Legal and Economic Implications of Central Bank Digital Currencies (CBDC)

E. L. Sidorenko\(^1\), S. V. Sheveleva\(^2\), and A. A. Lykov\(^1\)

\(^1\) Moscow State Institute of International Relations (University) of the Ministry of Foreign Affairs, Moscow, Russia
12011979@list.ru, lykov1500@gmail.com

\(^2\) Southwest State University, Kursk, Russia
decan46@yandex.ru

Abstract. The issue of creating a new unit of account - central banks digital currencies (CBDC), has been actively discussed in the past two years, both at the level of individual states and the international community. The discussion is based on the legal possibility and economic feasibility of expanding the list of financial instruments by creating a fundamentally new model of digital payments. However, despite the importance of this issue, states and the digital community have not yet come to a common understanding of the starting points on which the concept of a national digital currency (CBDC) should be based. In this regard, the purpose of this study is to identify the legal and economic advantages and disadvantages of two types of CBDC: direct and hybrid. To achieve this goal, the theoretical views on this issue were studied, as well as the conclusions made by experts in the course of a practical study of the CBDC possibilities.

Keywords: CBDC · Central bank · Digital currency · Means of payment · Legal regulation · Financial system · Financial security

1 Introduction

A logical stage in the development of the digital economy was the development of the central banks’ digital currency model (CBDC). The question itself on the possibility of launching CBDC was caused by the fact that during its short history, the digital decentralized currency has proved its efficiency in terms of speed and payment security, but nevertheless revealed a number of problems associated with the inability of central banks to control financial flows and the use of cryptocurrencies for money laundering and drugs and weapons selling.

The CBDC model, according to its developers, will be able to minimize the risks of traditional cryptocurrencies and at the same time give the state financial system the necessary flexibility, speed and transparency. The problem, however, is that in most countries the discussion of the CBDC concept is largely academic. And only a few states have officially announced their intention to introduce a digital equivalent of the national currency (China, Singapore, Thailand, Sweden, Canada, etc.). At the same time, many countries are considering the possibility of introducing such practices in the
The emergence of a new payment form, digital money from central banks, is comparable in nature and historical significance to the replacement of gold and silver coins with paper banknotes, or the rapid replacement of these banknotes with payment cards and mobile payments. It is obvious that the introduction of a new model can lead to unexpected legal and economic consequences associated with a lack of understanding of certain aspects of the problem. The concept of CBDC itself is clear at first glance, but a more detailed examination reveals a number of issues that need to be addressed at the initial stage of the issue. In particular, it is important to understand what CBDC will create and release, who will control it, who will be responsible if the system fails or data leaks, and what are the prospects for implementing CBDC in countries with weak economies and undeveloped digital infrastructure. Some of these issues will be discussed in this paper.

2 Methodology

In the course of this research, the authors evaluated the theoretical views and empirical conclusions accumulated nowadays from the point of legal pragmatism [1]. This approach involves taking into account the position of the legislator, his political will, which dictates both the very initiation of monetary reform, introducing CBDC, and the fundamental characteristics of the system of state digital money. The approach of legal formalism was not left without attention. The literal interpretation of legal norms assumed by this approach makes it possible to determine the legal grounds (or lack thereof) for the introduction of new settlement instruments in the current law. In addition, the same approach helps to find a strategy for adapting CBDC to legal norms that are not directly related to the financial sphere; for example, the law on personal data protection and the law on information and information systems. The risk-based approach is central to the methodology of this work [5]. The introduction of CBDC is inevitably associated with the emergence of circumstances, many of which would be difficult to predict today. However, some of the risks of CBDC can be extrapolated to CBDC-like systems. These include, in particular, systems of existing settlement instruments: cash, electronic money, and bank payments. This work is devoted to the analysis of these risks and determining ways to minimize them.

3 Results

3.1 The Authorities of the Central Bank

Analysis of the variety of theoretical views on CBDC and their empirical research has allowed us to define the digital currencies of central banks as a unit of account, the circulation of which as a form of legal tender is directly or indirectly provided by the central bank of this state. The main legal and economic risks of introducing CBDC, as well as possible ways to minimize them, were divided into the following four groups.
Traditionally, central banks exercise full control over cash, introducing it into circulation, withdrawing it from circulation and controlling the cash supply in the state.

The creation of an additional form of money will give the central bank another leverage to manage the financial situation within the country, and in the case of countries whose currency is widely used in international commerce - and beyond (for example, China). The procedure for implementing such powers is not provided for by current models of legal regulation, and the possible positive and negative consequences of their application have not yet been sufficiently studied [3]. In particular, central banks cannot simply start issuing CBDC as a replacement or “improved” form of cash, since CBDC are fundamentally different from cash [11].

On the other hand, the authority to manage CBDC can replace the authority to manage cash circulation, the need for which is significantly reduced in many countries of the world [14]. Thus, experts of the Bank for International Settlements believe that the introduction of CBDC will not significantly affect the mechanisms for implementing monetary policy by the central bank [3].

It is expected that replacing cash with CBDC will increase seigniorage (revenue from money production) by 90%, since spendings of physically producing money and transporting it will be eliminated [12]. So, in 2016, the South Korean authorities spent about 44.5 million US dollars on the production of coins only [19]. In the case of a hybrid CBDC, the central bank’s expenses for servicing the money supply can be significantly reduced, since most of the infrastructure will be supported by commercial intermediary companies.

3.2 CBDC Traceability

All CBDC projects involve the introduction of a certain traceability percentage of transactions with CBDC for the purpose of compliance with the law. If such “traceable” CBDC become the dominant form of payment in the state, they can give unprecedented control over money circulation both at the international and state level, as well as at the level of individual citizens and organizations. In this case, the CBDC will become the perfect tool for combating a wide range of any crimes related to money settlements, including Anti Money Laundering and Counter-Financing of Terrorism (AML/CFT), fighting corruption, tax evasion, export of funds abroad, currency crimes, etc. In case of refusal of cash and the CBDC introduction, the crime of counterfeiting will become impossible [12]. However, such “financial omniscience” can be associated with a number of difficulties. For example, in the case of a CBDC that is fully controlled by the central bank, it will force the central bank to constantly interact with financial and tax control authorities, with judicial and administrative authorities, to ensure confidentiality in a complex system, and to perform other powers that the central bank may not be ready for or not to have the authority to perform it.

On the other hand, the hybrid CBDC, to which citizens get access through specialized companies, will be spared from this problem, since the responsibility to collect and transmit customer information will be assigned to these companies, which are quite accustomed to this procedure. This is what has been done in China, where control over operations with CBDC will be assigned to existing banks and payment companies [4].
Another issue related to the traceability of CBDC transactions is the issue of protecting the personal data of individual CBDC users.

It is assumed that the history of operations with CBDC will only be available to the central bank and, in the case of hybrid CBDC, to intermediary companies that provide interfaces for CBDC. Thus, it is being noted in the draft of the Bank of England that a possible English CBDC will provide anonymity in mutual settlements, but will allow authorities to track transactions with CBDC for law enforcement purposes [3].

3.3 Antimonopoly Law and Consumer Rights Protection

There is a risk that if the entire CBDC system is controlled by the central bank, then a person, even if mistakenly underprivileged from the right to open an account/wallet with CBDC, will be cut off from the financial system. This issue can be resolved by making the process of opening CBDC accounts as easy as possible, and bans on this are allowed only for the purposes of compliance with the law, including (AML/CFT) regulations [10, 11]. Alternatively, the issue can be resolved in the case of hybrid CBDC hybrid CBDC, where citizens can access the CBDC system through many different firms.

On the other hand, the introduction of hybrid CBDC will lead to the transformation of intermediary companies into natural monopolies due to the high cost of organizing such a turnover and the actual impossibility of competition in this area [18]. Nowadays it is unknown, how the competition between agents will be performed, if it will be, as there is a market consisting of such companies.

Finally, it is believed that the accelerated implementation of CBDC with an equally rapid rejection of cash circulation may negatively affect the elderly and the population without bank accounts [2]. This issue is considered in a number of countries that are developing CBDC (Canada and China), whose projects provide for access to a new settlement facility without having to be connected to the banking system in any way.

3.4 National Security

The penetration of CBDC in countries with weak financial institutions and high inflation may lead to a situation in which individuals and companies decide not to exchange hard CBDC for local currency, but to accumulate it at home and pay in it, which will quickly lead to the complete loss of state control over monetary policy in the country [18].

Similar cases have happened in the past. A striking example is hyperinflation in Zimbabwe, where the US dollar has displaced the national currency to the point that the authorities in 2015 set out to recognize the US dollar as lawful currency [17]. It can be assumed that the Chinese CBDC after launch can significantly affect the economy of a number of African countries, which will be facilitated by China’s active economic activity in the African region [15].

On the one hand, there is a possibility that CBDC will help strengthen national security. In particular, it is noted in the bank for international settlements that the COVID-19 epidemic has significantly increased the need for CBDC as a contactless payment method that is resistant to such systemic shocks [2]. On the other hand, various system and infrastructure shocks can disrupt or destroy the insufficiently reliable CBDC system that relies on this infrastructure [13].
It is possible to overcome this danger in two ways. Firstly, creating a CBDC system that is as independent as possible from vulnerable infrastructure, including the banking system, Internet, electric grids, etc. Examples of CBDC projects that address these vulnerabilities are the Canadian and Chinese CBDC projects. Secondly, it is possible to keep cash in circulation so that it can act as a backup option in case of unforeseen circumstances [8].

4 Discussion

Despite the obvious attractiveness CBDC, modern law has not developed the legal status of these assets and has not proposed a universal model for their classification. In particular, the questions of CBDC typology in the modern literature find only partial solutions and only within the framework of solving applied problems. In 2018, experts identified two types of CBDC: general purpose CBDCs or retail, available for use by anyone wholesale, which are available to a limited number of people, for example, for mutual settlements between private banks [3]. Another classification has been proposed by R3 researchers, who identified three types of CBDC [6]:

1) Direct CBDC. CBDC that are issued, provided and fully controlled by the issuing central bank. An example of a direct CBDC is e-krona, developed by the Sweden bank [6]. A number of authors believe that under the CBDC system, the central bank will be able to perform taxation much more effectively, which will reduce the tax rate [9].

2) Indirect CBDC or synthetic CBDC. This type of CBDC is issued by third-party organizations, such as private banks or payment companies, but the cost of such a CBDC is provided by the reserves of the central bank [18]. It is a fair opinion that this system can harmoniously complement the existing banking system [16].

An extreme form of synthetic CBDC (quasi-CBDC) was described in one of the projects of the Bank of England, in which means providing the cost of a digital currency issued by private firms, will not be the reserves of the central bank, but will be the means of these firms in custody of the central bank [6].

A real example of quasi-CBDC is already in operation in China, where payment companies WeChat Pay and Alipay were charged with storing customer funds in the central bank in the form of reserves [18].

3) Hybrid CBDC. Such payment instruments are created and destroyed only by the central bank, but their use and circulation are provided by other organizations. The advantage of hybrid CBDC is that the responsibility for the order of their turnover and use (including AML/CFT control) is assigned to the banks that work with the CBDC, and not to the central bank. As an example, we can cite Chinese CBDC and one of the projects of the English CBDC.

As demonstrated above, the two-level system inherent in hybrid CBDC, is superior to other forms of digital currencies in many ways. Other authors, in particular, came to the same opinion, noting that competition between intermediary companies can have a positive role in strengthening the CBDC system [7].
5 Conclusion

Summing up the results of this research, it should be concluded that the CBDC concept is a natural stage of digitalization of the financial sector both in individual states and in the global community as a whole. However, the implementation of this model will require significant changes in the current legislation and, firstly, in terms of minimizing certain legal and economic risks. Currently, it is a two-level system of hybrid CBDC CBDC that allows you to neutralize or minimize most of the risks associated with the introduction of CBDC into circulation. This model can be almost painlessly integrated into modern law, since it does not differ significantly from the existing systems of bank settlements or electronic money settlements. Most of the responsibilities related to ensuring the work of the CBDC and compliance with control functions (the role of tax agents, customer identification, and AML/CFT supervision), as today, will be assigned to intermediary organizations. And non-price competition between them will help to maintain a high level of quality of the CBDC system, both from the point of view of the state and citizens who use CBDC on a daily basis.

Acknowledgements. The publication was prepared as a part of the state task for 2020. “Transformation of private and public law in the context of evolving individuals, society and the state” (no. 0851-2020-0033).

References

1. Acharya, S.: Formalism vs. pragmatism in legal philosophy (2019). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3423036. Accessed 20 June 2020
2. Auer, R., Cornelli, G., Frost, J.: Covid-19, cash, and the future of payments. BIS Bull. 3 (2020). https://www.bis.org/publ/bisbull03.pdf. Accessed 20 June 2020
3. Bank for International Settlements: Central bank digital currencies (2018). https://www.bis.org/cpmi/publ/d174.pdf. Accessed 20 June 2020
4. Boxmining: China’s national digital currency DCEP/CBDC overview (2020). https://boxmining.com/dcep/. Accessed 20 June 2020
5. Brouwer, E.: Regulating bitcoin exchanges: a risk-based approach (2019). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3354023. Accessed 20 June 2020
6. Calle, G., Eidan, D.: Central bank digital currency: an innovation in payments (2020). https://www.r3.com/wp-content/uploads/2020/04/r3_CBDC_report.pdf. Accessed 20 June 2020
7. Hess, S.: Regulating central bank digital currencies: towards a conceptual framework (2020). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3582501. Accessed 20 June 2020
8. International Telecommunication Union: Regulatory challenges and risks for central bank digital currency (2019). https://www.itu.int/en/ITU-T/focusgroups/dfe/Documents/DFC-O-006_Report%20on%20Regulatory%20Challenges%20and%20Risks%20for%20Central%20Bank%20Digital%20Currency.pdf. Accessed 20 June 2020
9. Kwon, O., Lee, S., Park, J.: Central bank digital currency, inflation tax, and central bank independence (2020). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3581294. Accessed 20 June 2020
10. Lee, D.K.C., Teo, E.G.S.: The new money: The utility of cryptocurrencies and the need for a new monetary policy (2020). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3608752. Accessed 20 June 2020
11. Nabilou, H.: Central bank digital currencies: preliminary legal observations (2019). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3329993. Accessed 20 June 2020
12. Payments Canada: Central Bank issued digital currencies: a global trend (2020). https://www.payments.ca/industry-info/our-research/payments-perspectives/central-bank-issued-digital-currencies-global-trend. Accessed 20 June 2020
13. Roberge, J., Fraser, V.: Cooperative design lawyering: how can lawyers prevent disputes through value innovation? Cardozo J. Conflict Resolut. 20(3), 557–582 (2019)
14. Runnemark, E., Hedman, J., Xiao, X.: Do consumers pay more using debit cards than cash? An experiment. Electron. Commer. Res. Appl. 14(5), 285–291 (2015)
15. Shepard, W.: What China is really up to in Africa. Forbes (2019). https://www.forbes.com/sites/wadeshepard/2019/10/03/what-china-is-really-up-to-in-africa/. Accessed 20 June 2020
16. Singh, M.K.: Digital currencies choices: challenges for financial supervision and monetary system (2020). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3574083. Accessed 20 June 2020
17. The Financial Times: Zimbabwe ditches its all but worthless currency (2015). https://web.archive.org/web/20150711031114/ http://www.ft.com/fastft/344292/zimbabwe-ditches-its-all-but-worthless-currency. Accessed 20 June 2020
18. Tobias, A., Tommaso, M.G.: The rise of digital money. International Monetary Fund (2019). https://www.imf.org/en/Publications/fin-tech-notes/Issues/2019/07/12/The-Rise-of-Digital-Money-47097. Accessed 20 June 2020
19. Ward, O., Rochemont, S.: Understanding central bank digital currencies (CBDC). Institute and Faculty of Actuaries (2019). https://www.actuaries.org.uk/system/files/field/document/Understanding%20CBDCs%20Final%20-%20disc.pdf. Accessed 20 June 2020