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Digital Currency Innovations
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October 2022 Regional Economic Outlook: Sub-Saharan Africa Analytical Note

Habtamu Fuje, Saad Quayyum, and Tebo Michelle Molosiwa (AFR)¹

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Digital Currency Innovations in Sub-Saharan Africa

Sub-Saharan Africa is witnessing a rapid development of digital currencies—new forms of electronic money that do not require the physical transfer of cash—such as the launch of the eNaira in Nigeria in 2021. Policymakers are weighing the benefits and risks of using these products to deliver financial services to their citizens. This note discusses three instruments—mobile money, central bank digital currencies (CBDCs), and cryptocurrency—which can be used to settle transactions and transfer funds.

Policymakers in the region are exploring different ways of delivering digital financial services to meet key policy objectives (Figure 1). Many households in the region do not have bank accounts and have limited access to technology. Allowing them to transact digitally with minimal technology could improve their lives through greater access to formal financial services. Furthermore, enabling faster and cheaper transactions could spur productivity gains and lower the cost of sending remittances, which is the highest in the world at about 8 percent of the amount being transferred to the region. However, policymakers are concerned that digital currencies could be used to transfer funds out of the region illegally and undermine financial and macroeconomic stability, especially in the absence of robust regulatory frameworks.

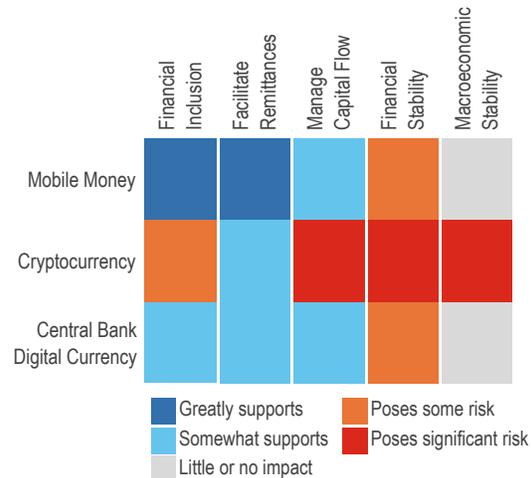
MOBILE MONEY REMAINS ONE OF THE MOST POWERFUL DIGITAL MEANS TO IMPROVE FINANCIAL ACCESS

Privately issued mobile money has been at the forefront of reshaping the region's access to finance, allowing digital payments and transfers at low costs. Almost everywhere in Africa, customers can open mobile money accounts linked to their phone numbers and use them to transfer money, make payments, and exchange mobile money for cash. This circumvents the need for inaccessible, expensive ATMs and eliminates travel to banks, which are often difficult to get to for those in remote parts of a country. In 2021, there were 606 million registered mobile money accounts in sub-Saharan Africa, roughly one account per adult, and US\$698 billion worth of transactions were executed.¹ Mobile money penetration, however, varies considerably across countries, with the widest use in Kenya, with M-Pesa being the pioneer, and significant use in Cameroon, Côte d'Ivoire, Ghana, Senegal, and Uganda.

¹ However, there are multiple accounts per person and many inactive accounts.

² Cross-border transfers using mobile money are also becoming increasingly common. The mobile money provider Orange, for example, allows its users in France to send remittances to Orange Money customers in Côte d'Ivoire, Guinea, Madagascar, and Mali. M-Pesa users in Kenya can also send funds to customers in Uganda.

Figure 1. Digital Currencies Versus Policy Objectives



Source: IMF staff calculations.

Transacting without a bank account or internet access makes mobile money particularly useful for low-income households. A person in a city, for example, can instantaneously send money to a relative residing in a remote village using their phone's text messaging capabilities.² Mobile money can also kickstart the utilization of formal financial services. For example, vendors that transact using their mobile money account will build up a transaction history that can later facilitate access to a loan from a financial institution. Users can also save for a rainy day using their mobile money accounts. In addition, mobile companies' arrangements with local vendors allow customers to exchange mobile money for local currency in remote locations. However, the lack of interoperability across different mobile operators can lead to multiple accounts per user and limits convertibility of funds across providers. Other challenges include safeguarding consumer funds from cyber-attacks and the sporadic inability to withdraw cash from mobile money accounts when vendors do not have sufficient funds (IFC 2017).

CBDC WIDENS DIGITAL PAYMENT OPTIONS AND CAN BE DESIGNED TO SUPPORT THE MOBILE MONEY SECTOR

Like existing hard currencies, retail CBDCs are issued and fully backed by central banks and could be used for everyday transactions.³ Just like mobile money, CBDCs can allow person-to-person transactions, without needing internet access or bank accounts, by using wallets on electronic devices. CBDCs could also use wallets to target and deliver social transfers to eligible households in an easier and cheaper way. Where mobile money offered by multiple competing providers is not exchangeable, CBDCs can be designed to facilitate transactions across different mobile money providers.⁴ CBDCs offer the possibility of more efficient cross-border financial transactions and support regional integration efforts. Finally, CBDCs could potentially prevent retail payments being dominated by privately issued currencies which could undermine central bank's control over the payment system.

CBDCs present some design and implementation challenges. Possible roadblocks for wider CBDC adoption include the lack of national or digital identification of users in many countries, financial integrity and cyber security risks, and limited central bank capacity in this area.⁵ The user experience also needs to be seamless with minimal glitches and considerable resources would be needed to design, maintain, and operate the system.

Central banks can also explore alternative approaches to CBDCs to facilitate digital payments. One option—known as “synthetic CBDC”—is for central banks to strengthen mobile money by backing or guaranteeing mobile money deposits and allowing mobile money providers to hold central bank reserves to clear transactions between one another and other financial institutions (Adrian 2019). These measures also entail risks and need to be combined with the regulation and close supervision of providers, especially if the mobile sector becomes systemically important.

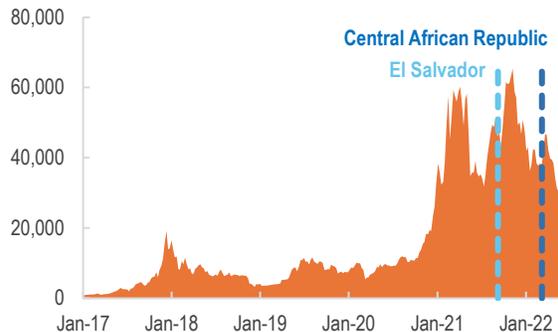
³ In addition to the eNaira in Nigeria, 11 national central banks in the region are either piloting or researching CBDCs. The West African Economic and Monetary Union (WAEMU) and the Central African Economic and Monetary Community (CEMAC) are also considering CBDCs.

⁴ CBDCs could be designed to either compete with or facilitate mobile money. In Kenya, for example, authorities are working with M-Pesa to ensure that the planned CBDC does not crowd out mobile money operators, but rather enhance their interoperability.

⁵ For example, Nigeria plans to make the eNaira available to individuals without bank accounts (the “unbanked”) but with a national identification to ensure that wallets are not completely anonymous to comply with anti-money laundering/combating the financing of terrorism regulations.

⁶ Calculated based on data from Chainalysis.

Figure 2: Volatility of Cryptocurrencies
(Unit price of Bitcoin, US\$)



Sources: Yahoo Finance, and IMF staff calculations.

Note: Vertical lines show when the Central African Republic and El Salvador adopted Bitcoin as a legal tender.

CRYPTOCURRENCY USE, WHICH IS GAINING MOMENTUM, WARRANTS CLOSE MONITORING AND REGULATION DUE TO ELEVATED RISKS

Privately issued cryptocurrency can be used to settle business transactions or transfer funds within and across national borders by using novel distributed ledger technologies. The fact that most of these transactions are difficult to track can be attractive for users seeking anonymity, including for criminal activities. Unlike mobile money and CBDCs, values of some cryptocurrencies can fluctuate, while others are designed to hold parity against the US dollar. Crypto transactions in sub-Saharan Africa peaked at US\$20 billion per month in mid-2021, but the trend might have reversed after the recent crypto bust.⁶ Some countries, particularly those with more vibrant FinTech sectors (Kenya, Nigeria, and South Africa) have seen significant private utilization, but broader uptake across the region is limited.

Although cryptocurrencies have been touted to promote financial inclusion and support remittances, their track record in these areas is limited, and they can pose risks to macroeconomic and financial stability. Private cryptocurrencies have commonly been used for speculative purposes, as well as to circumvent capital

control laws and provide a store of value against depreciating currencies, rather than facilitating payments. Allowing individuals with limited financial literacy to trade in volatile cryptocurrencies can make them susceptible to large losses. Cryptocurrencies could also undermine monetary sovereignty and transmission (October 2021 *Global Financial Stability Report*) and, to the extent that they are accepted as payment and held by governments, price volatility could undermine the stability of public finances.⁷ Finally, as potential conduits for illicit flows, governments would struggle to monitor their use. These risks to macroeconomic stability, public financial management, and illicit financing are likely to be amplified when cryptocurrencies are designated as a legal tender. For instance, the Central African Republic recently decided to adopt bitcoin as a legal tender and launched its own cryptocurrency, the Sango, which is not backed by the regional central bank of its monetary union.

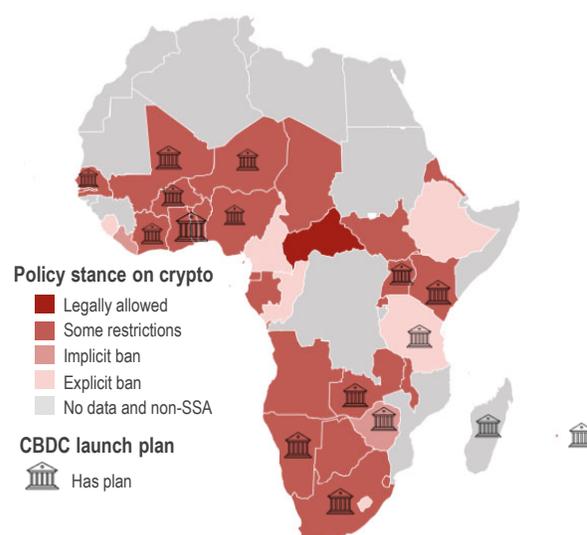
Digital currency innovations need to be considered carefully, and countries should seek guidance when needed. Country circumstances and vulnerabilities should inform policy choices:

- **Extent of oversight and regulations to mitigate financial instability and financial integrity risks.** The use of digital currencies can increase the risk of financial disintermediation should they trigger rapid withdrawals of funds from commercial bank accounts. In addition, digital currencies could be used to commit crimes such as cyber fraud, laundering the proceeds of other crimes, and the financing of terrorism. Authorities should implement measures to mitigate the risk of such misuse, including through an effective framework to regulate and supervise these activities, and ensure that they can investigate and prosecute crimes involving these digital currencies. Moreover, decentralization makes cryptocurrencies particularly difficult to regulate, compared with mobile money and CBDCs, and their volatility calls for consumer protection. Only one-quarter of countries in the region have any type of regulation in place for cryptocurrencies, while two-thirds already restrict their use, and one-fifth have banned them altogether (Figure 3).
- **Capital outflow vulnerability.** Widespread use of cryptocurrencies and, to a lesser extent, cross-border adoption of CBDCs could unintentionally open the capital account and threaten exchange rate stability. With more countries and regional bodies

interested, interoperability across national CBDCs and cross-border spillovers would need to be studied and addressed. Given the difficulty of regulating cryptocurrency, its use creates more risks of capital outflows than mobile money and CBDCs.

- **Monetary union membership.** Unilateral adoption of cryptocurrencies as a legal tender in one member state of the union (like in the Central African Republic) is in violation of the union's laws, has systemic impact on the stability of the currency regime (by exacerbating the size and volatility of capital flows) and creates spillovers for other members. Regional CBDCs might be good candidates for facilitating cross-border transactions.
- **Central bank capacity.** Developing CBDCs and regulating cryptocurrencies require strong technical capabilities. In a low-capacity context, undertaking these actions is likely to be difficult compared with further expanding mobile money (particularly in countries that have already developed some capacity in regulating it).
- **Appropriate digital infrastructure.** To reap the full benefits of digital currencies, countries need to invest in mobile networks and internet connectivity. In countries with limited internet connectivity, currencies that can operate without internet, such as mobile money or CBDCs with offline functionalities, could be prioritized.

Figure 3. Sub-Saharan Africa: Cryptocurrency and CBDC, 2022



Source: IMF staff calculations.

Note: After piloting two domestic and one international CBDC, South Africa has decided to place its launching plan of the former on hold, but the latter might be launched after five years. CBDC = central bank digital currency; SSA = sub-Saharan Africa.

⁷ This is the case in El Salvador, where the government holds 2,381 bitcoins, most of which were purchased when the price was high, leading to substantial loss of value (Figure 2).

DIGITAL CURRENCY INNOVATIONS IN SUB-SAHARAN AFRICA

Digital currencies are popular in Africa



\$698bn
mobile money transactions



12 national central banks and **2** regional banks considering CBDCs



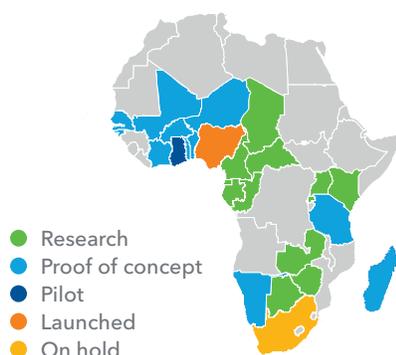
\$20bn
cryptocurrency trade in May 2021 (peak)

...and there are several digital payment instruments

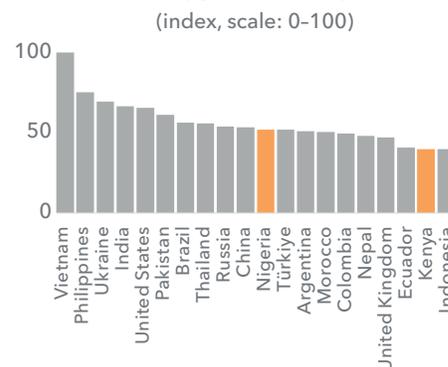
Registered Mobile Money Accounts



Status of Central Bank Digital Currency Development



Top 20 Adopters of Cryptocurrency



CBDCs and mobile money offer more benefits and less risk than crypto

⚠️ RISKS

- » Capital outflow
- » Financial instability
- » Macroeconomic instability



✅ BENEFITS

- » Payment efficiency
- » Financial inclusion
- » Facilitate remittances

Country circumstances should inform policy decisions

- » Extent of oversight and regulations to mitigate financial instability and financial integrity risks
- » Capital outflow vulnerability
- » Compatibility with monetary union membership
- » Central bank capacity
- » Existence of appropriate digital infrastructure

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