The Complex Framework to a Successful Central Bank Digital Currency

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Context: The following example piece of writing was my submission to the Harvard University International Economics Essay Contest for the following prompt where it placed within the top 20 of all entries worldwide: “The rise of central bank digital currencies (CBDCs), in addition to existing forms of decentralized cryptocurrencies, could eventually shape the way global finance is conducted through technology. This spells significant economic and political repercussions, especially as non-US countries such as China implement CBDCs to varying extents. In light of these developments, how should the Federal Reserve, European Central Bank, or other institutions and governments proceed with the development of CBDCs in their respective economies?”

In the past, the idea of going cashless has seemed like an impossible future. Recently though, there has been the development of cryptocurrencies which claim to be the future of cashless payments, yet these currencies have received little widespread use due to their unbacked and unregulated nature. Many have argued that if digital currencies were monitored and backed by a government entity, they can be successful. That is where CBDCs fit into the greater financial picture. Central bank digital currencies (CBDCs) have presented an opportunity for the expansion of fiat currency in developed economies with a central financial institution. While the acquisition and development of a digital currency may sound simple with the resources available to a central bank, the expanded effect of maintenance, regulation, and widespread use remains a challenge for the majority of economies looking to maintain a digital currency.

Firstly, there is the concept of the nature of the currency itself. The most beneficial form for CBDC development and viable use is through an interest-based CBDC. By allowing for flexibility with interest rates under the central bank, the CBDC supports the use of monetary policy. During times of economic downturn, the central bank could adjust interest rates downward. Alternatively, during times of economic stability, interest rates would remain positive and constantly adjust to the levels of inflation under automatic stabilizers within monetary policy. In doing so, there is also the ability to expand the abilities of monetary policy currently constricted by the ineffectiveness of pushing the nominal interest rate below zero. Because consumers and firms change their preference to holding cash, there is room for improvement by setting guidelines for the exchange between the CBDC and cash currency. By imposing fees and long exchange periods to change from the CBDC to physical currency, firms and consumers would refrain from withdrawing large sums of their CBDC in the short term and going on bank

runs when the economy is on the brink of recession. These fees could be used as funds to support the operational costs of maintaining a costly centralized infrastructure for wholesale transactions. Furthermore, central financial institutions would have the ability to use a negative nominal interest rate as an effective tool to drive up aggregate demand. Lastly, this form of development means that the majority of financial institutions could continue with their depository activities without disruption because the CBDC acts as a separate entity altogether. In this form, the CBDC becomes an effective tool for the implementation of monetary policy in the economy by the central financial institution and acts similarly to current financial accounts.

The next important part of CBDC implementation is the form in which they will be managed by the central bank. In this case, the best form of retail development of CBDCs in respective economies around the globe, including the European Union and the United States, is a two-party system that entails central banking oversight with transactional methods done through existing commercial banking systems which report quarterly to the central bank for retail payments concerning the CBDC. By integrating into this system, central banks can use private financial interests to reduce implementation costs. Commercial banks and private account security firms would be motivated to use their existing token-based access for financial accounts as a form of access to the CBDC. Token-based access presents a middle ground for limited government surveillance of spending accounts associated with the respective CBDC without breaking privacy policies in their respective countries. It gives each user a unique identification for access to their account, meaning that tracking implementation and expansion of transactions can be used by a central financial or government institution without the specific knowledge of those involved in the transactions. Private firms that specialize in disconnected token-based

access through distributed ledger technology can use their software platform for the widespread development of digital wallets. With access to the currency given through the central bank, commercial and private banks can use existing accounts for consumers as points of access to request their tokens which can be entered into a wallet managed directly by a branch of the central bank. This system works more efficiently by treating the currency as a form of money within a normal transaction, rather than an investment which the U.S. does through SEC monitoring of cryptocurrency. The goal is the smooth implementation of CBDCs within a select country which means keeping transactional methods seamless by adopting a system very similar to, but a lot more centralized than, private cryptocurrency trading platforms.

This works as the integration of a CBDC into a payment system for retail transactions which backbones off a banking ecosystem already established within the country without having to create a third-party processing system for direct oversight of the CBDC. The large-scale retail implementation through intermediaries of CBDCs provides public support for the incorporation of a new form of currency. Initially, this is difficult as the value of fiat currency is affected by the CBDC exchange value which indicates that those who find no use of a digitized global financial network will still be impacted. To gain public support, showing widespread adoption of CBDC wallets by commercial and private banks on a test basis drives consumer interest and trust in existing entities. As a result, implementing monetary policy for expansion of the money supply in the form of CBDC by the central bank has a greater backing of public support and likelihood of success.

More importantly to the development of the CBDC, the central bank must guarantee the efficient use of the CBCD in wholesale transactions. This generally means cross-border payments to alternative government parties or private sectors internationally as this presents the motive behind the cashless nature of the CBDC. To efficiently develop wholesale transactions with the CBDC, contradictory to retail transactions, there must be central banking direct oversight. The major goal of CBDCs internationally is instant payments across borders with no worries about intermediary interference as it rids firms of a hurdle between global transactions. In this case, the central bank would issue the token for access to the wallet for a firm or business. In doing so, there is a direct line created between the sending account and receiving account in domestic or international transactions. In this case, rather than using distributed ledger technology which decentralizes the transaction process, the central bank should look to centralized transaction methods. This requires physical expansion of current processing systems separate from those handling retail transactions under commercial banks. While this does decrease the efficiency of the transactions through access points as the central bank handles them all without the use of private-sector resources, it gives expanded ability to the central bank's control on exchange rates for greater control on the value of the currency compared to current market forces.

With centralized CBDC transaction methods for wholesale payments, the short-term effect of exchange rates on the value of a select currency value can have automatic stabilizers similar to that of monetary policy with interest rates and inflation. When the currency of a country experiences high levels of inflation, simply slowing the rate of the transaction for the CBDC can act as a barrier, decreasing its supply in the short term internationally to keep the

value stable. Alternatively, increasing transaction rates and dropping exchange costs of the CBDC for a select economy can decrease the value of the currency, increasing net exports with a lower price level with the result of greater aggregate demand.

Overall, the most efficient form of development for CBDCs by central banks around the globe is through an interest-bearing CBDC that uses DLT token-based access through a decentralized two-party system for retail transactions and a centralized token system for wholesale transactions through expanded processing networks. While many argue that a single system may be more effective for development, separating the forms of payments gives expanded policy ability to the central bank and supports the widespread use of the CBDC by the general public. As a result, using this complex form of organization and development will result in the likelihood of the success of a CBDC.

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