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# Postulating the Viability of USA Central Bank Digital Currency's Financial Inclusion Goal

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**Abstract: Many countries are adopting Central Bank Digital Currency (CBDC) in response to other digital currencies like Bitcoins. Nigeria and the Bahamas are among the countries that already have a CBDC, while Sweden, Japan, China, India, and the United States of America are considering incorporating the system. The CBDC financial inclusion goal is a significant milestone for the USA, with over 13 percent of its population underbanked or unbanked. However, CBDC must satisfy other goals like enhancing competition to attain the financial inclusion objective. Moreover, CBDC financial inclusion will create impacts that make it attainable or not, a gap that the current study seeks to explore. The study applies secondary data methodology, relying on scholarly journals, credible websites, and government sources to postulate the viability of USA's CBDC financial inclusion objective. The inadequacy of academic work in the infant CBDC field limited the researcher. The study leaves a gap for other researchers to establish whether technology replacement, updates, existing system integration, research, development, cybersecurity concerns, and other demerits not mentioned herein could undermine CDBC's financial inclusion goal.**

***Keywords****: Financial, CBDC, Currency, Digital, Central Bank, Inclusion, Cross-Border.*

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## I. INTRODUCTION

Many governments are considering incorporating the Central Bank Digital Currency (CBDC). Nigeria, the Bahamas, and the Eastern Caribbean Currency Union are some jurisdictions that already have a CBDC (Mishra & Prasad, 2023). Other countries considering the CBDC include Sweden, Japan, China, India, and the United States of America. CBDCs have gained global popularity as people prefer using digital more than physical currency. Apart from currency users' digital preferences, some countries, including the United States of America, are considering using digital currency to enhance financial inclusion (Mishra & Prasad, 2023). In other countries, the government aims at increasing currency control via the central bank rather than having decentralized control by using the CBDC system. Critics note that CBDCs could negatively affect monetary policy, although scholarly work in CBDCs remains infant.

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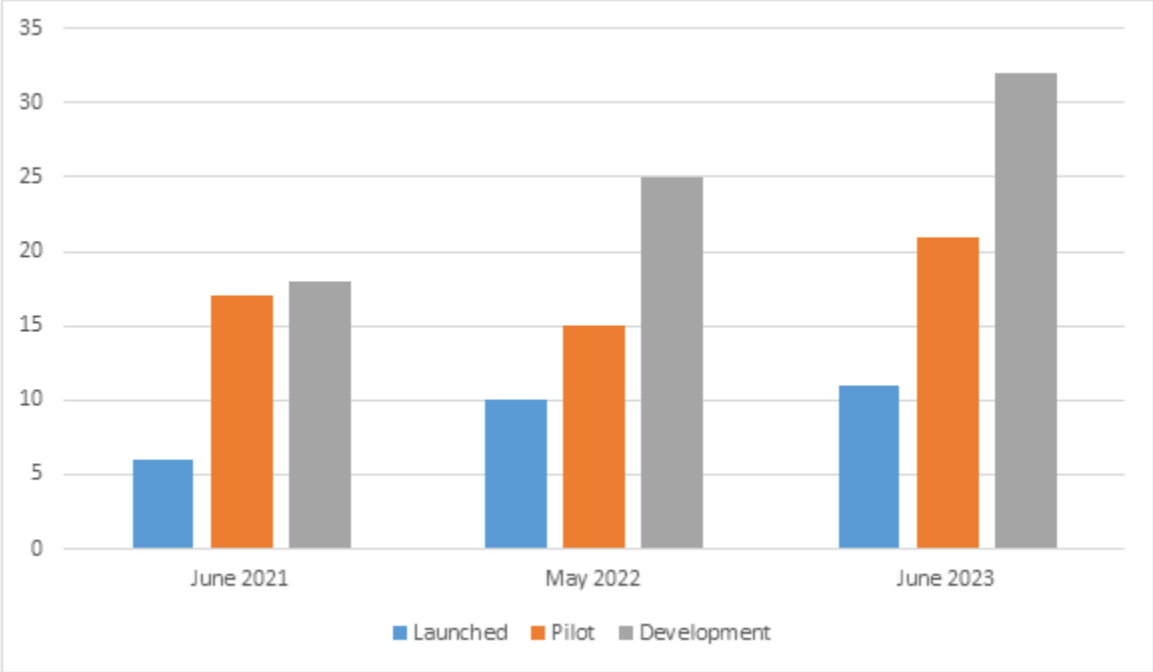


Fig 1 Number of Countries/Currency Unions with Central Bank Digital Currencies in Advanced Exploration Phases (Zandt & Ritcher, 2023)

Figure 1 indicates the number of countries or currency unions with central bank digital currencies in advanced exploration phases. Over 100 countries, representing more than 90 percent of the worldwide gross national product, are involved in pilot studies, research, and development towards CBDCs (World-Economic-Forum, 2023). A 2021 Bank for International Settlements survey revealed that about 85 percent of central banks considered using CBDCs, and another 60 percent experimented with digitization (Araya, 2023). CBDCs exist in two major categories: wholesale and retail. Retail CBDCs are accessible to the public, who can use them locally or across borders. On the other hand, wholesale CBDC users are banks and registered financial entities for interbank and security transactions. They are also usable locally and across borders. In 2023, CBDC exploration has gained significant traction.

CBDCs present opportunities and challenges like other digital transaction platforms. They act as an exchange medium and value storage platform like physical bank notes (Araya, 2023). CBDCs exist in the form of back end and front end transaction processing (Appendix 1). They are government-backed, unlike other digital payments such as cryptocurrencies.

Financial inclusion remains one of the main aims for adopting CBDC, especially in economies with significant underbanked or unbanked populations. However, CBDCs attract other concerns. Digitization raises the question of whether it will create healthy competition and improve financial services quality, security, and costs as it aims to attain financial inclusion (Popescu, 2022). The goal towards financial inclusion could create impacts that make it attainable or not, a gap that the current study seeks to explore, postulating the viability of USA's CBDC financial inclusion objective.

## II. MATERIALS AND METHODS

The researcher used secondary data collection methodology to source the usable data from peer-reviewed journals, government databases, and credible finance literature. Major databases included the World Economic Forum, USA government websites, and reputable peer-reviewed journals. The study applies a qualitative research design, including analyzing qualitative data from multiple sources. The rationale for the source selection was research topic significance, relevance, and credibility. The inclusion criteria for the sources were if the writing language was English to ascertain interpretation consistency, presented pertinent data to the study objective, and covered the study's significant concepts. The exclusion criteria were non-English work, studies over five years old, sources indirectly related to the paper's central theme and those without reliable finance qualitative data. The researcher also ascertained credibility by selecting sources less than five years old. The qualitative research design explored the viability of the USA's CBDC financial inclusion objective. The researcher used qualitative methods to incorporate multiple researcher's perspectives on the infant CBDC issue. The paper applied thematic analysis to analyze the qualitative data. The data exclusively relies on the selected qualitative literature. The researcher collected no

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additional data. The inadequacy of scholarly work in the infant CBDC implementation field limited the researcher.

## III. LITERATURE REVIEW

According to Ozili (2022) and Auer et al. (2022), CBDCs target reducing Bitcoins and other cryptocurrencies dominance. China's CBDC intends to create a barrier for big financial technology companies that could crowd the financial intermediary industry in the nation. CBDCs also aim to improve financial inclusion and currency security. Lukonga (2023) observes that CBDCs improve central banks' monetary control towards regulating economic factors such as inflation. Lukonga (2023) notes that the platform also creates competition in the financial service sector, leading to better transaction quality and cheaper service costs.

Financial inclusion is the primary driver for retail CBDC consideration in many countries (Banet & Labeau, 2022). As of 2021, 4.5 percent of the United States of America's households were unbanked. They represented 5.9 million residents (FDIC, 2023). Another 14 percent, or 8.7 million Americans, were underbanked as of 2021. Van and Linh (2019) and Jima and Makoni (2023) note that financial inclusion leads to economic growth through increased investment in education and health.

According to Ozili (2022), financial institutions consider financial inclusion as one of the purposes for issuing CBDCs. CBDCs can enhance digital financial services access, enable lower transaction costs, make value chains more digital, and function offline. However, critics hold that there is a significant preference for cash transactions, and digital payments exhibit intensive identification and regulatory thresholds. Ozili (2022) observes that CBDCs need security like other digital platforms, including safeguards, continuous testing, and authentication. The author notes that the infancy of CBDCs means scholars have conducted few studies on digitization. In Nigeria, the eNaira currency increases financial inclusion but is also prone to cyber-attacks and data theft. CBDC adoption faces challenges in developing nations. Seventy-eight percent of African countries are disinterested in CBDCs. In India, Ozili (2022) observes that the authorities should prioritize development and national sovereignty issues when incorporating a CBDC. Although CBDCs reduce transaction costs, they also attract other drawbacks, including technology replacement, updates, existing system integration, research, development, and cybersecurity. In Australia, Ozili (2022) finds no reason to launch a CBDC when a primary digital currency, the New Payment Platform, is under centralized control.

Banet and Labeau (2022) examined the trade-off between financial inclusion and intermediation. The authors found that a CBDC 50 percent cheaper than bank deposits leads to a 93 percent decline in financial exclusion. They defined financial inclusion as digital payment access, while financial intermediation referred to bank-deposit-funded investments, emphasizing that the CBDC inclusion impact relies on its usage cost versus bank deposit accounts. They concluded that CBDCs with low usage costs, including interest rates, enhance the inclusion-intermediation trade-off favorability (Banet & Labeau, 2022). Such a model enabled poorer agents to adopt CBDCs, enhancing financial inclusion instead of attracting wealthier depositors' bank deposits. Income heterogeneity determines the money instrument agents prioritize. Before CBDCs, more affluent agents preferred deposits as poorer ones adopted cash, remaining unbanked. Cash holders embrace CBDCs with low fixed costs and interest rates, increasing financial inclusion. Deposit holders adopt high fixed costs and interest rates CBDCs, increasing deposits and enhancing inclusion devoid of intermediation impact.

CBDCs' live transaction capability enables small and medium enterprises to minimize their settlement cycle, leading to more financial inclusion. On the other hand, many entities do not trust private financial intermediaries (*The Role of Central Bank Digital Currencies in Financial Inclusion*, 2023). CBDCs will enhance trust in a formal digital system compared to unregulated cryptocurrencies that are more volatile and vulnerable to security breaches (*The Role of Central Bank Digital Currencies in Financial Inclusion*, 2023). Commercial banks find the massive volume of small-volume transactions unfavorable, excluding various economic participants. CBDCs can handle such transactions, increasing financial inclusion. Cross-border CBDCs can save approximately $100 billion in remittance costs annually (*The Role of Central Bank Digital Currencies in Financial Inclusion*, 2023). Such CBDCs increase financial inclusion as transaction cost is a significant financial exclusion reason. Ozili (2022) argues that unbanked and underbanked individuals hesitate to access financial services due to a lack of institutional trust. CBDCs are more centralized and formal, unlike privately regulated intermediary transactions. Ozili (2022) notes that CBDCs also reduce the possibility of cash transaction risks, such as loss or misplacement of currency.

One of the financial stability risks of CBDCs is that they can cause economic instability through capital flight (CPMI & Markets Committee, 2018). Retail CBDCs could cause capital flight from bank deposits away from private financial institutions in favor of CBDCs, disrupting the intermediary role of banks. Such an occurrence could cause economic instability (Popescu, 2022). Cross-border CBDCs could cause financial instability if non-residents use CBDCs from another jurisdiction. Cross-border CBDCs increase competition between the foreign central bank and the local private sector banks. Foreign CBDCs attract deposits from locals, limiting the local bank deposits and functionalities such as lending capability. However, local banks may retaliate by lowering costs and improving service quality. The government may also

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initiate protectionist measures to protect local banks, leading to long-term equilibrium. Households and other agents tend to shift their deposits to CBDCs because they believe the platform is safer and cheaper. A risk-free CBDC offers a safe alternative to deposits in alternative financial institutions, even if other intermediaries introduce deposit insurance. Depositors withdraw even from stronger banks upon a CBDC introduction. Traders do not consider CBDCs a threat to cryptocurrencies.

Lukonga (2023) and Scharnowski (2022) note that a CBDC would create currency competition and improve financial service provision. However, contrary to Ozili (2022) and Auer et al. (2022), Scharnowski (2022) observes that CBDCs do not create competition for cryptocurrencies. Li (2023) established that cash-like electronic Chinese Yuan increased competition in the deposit market by reshaping small-large banks' perceived riskiness. CBDC introduces increased rivalry for large deposit institutions, spreading financial service consumers' attention to smaller intermediaries. Consequently, large institutions respond by reducing transaction costs, merging with or acquiring smaller entities in reaction to CBDCs. CBDC competition for large banks nets out in the long run.

Central banks are progressively embracing the concept of incorporating their digital currency. However, Mishra and Prasad (2023) note that CBDCs could negatively affect monetary policies. For instance, central banks raise interest rates by transacting in securities through commercial banks to influence liquidity. However, CBDCs influence individuals to shift their deposits away from commercial banks to the central bank, negatively affecting money supply and complicating monetary policies. However, research by the World Economic Forum suggests that CBDC will improve the central bank's control over money in the economy (WEF, 2022). For example, where private money supersedes public liquidity on transactions, the central bank loses monetary policy control and cannot become the lender of last resort. CBDCs prevent such an occurrence, meeting demand by providing a public digital currency option. On the other hand, WEF (2022) provides that CBDC could lead to massive cash withdrawals from banks to central banks, hardening the loan provision process by the financial intermediaries. However, WEF (2022) points out that other research has revealed that the concerns are only possible where the banking industry is perfectly competitive. Otherwise, central banks will enjoy massive market power under a CBDC system (Andolfatto, 2021). Instead of the concern over the loss of central bank control, CBDCs will enhance competition by prompting banks to improve their deposit interest rates, attracting even further deposits and enhancing credit provision to organizations and households.

The issue of counterfeit currency is a significant concern in the United States of America. According to Nora and Fatima (2023) and Yi, Yu, and Cheung (2022), counterfeit money and commodities increase black market operations, enhancing money laundering. Counterfeit currency causes unfair competition for legal traders and deteriorates the government's tax revenue sources due to the intractability of the black market's transactions. In 2022, a 35-year-old man and female co-conspirator passed $1,400 in counterfeit bills at Dickinson City and another $750 in counterfeit bills in Scranton (US-Attorney's-Office, 2023). In 2023, Philadelphia Customs and Border Protection authorities seized $15 million worth of counterfeit money (Sapp, 2023). The border protection officers noted that with the surging popularity of online marketplaces, unscrupulous traders could victimize unsuspecting sellers and buyers by using fraudulent currency to transact.

Many scholars attribute CBDCs to currency transparency (*The Role of Central Bank Digital Currencies in Financial Inclusion*, 2023). CBDCs enhance currency trust (Ozili, 2022). However, Hansen and Delak (2022) acknowledge that security is a significant concern of a CBDC. Counterfeits threaten physical currency security (Hansen & Delak, 2022). Issuing authorities incorporate anti-counterfeit measures like holograms and watermarks to prevent physical currency counterfeits. Hansen and Dalek (2022) note that CBDCs are a form of digital currency with prompt real-time payments that are difficult to reverse. Fraudsters could target CDBCs through cyber-attacks and hacking. The security of retail CBDCs remains uncertain and requires even more measures than physical currency.

## IV. RESULTS AND DISCUSSION

- *Functions of the Central Bank Digital Currency*

The paper establishes various Central Bank Digital Currency (CBDC) functions. CBDCs aim to improve cross-border digital transactions. Cross-border CBDCs will ease users' financial transaction time and costs (Popescu, 2022). CBDCs also aim to enhance currency transparency (Lukonga, 2023). CBDC proponents consider the currency immune to fraud due to its centralized control. CBDCs also aim to improve competition and reduce digital transaction costs. Banet and Labeau (2022) conclude that CBDCs increase the central bank's monetary policy control, eliminating physical currency weaknesses and improving financial inclusion as the public finds it more convenient.

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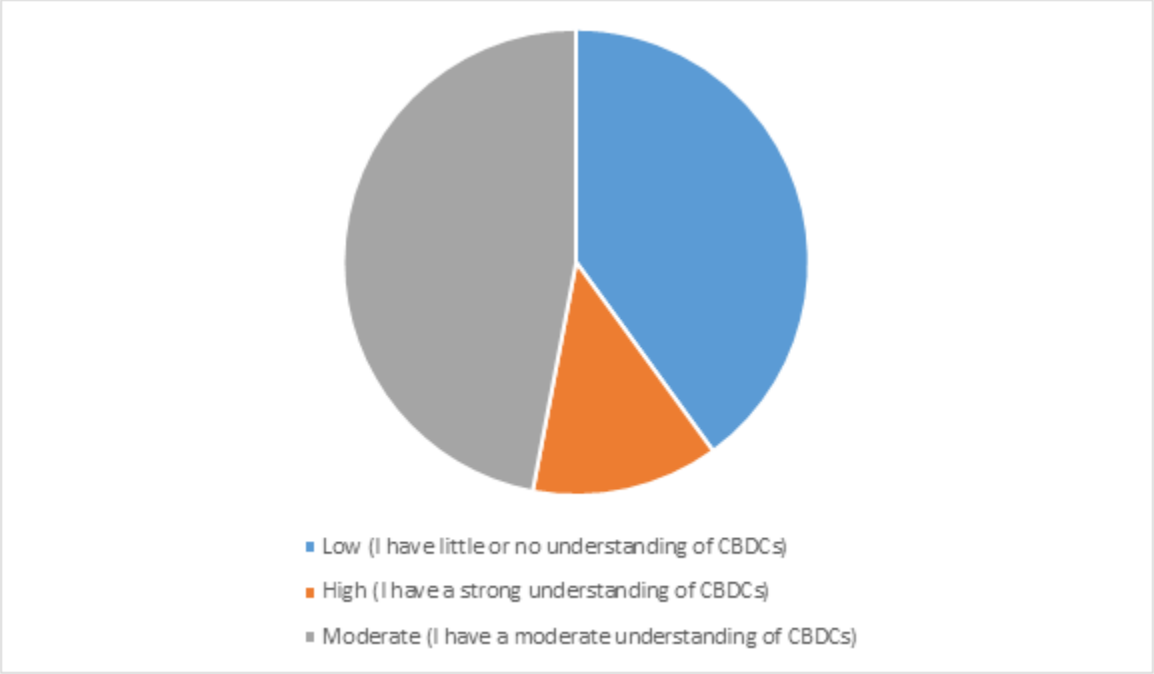


Fig 2 Level of Understanding of CBDCs (global results)
(Deane & Fines, 2023)

The figure 2 above indicates the level of awareness of CBDC globally. The CBDC system is still in its infancy in countries that have installed it, making it immature to use such environmental analyses to conclude the economic effects of such a system. Although a comprehensive CBDC incorporation could present the above economic advantages, the currency has numerous drawbacks. USA CBDC policymakers must consider some factors before launching the transaction system.

➢ *Will CBDCs Improve Currency Security?*

CBDCs minimize the possibility of physical cash transaction risks like currency misplacement (Ozili, 2022). As such, they enhance transaction efficiency and liquidity flow. Second, CBDCs increase currency traceability. A retail CBDC will reduce or eliminate private entities' control of currencies, enabling the central bank to have more regulatory powers. Hansen and Delak (2022) observe that a CBDC could eliminate cash-related risks, such as counterfeit money. However, the authors also observe that digital payments attract risks like cybersecurity.

CBDCs can improve currency security. However, like other digital transactions and cash, they are vulnerable to risks like hacking and counterfeit digital currency. Since cash issuers have incorporated anti-counterfeit measures such as the watermark, a CBDC will also require stringent anti-counterfeit and other risk mitigation measures. As CBDC regulators, central banks must establish means to combat possible CBDC fraud, considering it is a centralized system where interference with source control points could cause major liquidity flaws in the economy. The present study concludes that CBDC's improvement of currency security is not a guarantee.

➢ *CBDCs, Competition, and Transaction Costs*

Businesses are prone to competition. The financial services industry is no exception. Currently, private intermediaries provide digital currency services at different costs (Lukonga, 2023). The Central Bank Digital Currency will be an additional digital currency provider under the control of the USA's central bank (see Figure 3 Appendix 1). Such a new player will increase competition for the existing market players. Considering the government as a non-profit-making entity, CBDCs will attract lower transaction costs. Similarly, the existence of other market players will prompt the government to adopt a cost leadership strategy to attract widespread attention to the system.

On the other hand, Popescu (2022) notes that CBDCs will interfere with the intermediary role of banks due to massive capital flow. The low cost of digital currency will attract a mass inflow of depositors who will shift away from commercial banks and other financial intermediary institutions. Capital outflows to foreign cross-border CBDCs would be more economically detrimental since they will reduce national currency liquidity (Propescu, 2022). However, local or foreign-oriented capital flight will prompt most local banks and financial service providers to retaliate by reducing transaction costs and improving service quality (Propescu, 2022). Therefore, in the long run, banks will have a more effective intermediary role, lower financial costs, and better

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service quality. CBDCs will lead to healthier competition rather than capital flight.

- *CBDCs and Central Bank Control Powers*

USA's Central Bank regulates liquidity flow in the economy through monetary policies like the sale of securities. Central banks increase interest rates by transacting in securities through commercial banks to influence liquidity (Mishra & Prasad, 2023). Since CBDCs influence individuals to shift their deposits away from commercial banks to the central bank, the system could negatively affect the money supply and complicate monetary policy regulation (WEF, 2022). However, the evening out of capital flight and fair competition will revive long-term central bank operations once the financial intermediaries react to the new environment. CBDCs will enhance fair competition as local banks improve deposit interest rates, attracting even more deposits and enhancing credit provision to organizations and households (Andolfatto, 2021). The present study finds no significant relationship between CBDCs and loss of central bank regulatory powers.

- *CBDC and Financial Inclusion*

One of the primary goals of the proposed US Central Bank Digital Currency, and the core examination of this study, is financial inclusion (*Policy Objectives for a US Central Bank Digital Currency System - the White House,* 2022). As of 2021, approximately 6 million American residents were unbanked, and another 8.7 million were underbanked (FDIC, 2023). The mutually exclusive segments are roughly 13.2 percent of America's residents, significantly representing the country's population. Financial exclusion is a viable rationale to incorporate as a CBDC aim in the USA.

The present study finds that non-cross-border CBDCs enhance financial inclusion in a perfectly competitive market. Transaction costs and currency security are the major factors driving financial inclusion (Hansen & Delak, 2022). CBDCs will reduce transaction costs by introducing more competition. Concerns include the possibility of capital outflow, especially under a cross-border CBDC. However, a perfectly competitive market will even out when the market attains an equilibrium in a non-cross-border CBDC. On the other hand, the government could still raise protectionist measures to prevent currency outflows in a cross-border CBDC (Propescu, 2022). However, protectionist measures would undermine fair competition, hence financial inclusion. The concern raises a gap for researchers to investigate further the long-run equilibrium effect of a cross-border CBDC regarding financial inclusion under perfect market competition.

USA's CBDC will aim to minimize cash transaction weaknesses (*Policy Objectives for a US Central Bank Digital Currency System - the White House,* 2022). The present study finds the relationship between CBDC and financial inclusion insignificant. For example, CBDC is a government-monitored centralized system that will minimize transaction costs and improve currency trust. However, on the policymaker's side, they must incorporate security measures to maintain such a trust. The paper observes that replacing cash transactions with CBDC will not improve transaction security. Instead, the central bank must place risk mitigation measures to curb fraud and other digital currency risks.

The study concludes that CBDC does not improve currency security but merely shifts concerns from physical cash and private digital currency vulnerabilities to the CBDC platform risks. However, CBDC enhances financial inclusion by reducing transaction costs due to increased competition. It also improves user trust because it is a formal government-based system, contrary to proponents' perspective of CBDC being transparent and fraud-free. The US government should adopt a CBDC to increase competition in the financial services industry and reduce transaction costs, increasing financial inclusion.

## V. CONCLUSION

Approximately 13 percent of the USA's population was underbanked or unbanked as of 2021. Financial inclusion is a rational CBDC goal. However, meeting the financial inclusion goal depends on whether the CBDC will attain the competition, cost reduction, and security improvement goals, the major attraction to the system users. The study establishes that CBDC will create competition for other financial service providers, reducing costs. However, there is no significant relationship between CBDC and transaction security improvement, although it will improve user trust because the platform is centrally government-controlled. A CBDC system significantly leads to financial inclusion. CBDC policymakers must sustain user trust by ensuring security maintenance by establishing means to curb potential security risks.

The inadequacy of scholarly work in the infant CBDC implementation field limited the researcher. The study was also limited by the fact that it explored only some of the multiplier effects of adopting the CBDC for financial inclusion. It leaves a gap for other researchers to establish whether technology replacement, updates, existing system integration, research, development, cybersecurity concerns, and other demerits not mentioned herein could undermine CDBC's financial inclusion goal. In the future, scholarly work can also illuminate whether CBDC can co-exist with physical cash currency and still meet the financial inclusion goal.

**Conflict of Interest Statement**

The author states that there is no conflict of interest.

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## APPENDIX 1

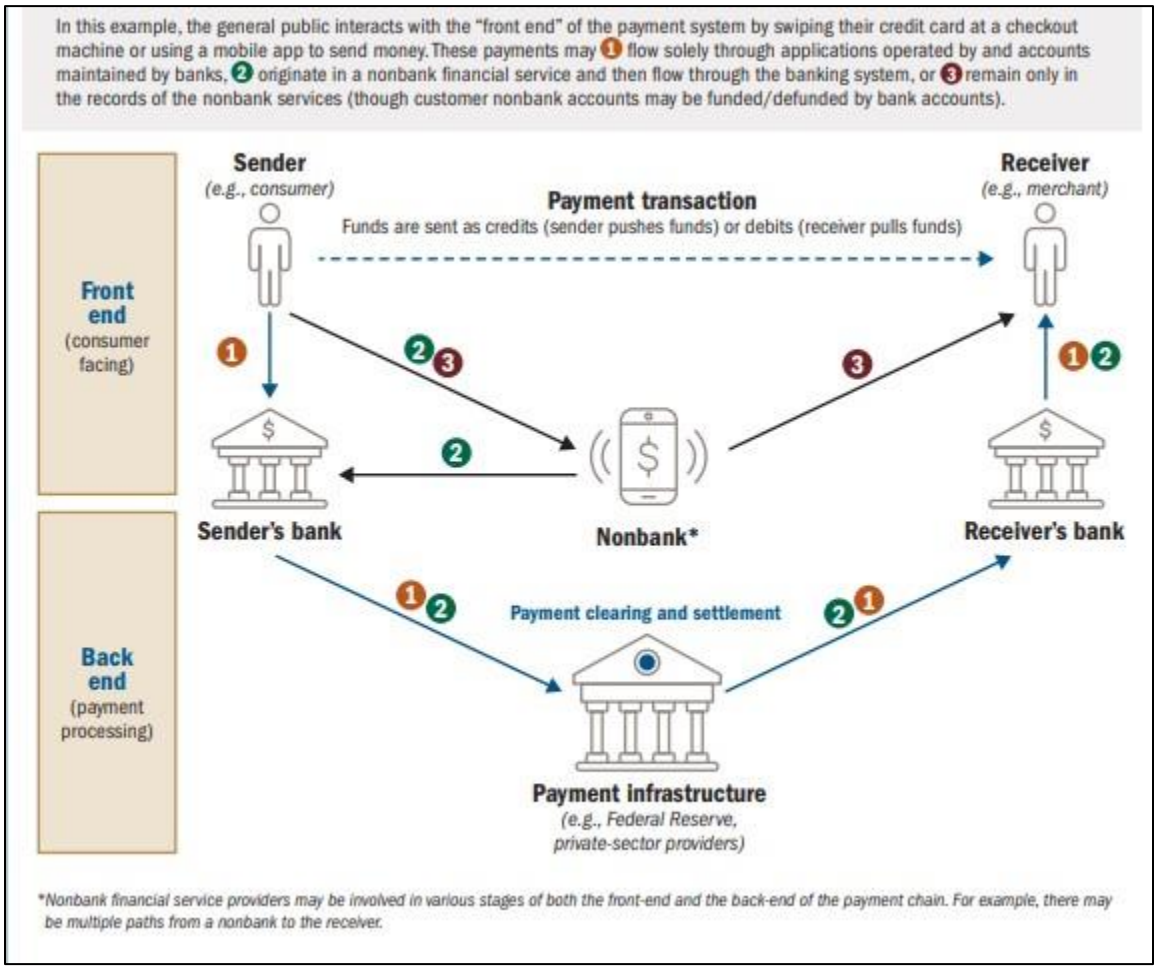


Fig 3 Overview of a typical CBDC Payment
("Money and Payments: The US Dollar in the Age of Digital Transformation", 2022)