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Central Bank of Nigeria Digital Currency and Monetary Policy: A Review of Literature

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Abstract
Making and handling money, serving as a clearinghouse for payment settlements, and serving as a lender of last resort are the main responsibilities of a central bank. But some argue that modern central banks have not only failed to stop macroeconomic crises, but may have made bad things worse by encouraging irrational risk-taking and moral hazard through unconventional monetary tools like negative interest rates and quantitative easing. In reviewing the prior research, this study investigates the potential effects of a central bank digital currency on the payment system, financial stability, and the transmission and execution of monetary policy. The review shows that, there is general agreement that central bank digital currency has the potential to increase financial inclusion, lower financial frictions in deposit markets, and enhance the dissemination of monetary policy. The paper also found that there are significant dangers connected with Central Bank Digital Currency, such as the potential for bank disintermediation and the resulting reduction in bank lending, as well as possible negative consequences on financial stability. Important concerns about the execution of monetary policy and the role played by central banks in the financial system are also raised by a central bank digital currency.

Keywords: Central Bank, Digital currency, Monetary policy, Financial stability.

1. Introduction

Historically, central banks have been wary of cryptocurrencies and digital currencies, but more lately, they have started to think about the idea of developing their own digital currency, known as Central Bank Digital Currencies (CBDC). Digital versions of national currencies are known as CBDCs. They give people a fresh way to store wealth and make payments (Tata, 2023). The main difference between CBDCs and other existing forms of cashless payments is that they represent a direct claim on a central bank rather than the liability of a commercial bank.

However, unlike Tether, CBDCs are not being introduced as third-party stablecoins (Morgan, 2022). Rather, the ultimate goal of CBDCs is to replace national reserve money systems. The viability and execution of CBDCs still raise many unsolved problems, despite the rise in popularity of digital currencies. CBDCs, as described by the Bank of England (Bank of England, 2020), will enable individuals and companies to make direct electronic payments using money issued by the central bank.

Although opinions on cryptocurrencies as investments and prospective worldwide means of exchange vary widely, some economists think they represent the future of money, while others think they are a passing investment fad or fundamentally incapable of eventually meeting the demands of the world money supply. (Roubini, 2018, Prasad, 2021). Given the difficulties in replacing existing currencies, additional academic research is needed to determine the usefulness of CBDCs.

Numerous countries are currently concentrating on the potential CBDC

architecture, despite its early phases (Auer et al., 2021). The CBDC may be available to everyone (retail CBDC) or limited to specific agents or groups (wholesale CBDC). It can have interest (a CBDC that bears interest) or not, much as cash or private cryptocurrencies. In addition, the monetary authority may implement limits on digital currency ownership in order to avoid unfavorable outcomes (BIS, 2018). Another characteristic is anonymity in relation to the central bank. The CBDC may be account-based or token-based, operating similarly to private digital tokens.

Furthermore, before implementing CBDCs, there are a number of factors to take into account, including the labor market, the markets for goods and services, price stability, the banking and financial sectors, and the transmission of monetary policy. Although central banks' embrace of digital money is crucial, our knowledge of the underlying problems is inadequate, which makes it difficult to develop the best possible policies. (Elsayed and Nasir, 2022).

Despite the importance of this topic, there is a dearth of study on CBDCs, and other associated problems remain unresolved. How would CBDCs impact, for instance, the transmission of monetary policy, the use of traditional and unconventional monetary tools, financial and price stability, inflation targeting, the function of central banks as lenders of last resort, and the issuance of forward guidance? In order to do this, the paper's goal is to provide academics, policymakers, and practitioners with a deeper understanding of CBDC by evaluating recent developments in the field. The rest of the research is structured as follows. A review of the literature as of right now is given in Section 2. Finally, Section 3 offers some possible directions for further research.

2. Literature Review and Theoretical Background

2.1 Central Bank Digital Currencies

Central banks are thinking about CBDCs because of the diminishing usage of cash and the growing significance of digital assets. A CBDC is digital currency that has been officially issued and is pegged to the national unit of account. It is issued and governed by the national government or central bank of a nation (Tata, 2023). As a result, it provides the distinctive benefits of central bank money in digital form, including monetary anchor, settlement finality, liquidity, and integrity. There are two main categories: retail and wholesale CBDCs. (Elsayed and Nasir, 2022).

A retail CBDC is one that is issued to the general public, including people and businesses, and has features of cash (though it is in digital form), whereas a wholesale CBDC is one that is issued primarily for interbank transactions and is only available to specific financial institutions (much like bank reserves).

A wholesale CBDC, however, may be more open to a larger range of counterparties and compatible with other payment systems (both local and foreign) than bank reserves. Smart contracts might be used to program CBDCs. The majority of central banks in developing nations are looking into both retail and wholesale CBDCs (Kosse and Mattei, 2022).

CBDCs may be issued by central banks for a number of reasons. CBDCs are fully backed by the central bank of the issuing nation. As a result, they preserve the conventional central bank money's characteristics of confidence, safety, liquidity, and settlement finality as well as the monetary anchor that contemporary financial systems rely on. In a world where people and businesses are increasingly using electronic payments, central banks may supplement cash as public money, assure the continuous availability of a risk-free medium of exchange, and preserve payments efficiency by issuing CBDCs.

According to a recent survey (Kossesa and Mattei, 2022), 50% of central banks have advanced beyond conceptual research to experiment and perform pilots, while 80% are looking into CBDCs. Additionally, it demonstrates that research on retail CBDCs is further along than research on wholesale CBDCs and offers more information on the possible advantages and hazards that central banks anticipate from CBDCs. These responses all agree that there should be a digital kind of currency for the government. In addition, the survey showed considerable divergence (Fig. 1). While developed and developing countries share similar incentives regarding payments safety, domestic payments efficiency, and financial stability, central banks in developing nations also view CBDCs as a crucial tool for advancing financial inclusion, with developed countries issuing CBDCs to offset declining cash usage.

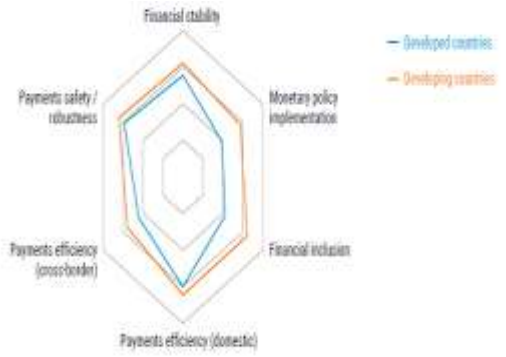

Fig.1 Motivation for issuing CBDC
Source: Kossesa and Mattei (2022)

Although increasing cross-border payment efficiency might dramatically lower remittance costs, it may come as a surprise that poorer countries do not seem to be as motivated to do so. One explanation might be the enormous difficulties associated with technology concerns and international design collaboration. Major risks related to financial stability, regulatory standards, and interoperability with current payment systems, which were discussed above for domestic uses of CBDC, inevitably become more complex when multiple jurisdictions are involved, and additional risks related to currency substitution, capital flow volatility, and macroeconomic spillovers are added.

2.2 CBDCs and Economic Theory

The purpose of cryptocurrencies has been contested ever since they were first introduced. Some argue that cryptocurrencies don't serve as a store of value, a unit of account, or a medium of exchange; rather, they are more of a speculative asset (Yermack, 2015). State-issued currency bearing the pledge "I promise to pay the bearer" may be considered public money. One way to think about money is as private money that has been issued by commercial banks through bank lending. However, the production of private money is founded on a monetary basis of coins and notes with the same face value as a sovereign currency.

Contrarily, cryptocurrencies suggest a separation of private and public money. This stands in stark contrast to the historical Chartalist notion, which maintains that the fact that money is issued by governments gives it worth (Knapp, 1905). Chartalism holds that money is a state-provenance (Wray, 2011). The concept behind the base and denomination of money remains the same, even if the credit theory of money (Mitchell-Innes, 1914) sees money as either credits or debits: public money supports private money.

Metallism contests the idea that cryptocurrencies are equivalent to digital gold since they lack intrinsic value in the sense that they are not naturally found in the periodic table. Although, as the Bank of England declared, CBDCs will be pegged to the pound sterling and will supplement rather than replace cash and bank deposits, they are theoretically compatible with chartalism. The results of their deployment will finally provide an answer to the issue of how those complementary roles may be

fulfilled and what effects they will have with respect to sovereign digital currencies in China.

Since they provide access to central bank-issued electronic money for all homes and businesses, CBDCs allow anybody to conduct electronic payments with bank money. Additional research is required due to the implications of this shift from central bank funds to private funds.

2.3 CBDCs, Payments and Financial Stability

A growing body of research examines CBDC and its effects on financial stability and payment systems. The effects of an interest-bearing CBDC in micro-founded money and banking models have recently been investigated in papers. Keister and Sanches (2019) demonstrate that a CBDC displaces bank intermediation in a banking sector with perfect competition when deposits from banks are used in transactions.

Brunnermeier and Niepelt (2019) argue that if the central bank allows money to flow back into banks, CBDC does not always disintermediate banks. In a case where there is a dominating bank, Andolfatto (2018) shows how a CBDC may lead to more financial inclusion, a higher deposit rate, and more bank deposits. According to Chiu et al. (2019), increasing bank lending, deposits, and the deposit rate might all help CBDC lessen the dominance of banks in the market.

Lending and output can be boosted quantitatively by up to 3.55% and 0.50%, respectively. Williamson (2019) develops criteria under which an interest-bearing CBDC might boost welfare in a restricted banking arrangement in a model that takes into account central bank independence and the dearth of assets that back bank deposits. According to Dong and Xiao (2021), various types of CBDC can aid in the implementation of a negative interest rate. Monnet et al. (2019), argue that a CBDC may result in lower bank risk taking, increased production, and improved wellbeing. According to Keister and Monnet (2022), CBDC can give the central bank additional knowledge about the status of banks, enhancing the efficiency of regulatory policies and enhancing financial stability.

Fung and Halaburda (2016), who examine a framework to judge whether a central bank ought to create a digital currency, published a discussion paper on CBDC. A policy framework is put out by Davoodalhosseini and Rivadeneyra (2020) to assess the trade-offs that decision-makers must make when choosing between various forms of electronic money, including a CBDC. Kahn et al. (2018) examine several CBDC plans and talk about how they might help the central bank achieve its goals. Berentsen and Schar (2018) make the case for central banks issuing CBDCs. They specifically contend that employing CBDC to execute monetary policy would be more transparent than the existing method.

2.4 CBDCs and Monetary Policy Effectiveness

According to some academics, the issuance of CBDC will improve the effectiveness of monetary policy. From the viewpoints of financial stability, the banking system, monetary policy, central bank seigniorage, and payment convenience, Engert and Fung (2017) investigated the drivers behind and ramifications of central bank digital currency. According to Pfister (2017), the function of banks in distributing credit will not be significantly altered if the creation of CBDC adheres to the current guidelines for currency issuance.

Meaning et al. (2018) examined the various stages of CBDC transmission from the central bank to the real economy and found that monetary policy could stay largely unchanged by changing the price or supply of central bank money. In fact, transmission could even strengthen for a particular change in policy instruments. In 2018, Brunnermeier and Niepelt created a currency model that can recognize liquidity and seigniorage bubbles. They then

simulated the model's results and showed that CBDC did not endanger financial stability using Project Chicago, India's experiment with central bank digital currency and non-monetization.

According to Andolfatto (2021), the adoption of a digital currency issued by a central bank might potentially increase lending activity rather than have a negative impact on it. Whether agents may obtain cash alone, only a CBDC, or both. Davoodalhosseini et al. (2020) observed that a CBDC is a more efficient allocation if the cost is bearable. Monnet et al. (2019) claim that CBDC can lower bank risk-taking while raising production and welfare. A 2021 DSGE model utilizing CBDC by Barrdear and Kumhof suggests that the issuance of CBDC might increase GDP by up to 3%.

However, other academics have also expressed worries about the impact of digital currencies issued by central banks on monetary policy. After the adoption of CBDC, Armelius et al. (2020) expressed concern about the "narrow banking" phenomena, which involves a significant movement of commercial bank deposits to the central bank.

Rahman (2018) looked at how competition between digital and fiat currencies may affect the best monetary policy. He found that if digital currencies were to compete with government-issued fiat money, the Friedman rule would become socially inefficient. According to Bjerg's (2017) study on how CBDC coexists and interacts with existing monetary forms, in a monetary system composed of two competing money creators, the commercial bank and the central bank, the trilemma of free convertibility between CBDC and bank money, parity between CBDC and bank money, and central bank monetary sovereignty still exists. The study also assessed the potential effects on monetary policy of three alternative implementation strategies for CBDC.

Fernandez-Villaverde et al. (2021) found that although the implementation of CBDC may cause deposits to flee from commercial banks in a panic, jeopardizing maturity transformation, it also makes the central bank able to compete with private financial intermediaries for deposits, thereby facilitating large-scale intermediation.

2.5 CBDCs, Interest rate Channels and Monetary Policy Tools

Since digital currencies like the digital Yen, digital euro, Sweden's e-Krona, and those of other central banks carry interest from the beginning of their development, many academics focus on the impact of issuing CBDC on interest rate channels. Bordo and Levin (2017) added that interest should go hand in hand with a monetary policy framework that incorporates CBDC since it will support price stability. Furthermore, currency may even be deleted together with the effective lower bound.

According to Norges Bank (2018), it is unclear how the CBDC would affect bank lending rates and lending channels as a whole. According to research by Sveriges Riksbank (2018), there may be a larger correlation between the interest rate on loans and the central bank's lending rate if commercial banks get financing from the latter. It is possible that the central bank won't be able to influence the loan interest rate if banks choose interbank financing.

In their analysis of CBDCs with interest income, Harrison and Thomas (2019) discovered that CBDCs may maintain their capacity to utilize short-term bond interest rates as a tool for stabilizing the economy during normal periods while continuing to use financial transfers as a tool for policy within the operational bottom limit. Gurtler et al. (2017), however, noted that there are risks to financial stability associated with the commercial banks' withdrawal of deposits and the resulting need to obtain outside funding from various sources due to CBDC. These issues may also affect the effectiveness of the entire monetary transmission mechanism.

Wadsworth (2018) assessed the advantages and disadvantages of the publicly traded digital currency issued by the central bank in relation to the four key functional areas of financial stability, currency distribution, payment, and currency stability. The benefits and drawbacks of digital money should be taken into account for all of the central bank's operations. Yanagawa and Yamaoka (2019) argue that the central bank needs to take into account how digital currency affects the payment system and the financial system as a whole, with a particular emphasis on the implications of network externalities.

Some scholars believe that new monetary policy options will be available with the implementation of CBDC. According to Riksbank (2018), the effective lower bound may decrease when cash's influence on the economy wanes because it is simpler for the central bank to influence the economy's interest rate by setting the CBDC interest rate, which broadens the scope of monetary policy. Harrison and Thomas (2019) discovered that they could maintain their capacity to utilize short-term bond interest rates as a tool for stabilizing the economy during normal periods while still using the transfer of monetary financing as a policy tool inside the effective lower bound. Dong and Xiao (2021) maintained that cash and interest-bearing CBDC can coexist, but that in order for them to do so, the central bank may need to change the interest rate on reserves or the CBDC interest rate. They also mentioned that some types of CBDC could assist in the implementation of a negative interest rate.

However, in order to improve monetary policy's effectiveness, researchers suggest that CBDC be paid interest for directly communicating monetary policy actions to economic agents.

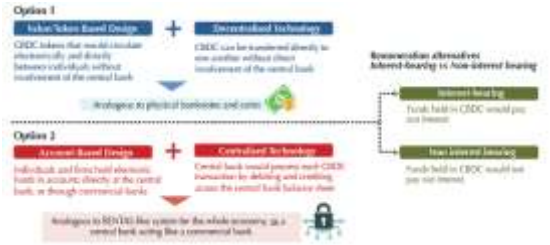

Fig. 2 Potential Modalities of the CBDC
Source: Ahmat and Bashir (2017)

Economic agents may migrate from bank deposits to CBDC under this modality, which would result in a deposit outflow. Even while there is not a rise in the policy rate, the withdrawal of deposits to CBDC may spur banks to compete for deposits, which might raise deposit rates and consequently retail lending rates.

Currently, several advanced economies have negative policy rates, which are usually not transferred to retail deposit rates. However, it is possible to charge a negative interest rate to the CBDC, which would effectively transmit the negative policy rate to the economy (Skingsley, 2016).

The so-called zero lower limit problem would be resolved as a result. A crucial warning is that there could be a limit to how well this negative interest rate is communicated, as CBDC is simply meant to be a supplement to cash. A significant enough negative interest rate on CBDC might lead economic agents to decide to store actual currency rather than CBDC. Another counterargument is that the public might not be in favor of negative returns on currency ownership.

3. Conclusion

This study discovered that most people agree that a CBDC is a central bank obligation and has features similar to cash. It also reviewed the benefits and justification for issuing a CBDC, which included the need to advance efficient digital payments, improve financial inclusion, and improve the conduct of

monetary policy. Considering these benefits, the evaluation also shows that many central banks are considering issuing CBDCs.

However, several studies have advised against becoming unduly hopeful about the potential advantages of CBDC due to its constrained design and inability to meet multiple competing goals. The report suggests that Central Banks exercise greater caution while considering the advantages and disadvantages of the CBDC.

Future research should focus on a number of issues, including determining the best CBDC design that balances all competing goals, gathering empirical data on how CBDC affects credit costs and financial stability, striking a balance between restricting users' CBDC holdings and letting them keep as much as they like, and conducting case studies of CBDC design that are country-specific and regional in scope.

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