

Prospects of CBDC Implementation for Financial Inclusion in Russia

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Abstract. The article analyzes studies of Central Banks digital currency (CBDC), the development pace of which has increased significantly throughout the world. One of the main goals pursued by central banks is to increase the level of financial inclusiveness. The identified potential benefits of introducing the digital ruble into circulation in Russia will make it possible to solve the problems of increasing the speed of settlements, the transparency of the financial system and the availability of financial services for economic entities. Within the framework of the Digital Ruble Concept the process of its implementation was described. The analysis of the relationship between the crisis phenomena and the growth of the M0 aggregate led to the conclusion that it is necessary to improve the financial literacy of the population and adjust the regulatory framework to minimize the risks of introducing the Central Bank digital currency.

Keywords: Central Banks digital currency, digital ruble implementation, financial inclusion.

1 Introduction

The concept of inclusive economic growth, which provides equal rights and opportunities for all members of society, can become a modern tool for the effective and most complete resolution of pressing social problems. The foundations of this concept were laid by economists at the end of the 20th - beginning of the 21st centuries, and “as a result, a new line of thinking appeared in economic theory, stating that equity and growth complement each other” [1].

The scientific works of J. E. Stiglitz, D. Acemoglu, J. A. Robinson, T. Piketty and many others led to the popularization of the concept of inclusive economic growth and the need for its practical application, and also gave impetus to subsequent development in a theoretical aspect.

In Russian economic theory, scientists also pay significant attention to the problems of introducing inclusive institutions and restructuring the system of the national economy on a trajectory of equal opportunities for all social strata and members of society, developing

human capital, long-term inclusive economic growth and raising the level of social welfare. E.F. Avdokushina, V.B. Andrievskaya, V.V. Arslanov, E.V. Balatsky, V.I. Barkhatov, P.A. Krasnokutsky, E.A. Lyaskovskaya, A.F. Mudretsov, N.V. Pakhomova, L.V. Smorgunov, A.S. Tulupov and others devoted scientific works to these problems.

The role of the state in the process of inclusive economic growth is great. It establishes certain rules for all economic agents that operate in the system of the national economy. It is necessary to pay attention to the development of inclusive institutions to ensure the prerequisites for economic growth. They launch a cycle for the creation and effective application of human capital, the increase in social welfare and the improvement of the interaction of economic agents [2].

Based on the points of view of different authors, it is possible to define inclusive economic growth as a process of reducing the level of social inequality and improving the quality of life of the population through a fair redistribution of national income by the state and the creation of favorable conditions, and above all, economic, social, environmental and ethical, providing equal opportunities for every individual and an even distribution of the economic growth benefits in society.

The projection of the inclusive growth model onto the financial sector generates demand for the growth of financial inclusion, that is, an increase in the degree of involvement of firms and households in financial relations. From our point of view, the financial aspect of the inclusive growth model is financial inclusion.

D.S. Shikhaliyeva proposes to understand financial inclusion as providing opportunities for quick and stable access of the population and entrepreneurs to financial services and products [3]. Inclusion as an important resource for development in all areas of activity - from politics and economics to education and psychology. This problem is widely discussed among scientists and politicians at the national and international levels.

The importance of financial inclusion is also determined by the latest scientific discoveries in the financial sector. Financial inclusion can be a tool to achieve both growth and stability in the financial sector. However, the conditions under which the growth of financial inclusion ensures both growth and stability are not yet clearly formulated, which predetermines the relevance of research in this area.

The introduction of an inclusive growth model is especially relevant for Russian conditions, because: 1) the level of financial involvement of both enterprises and households is low, which leads to significant growth potential by increasing this parameter; 2) the dispersion of attracted investments increases the level of competition, which is extremely important for Russia; 3) ensuring the dispersion of investment and growth is an important factor in improving the quality (including sustainability) of economic growth in Russia and achieving other macroeconomic goals; 4) the low level of financial assets owned by households causes an increased level of social and political risks in Russia, and the growth of financial involvement of households will help reduce such risks; 5) the parameters of the financial structure in Russia have a negative impact on economic growth rates, so the transition to inclusive growth will help increase economic dynamics also through the channel of the financial structure.

The concept of financial inclusion in global discourse has replaced the narrower concept of financial accessibility. Research of financial accessibility initially began in the context of its impact on economic growth and inequality. Subsequently, financial accessibility became one of the 4 parameters characterizing the performance of the financial system in the framework of the Financial Development Database (FDD) developed by the World Bank.

Inclusion within the financial sector is analyzed from different perspectives. First, the inclusiveness of firms, as the main recipients of investments, and households, as the main providers of financial resources, is considered separately. Secondly, inclusiveness within the banking sector and within the financial markets is analyzed separately.

Inclusion of the financial sector also implies involving people in the process of using financial technology (fintech) products such as e-wallet, online payment service, e-commerce, online loans, P2P lending and crowdfunding, which are most conducive to achieving UN Sustainable Development Goals.

The development of digital financial technologies in the future will give the official status of payment means to virtual currencies. Currently, digital money has been added to the forms and types of money known in science, which do not have all the characteristics of money and are not recognized at the state level in most countries. In modern financial literature, there is a special term for a digital currency issued by central banks - CBDC (central bank digital currency) to separate this class of digital assets from other types of digital currency (cryptocurrency, stablecoins and etc.) [4].

In Russia, they have been talking about the introduction of a digital ruble for a long time, and this could be a revolutionary step in the development of the country's economy. The digital ruble is a new form of national currency that can be used in electronic payments and transactions. The President of the Russian Federation signed the law of the digital ruble, which will come into force on August 1, 2023.

Analyzing the Concept of the digital ruble introduction, we identified a number of advantages and risks of this process that may affect the state of the financial system of the Russian Federation, banks and monetary policy, as well as financial inclusion and accessibility of the digital ruble for all categories of citizens.

Based on the foregoing, this topic seems to be very relevant for research, and an assessment of the impact of various factors on the financial inclusion growth is timely and necessary.

2 Materials and methods

The work uses an integrated approach to analyze the effectiveness of the digital ruble introduction into the financial system of the Russian Federation; program and predictive developments of scientific institutes. Among the scientists whose works we relied on in the study: S.A. Andryushin, N.M. Artemov, I.V. Gersonskaya, N.L. Druzhinin, E.I. Dyudikova, E.N. Klochkova, I.B. Lagutin, F.P. Orlov, A.A. Sitnik, M.N. Urda, D.S. Shikhalieva, M.A. Yakovleva, S.Yu. Yanova and others.

The empirical basis of the study is statistical and analytical materials of the economy digitalization, economic periodicals, Internet resources, materials from analytical centers

published on official websites; materials of conferences and seminars, as well as open data from the Central Bank of Russia, the Moscow School of Management Skolkovo, etc. The main methods were systematic and logical approaches, general scientific methods (analysis, synthesis), methods of comparative and economic analysis, analytical processing of information, graphical presentation of information and mathematical modeling.

3 Discussions and results

Digital money can be classified as alternative money, the existence of which is written by N.M. Artemov, I.B. Lagutin, A.A. Sitnik, M.N. Urda, M.A. Yakovlev. According to F.P. Orlov, digital currencies are divided by type into private electronic money, cryptocurrencies, digital financial assets and digital currencies of central banks [5].

The benefits of switching to digital finance can be divided into three components:

1. For people. For the population, digital currency is an additional way to store their savings.
2. For business. Digital finance in the business sector increases competition and provides an opportunity to reduce costs. A single digital structure leads to the use of new channels for certain operations.
3. For the state. If we create a situation in which several Central Banks can agree, then it will be possible to abandon systems like SWIFT.

Digital finance and financial inclusion has several benefits to financial services users, digital finance providers, governments and the economy; notwithstanding, a number of issues still persist which if addressed can make digital finance work better for individuals, businesses and governments [6]. Discussions, research and even the development of their own digital currency take place in a wide range of not only developed but also developing countries. According to CBDCtracker, which aggregates data on the status of CBDC development and implementation worldwide, the pace of CBDC development around the world has increased significantly. At the beginning of 2023, fifteen central bank digital currencies were at the pilot testing stage, the same number were at the proof of concept stage, about 60 countries were at the research stage.

Initially, the idea of creating a digital ruble was proposed by the Central Bank of Russia in 2019. On October 13, 2020, the Central Bank of the Russian Federation announced the creation of a digital ruble, which should become the third means of payment in Russia. In the Russian Federation, the introduction of the digital ruble began in 2021, and since then the project has been actively developing.

The main goal of the digital ruble implementation project in the Russian Federation is to improve the efficiency and security of the national payment system. The digital ruble should become an alternative to cash and allow you to make fast and secure electronic payments.

In Russia, at the same time with the development of the system of non-cash payments, the discussions were held about the prospects for cryptocurrencies legitimizing. The Central Bank of the Russian Federation, unlike the Ministry of Finance of the Russian Federation, opposed it, but that didn't prevent them from working actively at the creation of a digital ruble in recent

years. And only in the autumn of 2020, at the height of the pandemic, the Bank of Russia held public hearings on the concept of the digital ruble, and just a year later, in December 2021, a prototype of the corresponding platform was created. During 2022, the testing of a platform prototype had been carrying out with the participation of banks from the pilot group drawn into and the development of relevant legislation had been accomplishing at the same time. The adoption of the law on the digital ruble and the start of operation testing on real clients by banks from the pilot group are scheduled for 2023.

According to the concept, it is assumed that the digital ruble will complement the existing forms of payment. It will be stored in special digital wallets worked out by the same Central Bank. The digital ruble, unlike the non-cash ruble, will be at the disposal of its owner not in a bank account, but in an electronic wallet. So payments - the transfer of your funds to the counterparty - will not be a transfer of money from account to account, but their transfer from your virtual wallet to the counterparty's electronic wallet. Thus, the movement of money will not affect intra-bank transactions, although banks can act as conductors of the technological platform. The digital ruble is a unique digital code that will be protected by a cryptographic method.

Taking into consideration of digital ruble's potential preferences and risks is necessary on condition of admitting final decision on its introduction into the financial system of the Russian Federation [7]. Before moving on to consider the prospects for using digital currencies in Russia, let's look at its strengths and weaknesses. They are summarized in the Table 1.

Table 1. Analysis of the strengths and weaknesses of the project "Digital Ruble" of the Central Bank of the Russian Federation

Potential Benefits	Potential Risks
1. Reducing emission costs	1. Unity of control as a threat
2. Increasing the transparency of the financial system	2. Lack of appropriateness
3. Reducing the share of the shadow economy	3. Outflow of funds from client accounts of private banks
4. Reducing transaction costs in the implementation of foreign economic transactions	4. Monopolization of the banking sector
5. Emergence of new financial instruments	5. Inflation risk
6. Efficient provision of targeted help	6. Availability of using the digital ruble
7. Improving the effectiveness of monetary policy	7. The need to create a new payment infrastructure

The platform on which the currency will be stored belongs to the Central Bank, and already here the main advantage of the digital ruble can be seen - security. The unique code suggests that it can be tracked from the very moment of its issue and find out who owned it and when. Fraud will become inappropriate.

Critical citizens may see the desire of the state to establish surveillance and control over the movement of their funds. In Russia, the amount of cash in circulation is increasing every year. This phenomenon has both obvious drivers (the COVID-19 pandemic and the "Special Military Operation") and implicit ones – the desire of citizens to hide income. During crisis manifestations and turbulence in the economy, the population prefers to withdraw cash from banks, which entails another risk associated with the introduction of the digital ruble. This

situation is clearly reflected in the graph depicting the annual growth rate of the monetary aggregate M0 in Russia for the period January 1, 2018 – June 1, 2023 (in %) (**Figure 1**).

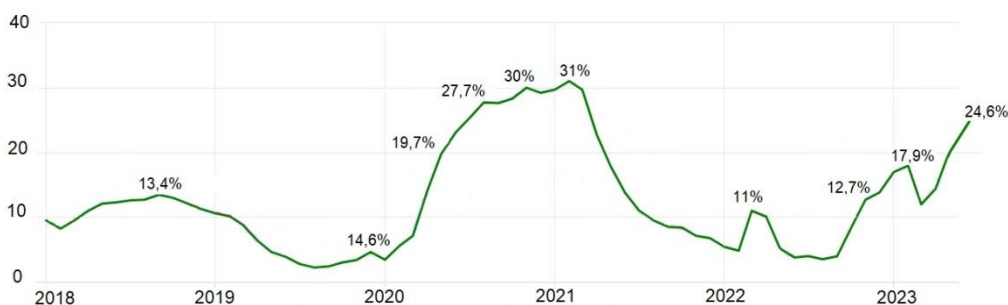


Fig. 1. Annual growth rates of the M0 monetary aggregate in Russia during the period January 1, 2018 – June 1, 2023, in %.

The graph clearly shows a surge in the interest of the population in cash during the start of the COVID-19 pandemic and subsequent restrictions imposed (growth from 14.6% in January 2020 to 31% in February 2021). However, as the situation with pandemic, we see a decrease in this indicator to 4.8% a year later - by February 2022. The subsequent sharp increase in the share of cash to 11% in March 2022 was caused by the start of the "Special Military Operation". Thanks to the emergency measures taken by the Central Bank of Russia to raise the key rate to 20% in March 2022, it was possible to prevent the pace of cash withdrawals, as commercial banks also increased deposit rates and thus created profitable terms for the return of clients' money to banks. However, in September 2022, this indicator again significantly increased from 4% to 8.3% per month due to the announced partial mobilization and, by inertia, continued to grow to 24.6 % by June 2023 due to the difficult predictability of the economic situation by the population.

During the periods of these events and other crisis phenomena, the widespread use of cash can lead to an increase in fraudulent schemes with these funds, while it will be difficult for their owners to prove the fact of their ownership for further return. Some entrepreneurs also work exclusively with cash - and this is often seen as an unwillingness to pay taxes and other legally required payments.

As a result, such a property of the digital ruble as markability can be implemented in a positive way, but the volume of the monetary aggregate M0 needs to decrease for this. This goal can be achieved by increasing the financial and digital literacy of the population and explaining to people why the digital ruble is being introduced. This factor also has a positive impact on the growth of financial inclusion.

At the same time, such a function as controlling the movement of funds is an important point for the state itself, its exclusive competence. Corruption schemes, if they do not disappear in principle, then it will become much more difficult to commit them. In the future, the targeting of payments will be strictly observed, and this will allow the state to spend funds for their intended purpose.

Among the advantages of introducing the digital ruble is the development of opportunities for large settlement transactions using smart contracts. A smart contract is a program and an algorithm, according to which, depending on the time and event, the conditions of the contractual relationship between the parties to the transaction are established automatically. In the blockchain network, the obligations and rights of the participants in the transaction are fixed. Smart contracts must specify the amount of the transaction, its conditions, as well as a trustee who will notify the platform that these conditions are met. For example, a citizen buys an apartment from another - in this case, Russian registry will inform about the re-registration of housing, after which the money will be transferred automatically to the seller. The technique of transactions between legal entities is similar.

Another positive side of the digital ruble introduction for individuals and legal entities is the reduction in the costs of settlement and payment transactions. When transferring digital rubles, no commissions are expected to be charged when making interbank transfers, since everyone will become clients of the Central Bank. At the same time, this will be disadvantageous for banks. According to Yakov & Partners (formerly McKinsey), banks will lose about 50 billion rubles annually. Also, accounts will be serviced free of charge, it is not available in every commercial bank. And, accordingly, transactions will be carried out much faster - like the fast payment system (FPS), by which they are instantly fulfilled. It is quite possible that this factor will become a particularly useful for those companies that work with government contracts.

The next potential advantage is that digital money, as noted above, can be marked for specific purposes. That is, having chosen a specific category, the money cannot be spent on anything they wish - because this restriction will be set. So, for example, parents will be able to control the spending of children - it will be possible to allocate money to pay for school meals and know that the child really buys it.

The list of advantages is quite large, and there is no doubt that the digital currency is the future, but we should not forget that many problems will arise during the transition period, some of which will need to be resolved before the introduction of the digital ruble, others after. One of these problems, in our opinion, is the educational moment, namely the low financial literacy of the population. There is reason to believe that at first the digital ruble will not take root - the vast majority of the population will not understand what it is. The Central Bank should organize an exceptionally competent campaign to introduce it not so much into circulation as to make citizens aware of this, because their unwillingness to learn something new is a significant problem that hinders the development of financial inclusion. According to D.S. Shikhalieva, the development of financial inclusiveness is concentrated on the following consumer segments: the population of remote and hard-to-reach areas, people with disabilities, elderly people, people with low incomes, enterprises and organizations of small and medium-sized businesses [3]. Therefore, a simple and understandable information base should be prepared for all categories of the population.

A significant risk is a change in the payment infrastructure. As soon as the digital ruble is put into circulation, an outflow of funds out of commercial banks into new digital wallets should begin, as a result of which the banking sector will have to suffer significant losses. Of course, the Central Bank, takes this into account, but how such a serious drop of liquidity in the banking sector can be controlled, raises questions so far. As a result, banks, transforming from traditional credit institutions into financial ecosystems, are trying to adapt to new conditions.

In mid-February 2023, Bank for Foreign Trade, one of the largest Russian commercial banks, announced that it would conduct transactions between employees using digital rubles in a test mode.

Banks will probably try to keep client funds by changing lending rates, that is, the macroeconomic situation will change. The key rate will remain unchanged, while the dynamics in consumption and savings will change. This implies that the Central Bank will have to regulate monetary policy. But the introduction of the digital ruble does not mean that commercial banks will become obsolete: the Central Bank will not lend to customers and pay them interest on the account balance. In addition, they will take on the role of intermediaries between the population and the Central Bank, providing clients with access to operations.

The obvious advantages for the state in using the digital ruble will also be the simplification of cross-border transfers and the optimization of the budget payments' administration. The improvement of control over budget spending will be possible through the parallel use of other innovative products and services, in particular, smart contracts. However, the question how cross-border transfers will be organized with the help of new digital rubles arises. It also involves changing the existing payment infrastructure. In the current conditions, it is not a priority problem, but it still exists and needs to be resolved. In the future, sooner or later, many countries will introduce digital currencies and the Russian Federation plans to become one of the first in this field. The system has begun to take shape and will develop one way or another.

4 Conclusion

Central bank digital currency developments are taking place in a wide range of developed and developing countries. At the moment, it is impossible to reliably assess the impact of the digital ruble introduction on the state of the Russian economy. The solution of the problems identified in the study will most likely occur after a significant period of time, possibly with significant adjustments in the process of transition to a new payment system. In 2023, the Central Bank plans to start large-scale testing of operations with the digital ruble among real customers. These operations carry enormous uncertainty and many fears, so a lot of time will pass before the introduction of the digital ruble into circulation and it will be necessary not only to expand knowledge in the system of financial and digital literacy of the population, but also to create elements of the payment infrastructure, as well as a significant adjustment of the regulatory framework. The introduction of the digital ruble into circulation will solve a wide range of tasks aimed at increasing the speed of settlements and transparency of the financial system of the Russian Federation, as well as the availability of financial services for economic entities and the development of the Russian economy in general. In the future, the development of digital technologies in the Russian economy will be able to give the official status of payment means to virtual currencies.

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