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THE FUTURE OF CENTRAL BANK DIGITAL CURRENCY IN THE EUROPEAN UNION AND HUNGARY

As of May 2024, 134 central banks representing 98% of the world's GDP (Atlantic Council, 2024) were already exploring the possibility of introducing central bank digital currency. The study analyses the definition of central bank digital currency, the risks involved in its introduction, and the legislative environment for its introduction in the European Union. The study also reviews the possibility of introducing central bank digital currency in the case of Hungary, an EU Member State outside the European Monetary Union, with a particular focus on the monetary policy implications. The author concludes that membership of the European Monetary Union does not materially affect the decision to introduce central bank digital currency.

Keywords: CBDC, fiat money, DLT, monetary policy.

1. INTRODUCTION

The People's Bank of China (PBoC) has been developing and testing the digital yuan since 2014 (Slawotsky, 2020). The commitment to creating central bank digital currency is illustrated by the fact that only small economies have already started experimenting with the introduction of new types of official currencies - not really prepared (the Marshall Islands in 2018, followed by Jamaica and Nigeria) and El Salvador - with the adoption of bitcoin in 2021 - as official currency (Renterina, Wilson & Strohecker, 2021).[1] In parallel with this process, major economic powers such as China, the European Union,

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[1] The problems during implementation can be traced back to two causes. One is that a cryptocurrency, which enjoys greater credibility vis-à-vis the national currency, which will continue to function as the official currency, could be forced out of circulation, devaluing the domestic currency. Another problem is that if an independent legal entity is entrusted by the government with the issuance and management of the new currency. Haan, C. 2019. Marshall Islands Promotes its SOV National Cryptocurrency Development Fund at UN Blockchain Summit in New York. Crowdfund Insider. Available at: https://www.crowdfundinsider.com/2019/06/148086-marshall-islands-promotes-its-sov-national-cryptocurrency-development-fund-at-un-blockchain-summit-in-new-york/ (7. 4. 2024).

Japan and Canada have been weighing up the pros and cons of introducing central bank digital currency since the second half of the 2010s. In 2020, the United States entered the race to adopt central bank digital currency with the concept of the digital dollar - also flagging the US dollar's function as the world's currency, but in the last two years, central bank digital currency has been in the political spotlight in the United States of America (Tews & Harper, 2020).

In June 2023, the European Commission proposed a complex legislative package, the Digital Euro Package, which would allow the legislator to create the legal framework for the introduction of central bank digital currency. In October 2023, the Governing Council of the European Central Bank announced that, after a two-year assessment phase, it would launch a preparatory period for a further two years (European Central Bank, 2023a). In June 2024, the European Central Bank published the first progress report on the development of the digital euro.

Accordingly, the paper first reviews the concept of central bank digital currency and then outlines the risks and benefits of introducing central bank digital currency. The paper then briefly discusses the draft legislative package that serves as the legal framework for the introduction of CBDC in the European Union. As part of this, the features of the digital euro that will emerge from the new legal environment will be outlined, with a particular focus on anonymity and data protection. The author then briefly summarises the position of the Magyar Nemzeti Bank (hereinafter: MNB), the custodian of Hungarian monetary policy, on the introduction of central bank digital currency.

2. DEFINITION OF CENTRAL BANK DIGITAL CURRENCY

2.1. Definition of CBDC

Central bank digital currency is widely defined as central bank money in a digital form that differs from its traditional reserve and account balance form (Bank for International Settlements, 2020). From this definition by the BIS and the seven largest central banks, it is clear that central bank digital currency cannot be implemented as a privately issued currency. In the case of fiat money, the State, exercising the right to issue money conferred on the central bank, has a monopoly which, precisely to exercise the instruments of monetary policy, should not be abandoned in the future.

The above suggests that central bank digital currency is a digital version of the current fiat money. The important difference is that it is not just a new form of electronic money in the form of CBDCs, but an implementation of digital fiat money based on blockchain or similar technology. The technological basis is in the content of the smart contracts, in particular the fact that this form allows the implementation of the pre-programmable money feature, which allows for the very rapid and without the need for new technology, further new or differently functional issuance of money (further issuance of money) in a very short time (even minutes) instead of the current days or weeks for postal services.

3. THE RISKS OF INTRODUCING CENTRAL BANK DIGITAL CURRENCY

3.1. The Monetary Policy Risks of Introducing Central Bank Digital Currency

Central bank digital currency presents many opportunities for monetary policy, but also new challenges. A form of CBDC without a financial intermediary (centralised CBDC), where the central bank would directly hold the accounts of all entities, including households and businesses, would impose a significant administrative burden on the central bank, even with the possibilities of modern technology. The reintegration of commercial banks into central banks, i.e. a single-tier banking system, would be feasible only at considerable risk, precisely because of the diversity of the banking system and the weight of money market funds. What definitively rejects this form of CBDC is precisely the well-established system of monetary transmission in the two-tier banking system, where financial intermediaries transmit elements of the central bank's monetary policy to individual market participants. Financial intermediaries transmit monetary policy objectives through channels such as credit and monetary aggregates, interest rates, asset prices and market interest rates. Without this intermediation system, the central bank's role as lender of last resort would become impossible. The use of this instrument of last resort would open the possibility of excessive central bank intervention: in effect, direct monetary (self-)financing of the public budget, sometimes without even a proper consideration of the necessary risks (Bujtár, 2021).

Financial stability is a state to be achieved for a given economy when the subsystems of the financial system, taken together, are able to withstand an economic shock and function properly in terms of the transmission of financial resources, the management of risks and the operation of payment systems. In the Hungarian context, for example, the financial crisis of 2007-2008 highlighted the importance of financial stability, and therefore, since the last decade the Magyar Nemzeti Bank has been operating with a kind of "dual mandate", i.e. in addition to maintaining price stability as the primary central bank objective, it has been paying increasing attention to economic growth and financial stability. This double objective was extended in June 2021 to include environmental sustainability (MNB, 2021).

The emergence of central bank digital currency in the financial system may have a direct impact on market interest rates, asset prices and foreign exchange rates, and an indirect impact on monetary and credit aggregates through these sub-markets.

The main risk of digital money is a loss of confidence in the financial system. This can take the form of a lack of confidence in the new currency, but also of a loss of established financial confidence.

3.2. Possible Positive Monetary Policy Effects of the Introduction of the CBDC

The introduction of the CBDC could have a positive impact on the market interest rate channel. Indeed, central bank digital currency could reduce the need for negative interest rates and reduce the impact of the liquidity trap that is already occurring close to the zero-interest rate level. Similarly, the possibility of different interest rates

depending on the identity of the economic agents using the CBDC could work, defining a kind of smart contract for the range of interest rates per user. This solution could also ensure that, with the policy rate reduced to negative levels, there is no excessive quantitative and qualitative easing, and that the long-term government bond yield curve is kept at a permanently low level (Bujtár, 2021).

Indeed, the persistent use of these three instruments could lead to significant distortions, which could reduce financial stability by creating asset bubbles in the equity, bond or real estate markets, or in any of these together.

A continued active interest rate policy could provide a stabilising effect on the foreign exchange sub-market by raising interest rates if necessary to boost confidence in the home currency, or by selectively cutting rates to counter excessive appreciation in the case of flight currencies or carry-trade currencies. This process can have a particularly significant impact in the case of an open economy, such as the Hungarian economy, which is at the same time pursuing a high-pressure economic policy. Stable levels of market interest rates, bubble-free asset prices and a balanced exchange rate, as well as financial stability, could also have a positive impact on monetary and credit aggregates. Balanced exchange rate policies can support the prevention of excessive indebtedness and the build-up of excess money in this financial sub-market.

4. LEGAL POSSIBILITIES FOR THE INTRODUCTION OF CENTRAL BANK DIGITAL CURRENCY IN THE EUROPEAN MONETARY UNION

4.1. Legal Possibilities for the Introduction of CBDC in the European Monetary Union Prior to the Digital Euro Package

The financial system of the European Union, the European Monetary Union, in the absence of full accession by the Member States, presupposes the dual monetary system of the euro and the national currencies of the non-acceding Member States over a long period of time. The link between the two currency groups is established by the European Central Bank, with its dual governance (Executive Board and Board of Governors) and the coordination of the common monetary policy and the supervision of the financial system. It is therefore necessary to talk separately about the digital euro as a single currency and the digital currencies of the non-member countries.[2] While the digital euro is in competition for the role of global currency, the CBDCs of the non-member countries cannot participate in this competition because of their lower economic strength. However, besides the apparent disadvantage, this also serves as an advantage in that the

[2] The digital euro outlined in the Digital Euro Package will be available to natural and legal persons in all EU Member States, precisely by, payment service providers from non-euro area Member States will be subject to the rules set out in the Digital Euro Package, thus ensuring full protection against money laundering and terrorist financing. See: Proposal for a Regulation of the European Parliament and of the Council on the provision of digital euro services by payment services providers incorporated in Member States whose currency is not the euro and amending Regulation (EU) 2021/1230 of the European Parliament and the Council Preamble, sections 4-5.

non-member States (including Hungary) can continue to pursue an independent monetary policy, which the CBDC can maintain and strengthen. In the following, the paper first presents the general legal regulatory options for the digital euro.

When examining the EU acquis, the choice of primary EU law on which to base the CBDC issuance depends on the form of the digital euro and its purpose of issuance.[3] However, the clear need for and feasibility of introducing a full (retail) CBDC has already become clear. Thus, the digital euro would be issued as a dual-issue and general retail CBDC through the ESCB, i.e. through accounts held with the Eurosystem, and would thus be made available for use by households and private entities. The legal basis in the Eurosystem would then be the primary legislation governing the ECB's operations;[4] the legal basis for two-tier general issuance would be the provision on clearing and payment systems in the Statute of the ESCB and the ECB.[5]

If the digital euro were to be created in a centralised form for the clearing system and to have a limited use, i.e. to be issued only as a means of settlement for specific types of payments, processed by a dedicated payment infrastructure accessible only to eligible participants, the most appropriate legal basis would again be the primary legislation[6] and the provision on clearing and payment systems in the Statute of the ESCB and the ECB.[7]

If and when the digital euro were to be issued as an instrument equivalent to a banknote, i.e. as a token-type CBDC, the most appropriate legal basis for issuance would no longer be the above-mentioned legislation, but the TFEU provision on banknote issuance,[8] also in conjunction with the Statute of the ESCB and the ECB, which concerns the ECB's and national central banks' monopoly on the issuance of the euro.[9]

On the basis of the above, it can be concluded that the TFEU provision on the monopoly for banknote issuance[10] and the reference to it in the banknote issuance provisions of the Statute of the ESCB and the ECB[11] would give the Eurosystem a very wide margin of discretion to issue different types of CBDCs.[12] It is also important to note that within the Union, only the Governing Council of the ECB has the power to authorise the issuance of euro banknotes. Given the ECB's independence, it cannot be obliged to do so by any

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3 European Central Bank. 2020. Eurosystem: Report on a Digital Euro, pp. 1-54. Available at: https://www.ecb.europa.eu/pub/pdf/other/Report_on_a_digital_euro~4d7268b458.en.pdf (21. 6. 2024).

4 European Central Bank, 2020.

5 TFEU Protocol No 4 on the Statute of the European System of Central Banks and of the European Central Bank Art. 17.

6 Art. 127(2) TFEU.

7 TFEU Protocol No 4 on the Statute of the European System of Central Banks and of the European Central Bank Art. 22.

8 Art. 127(2) TFEU.

9 TFEU Protocol No 4 on the Statute of the European System of Central Banks and of the European Central Bank Art. 16.

10 Art. 128(1) TFEU.

11 TFEU Protocol No 4 on the Statute of the European System of Central Banks and of the European Central Bank Art. 16.

12 European Central Bank, 2020.

other EU institution, and therefore only this ECB body can decide on the introduction of CBDCs.[13] As the ECB and the national central banks are entitled to issue banknotes accepted as legal tender, the TFEU's monopoly on banknote issuance does not allow for the introduction of a private token as legal tender with a central bank commitment, and hence the central bank commitment necessary for it to become a CBDC.

Based on the above, it can be concluded that, with the modification of the central bank regulations for the euro,[14] central bank digital currency could have been integrated even before the Digital Euro Package.

4.2. A Stand-Alone Digital Euro Package as the Next Step in the Legal Regulatory Process

In October 2023, the Governing Council of the European Central Bank announced the start of a further two-year preparation period following the two-year assessment phase (European Central Bank, 2023a).

The aim of this preparatory phase was to lay the foundations for a potential digital euro by finalising the rulebook, selecting the service providers that will develop the digital platform and defining the development framework for the infrastructure that will operate and support the digital euro.

Almost in support of this process, the European Commission published a legislative package proposal, the Digital Euro Package, in June 2023. The legislative package consists of a Regulation establishing the legal framework for a possible digital euro (Proposed Digital Euro Regulation), a Regulation on the provision of digital euro services by payment services providers incorporated in Member States whose currency is not the euro and a Regulation on the legal tender of euro coins and banknotes (Proposed Legal Tender Regulation). In the legislative process, the European Central Bank would have the option, after approval by the European Parliament and the Council, to introduce a digital euro market alongside the current fiat euro, if and when the European Central Bank takes a positive decision (Clifford Chance, 2023).

Looking at the legal framework, it is important to note that the European Commission's Digital Euro Bill proposal takes into account not only the existing PSD2,[15] but also the amendments to the Payment Services Directive 3 (PSD3) and Payment Services Regulation (PSDR), which will enter into force later, and the Directive on the prevention of the use of the financial system for the purpose of money laundering or terrorist financing (AMLD5)[16] and the amendments to the AMLD6 and AMLR, which are expected to enter into force later.

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[13] Art. 128(1) TFEU.

[14] Art. 128(1) TFEU and Art. 16 of Protocol (No 4) on the Statute of the European System of Central Banks and of the European Central Bank, TFEU.

[15] Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC.

[16] Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU.

4.2.1. Characteristics of the Digital Euro

Following the completion of the European Central Bank's test phase for the introduction of the digital euro in 2023, the main characteristics of a potential digital euro have been summarised at the end of the test phase:

- widely accepted and easy to use;
- free for basic use;
- usable for any digital payment in the euro area;
- not requiring an online connection (it could also be used offline);
- offering the highest possible protection of privacy;
- inclusive, leaving no one behind;
- settling payments instantly;
- secure;
- risk-free (as money issued by the central bank);
- usable for payments at the point of sale and person-to-person.[17]

From the above, and from the summary of the study phase, it can be concluded that the digital euro will be retail in terms of users, decentralised in terms of settlement, token-based in terms of appearance and centralised in terms of issuance, with strong cryptographic elements, but not necessarily using DLT technology.

4.3. The Data Protection Aspects

The European Central Bank's anonymity project[18] has been investigating the creation of a CBDC issued by the central bank with cash-like characteristics, using a two-tier control structure that is partially anonymous and ensures protection against money laundering and terrorist financing. This is important because it will enable it to offer a secure solution that complies with the legislation in force (and in particular with the legislation in force to combat money laundering and terrorist financing) and in which confidence can be built and maintained. This latter trust is important for two reasons: not only to ensure that the digital euro is actually used by end-users but also to ensure that it is capable of expanding the monetary toolbox and becoming part of it.

User data protection is already well supported by the digital euro infrastructure through the use of chip technology[19] and by specifically limiting the use of data by payment service providers. [20]

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[17] European Central Bank. 2023b. Eurosystem: A stockage on the digital euro - Summary report on the investigation phase and outlook on the next phase. Available at: https://www.ecb.europa.eu/euro/digital_euro/timeline/profuse/shared/pdf//ecb.dedocs231018.en.pdf (21. 6. 2024).

[18] European Central Bank. 2019. Exploring anonymity in central bank digital currencies. In focus. 4(4-6), pp. 1-10. Available at: https://www.ecb.europa.eu/press/intro/publications/pdf/ecb.mipinfocus191217.el.pdf (21. 6. 2024).

[19] "A tamper-proof chip with pre-installed software that can store confidential and cryptographic data and run secure applications." See: European Central Bank. 2023b.

[20] "...the settlement infrastructure would not be able to trace the information to back a specific user thanks to hashing and other cryptographic techniques." See: European Central Bank. 2023b..

The digital euro will be available to a wide range of end-users following the onboarding process after the introduction of the digital euro, who will either be natural persons or business users. Onboarding is the process when an end-user uses the digital euro for the first time. For natural person end-users, when they first interact with a payment service provider with the digital euro, the payment service provider will carry out the identification process by adding the KYC function and assigning a unique digital euro account number (DEAN) to the new end-user.[21] In addition to the latter, it will also be possible to use other identifiers and to request a physical card, and access to a digital euro application for each online and offline transaction will be granted to the new natural person who joins the digital euro as a completion of the onboarding process.

The European Central Bank (ECB) in its first progress report on developing a central bank digital currency focused mainly on privacy provisions with the ECB promising pseudonymization, hashing functions, and encryption features against tracking individuals by transaction.[22]

5. HUNGARIAN MONETARY POLICY AND CENTRAL BANK DIGITAL CURRENCY

Hungarian monetary policy has a dual role in the introduction of central bank digital currency. On the one hand, like the other 133 central banks, the MNB (also in a separate volume of studies[23]) is examining the possibility of introduction and its effects on the Hungarian economy and Hungarian society. On the practical side, the MNB is actively involved in international pilot programmes, such as the mBridge wholesale CBDC project, a joint project of the BIS Innovation Hub Hong Kong and the central banks of China (PBoC), Thailand (BoT), Hong Kong (HKMA) and the United Arab Emirates (CBUAE), in which the ECB has joined as an observer, as has the Magyar Nemzeti Bank (Fáykiss, Nyikes & Szombati, 2023).

Two retail CBDC projects have been launched by the Magyar Nemzeti Bank: the Money Museum App, which is an application implementing blockchain technology in the central banking environment and operating in a live environment; and the Student Savings App, which is the first in the European Union to issue central bank digital currency to real users in May 2023 - on a pilot basis (Fáykiss, Nyikes & Szombati, 2023).

The Magyar Nemzeti Bank, examining the decision-making system for the introduction of the CBDC, concluded that the primary decisions for the introduction of central bank digital currency are a) the purpose, b) the scope of availability and c) the effective feasibility, especially from a monetary policy perspective. If and when a decision on these three issues is reached, the d) formal, e) functional, f) operational and operational and then most importantly g) anonymity and infrastructure issues could be

[21] European Central Bank. 2023b.

[22] European Central Bank. Timeline and progress on a digital euro - Introduction. Available at: https://www.ecb.europa.eu/euro/digital_euro/progress/html/ecb.deprp202406.en.html (24. 6. 2024).

[23] Magyar Nemzeti Bank - MNB. 2021. Egy új kor hajnalán – Pénz a 21. században. Available at: https://www.mnb.hu/kiadvanyok/mnb-szakkonyvsorozat/egy-uj-kor-hajnalan-penz-a-21-szazadban (21. 6. 2024).

addressed. Until an economic policy decision is taken on the first three issues, the question of deployment will remain a theoretical debate, despite the more significant practical experience described above. While the independence of monetary policy could be supported by a stand-alone central bank digital currency, the Hungarian economy is too small for this, and it will be necessary to develop the final conditions for its introduction on the basis of the larger experiences (euro, digital yuan and cross-border CBDC). For a national economy that is significantly integrated into the European and international economy, this consideration seems well founded, so perhaps unsurprisingly the digital euro could serve as a model for the future introduction of a Hungarian digital forint.

6. SUMMARY

The study examined the drivers for the introduction of central bank digital currency and the characteristics that a central bank digital currency that meets the challenges of the digital age should have. Finally, the author examined the legal environment for the introduction of the digital euro, noting that the possibilities for the introduction of the digital euro were already available before the Digital Euro Package of 2023. The ECB is not expected to decide on the introduction of the digital euro until the end of 2026 at the earliest, after a further two-year assessment period. The author concludes that membership of the European Monetary Union will not materially affect the decision on the introduction of central bank digital currency.

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