

COMMENTS TO DISCUSSION PAPER ON CENTRAL BANK DIGITAL CURRENCY (CBDC)

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Payment Services Providers (PSPs) can act as the 'wallets' and a Kenya CBDC as the currency of use

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1. Which institution/group do you believe is responsible for tackling financial exclusion in any given domestic market? [Multiple answer question]

a. **Central Bank** b. **National Government** c. Commercial Banks d. Non-Profits/Third Sector e. The individual

2. How important do you believe the topic of financial inclusion to be in relation to the development of domestic retail CBDC? [Only one answer]

a. Vital (It won't develop without it) b. **Important** c. Somewhat important d. Not important e. Completely unrelated (no bearing whatsoever)

3. How would a CBDC impact financial inclusion, either as part of a wider strategy or in isolation?

As noted in the discussion paper, the existing mobile payments system- Mpesa already has huge penetrability in Kenya given the high mobile subscription, thereby limiting the opportunities towards total financial inclusion that a CBDC would provide in domestic retail payments. A CBDC could come in as a supplementary framework or as a back-up system enabling payments to be made in a CBDC currency rather than the existing fiat currency. This functionality would also be extended to include those on other mobile payments systems like PesaLink, PesaPal, JamboPay, etc

Additionally (and as identified in the discussion paper), since interoperability of mobile wallets is currently limited to only P2P payments and is yet to be expanded to both merchant and agent interoperability, a CBDC may offer promise for this latter interoperability. CBDCs can serve the purpose of increasing efficiency including instant settlement and reducing (transaction)cost in regards to large retail payments between merchants and/or banks. A CBDC

could bring to the table the advantage of easing reconciliations where the banking system is used as intermediaries with regard to larger wholesale payments and transactions.

In reality there may be little incentive for consumers to switch from the current Mpesa mobile payment system as there would be considerable friction in onboarding customers to use a CBDC for local payments. Any transaction turnover rate involving the CBDC locally would likely be very tiny in comparison to existing popular payment platforms. A good business case would have to be made at the strategic level while a robust marketing campaign would be required to help promote adoption and transition.

4. How would CBDC affect cross-border transactions, either as part of a wider strategy or in isolation?

CBDCs would affect cross-border payments in the following ways:

- as outlined in the discussion paper, cross-border payments lag domestic ones in terms of cost, speed, access and transparency. CBDCs could play a significant role in Diaspora remittances to Kenya especially in speed and cost reduction, rivaling or displacing established international money transfer companies. This would help the country further near The Sustainable Development Goals (SDGs) target for the cost of remittances of less than 3 percent by 2030
- interoperability between global CBDCs raises the spectre of currency substitution (eg dollarisation). However, existing 'Do-no-harm' principles and agreements among global central banks themselves provides a layer of mitigation to this risk. Institutional agreements around cross-border transactions, rather than the technology per-se, remain the key here. To further mitigate against this risk of currency substitution, two models could be envisaged:
 - ★ where CBDCs in any currency can be held in Kenya. Sound macroeconomic policies (including sound capital management measures) and sound institutions within the country can help stave off 'dollarisation' here
 - ★ where foreign CBDCs are exchanged through intermediaries and so foreign CBDCs are not held within Kenya. This model would in and of itself help mitigate the risk of currency substitution

5. How would a CBDC affect the financial sector? What tools could be considered to mitigate any adverse impact of CBDC on the financial sector?

Impact of a Kenya CBDC on the financial sector includes:

- hastening the decline in the costly minting and printing of cash and paper money respectively; as well as the cumbersome usage of cash by the public
- enhancing competition in the payments space and, therefore, efficiency across the board
- improving efficiency of CBK's payments system making it faster (quicker and immediate settlement upon payment) and inclusive of many participants from different sectors- commercial banks, financial markets infrastructures, PSPs, fintech companies, telecommunications companies
- initially providing a back-up (redundancy) for the existing retail payments systems. If these were to fail at any point or period in time, CBDCs would act as back-up. A CBDC can also serve as a back-up during power and connectivity shortages/ outages where it possesses offline capabilities. In future, there could be a full transition from a fiat-based retail payments system to one running entirely with a Kenya CBDC as the underlying currency
- helping to maintain monetary sovereignty. A Kenyan CBDC will ensure public access to central bank money where the preferred CBDC model is the Direct CBDC model where payments information flows directly from users and merchants to the CBK

Mitigation tools are discussed under Question 9.

6. What factors would determine the level of adoption of CBDC as a means of (domestic) payment in Kenya?

Factors that would determine the level of adoption of CBDCs as a means of (domestic) payments include:

- marketing campaigns including:
 - running pilot projects in select towns or cities
 - handouts of the CBDC to citizens via lotteries, draws and similar initiatives
 - loyalty rewards for members or businesses using the CBDC
 - using messaging apps to support payments with the CBDC

- issuing CBDC free guides to some of the top CBDC topics and search terms, 'How-to's', listicles, packaging CBDC tips and quick hacks into video content, etc
- enhancing the relationship between a possible CBDC and existing PSPs like Mpesa, Pesapal, Pesalink, Jambopay, etc, ideally one of a complementary nature. The mentioned PSPs can act as the 'wallets' and the Kenya CBDC as the currency
- application or removal (as appropriate) of caps or quantitative restrictions on the volume and value of CBDCs that can be held by an individual
- a deposits insurance scheme as an additional layer of safety
- entering into partnerships with e-commerce companies for these as well as third-party merchants that sell on their platforms to start accepting the CBDC

7. What advantages and disadvantages do you believe CBDC would introduce over the existing digital payments landscape in Kenya?

Advantages that CBDCs would introduce over the existing digital payments landscape are limited for reasons explained above and relating an efficient and running existing payments system- Mpesa that had more than matched the need for financial inclusion.

This notwithstanding, in times of extreme financial instability, either due to domestic factors or contagion from a global crisis, a CBDC can act as a way of staving off local savings outflows through say 'dollarisation' or 'cryptonation'.

However, certain disadvantages exist not limited to:

- currency substitution as identified in the discussion paper
- competition and potential disintermediation of existing PSPs where CBDC issues to the public are direct to personal wallets

8. What additional potential opportunities, considerations or risks of a CBDC may exist that have not been discussed in this paper?

Considerations

Key considerations outside of those already considered in the discussion paper include:

- Policy dominance. The need to adopt technology that adheres to government policy relating to security and crime prevention inevitably raises the issue of privacy rights. A balance is, therefore, needed. Technology comes forth to provide solutions to policy but policy frameworks and objectives, however, must remain the leading forces that then direct the technology to the areas and extent identified by policy.
- Policy considerations:
 - developing new legal frameworks, new regulations and new case law
 - prudent planning to satisfy policy targets like financial inclusion while avoiding undesirable spillovers like sudden capital outflows that could undermine financial stability
- No one size fits all. There is no universal case for CBDCs since each economy is different. For some, financial inclusion guides the need for introducing CBDCs. For others it is essential as a back-up system if other payments instruments fail. CBK should, therefore, tailor any CBDC plans to Kenya's specific circumstances and needs.
- Scenario planning. The need for CBK to look at the various scenarios including demand for CBDCs in what would be normal times and during bank runs; and the subsequent massive inflows into CBDCs that would follow and what mechanisms would need to be in place and what collateral requirements the CBK would need to have in place to contain these crises.
- Flexibility. Policy and implementation also have to remain flexible due to an uncertain future and fast-changing technology and innovation and should allow for amendments and changes as time goes on.
- Need for caution and diligence. The retail use of a Kenya CBDC could start off as a complement to banknotes with the recognition that any optimal solution would require significant time to design and deploy.
- Scalability. Would the platform on which the CBDC is built on be able to handle the speed and scale of transactions carried out with regard to both retail and wholesale payments?
- CBDC interoperability (cross-border interlinkages). This should take account of the existing infrastructures within the various jurisdictions and leverage both existing and emerging fintech in these jurisdictions to ensure seamless flows and interactions between the CBDC systems. Such interoperability should also take into account that between the domestic CBDC and incumbent PSPs.

- Competition. CBDCs, when built prudently (well-designed), can offer better resilience, more safety, greater availability and lower cost than private forms of digital money including stablecoins and cryptocurrencies that currently provide competition.
- Aiding innovation responsibly. The global financial system is undergoing tremendous transformation and the resultant dangers are not restricted to the introduction of CBDCs but extend to those associated with the advent of privately-issued money including stablecoins and cryptocurrency. The global banking industry, in particular the central banks, will have to both adapt and react to these developments but do so in a responsible manner. In their efforts to mitigate against the dangers associated with these developments, central banks through the various regulatory interventions should not fall into the trap of stifling or standing in the way of innovation.

Opportunities

- On the back of other innovations like DeFi, Web3, stablecoins, cryptocurrency, etc and the desire for the public to engage in relatively effortless peer-to-peer monetary exchanges (as opposed to cumbersome cash and paper money), CBDCs provide an opportunity to meet this growing demand and circumvent private money due their status as legal tender
- There may be niche areas where the CBDC could see greater use, such as when paying for government-related services (including new modes of transport like the JKIA– Westlands Highway) and in government-related investments (e.g government treasury bills and bonds).

Risks

- Although the risk of undermining bank intermediation is identified in the discussion paper, additional related risks include:
 - ★ structural shift away from bank deposits into CBDCs
 - ★ runs on traditional banks (from a confidence crisis) resulting in sudden outflows into CBDCs (which are equally a liability of the central bank and considered trustworthy)
 - ★ flight from the domestic CBDC into foreign CBDCs. Such currency substitution or ‘dollarisation’ is quicker and, therefore, more dangerous in a more digitalised space

- In Kenya with a large existing and well-established retail payments system that also enjoys a large network effect, the danger is that the launch of a CBDC fails. When one takes into account the resource effort involved this is clearly an undesirable outcome
- The sole use of one technology platform like DLT to pilot a CBDC may be problematic as scale increases
- Power outages may create system breakdowns. As identified in the discussion paper, developing the needed infrastructure to support CBDC issuance would include ensuring a high level of availability and resilience of the general infrastructure such as electricity grids, mobile network and internet coverage

9. Are there additional ways to manage potential risks associated with CBDCs that were not discussed in this paper?

Additional ways to manage potential risks with CBDCs would include:

- maintaining caps (quantitative restrictions) on the volume and value of CBDCs that can be held by an individual but these caps could be adjusted were there to be a bank run or some other form of financial crisis (and there was a clamour by the public to be able to hold more balances in their CBDC wallets)
- to manage outflows into CBDCs from bank deposits (disintermediation), zero interest rates could be imposed on CBDC holdings, thereby, driving the need to spend rather than save. This would also limit competition to bank deposits. Significant charges for large or frequent withdrawals into CBDC holdings from bank deposits could also be imposed.
- CBK could customise and use a permissioned DLT. This would enable CBK trace, track and monitor currency activity thereby ensuring that the financial integrity of the whole system is maintained.
- to meet policy demands surrounding privacy considerations a viable CBDC would best serve the needs of Kenyan users by being privacy-protected, intermediated, widely transferable and identity-verified while complementing existing means of payment
- to reduce the probability of failure of a Kenya CBDC, a strong use-case has to be identified first, following detailed consultations and discussions with all stakeholders, before launch is made

10. Which model of CBDC do you believe would be the most suitable in Kenya and why?

In our opinion, hybrid CBDCs as identified in the discussion paper would be the best placed for Kenya. CBDC is a claim on the central bank. The central bank retains copies of the various retail ledgers held by the various intermediaries (commercial banks, PSPs). Intermediaries onboard clients and handle retail payments.

Broad structure

1. Monetary policy is executed by CBK based on DLT or private blockchain and smart contract functionality at the very top.

2.a. CBK maintains a **wholesale ledger** detailing its transactions with intermediaries using the Kenya CBDC on the one hand and also those between the intermediaries themselves on the other. All these transactions are in the Kenya CBDC. CBK maintain **copies** of the various retail ledgers but with no ability to make entries. All the transactions are performed on a cloud-based permissioned DLT.

b. CBK also maintains a **wholesale ledger** containing its cross-border transactions in the Kenya CBDC with other central banks. Foreign central banks also have their individual wholesale ledgers specific to their jurisdictions detailing transactions with their foreign intermediaries.

c. All participating central bank wholesale ledgers are onboarded onto a DLT structure that allows for interoperability between the different national CBDCs.

3. Intermediaries- both commercial banks and PSPs (Mpesa, Pesapal, Pesalink, Jambopay, etc,) onboard customers and execute retail payments. Each intermediary has a **retail ledger** for itself and enters transactions involving its customers onto this retail ledger. Only intermediaries can make entries onto their individual retail ledgers.

4. Commercial banks reconcile payments between themselves on the wholesale ledger held at the CBK. Commercial banks also allow savings and borrowings in CBDCs but these are **not** interest-bearing.

5. All transactions involving intermediaries are denominated in the Kenya CBDC and performed on the same permissioned DLT platform as that holding the CBK wholesale ledger but with a different access protocol. The same Kenya CBDC is then used for both large value wholesale cross-border transactions as well as low value retail payments

6. The retail payments model is, by and large, similar to the existing Mpesa payments system but using the Kenya CBDC as currency rather than the fiat KES and **onboarded onto a permissioned DLT platform** with different access layers and protocol for the CBK, intermediaries and end-users.

NB. Unlike as suggested in the discussion paper, there is no existence of a wholesale CBDC and a retail CBDC, distinct from each other, as all transactions on both the wholesale ledger and retail ledger are all made with the **same** CBDC. It is this very same CBDC that will be used for cross-border transactions and will have an exchange rate with foreign CBDCs in much the same way as fiat currencies currently operate.

The suggested model is suitable for a variety of reasons:

- where onboarded onto a DLT-based platform, it allows for use of the CBDC for cross-border payments as well as an integration with the existing mobile payments systems like Mpesa
- it could serve as a back-up system in the unlikely event that the current mobile payments systems fail
- it would allow for participating in a multi-CBDC platform where financial institutions transact directly with each other in the digital currencies issued by participating central banks

11. Are there additional design principles that should be considered that were not discussed in this paper?

Additional design principles include:

- Financial stability and privacy considerations. These are paramount to the design of CBDCs. Central banks should be committed to minimising the impact of CBDCs on financial disintermediation and credit provision for the wheels of the economy to continue rolling seamlessly.
- Balance between CBDC design and policy. Taken together these two will underpin trust in CBDCs. Correct design requires time & resources, continuous learning from experience incl. shared experience across countries as well as partnering with private companies to successfully distribute CBDCs, built e-wallets, App features, etc.
- Resilience. Where, for example, one node is compromised (an attack on one node takes place) and there is no requirement to shut down the entire network in an attempt to avert compromising the whole system

- Offline capabilities. Design features that allow the CBDC to continue transacting even where systems are down due to power outages or other forms of electronic shortfalls
- Scalability. An ability to change volumes of CBDCs in supply in line with prevailing or intended monetary policy
- Efficiency. An ability to meet speed, cost and governance demands
- Cross-border capabilities including interoperability and complementarity. The need to build a CBDC that is interoperable with those of other central banks even though these latter ones are country-specific and are built to meet the unique domestic characteristics of those jurisdictions.

12. How could a CBDC be designed to achieve maximum interoperability with the existing payment platforms in Kenya?

This implies that the CBK prefers to have a system where the existing mobile system is retained while the CBDC structure comes in to play a complimentary role.

Maximum interoperability would be achieved by onboarding the entire infrastructure onto a cloud-based DLT platform, preferably one with 'smart contract' functionality. As identified earlier in these comments, the PSPs would act as the 'wallets' enabling P2P, B2P and B2B transactions while the CBDC acts as the currency of use. This would bring the whole set of advantages revolving around cost, efficiency, speed, security, back-up, resilience and governance of DLT to bear.

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