

CENTRAL BANK DIGITAL CURRENCIES: THE EFFECT ON THE BANKING SYSTEM

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ABSTRACT

The long-standing autonomy of commercial banks has been challenged in recent decades by various new concepts, such as open banking and decentralised finance, while the potentially wide adoption of cryptocurrencies, as well as the introduction of central bank digital currencies (CBDC), threatens to disrupt core areas of banking business: deposit collection, loan provision and payment execution, and in turn to create much more fragmentation in the sector. Likewise, CBDCs are in the nascent stage, with the first steps being laid out in the financial system, so the understanding of the drawbacks arising and the expected challenges from CBDC is quite limited. In this research, the scientific literature about CBDCs is analysed, using the extensive and systematic study of available research publications, their categorisation, and summaries. This paper provides a review of CBDCs and an assessment from a theoretical point of view of what kind of impact it could potentially generate for a solid and grounded banking system. In the end, depending on the public demand for CBDCs, and the swift reaction by regulators of the finance sector, the results for the banking sector could be a tense experience.

KEY WORDS: *CBDC, central banks, commercial banks, financial disintermediation, deposits.*

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Introduction

Over the last five years, fintech, decentralised finance, cryptocurrency and other digital currency markets have drawn quite a lot of attention, not only from scientists and economists, but also from the public itself. Recent failures, such as the bankruptcy of the FTX crypto exchange and the collapse of Silicon Valley Bank (SVB), have fuelled much more debate and posed questions about whether there is a way to achieve protection from a financial crisis using the latest inventions in the field of finance, like central bank digital currency (CBDC), or if we should focus entirely on trying to preserve the already-existing banking ecosystem, and CBDCs could be treated as a threat. Questions also arise on the consensus on the banking system: if it really should remain in the same conservative construction, or if it is time to evaluate and encourage change.

As we do not have any historical precedent, and only a few CBDCs have started to circulate in economies, with the expectation of more to come, it is indispensable to delve into already-available literature research. This brings us to the objective of the research paper, to access from a theoretical point of view how the financial system, but more importantly how the banking sector, would be impacted by the launch of CBDCs. The main goal is to analyse how the essential business activities of commercial banking, such as accepting deposits and executing payments, would be impacted if more citizens switched between the use of

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commercial bank deposits to a peculiar new digital currency backed by the respective country's central bank or another authority.

This paper makes a theoretical systematic review of central bank digital currency, with a deeper focus on comparing direct and indirect impacts on the financial environment, as well as more specifically on the banking sector and its main business activities.

A brief review of the literature is available in Section 1, while a description of the methodology comes in Section 2. The analysis is conducted in Sections 3 and 4. Section 3 gives concise information on the impact of CBDCs on financial markets, while Section 4 consists of a touch-base from a theoretical point of view for the interplay between the central bank and commercial banks, as well as the potential impact on payment systems available in the banking sector and deposit collection in commercial banks. Conclusions are presented in Section 5.

1. Literature review

In the last few years, research into CBDCs has exploded, with attention paid to different areas and sub-topics, such as the motivation to launch CBDCs, discussions on how CBDC could look and what particular design features it could contain, speculation and predictions on potential demand, and the initial impact on financial markets and society in general. A potential cliffhanger could still be applied based on the interest raised from central banks to issue a central bank digital currency (CBDC) from a few dozen countries around the world.

From the ongoing scientific literature, it can be felt that most central banks are rushing into their research with accelerating FOMO (fear of missing out), and racing for the innovator's crown; it is also highly influenced by political moves. The hierarchy of money is not only domestic (central bank money, then commercial bank money and other privately issued liabilities), but international as well, where currencies are, by an unwritten rule, also ranked by global power, economic, and other institutional reasons. With the Bretton Woods agreement in 1944, the US dollar occupies the throne as the primary 'reserve currency' in the world, and is used as the dominant currency in borrowing, so it naturally raises the question whether countries racing towards CBDCs could somehow change the current standards. The FED understands the importance of the introduction of the digital dollar; however, it also thoroughly understands its leverage in the world economy (for example, Arauz [2021] add that if no restrictions are applied, the introduction of the digital dollar could create general instability in financial markets and the banking sector, or attract more capital flight from smaller economies, or countries with a lower ranking in the money hierarchy than the United States), so the development of the digital dollar is still in the research phase.

Even though there is much discussion about features of CBDCs, such as the technology of issue, place of storage, transfer mechanism, and restrictions on availability, various authors have tried to assess the significance and importance of digital currency to financial markets. With the CBDC's constructed signal index, the capital market in the fintech sector reacts positively to CBDC signals. However, with time, sensibility reduces, as market expectations raised for fintech to play a role in the development of CBDCs continue to be stable (Li et al., 2022). The impact can be felt in the cryptocurrency market as well. Scharnowski (2022) investigate whether there is a relationship between central bank speeches about CBDCs and their effect on cryptocurrency markets, and it can be concluded that positive speeches could lead to an increase in cryptocurrency prices and volatility, as well as leading investors in cryptocurrencies to view CBDCs as a positive novelty for currency competition rather than a threat. In the case of the launch of CBDCs in the Bahamas and Nigeria, the launch of the Sand Dollar had a stronger impact on the Bitcoin market than eNaira, due to its novelty, and features such as its convertibility into cash, the public-private relationship, and trust (Mzoughi et al., 2022). So it can be expected that a more significant trigger for Bitcoin or other financial markets could be expected with the launch of CBDCs in an advanced economy.

Nevertheless, before engaging in the reform of the banking sector, central banks should weigh up the importance of the reality nowadays, with social networks and the mass media as an influential power. While Radic et al. (2022) survey international tourists from China, Korea and the United States to measure their

willingness in using CBDC, and what external factors could trigger more active usage, based on the survey, the most significant one was the impact from the mass media. This leads to the conclusion that central banks should also think about an effective communication and advertising campaign to create wide public support and trust in CBDC payments. Also, from the point of view of central banks in emerging countries, they would potentially benefit from the implementation of stronger regulations, which could reduce tax avoidance, and reflect full transparency for the income of end-users (Edwards, 2021). As per Kelmanson et al. (2019), emerging countries are plagued by an informal economy of a size consisting of around 30% to 35% of GDP, while advanced countries possess an average of 15% to 20% of GDP, so based on this information, there is room for CBDCs to increase welfare. It is also worth highlighting that CBDCs could have a positive impact on conducting anti-money laundering (AML) and counter-terrorist financing (CTF); however, it is not yet fully clear to what extent the privacy feature would be a trade-off in CBDCs. But Dupuis et al. (2022) agree that the introduction of CBDCs would have a negligible impact on AML activities, and in general it would just have a shiny new venue besides physical cash and cryptocurrencies for cybercriminals. Moreover, CBDCs could have an environmental, social and governance (ESG) impact. Laboure et al. (2021) suggest that a lot of energy would be consumed in the production, transaction recording and maintenance of CBDCs, which leads to higher environmental pollution due to CO₂ emissions.

Based on the literature and potential streams of impact coming from the introduction of CBDCs, the dialogue between the central banks, commercial banks and other fintech companies should remain tight and in their best interests, in order to make sure to have the most convenient solution for the end-users of CBDCs.

2. Research design

As the central bank digital currency is a relatively new subject and still in the infancy of its development, there are only a few real-life examples. It is important to gather and examine ideas already caught by other scholars, in order to draw benchmarks and highlight new areas, which would be worth exploring more from a theoretical point of view before any adverse effects take place in the real world.

The authors conducted a literature review on currently accessible (published in the last five years) scientific sources written about CBDCs, and made a systematic, comparative review dedicated solely to focusing on the impact of CBDCs on the financial system, with more granularity for the banking sector. From a theoretical point of view, one of the main responsibilities and areas for revenue in the banking business is deposit collection and its transformation for loan provision. Commercial banks also cover and offer many different services (e.g. advising on investment, discretionary management solutions, the maintenance of back-office operations such as custody accounts, a reflection of corporate actions on customers' equity in portfolios, the settlement of securities), and there is even great competition from fintech and other financial companies focusing solely on payment services, but commercial banks still take high fees in executing payments and money transfers.

It is assumed that the introduction of this peculiar digital currency might or will have a direct impact on the business models of commercial banks, while creating a competitive race towards the best satisfaction and attraction of customers.

So due to its importance in generating revenue for commercial banks, the authors have chosen these two nodes, deposits (or maturity transformation) and the execution of payments, to explore further in more detail in the research.

3. The impact of central bank digital currencies on the financial system

Since its introduction, the CBDC has attracted attention from policy-makers and scholarly circles, due to the challenges arising and their potential effect on the financial system and society, as it hardly follows any pattern and varies with some distinct features from country to country. Currently, from a global perspective, only a few digital currencies backed by a central bank are circulating in the markets of developing countries. The Sand Dollar was the first CBDC to be issued, and one widely discussed digital currency was issued by

a tiny Caribbean country, the Bahamas, with production consisting of only 0.01% of the world economy. It has been two and a half years since its launch, and the use of this new electronic currency has an upward tendency (see Table 1); however, it does not seem that a CBDC has caused chaos in any country's economy.

Table 1. The use of the Sand Dollar in the last 12 months

Period of time	Volume of Sand Dollars (\$) in the market	Relative % to M1	Relative % to coins & notes
March 2022	338 555,00	0,013355%	0,064934%
April 2022	339 055,00	0,012943%	0,061527%
May 2022	338 965,00	0,012190%	0,062504%
June 2022	338 908,00	0,011666%	0,063072%
July 2022	339 008,00	0,011081%	0,061964%
August 2022	338 166,00	0,011070%	0,061299%
September 2022	363 061,00	0,012101%	0,066463%
October 2022	647 884,00	0,022836%	0,120959%
November 2022	684 937,00	0,024333%	0,124719%
December 2022	1 052 459,00	0,039079%	0,172961%
January 2023	1 077 407,00	0,039949%	0,195962%
February 2023	1 025 892,00	0,037524%	0,185842%

Source: Prepared by the authors using data from the Central Bank of the Bahamas (2023).

The explanation is fairly straightforward, and can be seen from statistics from the Central Bank of the Bahamas (2023): as of February 2023, the Sand Dollar in M1 supply consisted of roughly 0.0375%, while a year ago the same proportion was a third. The Sand Dollar had also taken 0.186% of the total circulation of banknotes and coins in the system as of February 2023, while by March 2022 the same proportion was also a third. Even though the use of the Bahamian CBDC attracts more attention and has an upward tendency, demand itself is still very low. However, on the other hand, it is expected that the launch of a CBDC in any major economy, like Japan, China, the United Kingdom or the United States, could pose much more significant challenges, which should be repulsed.

Switching the focus to what other factors could have an impact when introducing CBDCs in financial markets, it is worth underlining social networks and the mass media, as they could play a considerable role in influencing financial markets. By constructing two new indexes, the CBDC Uncertainty Index (CBDCUI) and the CBDC Attention Index (CBDCAI), Wang et al. (2022) show how CBDC news published via the media could influence certain volatilities in financial markets, having a significant positive effect on foreign exchange, bond and cryptocurrency markets, and also commodities (gold), but on the contrary, a negative effect is posed to the stock market. An operating model for business could also be affected. Ding et al. (2022) examine the impact of the volatility of CBDCs in supply chain management (SCM) for manufacturing companies, and the authors conclude that volatility has a considerable effect, so the stable operation of CBDCs is crucial to provide benefits.

The CBDC has gained significant traction from regulatory bodies and financial institutions, due to its potential benefits and technical possibilities to even outperform some already-existing privately issued digital currencies. However, in the prevention of errors, certain lines should be drawn as well. Morgan (2022) suggest that for CBDCs to be able to avoid problems associated with stablecoin, governing bodies should urge the adoption of the necessary regulations towards both the latter and the underlying case for CBDCs. For example, without properly drafted legislation, users can hold CBDCs permanently, and could crowd out bank deposits during financial turmoil (Williamson, 2022). Also, research based on the digital euro area indicates that there should be some regulatory adjustment to the Treaty on the Functioning of the European Union,

since following the articles, the digital euro should not bear interest, and the CBDC itself is not identified as a medium of monetary policy (Zellweger-Gutknecht et al., 2021).

4. The effect of central bank digital currencies on commercial banks

The interplay between three participants, end users, commercial banks and central banks, in the financial arena is tightly tied up with clearly designed roles. Technological advancements create competition between different service providers in the financial sector, so unavoidably, commercial banks should adapt and accept them to keep up with changing customer expectations. By manufacturing a close ‘digital’ substitute of fiat cash, the central bank would gain a new tool for implementing monetary policy, along with the possibility to maintain the power of public money. While the foundation of the current traditional banking system is based on the facilitation of payments and deposit management, the release of retail CBDCs could have negative consequences for both. Thus, to no one’s surprise, commercial banks might bear a grudge, as they are the ones losing the most.

Adrian and Mancini-Griffoli (2021), Meaning et al. (2018), and Tronnier et al. (2022) urge closely monitoring the banking sector to avoid structural disintermediation, and paying attention to financial stability and consumer protection; while Bindseil (2019) underlines different approaches to how CBDCs could cause trouble with financial cycles. Conversely, Brunnermeier and Landau (2022) estimate that the circulation volume of retail CBDCs should not be over the odds, so the authors postulate that the negative effect on the banking system would be relatively small. Either way, and indisputably, with the launch of CBDCs, commercial banks would experience additional costs, due to the need to upgrade in-house software and the entity’s internal procedures, as well as investing time in improving the competence of their employees.

4.1. Commercial banks’ interaction with the central bank

Following the theory of central banking, central banks have control over price stability and interest rates, and have a monopoly over the money supply, its issue, maintenance and storage (Dow, 2017). As overseers of their respectively assigned commercial banking systems, central banks are now at a crossroads: how to fight the increased use of unregulated cryptocurrencies, and how to maintain their reputation of respectable authority by not losing monetary sovereignty, when the use of physical cash is decreasing. So the issue of a digital version of public money sounds like an attractive and valuable solution to keep up with the game. Bordo and Levin (2017) and Elsayed and Nasir (2022) suggest that the central bank should be conducting explicit studies, and divide its focus between logistical/technological CBDC features and macroeconomic implications in economic, social, technological and environmental areas. Following a comparison of three CBDC pilot programmes conducted in the Bahamas, Sweden and Uruguay, it can be seen that the central bank plays a critical role, so it is crucial to identify domestic concerns in a country willing to launch a CBDC, and the cost structure needed for its implementation, establish a reliable risk framework, and identify the roles and responsibilities of market players (Morales-Resendiz et al., 2021). In addition, Opare and Kim (2020) state that extensive and strong knowledge-sharing should be initiated among central banks themselves, which could potentially help save resources and time.

The introduction of CBDCs would undoubtedly affect the relationship between different players in the financial system and their roles; however, the true extent and strength of it is yet to be seen. First, central banks should decide whether they should be taking an operating role to issue CBDCs, which would be ‘direct CBDC’, or perform the more supportive/guiding role and delegate the issue and maintenance of this specific digital currency as ‘indirect CBDC’ to the private sector. Kim and Kwon (2022) support the idea that CBDC accounts should be made available along with current accounts in banks. And this would be the most logical decision, as with the allocation of the operational side to commercial banks, the strong knowledge from customer onboarding and know-your-customer (KYC) clearing to the general end-user-oriented framework would be adopted and much more convenient, rather than establishing a whole new division in the central bank to deal with customer service and force individuals willing to use CBDCs to open a new account with the central

bank. For example, the European Central Bank's working group for the digital euro (2022) already proposed a position that the digital euro, if implemented, should be distributed via commercial banks. Second, the central bank should think of the best suitable CBDC design, and the desired volume to circulate in the economy, as these choices directly impact bank disintermediation, which should not be so drastic, but rather a 'soft landing'. However, Soilen and Banhayoun (2022) advise that the whole implementation framework of CBDCs is highly dependable, and is also influenced by the political regime and who controls the central bank, so even though central banks in advanced economies understand their importance to the financial system not only locally but also internationally, other more aggressive economies would not necessarily follow the same path.

Simultaneously, authors such as Morales-Resendiz et al. (2021) advocate joint central bank and private sector cooperation, as both sides have different expertise and experience, which could lead to the successful launch of a CBDC in the best possible outcome for society, and its easier integration in the already-existing financial landscape. Also, it would keep both parties (private and public sectors) in check and accountable to each other.

4.2. The impact on commercial bank payment systems

As Arauz et al. (2021) advise, transactions performed in cash are bilateral (peer-to-peer in simultaneous time and space), while electronic payment systems involve a third player, a bank, and can be called a triangular payment system. Payments according to type in the electronic system can be divided into groups as follows: intra-bank (internal transactions within a bank), inter-bank (transactions happening between two financial entities), and cross-border (transactions involving two parties located in different countries). Depending on the payment type, they can be conducted using different bank payment systems: intra-bank transactions are usually recorded using in-house-built software to modify cash balances in different accounts for accounting purposes, and inter-bank and cross-border transactions are facilitated via SWIFT messages (in most countries).

In well-developed countries, where more than 90% of the population have bank accounts, and as of 2021, more than 95% of payments are made digitally,³¹ households and firms are already quite well equipped for payment solutions. As Lee et al. (2021) highlight, commercial banks in those countries are also not so interested in engaging in wholesale CBDC development, as domestic payment needs are met by the Real-Time Gross Settlement (RTGS) system. However, developing countries, which in most cases are underbanked and use physical cash more, could definitely benefit from establishing convenient and trustworthy electronic payment channels.

Commercial bank payment systems are already constrained due to fuelled competition coming from various digital payment and innovative fintech start-up companies focusing on one function of money, cash transfers with customer-friendly designs; while neo-banks and other companies also offer efficient and fast solutions for cash transfers and other services, such as fund management and insurance. So not surprisingly, authors such as Tronnier et al. (2022) and Meaning et al. (2018) question if the introduction of CBDCs would not create faster disintermediation in the current payment system, leaving out commercial banks.

While Piazzesi and Schneider (2022) study how CBDCs could interfere with already-existing commercial bank systems with deposits and credit lines, since they are interrelated to one another when used for payments, if a CBDC is widely adopted and is used only as a proxy for payment and not credit lines, it could reduce welfare and force commercial banks to hold more assets to meet leverage requirements. Of course, this clash between CBDCs and commercial banks creates strife, but it could eventually lead to beneficial competition, where the end-user would win by receiving the best product or service to date; for example, Kochergin and Yangirova (2019) expect that a faster, costless and more efficient settlement of transactions would be offered not only for transactions but payment delivery for derivatives and other financial instruments as well. Also, Zellweger-Gutknecht et al. (2021) suggest that CBDCs could provide a strong reinforcement for the secure functioning of the payments system, and mitigate the market dominance of private payment systems, so a strong public-private partnership is desirable.

³ Data from <https://www.worldbank.org/en/publication/globalindex>

With the help of CBDCs, central banks could implement faster various economic stimulation policies, such as quantitative easing (QE) measures, as in the recently experienced Covid-19 pandemic (Chen, Siklos, 2022), while Davoodalhosseini (2022) suggests that fast credit allocations for individuals in need would be more efficient than just dropping ‘helicopter money’ to all or some households, since with CBDCs, central banks would be in better possession of information about the state of the economy. Also, in order to boost the propensity to consume, CBDCs could be programmed with negative interest or an expiration date, to be spent during a target period of time (Auer, Boehme, 2020). However, the issues potentially arising are yet to be explored.

Even though most discussions are now ongoing about the implementation of a national CBDC, various financial institutions have started to look a little further, as with growing global cooperation via international trade, in economies, businesses and people, efficient payment systems are indispensable. Authors such as Auer et al. (2021) also address the point that central banks should focus on having more dynamic payment systems in general, without the added risk of currency substitution. For retail use and domestic transfers, the speed and convenience of money transfers are enough in developed countries. The Achilles’ heel nowadays lies in cross-border transactions, where even interbank transfers are costly, can take a few days to settle, and even lack transparency. International organisations such as the Bank of International Settlement (BIS) are starting to ponder the prototype of multi-CBDC arrangements, which could help financial intermediaries initiate and settle cross-border payments much faster and more efficiently.

Auer et al. (2021) exclude three different models for multi-CBDC disposition:

- the conversion/settlement of transactions from markets existing abroad into central bank money;
- the link between different CBDC systems guaranteeing the better and safer settlement of payments, especially when FX transactions are needed;
- the creation of a single multi-CBDC system to be used all around the world, which could guarantee uniform service and integration also at the infrastructure level.

With current projects and experiments, according to Eichengreen (2021), it is believed that a well-designed CBDC could solve some long-standing problems, such as the high cost of currency conversions or strong network effects; however, the author thinks that CBDCs would not change the international monetary landscape much, especially when there are too many unknowns in how the system of multi-currency CBDCs could operate efficiently, and the phase itself is still exploratory. On the other hand, it is the perfect moment for central banks to set up most of the assets (technical infrastructure, data requirements) in the right direction from the very beginning and without legacy issues, especially thinking forward about not only domestic transactions but also international ones involving different jurisdictions, as Meaning et al. (2018) advise avoiding the currently existing fragmentation in payment systems, such as working hours and the size of the payments, whether foreign exchange is needed, etc. Also, if CBDCs can overcome the technical and political-economic problems, they could be used as a means not only for cross-border payments but also for the creation of a wider portfolio of assets denominated in different currencies (Chen, Siklos, 2022).

With globalisation, central banks should pay attention not only to domestic retail CBDCs, but also bear in mind the possibility to have international links. However, on the other hand, developing countries and their currencies do not have the same weight in international transactions as a few currencies in advanced economies do, so developing countries experience external vulnerabilities, to be reduced and replaced by ruling currencies or CBDCs.

4.3. The impact on commercial bank deposits

In their research, Diamond and Dybvig (1983) highlight that retail banks in general are imperative to the current financial system, as they perform maturity transformation: banks borrow money for the shorter term (e.g. deposits from savers and investors), while concurrently, the same borrowed money is lent out by the banks for the longer term (e.g. mortgages). This synergy between receiving deposits and providing loans gives banks a unique ability and supremacy to create liquidity (Acharya, Mora, 2015). However, with

the introduction of a CBDC, and depending on its demand by the public, the shift from retail bank deposits (private money) to CBDC (public money) can be quite difficult. Shirai (2019) affirms that central banks are concerned about what this change could do for commercial banks, while Fernandez-Villaverde et al. (2021), and Adalid et al. (2022), warn that central banks should be meticulous and precise with CBDC design choices, not to cause impaired competition and mayhem with maturity transformation in the banking sector.

Nevertheless, if the balance between a CBDC and cash in the market does not happen in moderation, the whole banking system risks having spill-overs and bank runs. Lee et al. (2021) stress that if people are willing to switch drastically from bank deposits to a CBDC in a short period, or, as Bian et al. (2021) and Williamson (2022) add, if there are no restrictions on the quantity of CBDCs in markets, it could potentially cause shortages in liquidity, and a credit crunch for financial intermediaries or even worse, the crowding-out effects on bank deposits and reserves could lead to market panic and bank disintermediation. Agur et al. (2022) and Gross and Schiller (2021) add that this crowding-out affects credit provision, investment activities and the output of banks. On the contrary, another simulation with CBDCs was addressed by Fernandez-Villaverde et al. (2021), and the authors conclude that an account-based CBDC could potentially make bank runs disappear and stabilise the financial system, or as Keister and Monnet (2022) suggest, would be able to provide better tools to cope with the crisis.

While potential outcomes in reality are inconclusive, commercial banks should be ready to counterattack and adapt their business model when there is a threat of reducing the size of deposits and reserves held, and accordingly lower rates of lending. However, the source of deposit funding is important, and to maintain the same power for lending, retail banks should consider how those potentially crowded-out deposits could be restored:

- Commercial banks could raise interest rates for deposits, to make them more attractive than CBDCs, or offer other incentives. However, as Mancini-Griffoli et al. (2018) point out, it would be a spiral: commercial banks should find a source to fund interest remuneration for deposits, other fees (e.g. the drawing of loans) should be increased, or the bank should make it up with lower profits. However, with higher fees for services, the bank becomes less affordable for some social groups to keep an open bank account. If the bank replaced retail deposits with wholesale funding, according to Mancini-Griffoli et al. (2018), it would become more volatile, and following the analysis of euro area accounts by Castren et al. (2022), in most cases it would set off more expensive and short-maturity, which leads to a negative outcome for commercial banks themselves when talking about ensuring maturity transformation.
- Commercial banks could create a symbiosis with the central bank. As Auer et al. (2021) advise, central banks can surely lower the cost of funds for commercial banks by lowering the rate of their lending facility. While Kim and Kwon (2022) and Andolfatto (2021) provide the solution that central banks could lend CBDC deposits back to commercial banks to the main lending facility, and even improve financial stability, according to Niepelt (2020), it is important that the liquidity services of deposits and CBDCs can co-exist with relative resource costs, while preventing banks with corresponding regulation from arbitraging between the CBDC and the lending rate. However, Mancini-Griffoli et al. (2018) add that discipline in the market could change, depending on the proportion of how many insured and uninsured depositors the retail bank has, i.e. if banks have more insured depositors, market discipline could dwindle, and the bank could leverage more risk.

In the bargain, there are some thoughts, as per Meaning et al. (2018), that if CBDC demand is critical, banks should be converting deposits to meet demand, and to maintain trust in central banks. On the contrary, authors such as Bindseil (2019) suggest that there should be limits on how much CBDC is issued; while Kumhof and Noone (2021) advocate that commercial bank deposits should not be freely exchanged into a CBDC, as this action would not create more confidence in the banking system, and would make it more vulnerable instead. Nevertheless, this does not necessarily mean that with the introduction of CBDCs, commercial banks would be crowded out. From another perspective, commercial banks could use a new channel of payment for the development of attractive new solutions for their customers using the basis of a CBDC.

Conclusions

The rapid development in technologies during the last couple of decades urges to some extent unavoidable changes in the financial landscape and payment methods, as even though society wants to have a safe and trustworthy store of value, means of payment and medium of exchange, it should also evolve improvements in terms of speed, reliability, convenience and accessibility, in order to remain attractive and up to date to its users.

By and large, once a CBDC is set in motion, the effects on the banking sector are highly dependent on the structure of the banking system, the adoption speed, and the substantial use of the CBDC. Eventually, if the shift between public and private money is uncontrollable, it could lead to bank disintermediation, and even bank runs, with eroding financial stability. If any shift between commercial banks and central banks happens, it is expected indefinitely that dedicated and responsible authorities in the respective countries should take swift action in advance, and raise discussions about whether new legislation or regulatory requirements should be issued and implemented in order to curb the disturbances in financial stability. During the last few years, scholars have paid significant attention to retail banks and their traditional deposit model. Due to the scarcity of real data, various simulation models are invoked to predict the impact on retail bank deposits and the importance of diversity, and to what extent it could create difficulties, as well as taking into account recent developments in the global banking context.

CBDCs are a complex issue, with both rewarding benefits, such as increased welfare and faster and safer transmission, and burdensome challenges radiating out with a far-reaching impact beyond the financial sector in each country engaging in the development of a CBDC. However, we should be aware that all theoretical implications are based on historical data and the further impact on the banking industry, the collection and holding of deposits, the granting of loans, and the execution of payments could potentially take a sharp turn in either direction. Of course, it is recommended that issuers of CBDCs (in most countries, the central bank) should make sure that a profound analysis of CBDCs is conducted, based on the evaluation of risks, potential triggers, and complications in the financial system, and the monetary policy could be devised straightaway, if assessments of financial intermediation and credit provision are not sufficient.

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CENTRINIO BANKO SKAITMENINĖ VALIUTA: ĮTAKA BANKO SISTEMAI

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Santrauka

Komerciniai bankai ir pati *bankininkystės* samprata pastaruosius dešimtmečius išgyvena tikrą technologinį perversmą bei patiria nemažai iššūkių: vis griežtėjantis centrinių bankų reguliavimas, auganti konkurencija su „Fintech“ įmonėmis ir nebankais bei naujomis sąvokomis, kaip *decentralizuoti finansai*, *atvira bankininkystė* ar kol kas menkai reguliuojamos *decentralizuotos kriptovaliutos*. Pagrindinės komercinių bankų veiklos sritys – indėlių priėmimas, paskolų išdavimas, elektroninių transakcijų pervedimas.

Kriptovaliutų atsiradimas ir augantis jų populiarumas visuomenėje, neseniai praūžusi COVID-19 pandemija, mažėjantis grynųjų pinigų poreikis – tai tik kelios priežastys, verčiančios įvairiose pasaulio šalyse

esančius Centrinis Bankus ar kitas už fiskalinę politiką atsakingas institucijas ieškoti sprendimo, kaip užtikrinti finansinį stabilumą ir turėti tam tinkamų finansinių priemonių. Centrinio Banko skaitmeninės valiutos įvedimas į finansų rinkas kol kas įvardijamas kaip viena iš priemonių, leisiančių Centriniam Bankams pasiūlyti papildomą patogų finansinio atsiskaitymo būdą visuomenei ir santykinai neprarasti kontrolės bei išlaikyti tinkamą monetarinės politikos kursą.

Centrinio Banko skaitmeninė valiuta yra naujas, istorinio precedento neturintis konceptas finansų sistemoje. Per pastaruosius penkerius metus šia valiuta ypač susidomėta dėl atsiveriančių teigiamų jos panaudojimo galimybių, nors ši naujovė gali sukelti ir nelauktų iššūkių ar sunkumų, kuriuos gana sunku numatyti dėl minėto istorinio pavyzdžio nebuvimo.

Šio straipsnio autorės pasirinko analizuoti ir įvertinti vieną iš galimų Centrinio Banko skaitmeninės valiutos poveikio sričių – kaip ši naujovė gali paveikti komercinius bankus ir jų siūlomas paslaugas. Teorinėje dalyje trumpai apžvelgia Centrinio Banko skaitmeninės valiutos konceptą ir poveikio sritis. Kitoje straipsnio dalyje pasirenkamas metodas – susisteminti prieinamas mokslines publikacijas, numatomos pagrindinės nagrinėjamos sritys. Praktinėje dalyje autorės teoriškai nagrinėja galimą Centrinio Banko skaitmeninės valiutos poveikį komercinių bankų ekosistemai ir vienoms iš pagrindinių veiklų bei pajamų sritims – indėlių priėmimui ir jų pritraukimui, elektroninių mokėjimų sistemoms. Apibendrinama, kad ši skaitmeninė valiuta, atsižvelgiant į jos naudojimo paplitimą ir pačių komercinių bankų atsaką, gali paskatinti pokyčius finansų rinkose.

PAGRINDINIAI ŽODŽIAI: *Centrinio Banko skaitmeninė valiuta, Centriniai Bankai, finansinis tarpininkavimas, komerciniai bankai, depozitai.*

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