since the state still had influence, through the monetary policy authority, on the currency as such, and, in addition, the issuers of this electronic money were subject to the state authority. The situation in which units linked to cryptocurrencies are becoming more important in payment transactions already threatens those state interests.

Central banks are therefore responding to this threat by preparing or already implementing CBDC to protect the interests of state authorities in the payment services sector. In doing so, they protect not only the ability of the state to pay and receive its payments, but also the interests of various groups of citizens and businesses that may be at risk of not having access to private electronic money payment services at all or in some limited form.

CBDCs can therefore be a suitable alternative for those users who are really looking for an alternative instrument for their payments, guaranteeing in particular instant or international transfers at very low fees. Or the possibility to make a payment via the Internet regardless of the territory where the remitter or payee is located.

However, users of cryptocurrencies often seek these digital currencies as a means of payment for other reasons, which are mainly the anonymity of holding and handling such money, the possibility of payment to countries or entities where this is not possible under legal rules. However, the vast majority of users seek cryptocurrencies for the possibility of speculative investment in an asset with high volatility and therefore potential returns. CBDCs, however, by their very nature cannot be expected to offer the possibility of high returns associated with holding them, so CBDCs will not be of interest to this predominant group.

Precisely because cryptocurrencies are only minimally used as tender, the introduction and expansion of CBDC by even more economically important countries will not be a general threat to existing cryptocurrencies.

The impact of emerging CBDCs on existing stablecoins may vary with respect to the final CBDC concept in a given country. If a particular CBDC becomes just an official electronic version of a legal tender, CBDCs will find a different target group than stablecoins. Their users will appreciate their fixed link to the legal tender and then the possibility to use them for payments. Central banks with their CBDCs are more likely to become competitors for commercial banks and payment institutions.

However, if a particular CBDC finds a way to be linked to one of the existing cryptocurrencies, then it will be able to offer an alternative to stablecoins that offers a fundamentally lower level of risk associated with a credible issuer that should also provide a stable and specific link to the cryptocurrency. However, the disadvantage of such CBDCs compared to stablecoins will be precisely their central issuer in the form of a state institution, so for users seeking maximum anonymity or a decentralized issuer even the fundamentally lower risk of such CBDCs compared to traditional stablecoins will not outweigh this positive and will stay with current stablecoins.

Thus, it is the specific concept of certain CBDCs that determines whether such CBDCs will be a threat to stablecoins. Therefore, in our view, a general conclusion cannot now be drawn.