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Modern Aspects of Central Bank Digital Currencies Development

Kadirov Azamat Ashrafovich

Student of the Department of Economics at the National University of Uzbekistan named after Mirzo Ulugbek
azamatkadirov20030114@gmail.com

Abstract: In an era of massive adoption of innovative financial technologies, many countries are now researching the viability of their own digital currencies thanks to its high degree of effective, secure and affordable potentiality. There are some kinds of digital currencies which are in the process of real-life development. The goal of this work is to identify the main reasons of the soaring interest of financial institutions in the use of digital currencies in tandem with emphasize on positive and negative aspects of their implementation.

Key words central bank digital currency, smart currency, digital fiat currency, crypto-currency, monetary policy

INTRODUCTION

In an era of rapid economic change and accelerating currency innovation, what funding and disbursements are needed to meet the needs of an increasingly digital economy is on the academic agenda. The current period can be called revolutionary in the payment sector. Paper money, the most accessible currency issued by central banks, is used less and less for payments. At the same time, fintech organizations and companies are beginning to transform the market by offering new forms of money and new payment methods. These developments bring new opportunities, new risks and raise a number of serious questions for central banks.

Central bank digital currencies (CBDCs) can provide homes and businesses with a new form of central bank-issued money and new ways to make payments. This could allow citizens to still have access to risk-free forms of currency issued by central banks. This may be especially important in the future as the use of cash declines and new forms of money are issued by commercial financial institutions. Increased the frequency of used payments. The CBPV can also help create a more sustainable, innovative and competitive payment system for the country's households and businesses.

A Digital Currency is any currency that is used exclusively in electronic form and not in physical form.[1] The rapid growth of internet usage and online shopping habits has led to the creation of a digital currency that has all the inherent properties of a physical currency and allows for instant transactions that can be easily completed across borders, across supported devices and networks.[2]

[1] Lee, D. (Ed.). (2015). *Handbook of digital currency: Bitcoin, innovation, financial instruments, and big data*. Academic Press.
[2] Lee, D. K. C., Yan, L., & Wang, Y. (2021). A global perspective on central bank digital currency. *China Economic Journal*, *14*(1), 52-66.

CBT is often seen as an innovative medium of exchange and is changing the way transactions are conducted. But, unlike physical currency, digital currency can only be created and stored electronically in computer systems or mobile devices.[3]

The main issues in this work are to identify the positive and negative aspects of the introduction of CBPV, as well as the main factors that directly affect people's choice when paying for goods or services.

Literature analysis and methodology

A central bank digital currency (CBDC) is a digital currency that can be issued and backed exclusively by a country's central bank. As legal tender, CBPV must be accepted by all economic entities for any legitimate purpose, such as paying utility bills and paying taxes. With the introduction of decentralized cryptocurrencies like Bitcoin (BTC) and Ethereum (ETH), central banks and governments around the world have their own. We are exploring the possibility of creating a digital currency[4]. For example, the possibility of introducing a CBDC in the United States is currently being evaluated by the Federal Reserve's Hamilton project. The Central Bank of the UAE is also working on a project to create its own CBDC. China launched the digital yuan project in 2014 and it is currently in the provincial testing phase of the functionality. The digital yuan can fulfill all the functions of China's fiat currency and be officially regulated as money and act as the monetary aggregate M0. Unlike decentralized cryptocurrencies, the Chinese digital yuan is issued and managed by China's central bank using a centralized approach. The Central Bank of China is also responsible for unifying application standards, technical specifications, and security standards.[5]

To achieve the goals and objectives set, the methods of scientific abstraction, induction and deduction, normative and positive analysis, comparative and bibliometric analysis were used.

Results

There are four main trends that tend to act as a catalyst for central bank policy towards the Central Bank of Central Banks.[6]

- Significant reduction in the use of cash. In Europe, cash use has fallen by a third between 2014 and 2021. Only 3% of payment transactions in Norway are processed in cash. This trend has forced central banks to rethink their role in the monetary system.

- Growing interest in personal digital assets. In the UK, 10% of adults say they own or have owned digital assets such as cryptocurrencies. The European Central Bank reports that 10% of households in six major EU member states own digital assets. Consumer use of digital assets can be seen as a potential problem for fiat currency as a measure of value.

- Reducing the role of central banks as financial innovators. The CBDC offers a new way for central banks to hold strategic discussions about the use of cash in open forums.

- Growing global payment system. Many central banks are seeking to strengthen local governance in an increasingly global payment system. Central banks see the CBPV as a potential anchor for stabilizing regional digital payment systems.

Figure 1 shows the quantitative ratio of all stages of the development and implementation of BTsV in 119 countries of the world.

[3] Yao, Q. (2018). A systematic framework to understand central bank digital currency. *Science China Information Sciences*, *61*, 1-8.

[4] Digital Yuan: The Practice and Regulation of China's Central Bank Digital Currency (CBDC). *Butterworths Journal of International Banking and Financial Law*, *36*(8), 601-603.

[5] Qian, Y. (2019). Central Bank Digital Currency: optimization of the currency system and its issuance design. *China economic journal*, *12*(1), 1-15.

[6] What is central bank digital currency (CBDC)? McKinsey & Company, March 1, 2023

Based on fig. 1 it can be concluded that 114 countries, which account for more than 95% of world GDP, are exploring the possibility of creating a CBRE. In May 2020, only 35 countries were considering creating such currencies. A new high has been reached in 60 countries where this technology is at an advanced stage of exploration (development, pilot or launch). In 2023, more than 20 countries will take important steps to pilot CBPE. Australia, Thailand, Brazil, India, South Korea and Russia intend to continue or start pilot testing in 2023. The European Central Bank is also likely to start pilot testing next year.

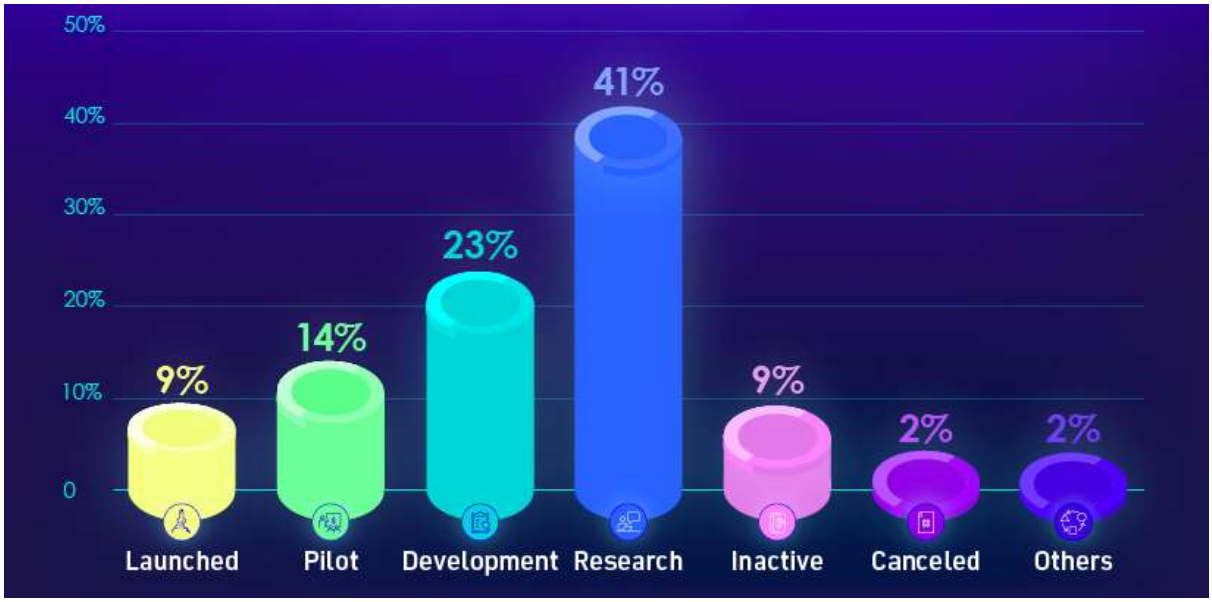

Fig7.1. Status of development of CBPV in 119 countries of the world[7]

While the establishment of a CBPV has potential benefits, it is not without risks.

Several aspects can be added to the rank of advantages.[8] Firstly, the use of CBPV helps reduce environmental pollution and makes transactions completely paperless. Secondly, the use of CBPV increases the efficiency of transactions. You can trade with the CBC at a convenient time for users, even on weekends when banks are closed. The main features are reduced processing time and increased safety. The CBPV is expected to become the main means of payment in most countries. The combination of security and convenience makes it the best alternative to traditional money systems. Third, while the use of credit cards can lead to identity disclosure and fraud, CBPVs cannot be counterfeited and transactions cannot be reversed arbitrarily.

However, despite the many positive aspects, there are also some serious risks that characterize some of the researchers' concerns. For example, based on empirical research, one group of scholars has stated that the use of CBPVs requires users to know how to properly perform certain tasks, such as: opening digital wallets, making payments, and exchanging various digital currencies.[9] In addition, another group of researchers claims that there are still security issues associated with the CBPV, as hackers can hack into devices and steal the private keys of digital wallets.[10]

Taking China as an example of a pioneer in this area, which is already piloting a CBDC, digital payment instruments such as Alibaba's Alipay and Tencent's WeChat, which mainly rely on QR codes to complete transactions, are now widely used. used by small businesses and individuals to

[7] CBDC tracker. Atlantic Council
[8] Wadsworth, A. (2018). The pros and cons of issuing a central bank digital currency. *Reserve Bank of New Zealand Bulletin*, *81*, 1-21.
[9] Samudrala, R. S., & Yerchuru, S. K. (2021). Central bank digital currency: risks, challenges and design considerations for India. *CSI Transactions on ICT*, *9*(4), 245-249.
[10] Lee, D. K. C., Yan, L., & Wang, Y. (2021). A global perspective on central bank digital currency. *China Economic Journal*, *14*(1), 52-66.

make payments for electronic services.[11] Therefore, the Chinese government has been interested in expanding the Chinese digital yuan project, and many high-tech companies are also investing capital to take advantage of the promising new business opportunities offered by digital currency, which is officially called Digital Currency Electronic Payment (DC/EP)5 "Unlike blockchain-based cryptocurrencies, DC/EP is centralized and not anonymous. It is expected that DC/EP can help China accelerate the transition to a cashless society and bring the unbanked population into the economy. Some experts also argue that using the DC/EP system can help in detecting money laundering operations and tracking down suspicious financial activity.[12]

Fig .2.[13] Impact of CBPV in developing countries

If we consider Fig. 2, we can see what changes CBC can lead to

Discussion

China has been exploring digital fiat currency since 2014, and the People's Bank of China (PBOC) established the Digital Currency Institute (DCI) and proposed the first prototype of a Chinese digital currency in 2016. In 2017, the NBK began to develop and test the CBTF in cooperation with commercial banks, high-tech companies and telecom operators. So far, CBDC pilot projects have been launched in Shenzhen, Shanghai, Suzhou, Chengdu and other cities where the digital economy is growing rapidly. The digital yuan was also introduced at the 2022 Winter Olympics in Beijing. It can be seen from these initiatives that China takes the CBFE project seriously.

According to the research team, the economic environment in China requires a new retail payment infrastructure that can match the rapidly evolving digital economy. The Chinese government has shifted its focus to quality economic growth, and the digital economy will become an important driving force. Therefore, to support the development of the digital economy, a more inclusive and secure retail payment infrastructure is needed that meets diverse payment needs with increased convenience and security.[14] Meanwhile, the rapid development of mobile payments in China has helped the population get used to cashless payments. Using Alipay or WeChat pay in daily transactions has already become a habit for almost everyone in China [12]. A survey conducted by

[11] Lu, L. (2018). Decoding Alipay: mobile payments, a cashless society and regulatory challenges. *Butterworths Journal of International Banking and Financial Law*, 40-43.
[12] Shen, W., & Hou, L. (2021). China's central bank digital currency and its impacts on monetary policy and payment competition: Game changer or regulatory toolkit?. *Computer Law & Security Review*, *41*, 105577.
[13] How digital finance could boost growth in emerging economies McKinsey & Company URL: https://www.mckinsey.com/featured-insights/employment-and-growth/how-digital-finance-could-boost-growth-in-emerging-economies
[14] Zakić, K. (2021). New development paradigm within the Chinese 14th five-year plan-Chinese vision of modern China. *The Review of International Affairs*, *72*(1183), 67-87.

the NBK in 2019 showed that mobile payment transactions accounted for 66%, while cash payments accounted for only 23%.[15] The current social environment can encourage people to develop positive beliefs and attitudes towards the CBPV that will give additional meaning to their financial lives.

The institutional environment in China is currently in a neutral position, but with a growing recognition of the need for appropriate institutional arrangements and rules. On the one hand, the PBOC has been very cautious since the start of the research and development of the CBCE, and there is still no special regulation in China. Some experts are of the opinion that digital currencies can lead to the rejection of financial intermediation and reduce the effectiveness of monetary policy.[16] The People's Bank of China also said that close attention will be paid to the potential negative effects on the monetary system, financial markets and financial stability. On the other hand, as mentioned in China's 14th Five Year Plan, the Chinese government will push ahead with the revision of laws and regulations such as the People's Bank of China Law, personal information protection provisions, etc. . This could be the catalyst for the adoption of the digital yuan in China.[17] In general, China follows the principle of sustainability, manageability and practicality.

Conclusion

It is also expected that the results of the study will have important implications for the development of marketing strategies for the use of CBPVs. As the digital currency market grows rapidly, it is becoming increasingly important to create consistent and effective strategies to increase public awareness in this area. This may lead to improved perceived value and subsequently to the intention to use CBPV. However, there are still many unanswered questions about the impact of CBPV on financial, economic and environmental stability. Other areas of potential research could be the impact of the CEB on liquidity creation, the interplay between monetary, fiscal policy within central bank digital currencies. In addition, questions remain regarding social implications, ethics, privacy, and technological and environmental restrictions. The need to study and understand these critical issues motivates further research on CBCV.

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4. How digital finance could boost growth in emerging economies McKinsey & Company URL: https://www.mckinsey.com/featured-insights/employment-and-growth/how-digital-finance-could-boost-growth-in-emerging-economies
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[15] Li, S., & Huang, Y. (2021). The genesis, design and implications of China's central bank digital currency. *China Economic Journal*, *14*(1), 67-77.
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17 Poo, M. M. (2021). Innovation and reform: China's 14th Five-Year Plan unfolds. National Science Review, 8(1), nwaa294. URL: https://doi.org/10.1093/nsr/nwaa294

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