

Potential Advantages of Retail Central Bank Digital Currency*

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The emergence of central bank digital currency will cause a radical change in the relationship between central banks and users. At present, cash is the only way for users outside the central bank's financial market customer base to hold claims on the central bank. By comparison, central bank digital currency will provide users with a safe, versatile and multifunctional instrument, which will be a novelty in many respects. Central bank digital currency may also provide the option of interest remuneration, through which the central bank's decisions may reach consumers directly. As a result of this, the central bank may achieve its goals more efficiently, and competition may increase in the banking sector. The instrument supports the penetration of new, innovative solutions and broadens the range of customers in the banking sector, while the risks inherent in the introduction of the instrument can be addressed by proper design.

1. Background of central bank digital currencies

Digitalisation gives a wider range of users access to new services, which may also influence the form of payment instruments issued by the central bank. Financial services have undergone a significant transformation since the 2008 economic crisis. Owing to technological progress, crypto assets have emerged – Bitcoin being the best known of these – which created payment infrastructures without a central issuer. With varying degrees of success, these instruments intend to provide an alternative to the traditional payment systems that practically dominated payments for a long time. In addition, a number of new digital solutions have emerged, making financial services available to a much wider range of consumers more cheaply and efficiently compared to previous solutions. As a result of these innovations, central banks also started to assess the digitalised form of cash, which can combine the positive features of deposits and cash for consumers. This new instrument is referred to by central banks as central bank digital currency, which may fundamentally determine the financial and payment system of the future.

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Central bank digital currency is the digitised form of cash, combining and supplementing the advantages of bank deposits and cash. According to some of the more detailed definitions, it is a form of digital money, denominated in the national unit of account, which is a direct liability of the central bank (BIS 2018). At present, private individuals may hold claims on the central bank only in the form of cash. However, due to the spread of technology and digitalisation, the question of why private actors should not be able to hold such assets in digital form has arisen. In this way, present holders of cash could possess central bank currency in another form as well, one of the main advantages of which is security compared to commercial bank deposits. This is because central banks always have unlimited solvency in their own currency, and thus there would be no associated counterparty risk, even in the absence of a deposit insurance fund, which provides protection for bank deposits. The central bank digital currency would supplement the currently available services and would coexist with the present financial instruments as a symbiosis.

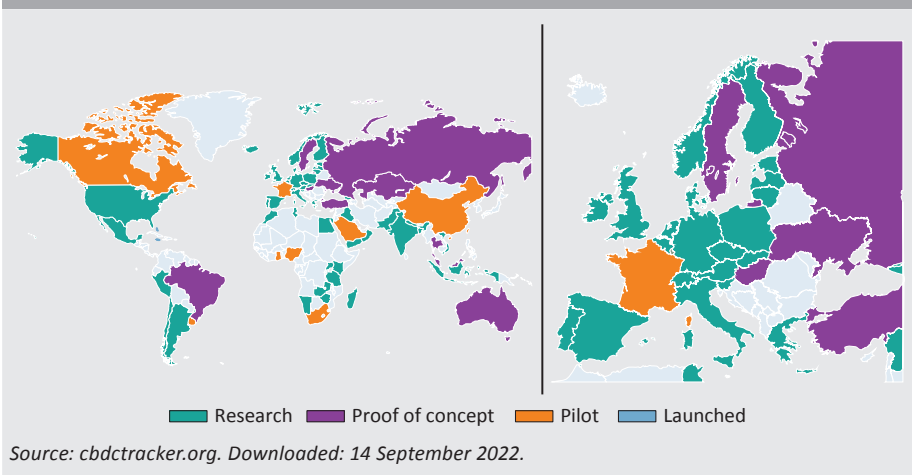
Central bank digital currencies projects can be categorised as retail or wholesale, depending on the users that have access to the instrument. Central bank digital currencies may serve a number of purposes, and these may differ significantly depending on who has access to the instrument. In some of the existing projects, the instrument may become available to retail actors, which is usually supplemented by the corporate sector as well. According to another method of use, primarily the financial institutions – a broader range than the institutions that currently have access to the central bank accounts – would be the anticipated main users of the instrument. In the first case, central banks essentially assess solutions meeting household demands, which may be particularly important in domestic payment turnover, with some international relevance. In the second case, the instrument may play a role in higher volume payment transactions. This article focuses on retail use and the related aspects.

The introduction of central bank digital currency may be important for central banks for a number of reasons. In addition to preventing various forms of dollarisation (e.g. the penetration of crypto assets, and the potential spread of other countries' central bank digital currencies may also be regarded as such in the future), it also responds to users' demand for digitisation. Moreover, central bank digital currency may help to expand access to financial services, since – primarily in the emerging countries – new actors may also have access to it in areas where access to banks is currently limited by geographic or cost factors. Prior events that led to the development of the instrument are allocated into four main categories by the staff of BIS, also referred to as the “bank of central banks” (Auer et al. 2021). The first is the emergence of Bitcoin and similar crypto assets. The second includes the stablecoins issued by private actors, the exchange rate of which may be more stable than that of other crypto assets. The third category is the emergence of large technology companies in payment services, similar to the original idea of Libra, later Diem, which may

pose a threat to central banks due to their wide availability. And finally, as the fourth point, they cited accelerated digitalisation in the area of payment services as a result of Covid. In addition, in emerging economies, strengthening competition among financial institutions, which also increases the efficiency of monetary policy, as well as programmability, are also particularly frequent motives (*BIS 2022*). Some of these motives appear in almost all countries, as discussed by the MNB's staff as well (*Fáykiss – Szombati 2021*). In addition, if banks acquire funding from the financial market to a larger degree, the efficiency of monetary transmission may strengthen, since the prices of those funds are more responsive to central bank interest rates (*Panetta 2022*).

Most countries of the world are interested in central bank digital currencies, but so far only a few have introduced it (Figure 1). Owing to the wide range of motives, 90 per cent of central banks at the global level are dealing with the issue of central bank digital currency (*Kosse – Mattei 2022*), i.e. research and testing at various levels are being conducted in most parts of the world. To date only two countries – The Bahamas and Nigeria – have managed to introduce it officially, where the introduction was primarily fostered by the need to address common challenges of developing countries, such as the need to improve access to financial services. On the other hand, it should be noted that several countries, including China, Jamaica and the countries of the Eastern Caribbean Monetary Union, are on the imaginary starting line for an official launch. Apart from those, the Fed and the European Central Bank (ECB) are also actively exploring the question, and thus we may say that along with the developing countries, developed ones are also active in the development and introduction of such an instrument. *Figure 1* clearly shows that Hungary is also among the countries where the testing of technologies is in the experimental phase.

Figure 1
State of research on central bank digital currency



The key motives of retail central bank digital currencies include reducing cash usage, protecting monetary sovereignty and enhancing the efficiency of monetary policy. Remuneration of interest may be a particularly important feature of a central bank digital currency developed for retail actors. With this, the central bank digital currency may become a close substitute for bank deposits and may also be a key component of the central bank's set of monetary policy instruments, since it significantly improves the efficiency of monetary policy. Motives for retail central bank digital currency usually also include – particularly in the case of developing countries – the broadening of the range of financial services available through digital channels (BIS 2022). A further motive may be that the new instrument could, depending on the realisation, represent an additional payment method that is available even in the event of a potential disruption in current infrastructures, which makes it a more efficient substitute for cash. This may be particularly important in societies where cash usage has gradually decreased, but alternative payment solutions are still popular for security reasons. This motive was identified in the research concerning the instrument both in China and Sweden. In terms of retail usage, the maintenance of monetary sovereignty is also a key consideration. In parallel with the penetration of crypto assets, the emergence of currencies designed by large tech companies and central bank digital currencies issued by other countries, a new form of dollarisation may also appear in societies. As a result of this, monetary authorities may have less and less influence, which several central banks try to prevent and one way to achieve this may be the issuance of a central bank digital currency. Although it is less stressed in the case of retail use, it is also often mentioned as a motive that central bank digital currencies may accelerate international transfers to reduce their costs (Kosse – Mattei 2022).

The degree of the risks of a retail central bank digital currency for banking sector intermediation may be reduced by proper design. Contrary to the aforementioned advantages of a central bank digital currency, the emergence thereof may absorb deposits from the banking sector, due to which the volume of intermediation by the banking sector may decline or lending costs may increase due to the higher funding costs. On the other hand, in the case of a potential run on the banks, faster capital outflow may represent risks. The risk is mitigated by the fact that stronger competition among banks may attract new funds to the banking sector (Chiu et al. 2019 and Andolfatto 2021), thereby increasing the banking sector's liabilities, which may also prevent a rise in lending costs. Additionally, central bank digital currencies may appear as an alternative instrument in the market of bank deposits. In this way, due to their competition-stimulating effects, they are able to exert positive impacts even without major utilisation, i.e. any outflow of funds from the banking sector (Chiu et al. 2019). Finally, it should be noted that the numerous restrictions influencing the stock of a central bank digital currency may efficiently regulate the volume of liquidity flowing out from the banking sector (Bindseil 2020).

2. Assessment of the introduction of the instrument in Hungary

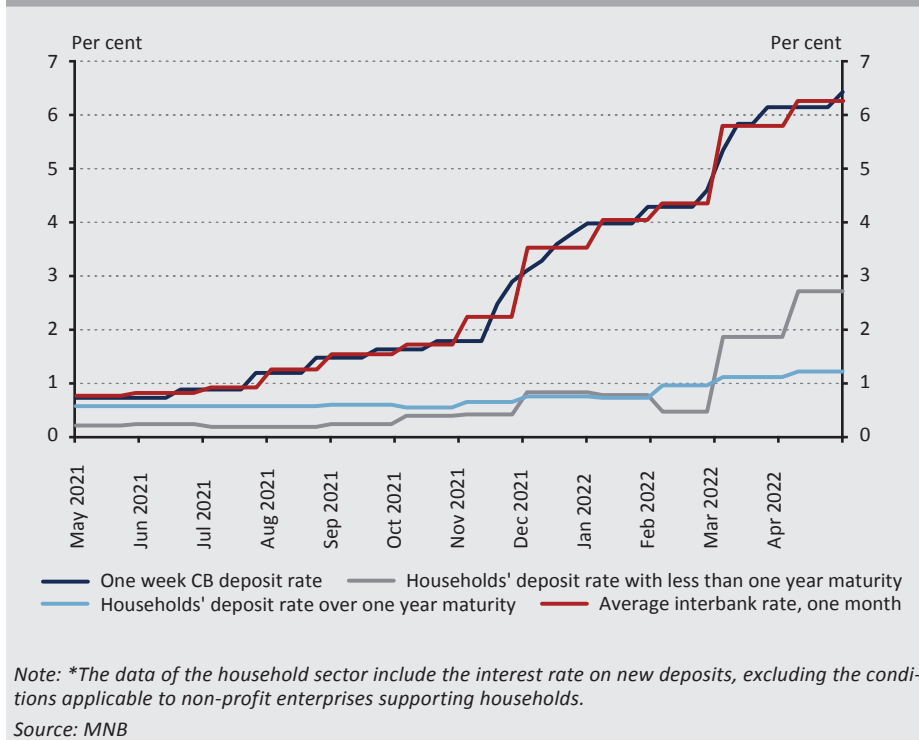
Monetary policy goals are one of the key motives underlying research on this instrument in Hungary. As regards the situation in Hungary, it can be stated that, although a large part of the Hungarian population has a bank account (Deák et al. 2022) and thanks to the instant payment system a fast and efficient payment infrastructure is available to them, the ratio of those without a bank account is still around 13 per cent. The penetration of crypto assets among households is moderate, while the central bank digital currencies of other countries do not yet have a real influence outside the borders of the issuer countries. The key currency areas of the world – with the exception of China – most likely have years to go before they introduce their own central bank digital currencies. The cash holdings in Hungary as a percentage of GDP do not yet show a decreasing trend, and thus the demand for a new cash substitute managing the risk of the failure of electronic payment systems has not yet emerged from this perspective. However, from the central bank's monetary policy perspective the introduction of an interest-bearing central bank digital currency could provide particularly efficient support, the reasons for which we explain in more detail below.

Using their traditional instruments, by determining short-term yields, central banks achieve their price stability goals through different channels of transmission. The primary goal of the Central Bank of Hungary (Magyar Nemzeti Bank, MNB) is to achieve price stability, which means an average annual rise of about 3 per cent in the consumer price level. When relying on their traditional instruments, central banks achieve this in the inflation targeting system by influencing short-term yields and by monetary transmission. In simple terms, central banks exert an impact on financial market yields and the price of investments and credits by influencing short-term interbank interest rates, which in turn influence the growth rate of the price level. The central bank's most important channels of transmission include the interest rate, asset price, expectation, risk-taking and cost channels (Balogh et al. 2017). Of these channels of transmission, we briefly deal with the interest rate channel below.

The interest rate channel helps the central bank influence households' consumption and saving decisions. Relying on the interest rate channel, the central bank influences the conditions applicable to the borrowing and savings of households – and other market participants – by changing the central bank interest rates. For example, in a higher interest rate environment savings may become more attractive for households, while borrowing may become less attractive. As a result of this, households' savings rise, while – assuming steady earnings – household consumption declines, and the fall in aggregate demand reduces the growth rate of the price level. That is, central banks divert inflation towards their goals by influencing short-term yields. On the other hand, various frictions may arise in the channels of transmission, which may weaken the efficiency of transmission.

The rise in the central bank's interest conditions in the past quarters appeared in the retail deposit conditions only partially and with significant delay. As a result of the interest rate increases by the MNB, the interest rate on the one-week central bank deposit has risen significantly since mid-2021. The purpose of this instrument is to absorb excess liquidity in the financial market, which ultimately appears in this instrument. Accordingly, banks can invest this liquidity – from retail and corporate deposits – in central bank instruments, the interest rate on which has been steadily increasing in the past quarters. However, they enforce this rise in the conditions applicable to retail deposits only slowly and partially (Figure 2). From a monetary policy perspective, the co-movement of central bank interest rates and bank deposit rates is particularly important, as it indicates the efficiency of the aforementioned interest rate channel. While the central bank interest rate increases appeared swiftly in money market conditions (e.g. in interbank rates), and thus transmission is efficient in the case of money market actors, the interest rate increase had a moderate effect on retail deposit conditions.

Figure 2
Changes in various money market and retail deposit conditions

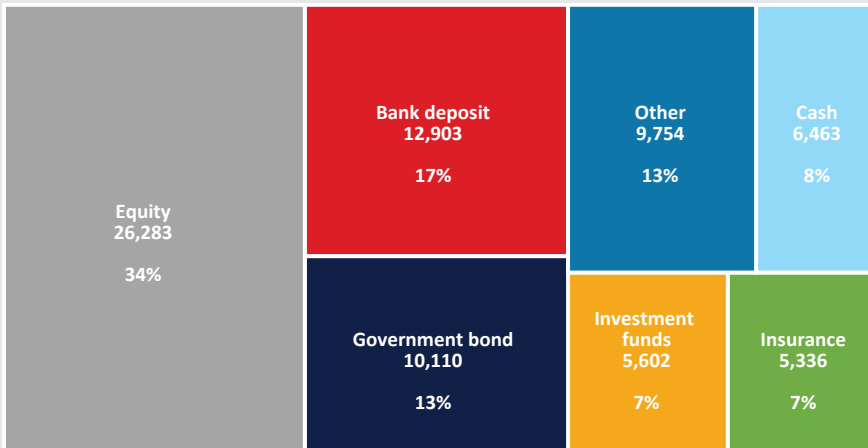


The introduction of an interest-bearing central bank digital currency could make the interest rate transmission of monetary policy direct, thereby significantly raising its efficiency. From a monetary policy perspective, the biggest advantage of introducing an interest-bearing instrument would be that the central bank interest effect would become direct. While the central bank can currently influence the interest rate conditions applicable to retail savings only indirectly, this instrument could help it exert a direct influence. Namely, relying on the central bank digital currency, the central bank could keep accounts for households similar to the present commercial bank accounts and directly set the interest rate on such. By controlling this interest rate, the central bank would be able to determine the conditions applicable to household funds placed with it, and thereby influence households' savings decision more efficiently, which would cause the efficiency of interest rate transmission to soar. Apart from the central bank determining the conditions of the deposits placed with it, it could also have greater influence on the interest rate on bank deposits, providing similar services, and boost competition among banks for acquiring deposits.

With regards to the structure of household savings, bank deposits account for a major part – 17 per cent – of the assets, as almost all households have this product, and if this is influenced more directly, it could significantly improve the efficiency of interest rate transmission. When assessing the efficiency of interest rate transmission, it is worth examining households' financial instruments (Figure 3). According to the financial accounts data, published by the MNB, the largest part – i.e. more than one-third – of households' financial assets, amounting to over HUF 76,000 billion, is invested in equities (shareholding in limited liability companies and limited partnerships, as well as in stock exchange and OTC equity). This is followed by the second largest retail asset, the holding of bank deposits, which accounts for 17 per cent of the assets. Government securities are ranked third, the stock of which, with a share of 13 per cent, which exceeded HUF 10,000 billion at the end of 2021. At present, within household savings, the interest rate channel is able to exert efficient influence primarily on mutual fund shares, which follow financial market conditions more closely, and on the price of government securities, but due to the penetration of retail government securities, this has a smaller effect. Naturally, other channels of monetary transmission – e.g. the asset price channel – may efficiently influence households' decisions in the case of business shares or mutual fund shares as well. However, according to the questionnaire-based survey of 2017, assessing households' assets, only a smaller part of households holds mutual fund shares (3.3 per cent) and government securities (5.8 per cent), while the vast majority of them (over 80 per cent) have bank deposits (ECB 2021). Accordingly, the savings instruments directly influenced by the interest rate channel are relatively concentrated, while almost all households have bank deposit savings, and thus strengthening the transmission on deposit rates could significantly improve

the efficiency of the central bank's monetary policy. If the MNB could directly influence the conditions of bank deposits, it would be able to achieve the central bank's goals more easily and quickly.

Figure 3
Key instruments of households' financial assets
(HUF billion and per cent, December 2021)



Source: Compiled based on MNB data

3. Conclusion

In addition to strengthening the interest rate channel, a number of other potential benefits could be achieved with the introduction of the central bank digital currency. The central bank digital currency may also serve as a tool to boost competition among the actors in the banking sector. Through this, the conditions provided by the central bank could prompt other market participants as well to adjust, thereby generating greater competition in the market of retail bank deposits as well. Moreover, the central bank digital currency may also be an important tool in prevention of digital dollarisation. Furthermore, although this bears utmost importance typically in developing countries, it may somewhat improve the range of financial services available to users in Hungary as well. Last but not least, through the central bank digital currency the central bank may implement innovations – e.g. through the introduction of smart contracts – that would represent a major progress compared to the currently available financial services, and thus the instrument may significantly contribute to the improvement of financial services.

Therefore, the central bank digital currency may offer wide-ranging advantages, also reaching several areas of the economy indirectly. As a result of the aforementioned impacts, the introduction of central bank digital currency would provide households with access to a safe instrument, interest rates on retail bank deposits may rise and thus households' interest income may increase, competition among banks may strengthen and bank deposit holdings may grow. Owing to the stronger interest rate transmission, the central bank's monetary policy may become more efficient, and it may also facilitate the application of targeted interest rates, thereby making monetary policy more targeted. This may help reduce the volatility resulting from the business cycles and allow for more stable economic growth.

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