Digital Euro: A (Digital) Symbol of Progress and Integration in Europe

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Abstract: The emergence of crypto assets such as Bitcoin and Ether exposed a number of advantages that these digital assets based on distributed ledger technology (DLTs) can offer. As cash is becoming less and less popular in the eurozone, the European Central Bank (ECB) is currently looking at the scenario of creating a digital euro as a kind of central bank money that may be used by the general public. DLT may be used to tokenize central bank money via digital currencies (CBDCs) issued by central banks, as well as to digitally represent bank deposits.

The purpose of this article is to analyse what are the solutions for the future digitization of the monetary and financial systems and if current CBDC projects and prototypes, including those by the Chinese and Swedish central banks and the attempts of the ECB, have the chance to succeed with or without DLT.

Keywords: *digital euro; European Central Bank; digital currency; DLT, financial security; CBDC.*

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1. Defining the digital euro

The global crypto economy grew steadily in the first half of 2019, reaching a year-to-date peak market capitalization of about USD 370 billion by the end of June. The overall funding volume of token offers fell significantly in mid-2019, from about USD 1'322 million in May to USD 151 million in June; until the end of October, growth remained stagnant, with an average monthly funding volume of USD 171 million (to compare: USD 653 million from January to May 2019). Supporters of digital currencies may honestly affirm that crypto assets have done exceptionally well since the March 12, 2020 market crash, also known as “Black Thursday”. Using today's exchange rates, the whole crypto market of over 5,000 coins is worth \$255 billion (Coin Market Cap, 2020).

Consumer perceptions of payment services are being influenced by the digitalization of the economy and technical advancements, fueling interest in issuing a digital euro. As a complement to cash and central bank deposits, this novel idea of “digital euro” signifies “an obligation of the Euro system documented in digital form”. As it was underlined in the Euro system’s report issued in October 2020, the main focus must be on the proper design for use in open-to-general-public retail transactions (citizens and non-bank firms). In other words, the new system architecture that underpins the digital euro should be adaptable and scalable, having “open interfaces between system components” that are standardized to allow for future payment requirements and the simple integration of new types of devices over time. Or as the first report’s Requirement 1(R1) stated to enhance digital efficiency.

“The digital euro should keep pace with state-of-the-art technology at all times to best address the needs of the market as regards, among other attributes, usability, convenience, speed, cost efficiency, and programmability. It should be made available through standard interoperable front-end solutions throughout the entire euro area and should be interoperable with private payment solutions” (Bank, Report on a digital euro 2021).

One of the key messages in correlation with the issuance of the digital euro revealed the utmost importance to minimize any negative implications of its issuance to avoid any negative effects on monetary policy and financial stability, as well as on banking sector service provision taking into consideration that central banks are the most appropriate candidates for issuing a digital currency. Or as it was also very interestingly underlined, even when exempted, the Euro system should strive to comply with regulatory norms unless it is plainly in the public interest not to.

The issuing of a digital Euro through a distributed ledger technology (DLT) system could provide significant benefits in terms of security because using DLT, transaction data is saved on a huge number of computers at the same time. Taking into consideration that there would be no single point of failure, decentralized data storage would make the system more resistant to hacker attacks. As transactions are kept on several computers at the same time, it is impossible to falsify or change transaction data later. This “resistance to manipulation” has obvious advantages, especially in cases where all participants must have the same set of knowledge but do not know or trust each other. For example, smart contracts and peer-to-peer (micro) machine payments may be implemented in Euros and do not require the use of volatile or uncontrolled cryptocurrencies. In the context of the machine economy, a DLT-based payment system is thus very promising. According to IoT Analytics (2018), by 2025, more than 20 billion devices will be connected to the internet, which is three times the number of people on the planet today. In just a few years, many of these gadgets will be integrated into a payment network as well, which will number in the hundreds of millions of devices, each of them capable of sending digital Euros straight from wallet to wallet, and therefore they would be eligible to receive and send money on their own. The initial option for “using DLT to transact Euros is tokenizing fiat money deposited at banks, e-money providers, or other financial institutions to create stablecoins” (Klein et. al, 2020). Each one of these “stablecoin tokens must be backed up by a specific quantity of cash” (or other valuables) in the customer's account. The tokens must be completely backed by deposits, which ensure that the “value of stablecoins”, remains stable when compared to fiat currencies such as the Euro (Sodhi, 2018). Holders of stablecoins must have faith in the token issuers that all tokens are fully supported by deposits and that they may be retrieved even if the tokens are liquidated. Undoubtedly the most popular stablecoin initiative was The Libra project, which was introduced in June 2019 by the “Libra Association around the Facebook subsidiary Calibra” (Gross et. al., 2019). Upgraded in April 2020, Libra revealed ambitions to build an infrastructure for various cryptocurrencies, the majority of which would be backed by specific fiat currencies, and stated it was in negotiations with Swiss regulators for a payments license (Wagner, Kharif, 2020). Since December 2020, Libra has changed its name to Diem, and the Libra Association has changed its name to Diem Association, a membership association that includes firms in the payment, technology, telecommunications, online marketplaces, venture capital, and nonprofit sectors. In just a few months, in May 2021, Diem claimed that it has

withdrawn its request to the Swiss Financial Market Supervisory Authority and would instead pursue authorization from the US Treasury to establish it as a money services business (Murphy, 2021).

Taking into consideration that the competition between private and public digital currencies has only begun, it is already fascinating to observe how central banks responded to a probable drop in cash and central bank money demand. For example, several central banks considered establishing their own digital currencies, named “central bank digital currencies” (CBDC), to address payment inefficiencies in terms of security, speed, and transaction costs, as well as to boost demand for central bank money.

2. The Digital Euro Project

On the 14th of July 2021, the European Central Bank's Governing Council has decided to begin “the investigation phase of a digital euro project” with the clear purpose of meeting “the needs of Europeans while also assisting in the prevention of illicit activities and avoiding any undesirable impact on financial stability and monetary policy” (Bank, Eurosystem Launches Digital Euro Project 2021). The project was aimed to answer several questions and bring solutions regarding the digital euro ledger, privacy and anti-money laundering, determine the limits on digital euro in circulation, and also issues of inclusiveness in relation with the “end-user access while not connected to the internet (Bank, Eurosystem Launches Digital Euro Project 2021)”.

One important conclusion revealed that a key infrastructure for the euro in the digital age needs to be environmentally friendly, and both the Euro system TARGET Instant Payment Settlement (TIPS) and blockchain have been proved to be able to process more than 40,000 transactions per second handle with the exception that crypto-assets like bitcoin consume significantly more energy. In this case, a possible expected option would be systems with both centralized and decentralized features.

As it seems, one of the most pressing problems would be whether an official digital currency should be structured similarly to cryptocurrencies. Decentralized ledgers and blockchains that can record real-time transactions across several computers are unlikely to be chosen as a viable option for a digital currency at the European Union level and in the United States, taking into consideration that the digital dollar has the potential to act as a new policy tool.

The Digital Dollar Project started in May 2020 as a partnership between the Digital Dollar Foundation, a not-for-profit organization, and Accenture. Firstly, its goal was to promote research and public discussion about the potential benefits of a tokenized dollar and bring together private sector thought leaders and actors to propose possible models to assist the government in developing, testing and adopting a digital currency. Of course, the United States is not the first nation to think of a virtual currency and these kinds of initiatives are already under research in more than 60 countries and jurisdictions (CBDC Tracker, 2021). For example, since 2017, the Riksbank, Sweden's central bank has been considering creating a digital edition of the Swedish Krona (E-Krona) in response to the sharp reduction in the use of physical currency in society. It is now putting a DLT-based E-Krona prototype through its paces (Riksbank, 2020). Also, the Eastern Caribbean Central Bank and the Blockchain firm Bitt have formed a collaboration in the Caribbean and are currently working together to see if DLT can be used to create an Eastern Caribbean Digital Dollar. With the same intent of facilitating the use of a digital payment method that is conveniently available, for instance, the Bahamas introduced its Sand Dollar, which has been available to Bahamians in a test phase since December 2019 (Central Bank of Bahamas, 2020).

Last, but not least China puts a lot of faith in testing its digital e-CNY becoming the globe's first large economy to test digital money in April 2020. The People's Bank of China's objective is to "assure that the digital currency (DC) will be widely used at the national level before the 2022 Winter Olympics in Beijing (CBDC Tracker, 2021)". While the official debut date of the currency has yet to be declared, at the beginning of 2022, Beijing appears to be focused on securing the release and usage of the digital yuan for the Beijing Winter Olympics in February, which will be the first opportunity for the rest of the world to see it (Li, 2022). According to the authorities, foreign visitors will be allowed to use the digital yuan to pay for items like lodging and transportation within main sites at the Games. ATMs will be available during the Games to change foreign currencies, including US dollars, into virtual Chinese money, which will be carried in the form of a digital yuan card. Another clue that the formal launch of the digital yuan wallet app might be very soon is that a pilot version of it has gone live on Apple and Android app stores. When downloading the app, it only permits users to register in pilot locations such as Shenzhen, Suzhou, Xiong'an, Chengdu, or "Beijing Winter Olympic Scenes" such as Beijing and Zhangjiakou (Li, 2022).

Table 1

	Digital euro	Digital dollar	e-CNY	E-krona	Sand dollar
Central Bank(s):	European Central Bank	US Federal Reserve	People's Bank of China	Sveriges Riksbank	Central Bank of Bahamas
Technology:	Centralised & Decentralised features (ongoing)	DLT	Non-DLT(Feitian Technologies)	DLT(R3 Corda)	DLT (NZIA)
Structure:	Account/Token	Account/Token	Account	Account/Token	Token

Source: CBDC Tracker data (cbdctracker.org)

As it is obvious, each country's motivations are distinct. For example, in developing countries, digital currencies could be transformative due to citizens' lack of access to dependable and affordable banking. As a result, central bankers in many countries see digital currencies as a way to maintain their currency's dominance, as Bank of France Governor Francois Villeroy de Galhau stated that Europe must be prepared to act as rapidly as necessary on both digital currency and payments, or risk losing our monetary sovereignty, which is unacceptable (Bank, Digital Euro 2021). The value of a token is determined primarily by availability, demand, and the community's interest in it, which is dependent on reputation and service. These examples highlighted that the digital euro's architecture must be carefully evaluated, taking into consideration the consequences for crucial problems such as monetary policy transmission and financial stability. For example, to alleviate "possible implications on the banking sector, financial stability, and monetary policy transmission, the central bank could limit the amount of digital euro that users can hold or transact by reimbursing digital euro holdings at a changeable rate over time or possibly using a segmented remuneration system (Bank, Digital Euro 2021)".

3. Legal foundation for the Euro system's issuing of a digital euro

The design of the digital euro and the purpose for which it is issued will have a determinant voice in what regards its legal foundation. In the table below, there are three potential scenarios described in the Digital Euro Report (2020, p.24) in the following order:

Table 2.

<p>Digital euro as an instrument of monetary policy</p>	<p>1. only accessible to central bank counterparties</p> <p>Art. 127(2) TFEU corroborated</p> <p>Art. 20 - Statute of the European System of Central Banks (ESCB)</p>	<p>2. available to families and other private entities through accounts held with the Eurosystem</p> <p>Art. 127(2) TFEU corroborated</p> <p>Art. 17- Statute of the ESCB * Which cannot be relied upon solely as a legal foundation</p>
<p>Digital euro as a method of settlement for certain sorts of payments handled by a specialized payment infrastructure</p>	<p>1. only accessible to eligible participants</p> <p>Art. 127(2) TFEU corroborated</p> <p>Art. 22 - Statute of the ESCB</p>	
<p>Digital euro issued as an instrument equivalent to a banknote</p>	<p>Art. 128(1) TFEU corroborated</p> <p>Art. 16 - Statute of the ESCB</p>	

Source: Bank (2021)

Analyzing them from bottom to top, we can easily affirm that the third scenario is very unlikely to become reality now the digital euro is not supposed to replace cash, but rather have a complementary nature. As we are about to embark on an amazing digital journey day by day, in issuing the digital euro as a method of settlement for certain sorts of payments handled by a specialized payment infrastructure, it is of utmost importance to put security and trust at the forefront of the experience, necessitating the establishment of a safe, dependable, and strong payments infrastructure (Manger-Nestler & Gentzsch, 2021).

On other hand, imaging the digital euro as an instrument of monetary policy means to establish if the Euro system should either become the exclusive supplier of payment services for the digital euro, giving end-users direct access or rely on third parties to distribute the digital euro, putting end-users in an intermediated access situation. A consumer account-based digital euro might be created by creating accounts straight with the Euro system or via supervised intermediaries, but a bearer digital euro, also known as a “token-based” or “value-based” digital euro, would need the employment of supervised intermediaries (Bank, Digital Euro 2021).

4. Looking ahead

Identified as a “top priority”, what is certain is that the issuing of a digital euro will need a combination of technical skill and strong legal understanding. As expected if the fall in the usage of currency continues, the European Central Bank is not only authorized but also compelled to issue a digital euro under Article 128(1) TFEU.

In comparison to alternatives, the digital euro should be a more efficient approach to meet the Euro system’s goals, even if legal considerations are taken into account. For both point-of-sale and online payments, the digital euro should seem like any other modern payment option which can be made available throughout the entire euro area and under certain conditions outside it to service all sectors of the population without discrimination and reduce financial exclusion for the “unbanked” and vulnerable populations. Also, it is essential to have digital euro services highly resilient to cyber threats and be by definition risk-free central bank money.

References

- Bank, E. C. (2021, July 14). *Euro system Launches Digital Euro Project*. European Central Bank. <https://www.ecb.europa.eu/press/pr/date/2021/html/ecb.pr210714~d99198ea23.en.html>.
- Bank, E. C. (2021, December 10). *Digital Euro*. European Central Bank. https://www.ecb.europa.eu/paym/digital_euro/html/index.en.html.
- Bank, E. C. (2021, October 2). *Report on a digital euro*. European Central Bank. https://www.ecb.europa.eu/pub/pdf/other/Report_on_a_digital_euro~4d7268b458.en.pdf.
- Coin Market Cap (2020). *Today's Cryptocurrency Prices by Market Cap*. <https://coinmarketcap.com/>
- Digital Dollar Project*. (2020). <https://www.banking.senate.gov/imo/media/doc/Giancarlo%20Testimony%20Addendum%206-30-202.pdf>

- Central Bank Digital Currencies Status*. Retrieved January 6, 2022, from <https://cbdctracker.org/>
- Central Bank of Bahamas (2020). *Central Bank of the Bahamas to host the Bahamas Chamber of Commerce and Employers' Federation Power Breakfast*. <https://www.centralbankbahamas.com/news.php?cmd=view&id=16667>
- Gross, J., Herz, B. & Schiller, J. (2019). *Libra - Concept and Policy Implications*, *University of Bayreuth Working Paper Series* (02). 1-14. https://www.researchgate.net/publication/336401723_Libra_-_Concept_and_Policy_Implications
- IoT Analytics. (2018). *State of the IoT 2018: Number of IoT Devices Now at 7B – Market Accelerating*. <https://iot-analytics.com/state-of-the-iot-update-q1-q2-2018-number-of-IoT-devices-now-7b/>.
- Klein, M., Gross, J., & Sandner, P.G. (2020). *The Digital Euro and the Role of DLT for Central Bank Digital Currencies*. *FSBC Working Paper*. 1-23. <https://www.semanticscholar.org/paper/The-Digital-Euro-and-the-Role-of-DLT-for-Central-Klein-Gross/55a0c7be27d96ef91ec338cd34cbc9555a0345b6#paper-header>
- Li, J. (2022). *China's Digital Yuan Wallet Is Now In App Stores — Quartz*. Quartz. <https://qz.com/2109143/chinas-digital-yuan-wallet-is-now-in-app-stores/>
- Manger-Nestler, C., Gentzsch, M. (2021). *Democratic Legitimation of Central Bank Independence in the European Union* (1st ed). Springer.
- Murphy, H. (2021). Facebook abandons a plan to run digital currency from Switzerland. *Financial Times*. <https://www.ft.com/content/4c5a72fe-48e9-467c-8a9e-cd2d3a3deafd>.
- Riksbank (2020). *The Riksbank's e-Krona Pilot*. <https://www.riksbank.se/engb/press-and-published/notices-and-press-releases/notices/2020/the-riksbank-to-testtechnical-solution-for-the-e-krona/>
- Sodhi, R. (2018). *Op-Ed: Stablecoins and Bank Failure — The Unmitigated Risk of Fiat-Backed Tokens*. <https://finance.yahoo.com/news/op-ed-stablecoins-bank-failure-224009990.html>.
- Wagner, K., Kharif, O. (2020). *Facebook-backed Libra plans multiple single-currency coins*. *Fortune*, *Bloomberg News*. <https://www.bloomberg.com/news/articles/2020-04-16/facebook-revamps-libra-plans-multiple-single-currency-coins>