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TRENDS AND IMPACT OF CENTRAL BANKS DIGITAL CURRENCY ON THE ECONOMY

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ABSTRACT: In recent years, financial technology, or fintech, has been playing an increasingly important role in the implementation of control activities by Central Banks around the world. Fintech, which refers to the use of technology to improve and automate financial services, has been revolutionizing the way that central banks monitor and regulate financial markets, banks, and other financial institutions. The progress and its application to the financial industry have inspired central banks and academics to analyse the merits of central bank digital currencies (CBDC) accessible to the broad public. This article reviews the advantages and risks of CBDC in the world and some economies of countries.

Key words: Financial technology, central bank, traditional bank, central banks digital currency, financial stability, cryptocurrencies, digital payments.

INTRODUCTION

Central Bank Digital Currency, or CBDC, is a hot topic in the world of finance and economy. Central banks around the world are considering issuing their own digital currencies as a way to modernize and improve their payment systems.

CBDC stands for Central Bank Digital Currency, which is a digital form of fiat currency issued and regulated by a country's central bank. CBDCs are designed to work alongside physical cash and traditional forms of electronic payments, offering a secure and efficient way for individuals and businesses to transact digitally. Some central banks are currently exploring the possibility of issuing CBDCs in response to the growing popularity of cryptocurrencies and digital payments. An interest-bearing CBDC could reduce the opportunity cost agents bear when holding means of payment. It would do this by allowing more flexible transfer schemes, where interest rates can be conditional on balances—for example, if agents held high money balances, they would be subject to a different interest rate than if they held low money balances. This could induce agents to maintain an efficient level of liquidity.

According to the famous American economist N. Roubini, the discussion and implementation of the idea of a digital currency exchange center is long overdue: the "digital game with currencies" is gaining momentum in the world market, and the state cannot remain on the sidelines. Otherwise, it risks losing the leverage it has over cash and payment transactions, which could have huge negative consequences for financial stability[1].

Digital payments are a key battleground between high-tech companies, payment service providers and banks as they strive to take leadership positions in the emerging digital platform-based economy. In China, Alipay and WeChat Pay already control more than 90% of all mobile payments. The growth in the capitalization of the four largest payment services - Visa, Mastercard,

[1] Roubini N. Why central bank digital currencies will destroy bitcoin // The Guardian. – 2018. – 19.10. – URL: https://www.theguardian.com/business/2018/nov/19/why-central-bank-digital-currencies-will-destroy-bitcoin.

Amex and PayPal - in recent years has outpaced the growth in the value of the five global technology leaders - Facebook, Amazon, Apple, Netflix and Google[2].

A CBDC could influence the market for deposits. If CBDC and bank deposits were close substitutes, then a CBDC with a non-zero interest rate could provide a floor for deposit rates. Even if the CBDC were not widely used, the CBDC rate could influence the deposit market by offering depositors an outside option, making the deposit market more competitive. Interest rates on CBDC deposits could be an additional monetary policy tool that would need to be set consistently with other policy rates. In this way, deposit rates would be more closely linked to the CBDC and other policy rates, improving the transmission of monetary policy.

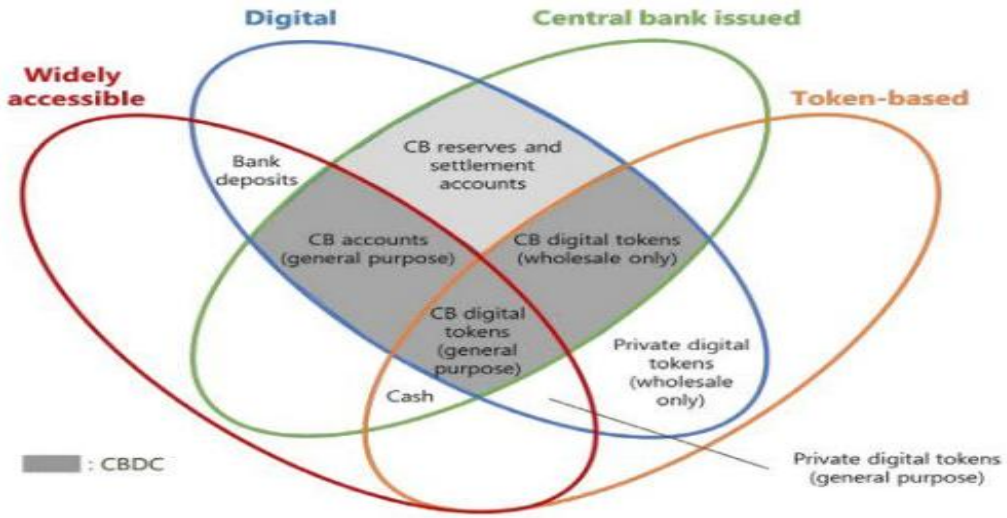
To realize these benefits, a CBDC would have to be designed to bear interest, both negative and positive. An account-based system may be preferable to a token-based system. This is because an account-based system allows for the policy interest rate to be time-varying and contingent on the balance held.

All CBDCs can be divided into two separate but interrelated ways. The topic of CBDC can be discussed from the perspective of:

– new payment objects made available by central banks to a broader public,

which implies that central banks compete with commercial banks,

– new payment systems operated by central banks, which implies that central banks compete with providers of payment systems[3].



[2] Steenis van H. The digital money revolution // Project-syndicate. – 2019. – 13.11.

[3] Bofinger P., Haas T. CBDC: A systemic perspective. – WEP-Würzburg Economic Papers, 2020. – №. 101.

Fig.1. The scheme of CBDC[4]

What is CBDC? It is a digital form of fiat currency issued by a central bank. Unlike cryptocurrencies such as Bitcoin, which are decentralized and not issued by any government, CBDCs are issued and regulated by a central authority. This ensures that the currency remains stable and secure.

There are several potential benefits of CBDCs. For one, they could facilitate faster and cheaper cross-border payments. Currently, international transfers can take days to process and can be expensive due to intermediary fees. With CBDCs, these transactions could be completed almost instantaneously and at a lower cost.

CBDCs could also help to improve financial inclusion. By providing a digital form of currency that is accessible to everyone, including those without access to traditional banking services, CBDCs could help to bring more people into the formal financial system.

RESEARCH METHODOLOGY

This study explores two methodological approaches: a systematic review of relevant scientific literature and analysis of data from some governments` Central Banks data on the development of CBDC and and its impact on economic development. The research methodology differs from others in that it combines international indicators of CBDC and economic development. This allows comparing criteria from different sources.

ANALYSIS AND RESULTS

The Global Financial Crisis did much to change the financial landscape and inherently people's trust in the banking system. The rise of cryptocurrency may be as such an unsurprising development, beginning in 2009 when an individual or a group writing under the pseudonym Satoshi Nakamoto laid out its theoretical framework in "Bitcoin: A Peer-to-Peer Electronic Cash System."

Cryptocurrency offers an alternative method of storing money and making payments without relying on the traditional banking system and government controls.

The initial issuance of Bitcoin has led to much interest in cryptocurrencies as seen in the rise in their value in the following years. The much regaled story of a programmer in May 2010 who purchased two large Papa John's pizzas for 10,000 bitcoins, worth about $30 at the time but whose future value rose to $82 million eight years later[5]. There is a constant flow of new cryptocurrencies offering improved solutions coming to market. There were 2,520 cryptocurrencies[6] available as of 4 February 2019 with a total market capitalisation of $113billion.

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[4] Ward O., Rochemont S. Understanding central bank digital currencies (CBDC) //Institute and Faculty of Actuaries. – 2019. – Т. 13. – №. 2. – С. 263-268.

[5] Wong, J.I., n.d. Eight years ago today, someone bought two pizzas with bitcoins now worth $82 million [WWW Document]. Quartz. URL https://qz.com/1285209/bitcoin-pizza-day-2018-eight-yearsago-someone-bought-two-pizzas-with-bitcoins-now-worth-82-million/

[6] All Cryptocurrencies [WWW Document], n.d. . Investing.com UK. URL https://uk.investing.com/crypto/currencies

This is astounding when we think that this commenced with just a single cryptocurrency in existence ten year previous.

In their current form, cryptocurrencies are imperfect, but they may play a significant role in increasing global economic participation and protecting against government overreach. Globally, the World Bank estimates that there are 2 billion people without bank accounts of which a third of those are living in Sub-Saharan Africa. Given that cryptocurrencies have low adoption costs and are available online without the need to access a physical bank, cryptocurrencies offer a convenient and safe alternative. Many of the unbanked do not have clear identifying information, making it difficult to implement traditional banking Know Your Customer and Anti Money Laundering practices.

Table 1. The payment ecosystem

Payment system	Market infrastructure	Payment instrument	Object for settlement	Unit of account
Cash payment system	Peer-to-peer Legal tender	Banknotes Coins	Banknotes Coins	National Currency Euro
Commercial bank payment systems	Euro area: SEPA/TARGET/ SWIFT US: CHIPS/Fedwire	Bank transfer Debit cards Cheques Mobile Payment	Bank deposits (between payer and payee) **and** Central bank reserves (between bank of payer and bank of payee)	Euro: SEPA Dollar: CHIPS/ Fedwire Multi-Currency system: SWIFT
Credit card payment systems (VISA/Mastercard/ American Express)	Systems have their own procedures for data transmission/ authorization/clearing/settlement	Credit cards Debit cards Mobile Payment Anonymous: Travel cash card (Switzerland)	Bank deposits (between payer and payee)	Multi-Currency schemes
PayPal	PayPal	PayPal-Transfer Mobile payments	PayPal accounts Bank accounts	Multi-Currency

The current spectrum of payment systems ranges from a purely public payment system (cash payment system) to a purely private payment system (PayPal). The bank-based system is a hybrid, as it uses private bank deposits and central bank reserves as funds and the interbank payment network is provided by the central bank. In credit card systems the role of the state is reduced as the infrastructure is private and only for the monthly settlement of balances, bank deposits are required.

Thus, if cash is no longer used for payments, this does not imply that the central bank has no more influence on the payment systems. This will only happen with a declining role of the bank-based system which relies on central bank reserves and the RTGS provided by the central bank. In other words, the real threat to the role of central banks in payment systems are private payment systems

like PayPal and possibly Libra. They could lead to closed payment systems that no longer rely on traditional bank deposits.

With a smartphone and internet connection, anyone can use cryptocurrencies to send and receive money and the transaction costs are often significantly lower than traditional solutions. The transfer is fast and secure and the barriers of entry are low. It also provides an alternative solution in countries facing hyperinflation.

Table 2. Dynamics and level of development of central bank digital currencies in the world[7]

105 countries (representing **over 95 percent** of global GDP) are exploring a CBDC. In May 2020, A new high of 50 countries are in an advanced phase of exploration (development, pilot, or launch).	**10 countries** have fully launched a digital currency, with China's pilot set to expand in 2023. Jamaica is the latest country to launch a CBDC, the JAM-DEX. Nigeria, Africa's largest economy, launched its CBDC in October 2021.	**Many countries are exploring alternative international payment systems.** The trend is likely to accelerate following financial sanctions on Russia. There are 9 crossborder wholesale (bank-to-bank) CBDC tests and 3 cross-border retail projects.
Of the G7 economies, the US and UK are the furthest behind on CBDC development. The European Central Bank has signaled it will aim to deliver a digital euro by the middle of the decade.	**19 of the G20 countries are exploring a CBDC, with 16 already in development or pilot stage.** This includes South Korea, Japan, India, and Russia. Each has made significant progress over past six months.	**The financial system may face a significant interoperability problem in the near future.** The proliferation of different CBDC models is creating new urgency for international standard setting.

Table 2 shows how CBDC is developing in the world. According to the table 105 countries (representing over 95 percent of global GDP) are exploring a CBDC. In May 2020, A new high of 50 countries are in an advanced phase of exploration (development, pilot, or launch). 10 countries have fully launched a digital currency, with China's pilot set to expand in 2023. Jamaica is the latest country to launch a CBDC, the JAM-DEX. Nigeria, Africa's largest economy, launched its CBDC in October 2021.

Additionally, central banks see CBDCs as a way to combat the rise of private digital currencies, such as Facebook's Libra. By issuing their own digital currencies, central banks can maintain control over the money supply and ensure that their currencies are not threatened by the rise of alternative forms of payment.

DISCUSSION

Some of the risks of cryptocurrencies can be reduced by issuing so-called stablecoins, i.e. cryptocurrencies that are tied to real or financial assets - fiat (recognized and guaranteed by the state) currencies or physical goods (gold, oil). Their rates are subject to less fluctuation than the rates of typical cryptocurrencies. However, according to experts, such risk reduction is often very

[7] Source: CBDC (www.CBDC.cc)

limited, if it is detected at all[8]. In addition, the release of stablecoins intended for circulation on the global market generates specific risks associated with money laundering and terrorist financing, undermining financial stability, threats to monetary sovereignty, etc.

There is also a high likelihood that a retail CBCD will be attractive to retailers if the central bank does not charge transaction fees. As calculations by Canadian experts have shown, retail CBCD can become the least costly method of payments in this sector[9]. Currently, retailers incur the lowest costs with cash on purchases under $20, and with debit cards on purchases over $20.

However, there are also potential risks and challenges associated with CBDCs. For one, central banks would need to invest in the technology and infrastructure necessary to support a digital currency system. This could be a costly and time-consuming process.

There are also concerns about the impact of CBDCs on the traditional banking system. If people start using CBDCs instead of traditional bank accounts, it could destabilize the banking system and affect banks' ability to lend and create money.

CONCLUSION

Although the implementation of CVCB projects in the world has just begun, certain generalizations can already be made regarding their features, capabilities and consequences:

– interest in the central currency is global, but the motives for issuing this currency are determined by national conditions;

– accessibility of financial services remains the key motivation for issuing digital securities in the Emerging Markets and Disaster Republics; PSPs are more interested in improving the efficiency and security of payments;

– it is most likely that in the near future, along with traditional currencies, there will be various digital funds in circulation, including both sovereign digital currencies based on accounts and tokens, as well as cryptocurrencies and stablecoins;

– the transition to the Central Bank will have a positive impact on monetary circulation and financial stability, as it will help counter the expansion of the cryptocurrency market;

– the creation of a network of Central Banks will help optimize not only domestic, but also cross-border payments;

– in many cases, the turnover of the central bank will be based on a partnership between the public and private sectors, for example, if a hybrid payment system model is adopted;

– companies should prepare for much greater government control and supervision of their business, given that, thanks to the introduction of the Central Bank of Securities, the regulator and government agencies will receive significant opportunities to manage monetary circulation and payment systems.

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[9] . Engert W., Fung B. Central bank digital currency: Motivations and implications. – 2017. – 30 p.

Overall, CBDCs have the potential to revolutionize the way we think about money and payments. While there are certainly challenges to be overcome, the benefits of CBDCs are clear. It will be interesting to see how central banks around the world continue to explore and develop their own digital currencies in the years to come. So, stay tuned for more updates on this exciting new development in the world of finance.

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