

# Promise of digital fiat currency

## Token-based system preserves roles of central and commercial banks



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Central banks are considering issuing digital fiat currencies to maximise economic gains, remain relevant in a digital world and respond to the rise in popularity of cryptocurrencies. DFCs hold the promise of being legal tender, electronic and fully convertible one-for-one into sovereign-backed notes. They would be universal, always available, and usable across all payment networks. They provide instant and final settlement, are included in base money and have cash-like properties.

In recent years, mobile providers have begun to offer inexpensive and readily available digital payment services, while cryptocurrencies have sought to position themselves as an alternative to state-backed money. However, mobile operators essentially provide private money, which carries credit, technology and stability risks. Cryptocurrencies are unstable, and bring investor and consumer protection concerns.

There are numerous benefits to replacing a portion of a country's cash with DFCs. First, they would provide a credit risk-free payments system, backed by the state. This would avoid concentration and technology risk associated with privately-operated systems. It helps

maintain control over money supply. It would ensure central banks remain relevant where cash use has dramatically declined, as in Sweden, and continue to earn seigniorage income.

Second, adopting DFCs can sharply reduce physical currency printing and distributing expenses, as well as other transaction costs. The total annual cost of cash could be 1%-2% of GDP, or 3%-5% of the value of a transaction; DFCs can drive down recurring costs to fractions of that.

DFCs are not limited by the denomination structure of banknotes and, unlike cash, can be used for long-distance and cross-border transactions, the cost of which could drop significantly. This is beneficial for small businesses and individuals, and can foster financial inclusion in developing countries.

### Battle of the banks

Analysts are debating DFCs' design and monetary policy considerations. On design, there has been discussion about token- v. account-based frameworks: DFCs can be designed as a token-based system, where storage and processing are decentralised in a payments instrument, or as an accounts-based system, where storage and transactions are processed by the central bank. A token-based model most closely resembles cash, where the DFC is distributed across payments systems.

In contrast, an accounts-based approach, where the central bank offers digital accounts to retail consumers, runs the risk of being a competitor to commercial banks and could contribute to financial instability during flights to safety. Some central banks argue that interest-bearing DFC accounts could raise funding costs for banks, contribute to volatility, with outcomes dependent on regulation, deposit insurance and perceptions. Many central banks contend that token-based DFCs are the preferred option. In that case, monetary policy transmission and financial stability consequences would be limited, with controlled anonymity for small transactions. A token-based approach also helps preserve the two-tiered financial system, with key roles for central and commercial banks.

The use of a consensus network approach for DFCs based on the digital ledger technology underpinning blockchain, where the transactions register is replicated among all network participants, is falling out of favour. This method is constrained by slow processing speeds and limited transaction volumes, and is not under the sole control of central banks. The energy and computing costs are also high. It is exposed to counterfeiting risks and the finality of transaction settlements is not assured.

While central banks are

# 1%-2%

The average annual cost of printing and distributing cash, as a percentage of GDP

evaluating DFCs, eCurrency solutions have begun to be deployed in card-based and mobile-based e-money payment systems. Earlier this year in Asia, the Rizal Commercial Banking Corporation used eCurrency technology to launch the ePiso in the Philippines in accord with the central bank's sandbox regulations. eCurrency's digital secured stored-value product was launched in West Africa last year with Banque Régionale de Marchés and approved by the Central Bank of West African States.

Over time, we expect central banks to use the eCurrency architecture to issue DFCs, enhancing e-money networks and private sector innovations. The solution supports both token- and accounts-based DFC systems, does not rely on distributed ledger technology, works well for both retail and wholesale transactions, is fully interoperable and is cryptographically secured. ● **Bejoy Das Gupta is Chief Economist at eCurrency, a technology company that enables central banks to issue digital fiat currency.**