



UDK: 336.711:004

DOI: 10.2478/jcbtp-2022-0027

*Journal of Central Banking Theory and Practice*, 2022, 3, pp. 137-154  
Received: 14 April 2021; accepted: 09 September 2021

**Patryk Kaczmarek** \*

*\* Institute of Banking and Finance,  
Faculty of Management,  
University of Gdansk, Poland*

*E-mail:  
patryk.kaczmarek@ug.edu.pl*

## **Central Bank Digital Currency: Scenarios of Implementation and Potential Consequences for Monetary System**

**Abstract:** Computerization of social life enabled market participants to search for new forms of electronic payments. The share of cash in total payments is systematically decreasing, which poses the risk of being supplanted by other instruments, including cryptocurrencies. Central banks, therefore, faced the challenge of adjusting their issuing activities to the current social and market conditions, which resulted in the emergence of the concept and discussion of the introduction of digital cash. The purpose of this paper is to examine the abovementioned issues and indication of potential scenarios for the introduction of central bank digital currency with an indication of potential consequences for the banking sector. The thesis of this paper is the following statement: The emergence of digital money of the central bank may significantly change the nature of commercial banks' activities - including potentially eliminating their role in issuing cashless money.

**Keywords:** Central banking, commodity money, cash, central bank digital currency, deposits, checks, cryptocurrencies.

**JEL Classification:** E12, E42, G21

### **Introduction**

The primary function of central bank in all monetary systems is to issue money. The conditions for transferring settlements and making transactions in alternative goods (cryptocurrencies) made possible by new IT tools resulted in the risk of

crowding out central bank money in the future by other instruments. However, in order for it to be treated as money - it is necessary to look at the functions of money from the point of view of the competitive advantages of non-cash money over cash (Gross & Schiller, 2020; Dell'Erba, 2019; Schilling, 2019). Money performs various functions in the economy. Among them, there are such functions as (Bank of England, 2020):

- exchange medium function,
- thesaurus (value storage) function,
- clearing (accounting) function,
- valuation function.

However, as a result of the expansionary monetary policy pursued based on the direct inflation targeting paradigm (Krušković, 2022), some of the above-mentioned functions (such as the depreciation function of the storage function). When trying to define the most important function of money, which is indisputable and determines its existence, one should look for the source of the possibility of purchasing other goods in the economy through it. Therefore, the most important function without which a given good cannot be treated as money is its potential to the extent that it enables the purchase of other goods, and thus its ability to be a means of payment. This function results from the shift from a monetary order based on a gold standard towards value-based money, the main source of which comes from the fact that state authorities have defined the currency they issue as legal tender. It is the granting of a monopoly and the legalization of a given instrument by the authorities in a given territory that give value to these instruments because they build the demand for having them. The essence of fiat money is therefore the creation of a demand for means of payment issued by a body dependent (directly or indirectly) on public authorities by administrative provision of the possibility (or obligation) to use a given good as a means of payment. The absence of an administratively granted monopoly on central bank money would lead to the emergence of other instruments and physical goods whose value would be based on the credibility of issuers and their assets, and crowding out money based on issuance related to the issuance of debt instruments (BoE, 2020, p. 15). The phenomenon related to the creation of central bank money would be limited.

To conclude the above thread, it should be emphasized that the real value derived from the possession of central bank money is related to the monopoly in which it (or the payment instruments of commercial banks created through it) is a legal tender. However, the evolution of the monetary order over the last century has led to a number of phenomena that significantly limited the use of central

bank money in real turnover. The role of the central bank has therefore evolved towards being a “superbank” that influences the real economy through its monetary policy indirectly using monetary policy instruments, open market operations or quantitative easing. This impact, however, due to the significant role of commercial banks in the distribution of means of payment (checks and loans), is limited by the monetary policy transmission mechanism (inter alia, by interest rates) on the real money supply.

The current (mostly two-tier) monetary system based on central and commercial banks plays an important role in enabling consumers to make convenient cash and non-cash settlements. Nevertheless, the share of cash in cash settlements has been systematically decreasing in the last few decades as compared to non-cash settlements (transactions)<sup>1</sup>. This is mainly due to the fact that, since its inception, money has evolved to provide consumers with the most convenient means of payment and settlement. Cashless turnover, in particular in terms of electronic banking, enables settlements to be made in a convenient, safe and, above all, fast and direct manner<sup>2</sup>. Such forms of payment (transfer order, check) in the form of payment by payment card effectively replace cash turnover both in the interbank and retail dimensions. It is connected, inter alia, with the high trust of investors and consumers in the stability of the banking system and the guarantee of security of funds (Trabelsi, 2022). It can also be presumed that many consumers are not aware of the unintuitive difference between different types of money (including cash, deposit money, checks, electronic money, payment cards), identifying them with each other. It is related to the high liquidity of payment instruments understood as convertibility into base money<sup>3</sup>. The blurring differences between the various other payment instruments may be even more limited with the introduction of electronic (digital) money of the central bank - which would ultimately replace cash. Such a change potentially leads to fundamental effects on the banking market, including the elimination of universal (deposit and credit) banks from the system. This article aims to present the conclusions from the analysis of the proposed implementation of central bank digital money, outlining possible scenarios.

---

<sup>1</sup> As a result of using the money multiplier (depending on the monetary system) - non-cash money often accounts for over 90% of cash.

<sup>2</sup> In the sense that there is no need for the central bank to physically participate in the transaction process.

<sup>3</sup> The base money in this area should be understood as the money of the central bank M0.

## Evolution of central banking

The origins of central banking can be traced back to the second half of the 17th century, when the Central Bank of Sweden (Sveriges Riskbank) was established. It is worth mentioning that money was very diverse then, and the settlements and transaction rules in force in a given area were based on the most convenient and reliable money in a given community. The bullion money, which functioned in the form of coins, was deposited with local bankers who were most trusted in a given community. They issued receipts which entitled the owners (importantly - the bearers) to spend the deposited bullion money. These bills became the first banknotes and gradually displaced the base currency (in this case, deposited coins and gold) from circulation. Convenience in trading these debt instruments entitling the bearers to spend gold meant that more and more merchants and the population used paper money, which with the passage of time was less and less often "redeemed" and exchanged for deposited gold. Bankers, noting this phenomenon and having on the other hand the opportunity to earn by borrowing the deposited money, started issuing banknotes on the basis of granted loans, thus starting the creation of money. Nevertheless, until the end of the 19th century, most of the money turnover was related to the issue of private bankers' notes, and the most effective and safe instrument forced out more risky assets from trading, hence the market mechanism - not the one that determined which instrument was used in clearing and settlement - was as it is nowadays - a top-down state monopoly. Competition in the field of means of payment was also a self-regulating mechanism, as it prevented bankers from overburdening their financial assets with risk, as the loss of credibility due to losses could lead to the withdrawal of deposits and displacement of the instrument as the main means of payment.

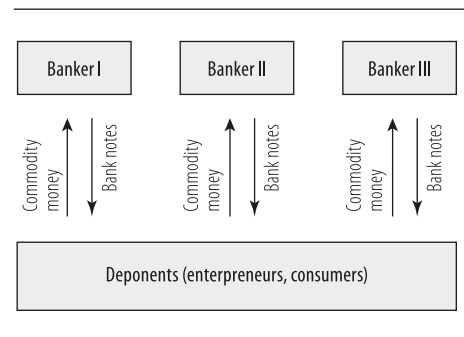
The variety of means of payment, however, apart from the abovementioned advantages, was associated with difficulties in using these instruments in international trade, because it would be difficult to settle accounts by individual countries or cross-border economic entities in money, the acceptance of which as a means of payment was strongly territorially limited (Kaygin, Zengin, Topcuoglu, Ozkes 2021). In addition, the possible influence of the state on the price of money (interest rates applicable in the market) and the state's borrowing capacity depended on its creditworthiness and credibility, and unlike the monopoly of minting a bullion coin in a given territory, the state lost control over the money supply. This led to the formation of central banks in many countries as well as the gradual taking over of the monopoly on the issuance of cash (Jobst & Ugolini, 2014).

**Table 1: Introductions of central banks**

Year of establishment	State	Name of Bank
1668	Sweden	Sveriges Riskbank <sup>4</sup>
1694	Great Britain	Bank of England
1782	Spain	Banco de Espana
1791	United States	Bank of the United States <sup>5</sup>
1800	France	Banque de France
1828	Poland	Bank Polski
1876	Germany	Reichsbank
1882	Japan	Bank of Japan
1893	Italy	Banca d'Italia

Source: Own study based on: <https://www.rp.pl/banki/art6892051-350-lat-historii-bankowosci-centralnej-na-swiecie> Available at 02/04/2021

It is worth noting that at the beginning of the 20th century, the number of central banks in the world did not exceed 30, while by the end of the 20<sup>th</sup> century the number of central banks in the world was approx. 160 (NBP, 2021). Along with taking over the monopoly on money issuance - commercial banks (private bankers) had to transform their role in the banking system, becoming somehow an intermediary in providing cash to the private sector. The central bank in most countries became the “superbank”, the bank of the banks and the bank of last resort, but it was the commercial banks that became the local distributors of central bank money. A diagram of the monetary system before the emergence of central banking is shown in Figure 1.

**Figure 1: Commercial bank money creation scheme**

Source: Own study

With the advent of central banks and their takeover of the issuance of cash, private bankers took over the role of distributors of this money. The gold and bullion money placed in their vaults were successively transferred to central banks in exchange for the debt securities they issued (central bank notes), which gave

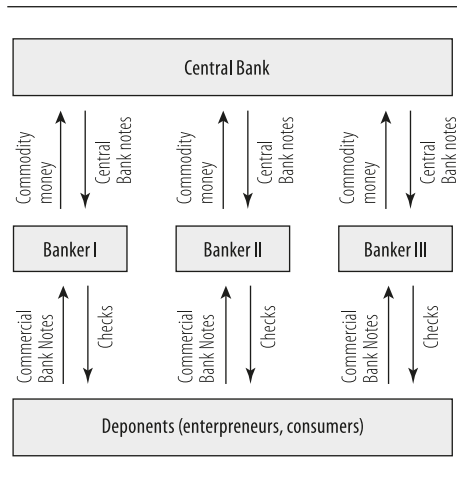
<sup>4</sup> The Bank of Amsterdam is sometimes considered to be the first central bank to issue banknote money (Quinn & Roberds, 2006).

<sup>5</sup> First Bank of United States founded in 1791.

the right to exchange them for a specific amount of gold (gold parity). With the disappearance of banknotes issued by private bankers from the market, they were gradually exchanged for notes from central banks, and the gold deposited with private bankers was transformed into securities issued by the central bank (banknotes). Each consumer (depositor) could henceforth meet his receivables from private bankers by paying bullion or cash issued by the central bank, which was in the vaults of private bankers since they decided to buy these securities in exchange for depositing their precious metal money. This led to the phenomenon of further displacement of the base currency from circulation and the monopolization of cash turnover in the territory of the jurisdiction of a given state.

Nevertheless, private banks, faced with the exchange of real assets into cash and then issuing this to depositors, were faced with the obligation to issue documents authorizing the release of the due cash. In addition, they had obligations towards each individual depositor to release the means of payment deposited by them, therefore they were obliged to meticulously record these liabilities and keep a register of funds by keeping their clients' accounts. Therefore, some depositors decided, in return for receiving interest, to leave their funds in the vaults of private bankers as part of term deposits or as part of current accounts, but in return they were given the option of issuing checks and placing transfer orders. This resulted

**Figure 2: Commercial bank money creation scheme**



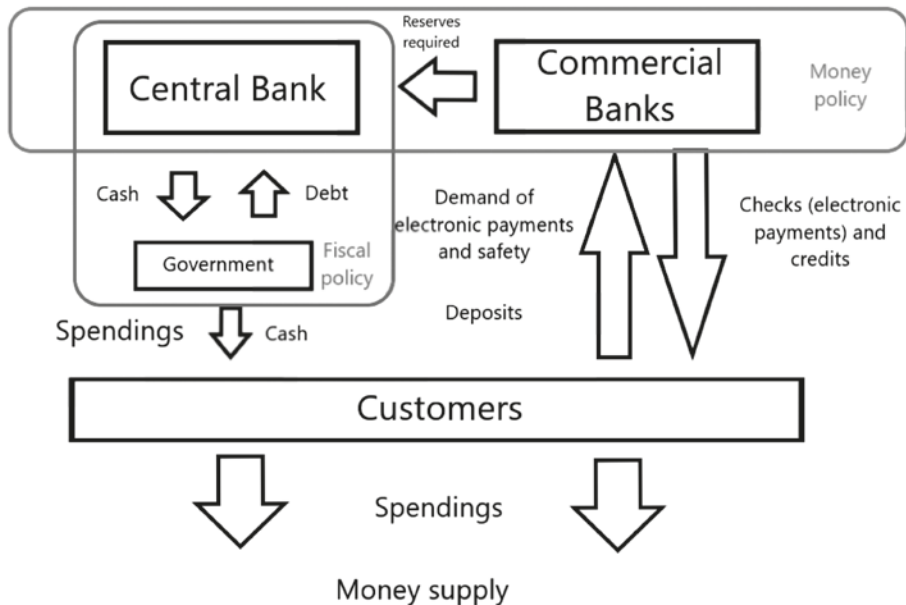
in the creation of additional market value for clients who chose to use the services of private bankers and their role evolved. In addition, the central bank theoretically had a further monopoly on money issuance, but it was limited to the issuance of cash, and payment instruments issued by private bankers in the form of checkbooks resulted in the appearance of new money on the market, which was a derivative of deposited cash with private bankers, which in turn was a derivative of the base money in the form of bullion money. The diagram showing the structure of money flow in this model is shown in Figure 2.

It should be emphasized that the coexistence of commercial and central banks was (is) possible only due to the possibility of maintaining fixed-term accounts and issuing non-cash payment instruments (checks). Otherwise, consumers

would not be interested in maintaining perpetual accounts that would make it impossible to make payments, and the activities of commercial banks would be strictly limited to the exclusion of term accounts, which would not constitute payment instruments in the narrow sense (Sandner, Gross, Grale and Schulden, 2020; Bindseil, 2020).

The possible elimination of the monopoly of commercial banks for issuing cashless money will result in a significant limitation of their activities to investment banking and keeping term accounts.

Figure 3: Actual monetary system scheme



Source: Own study

The payment system constructed in this way led to the marginalization of settlements in base (bullion) money, and cash (central bank) and non-cash money appeared on the market in the form of commercial banks' obligations to spend this cash (reflected in issued checks). Without going too much into the issue of money creation, as it is not crucial from the point of view of the analysis of crowding out of the abovementioned instruments for the benefit of subsequent derivative money of the next generations, it is necessary to briefly analyse the evolution of the approach to bullion money, the value of which has been separated from the issued money of the central bank.

The occurrence of the "great crisis", which is of colossal importance - and importantly - also in the real economy, led to a reduction in confidence in financial institutions and the withdrawal of bullion money (gold) from the banking system. Maintaining liquidity in the banking sector in the conditions of money creation and maintenance of fractional reserves required central banks to raise interest rates in order to reduce outflows of deposits and inhibit lending. Unfortunately, this action had a pro-cyclical impact on the crisis situation and contributed to the reduction of investments, increased unemployment, and also due to the relative strength of the American currency in relation to others - the deterioration of the balance of payments. Countries that after the crisis decided not to defend their own currency by carrying out monetary expansion (i.e. pre-war Germany) led to a depreciation of the currency, which translated into hyperinflation (e.g. the German mark), which, as historians indicate, also influenced the political situation (Höpner, 2019). The experience of the heterogeneous monetary policy of various countries before World War II had led to a number of important economic decisions made by representatives of the Allied countries at the Bretton Woods conference in 1944. During the conference, decisions were taken aimed at maintaining constant exchange rates, the fluctuation range of which was not to exceed 1%. Moreover, the exchange rate stability was to be guaranteed by maintaining the convertibility of the American dollar into gold at a fixed rate of 1/35 of the dollar per ounce. The other countries participating in the system were to maintain reserves in gold or foreign currency, which was to guarantee the stability of exchange rates. In order to monitor and conduct international settlements, the International Monetary Fund was established and the main assumptions of the system were included in the fund's statute. The system assumed the convertibility of the dollar into gold after the abovementioned exchange rate and the maintenance of exchange parities by individual central banks in gold or in the dollar. Consequently, this led to a significant outflow of the dollar to central banks and a reduction in its supply in the domestic market (Truman, 2017). This resulted in difficulties in access to capital in the American economy, which in turn led to the excessive issuance of the dollar in an attempt to maintain the domestic economic situation. The oversupply of the US dollar noticed by central banks in the late 1960s led to gold being brought to Europe (primarily by the Bank of France), which in turn revealed the inability to maintain the dollar-gold exchange parity - which resulted in a reduction in the parity and then total abandonment of the gold standard in 1973, when a floating exchange rate was introduced.

The move away from convertible currency into gold (Bordo, 2017)<sup>6</sup> has had a huge impact on the money (banking) system. First, the collapse of the Bretton Woods system ultimately eliminated bullion money from circulation. Of course, gold remains one of the main components of central bank reserves, but it no longer functions as a tender. Second, the detachment of the value of cash from the value of precious metals resulted in the creation of Fiat money, the value of which depends solely on the demand for money, which is based on an administrative order to use a given instrument as a means of payment in a given territory. Thirdly, there has been a break in the relationship between the base money (central bank reserves) and the central bank money, which may also be reflected in the future with regard to cash.

Although the departure of the gold standard was a turning point in the history of central banking, it did not result in a long-term departure from trading based on central bank money (or giro money). The maintenance of the demand for money is guaranteed by the maintenance of the payment monopoly issued by administrative decisions in individual countries. The necessity to pay with given instruments, regardless of their real value, naturally builds the demand for money. Not only that, along with an increase in the supply of this - the demand for it increases - which is characteristic of goods that play the role of settlement instruments because their real value is based on the possibility of purchasing properties. This situation, which is comfortable from the point of view of political authorities, is also reflected in the great trust placed in money by consumers, who not only accumulate wealth in it (even despite inflation - although this function of money has definitely lost its importance since the collapse of the Bretton Woods system), but also they deposit it with commercial banks and use non-cash money.

In recent decades, we have witnessed a huge leap in the degree of banking on citizens. This, most often measured by the number of current accounts in relation to the population, caused the emergence of a phenomenon that in its economic content resembles the beginnings of central banking, i.e. the displacement of base money from circulation (which is currently cash) in favour of payment instruments issued on its basis. The dynamic development of telecommunications means that currently the instruments of giro money (in the past in the form of paper checkbooks) function in the form of payment cards (plastic money), which in its economic content function analogously to the execution of settlement checks. The displacement of cash from the payment circuit is rooted in the most important competitive advantage of private banks, which is the previously

---

<sup>6</sup> The departure from the gold standard in the USA was gradual, initially the possibility of exchanging for individuals was abolished, then for international and financial institutions.

indicated possibility of making convenient cash settlements without using base money. The current coexistence of commercial and central banks is based on mutual coherence. In the event that the central bank enables the abovementioned settlements in the retail segment - commercial banks would lose their monopoly on the issuance of cashless money and thus - would probably have to fail or be limited to operations on the futures market.

## Introduction of CBDG only on interbank market

A more mild (at least in the short term) solution for the private banking sector is the introduction of digital money only in circulation between financial institutions, and leaving most of the retail trade in the form of vendor money. Such a solution could consist of registering digital cash in fiduciary accounts by universal banks, whilst maintaining accounts of deposit money which would still be the main means of payment. However, it could be unintuitive and inconsistent for consumers to have a separate digital purse for money marked by the central bank and a separate one for cash deposits held at a commercial bank - convertible into digital cash. Moreover, such a phenomenon could lead to the introduction of incentives to deposit CBDCs in traditional accounts which would automatically introduce the digital currency into the fractional reserve system and convert its form into contribution money<sup>7</sup>. Ultimately, such action could lead to the practical elimination of cash (also digital) from retail trade. The practical conversion of the digital currency into funds on the current account of a commercial bank would result in its use for money creation and the target allocation of the issued digital currency to the required reserve accounts at the central bank. Such a solution in the short term could maintain the stability of the fractional reserve system based on the coexistence of financial intermediaries in the form of deposit and credit banks, but it would not drastically change the situation on the money market in the short term. The conduct of monetary policy would still have to be carried out via a conveyor belt with the use of private banks and the money supply controlled so far by, among others, reserve requirement ratio. Of course, a significant variation would be to withdraw physical cash from the market in this way and limit the turnover of potential digital cash kept by commercial banks, while maintaining a full reserve system for these accounts. Nevertheless, maintaining such a dual system of recording cash could be counterintuitive for consumers and troublesome to maintain in the long term. However, the introduction of such a system has the advantage of enabling system participants to adapt to the new situation. Central

---

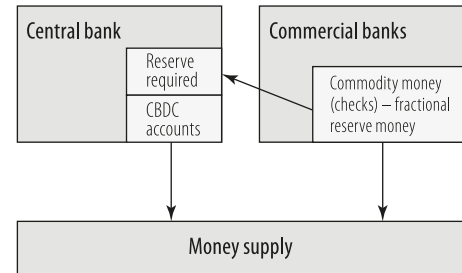
<sup>7</sup> This, in turn, could contribute to introducing an attractive interest rate on funds deposited on a vista accounts.

banks could create infrastructure for handling retail accounts, commercial banks would redefine the strategy as part of new functions in the financial system (more as investment firms than as lenders), and consumers would acquire experience in servicing digital currency as well as knowledge on the differentiation between deposit money and money base.

Reflecting on the potential consequences of the above-mentioned, in this model, it is worth asking the question: Why should consumers use giro money when they have central bank money at their disposal, that is, base money, "great power" money? Is this solution, although it is possible to apply temporarily, under which both types of money would continue to function in the money market, possible to maintain in the long term?

It is difficult to answer this question, but a possible scenario is one that will result in a transfer of savings (conversion of investment money) to the central bank (Choi, Henry, Lehar, Reardon and Safavi-Naini, 2021). It is difficult in the above-mentioned environment to find competitive advantages of commercial banks in providing payment instruments in the long term. Of course, in a shorter period of time, the central bank would have to acquire (create) resources in order to create the infrastructure necessary to service retail clients, but in the longer term, it would be the central bank that would potentially be the issuer with the most desirable and reliable payment instrument at its disposal. However, another fundamental question should be asked: Should the central bank, in view of the above circumstances, also take over credit services in the retail segment? Taking responsibility for the assessment of creditworthiness of retail clients is a break-neck task, requiring huge analytical and infrastructural resources within which the central bank might not be as effective as commercial banks operating in this area of the market. In addition, the possibility of creation of central bank money using retail loans should be questioned - which would almost completely undermine the current monetary order. In the opinion of the author of this article, it would be worth preserving the resources of commercial banks developed over decades regarding the assessment of credibility and creditworthiness along with the accompanying infrastructure and enable them to grant credits and loans. How, then, could this be done under the conditions of transferring savings to the

**Figure 4 – Fractional reserve system scheme in model of detail accounts of CBDC**



Source: Own study

central bank? From where would commercial banks acquire the funds necessary for granting loans and creating money if the account would be hypothetically transferred to the central bank? The answer to this question calls into question the existence of the fractional reserve system. A similar question has been asked so far in the literature in the article entitled "Are Central Bank Digital Currencies (CBDC) the nemesis of fractional reserve banking", in which the author asks a justified question about the future of the partial reserve system after the implementation of CBDC (Rochemont, 2020). Other authors (Goss & Schiller, 2020), however, point to the possibility of further coexistence of these two different means of payment but they highlight the cyclical nature of the demand for CBDC as well as the existence of interest incentives which, in a normal market situation, would encourage the population to open vista accounts at commercial banks. It should be noted, however, that there would have to be a real incentive to open them in the form of a noticeable spread between the interest rate of CBDC current accounts and traditional accounts. A "zero" interest rate on the accounts of the both risky different means of payment would lead to a transfer of savings to the central bank. However, in order for commercial banks to be able to offer a noticeably higher interest rate, hypothetically, they may be afraid of taking a more risky lending activity, because the current conditions in practice prevent commercial banks from undertaking profitable activity using real interest rates on current accounts.

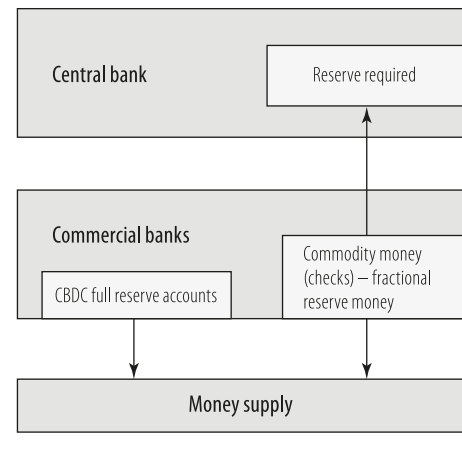
## Introduction of CBDC on overall market

From the point of view of the smallest short-term consequences for consumers, it seems most natural to replace physical currency signs (banknotes and coins) with a digital currency. This would require the purchase of circulating cash and its conversion into electronic currency.

What consequences could this have and does it seem like a natural and relatively not revolutionary solution? Well, first of all, if we were to maintain the current model, i.e. the possibility of using both central bank money (digital cash) and commercial bank money (giro money) - and the change would consist in the exchange of physical cash for digital cash - the new monetary system would have to include separate recording central bank money and giro money (Niepelt, 2020). In practice, this could only be achieved by allowing the public to have separate accounts with the central bank, and this would completely revolutionize the functioning of the monetary order. This is because the central bank's entry into the role of a retail bank would automatically eliminate any competitive advantage of commercial banks that hitherto had a monopoly on the issue of giro money.

Giving the population the possibility of having accounts with the central bank, additionally those that would register the basic money held, rather than giro money, could "oust" most commercial banks from the market in a short time, whose cashless money would become unnecessary in a relatively short time (Ayuso and Conesa, 2020). Of course, this would not exclude banks' activities in the area of term activities (keeping term deposits), investment - probably offering higher rates of return than those offered by the central bank, but at the same time, the nature of almost all deposit and loan banks would change dramatically. Secondly, by making it possible to have accounts (digital cash) at the central bank, it would obtain a strong, direct instrument for implementing monetary policy in a more efficient way than before (Yuqing, 2020; BoE, 2020).

**Figure 5 – Proposed new monetary system scheme**



Source: Own study

Illustratively, the introduction of digital currency accounts can be presented by opening bank boxes for holders for their currency in digital form. As with paper money, funds deposited in a vault cannot be managed by a commercial bank, it has no access to them, and cannot engage in any activity involving risk in relation to these funds. Therefore, it is not a base of a sight deposits that could be allocated to the issuance of cashless money and money creation. Under this model, the customer coming to a commercial bank has a choice: either to deposit his digital cash in a digital locker of a commercial bank, but he will have to bear the cost of maintaining this locker, also related to the fact that the bank does not have access to the digital cash deposited in it, or lending money to a commercial bank (for remuneration in the form of interest or at least no fees for account maintenance) and placing the funds on a traditional current account, thus enabling the institution to dispose of these funds.

Hypothetically, it can be assumed that after the stabilization of the new monetary order, both forms of money may function in parallel within this system concept. However, it can be assumed that, following the Copernican concept of displacing better money by worse money in the normal market situation, market participants may be more interested in using contributing money for current payments,

while cash could be forced out of the market and current payments - it would therefore act as an instrument for storing value<sup>8</sup>. The above conclusion can be argued, apart from observation and searching for historical analogies, also with the observation that despite maintaining negative nominal and real interest rates in many countries, the phenomenon of overliquidity of the banking sector and keeping savings in bank accounts can be noticed. It can therefore be concluded that due to the relatively low propensity to market risk of the population, it is the CBDC that could be the asset which, despite negative real or even nominal rates of return, would be perceived by consumers as safe, and therefore it is there that they would choose to store their value for a long property. Current payments, on the other hand, would, as a model, be made more frequently under current accounts (with contribution money).

## Results and conclusion

However, the above assumptions make it necessary to draw further conclusions presenting the threat to the banking system in the future. If consumers would decide to keep most of their savings in digital cash, and only allocate part of the funds to current accounts - we may have to deal with a shock to the banking system caused by the withdrawal (especially at the initial moment) of deposits from private banks and their conversion into digital cash. This, in turn, may upset the liquidity of many commercial banks, many of which may become illiquid and be taken over by other financial institutions. Therefore, we can assume that the possible introduction of the above-mentioned money may result in further consolidation of the banking sector and changes in the business model of many banks, which will have to compete more effectively with cash, which will now be conveniently transferable online. The potential advantages and disadvantages of introducing the digital currency of the central bank are listed below.

Potential advantages of a central bank's digital currency (Yuqing, 2020):

- breaking the monopoly of bitcoin as a digital currency,
- increasing (maintaining) control over transactions and tightening the tax system,
- reducing the dependence of the economy on private financial institutions (issuers of giro money),
- accelerating the pace of money circulation in the economy

---

<sup>8</sup> As part of this analogy, one should seek the quality of money in the form of the proximity of its convertibility into central bank cash.

Potential disadvantages (Yuqing, 2020; Bjerg and Nielsen, 2018):

- elimination of intermediaries (universal banks) from the banking system,
- preserving the digital footprint of each transaction - preventing anonymity (Atako, 2020),
- the threat of the emergence of financial inequalities in individual, technologically maladjusted countries,
- the threat of an immediate conversion of giro money into central bank money at the time of a market panic (BoE, 2020<sup>9</sup>) - and virtually automatic bankruptcy of financial institutions (if such a possibility was retained without blocking the system at the time of danger).

Undoubtedly, the threat of the dominance of the central bank's currency over the contribution money is the most important threat facing central bank governors (Yuqing, 2020). However, we are not yet able to assess which type of money will function as a means of payment and which type will be closer to the thesaural function. Theoretically, CBDC is money that should be the instrument of choice for storing value by consumers, and the money "inferior" - that is, the money of commercial banks should remain in circulation, but the final effect will also depend on the quality of the introduced instrument (e.g. transaction service) and interest rate monetary and administrative decisions.

The rune bank phenomenon can be eliminated in several ways. The following postulates can be found in the literature (Gloss & Schiller, 2020):

- the use of a two-tier system of interest rates on means of payment (digital cash and deposits) - discouraging the use of CBDC (negative interest rate, Bindseil, 2020)<sup>10</sup>,
- creating an administrative limit for the possession of digital cash by individual users (Panetta, 2018),
- limiting the convertibility of deposits to CBDC (Kumhof & Noon, 2018).

To conclude the question that is the basic question, the hypothesis of this article - there is a real threat of eliminating the contributing money from the financial system in a system based on maintaining retail accounts directly by the central bank and a smaller - although still real threat in the case of keeping such ac-

---

<sup>9</sup> As the Bank of England reports in its analysis: "during a period of stress or financial uncertainty, households and businesses saw CBDC as less risky than commercial bank deposits (notwithstanding that retail depositors enjoy FSCS protections), that rush to safety could trigger broader systemic instability."

<sup>10</sup> This postulate is also expressed by the author of this article.

counts (lockers) by commercial banks. The key issue in this respect is the creation of incentives and administrative limits securing the banking system against withdrawing deposits from commercial banks.

## References

1. Atako, N. (2020). The Interplay of Privacy and Transparency in Fostering Integrity in a CBDC *Vanderbilt Journal of Entertainment & Technology Law*, Forthcoming
2. Ayuso, J. and Conesa, C. (2020) Una introducción al debate actual sobre la moneda digital de banco central (CBDC) (An Introduction to the Current Debate on Central Bank Digital Currency (CBDC)). *Banco de España Occasional Paper* No. 2005
3. Bank of England (March 2020) Discussion paper, Central Bank Digital Currency Opportunities, challenges and design,
4. Bindseil, U. (2020) Tiered CBDC and the financial system, *ECB Working Paper*, 2351,
5. Bjerg, O. and Nielsen, R. H., (2018) Who Should Make Kroner? - A Review of Denmark's Nationalbank's Analysis of CBDC (*CBS Working Paper*)
6. Bordo, M. D., (2017) The Operation and Demise of the Bretton Woods System; 1958 to 1971 *NBER Working Paper* No. w23189
7. Choi, K. J., Henry, R., Lehar, A., Reardon, J. and Safavi-Naini, R., (2021). *A Proposal for a Canadian CBDC*
8. Dell'Erba, M., (2019). Stablecoins in Cryptoeconomics. From Initial Coin Offerings (ICOs) to Central Bank Digital Currencies (CBDCs). *New York University Journal of Legislation and Public Policy*, Forthcoming
9. Gross, J. and Schiller, J. (2020). A model for central bank digital currencies: Do CBDCs disrupt the financial sector?, w: *SSRN Electronic Journal* ·
10. Höpner, M. (2019). The German Undervaluation Regime Under Bretton Woods: How Germany Became the Nightmare of the World Economy Max Planck Institute for the Study of Societies, *MPIfG Discussion Paper* 19/1
11. Jobst, C. and Ugolini, S. (2014). The Coevolution of Money Markets and Monetary Policy, 1815-2008. *ECB Working Paper* No. 1756
12. Kaygin E., Zengin Y., Topcuoglu E., Ozkes S. (2021). The Evaluation of Block Chain Technology within the Scope of Ripple and Banking Activities, *Journal of Central Banking Theory and Practice*
13. Krušković, B.D. (2022). Central Bank Intervention in the Inflation Targeting. *Journal of Central Banking Theory and Practice*, 2022, 1
14. Kumhof, M. and Noone, C. (2018). *Central bank digital currencies design principles and balance sheet implications*. Bank of England Staff Working Paper, 725
15. Niepelt, D. (2020). Monetary Policy with Reserves and CBDC: Optimality, Equivalence, and Politics. *CESifo Working Paper* No. 8712

16. Panetta, F. (2018). *21<sup>st</sup> century cash: central banking, technological innovation and digital currency*. In Gnan, E. and Masciandaro, D., editors, *Do We Need Central Bank Digital Currency?*.
17. Quinn, S. and Roberds, W. (2006). An Economic Explanation of the Early Bank of Amsterdam, Debasement, Bills of Exchange, and the Emergence of the First Central Bank *FRB of Atlanta Working Paper* No. 2006-13
18. Rochemont, S. (2020). Are Central Bank Digital Currencies (CBDC) the nemesis of fractional reserve banking, Institute and Faculty of Actuaries
19. Sandner, P.G., Gross, J., Grale, L. and Schulden, P. (2020) The Digital Programmable Euro, Libra and CBDC: Impact of Digital Payment Initiatives on European Banks, *Journal (Complete Issue) ifo Schnelldienst* 10/2020, ifo Institut, München
20. Schilling, L. (2019). Risks Involved with CBDCs: On Cash, Privacy, and Information Centralization Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3479035](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3479035)
21. Trabelsi E., (2022), Macroprudential Transparency and Price Stability in Emerging and Developing Countries, *Journal of Central Banking Theory and Practice*,
22. Truman, E. M. (2017). The End of the Bretton Woods International Monetary System Peterson Institute for *International Economics Working Paper* No. 17-11
23. Yuqing, W (2020). The impact of the Issuance of Central Bank Digital Currency on the Effectiveness of Monetary Policy, in: *Proceeding of the 2020 2nd International Conference on Economic Management and Cultural Industry (ICEMI 2020), Advances in Economics, Business and Management Research*, volume 155
24. NBP (2021), <https://www.rp.pl/banki/art6892051-350-lat-historii-bankowosci-centralnej-na-swiecie> 02/04/2021