Central Bank Digital Currencies

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NBR-IMF Seminar on Financial Stability, Sinaia

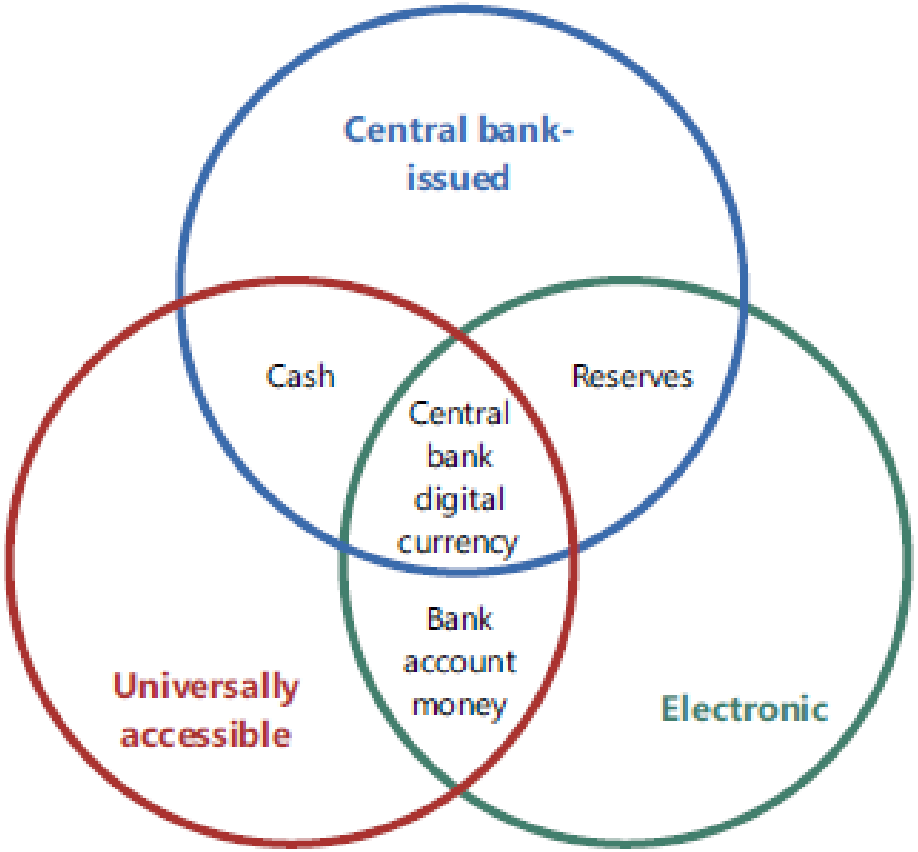
September 2023

Context

- Currently central bank money exists in two forms
  - **Cash**: not electronic
  - **Reserves**: not universally accessible
- **CBDC** would be
  - Issued by the central bank
  - Digital

  = A digital liability of a CB that is widely available to the general public

CBDC and other forms of money

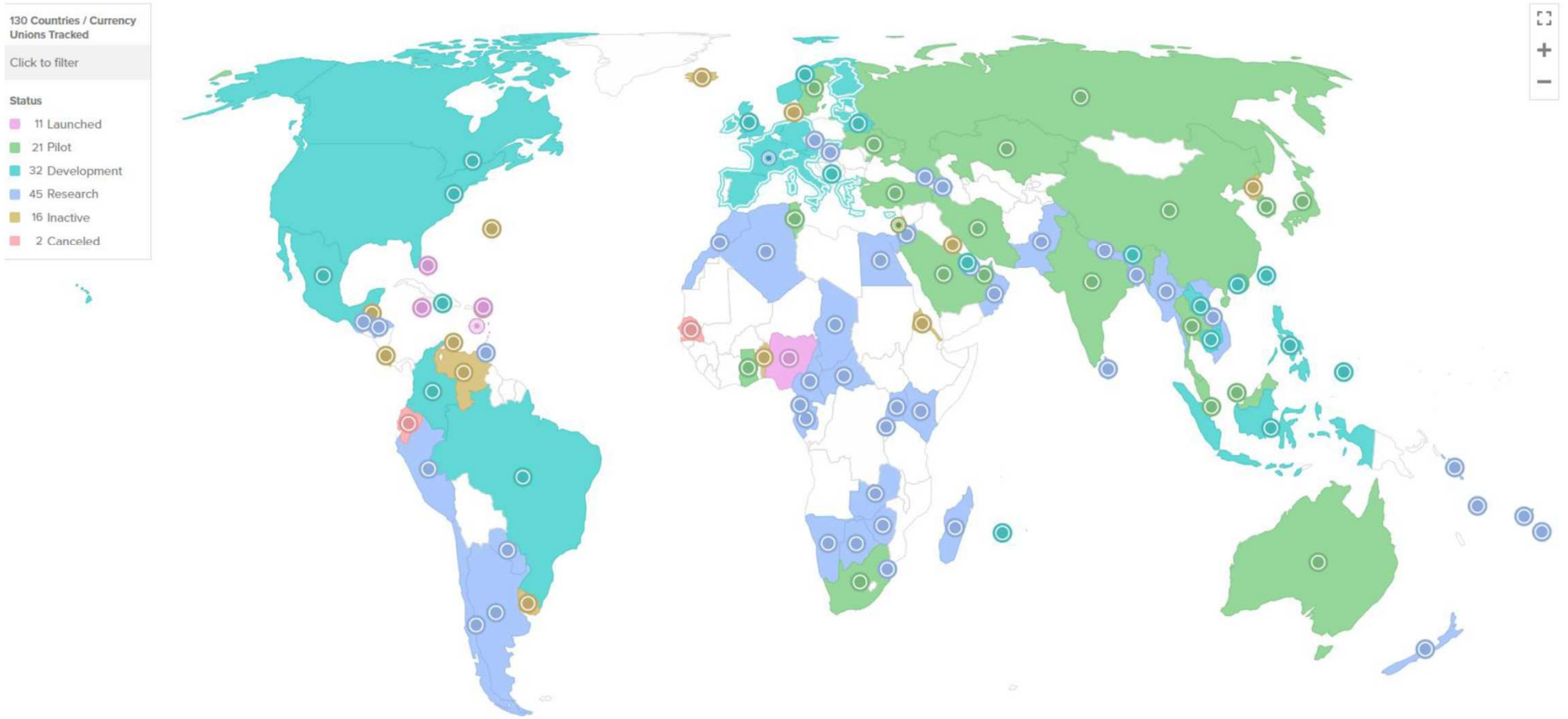


Source: Bjerg (2017)

Context (cont'd)

- Various aspects regarding CBDCs have been discussed since 2016
- Increased attention from authorities and academics
- Implications remain to be fully understood: payments and innovation, financial stability, monetary policy, financial inclusion
- Many countries (100+) are investigating and developing CBDCs, some have implemented them

Context (cont'd)



Source: https://cbdctracker.org/

Reasons for exploring the idea of CBDCs

- Increased digitalization of finance
  - Many countries are experiencing a decline in the use of cash (however cash remains an important payment method, in particular for low-value transactions)
  - Heterogeneity across countries in terms of cash usage
  - CBs seek to preserve public access to central bank money in a world where market participants prefer the convenience of electronic payments

- Response to the proliferation of private currencies (i.e., crypto and stablecoins)
  - Cryptocurrencies: subject to significant price volatility → inadequate as means of payment or store of value
  - Stablecoins (promise of maintaining stable value against a currency or basket of currencies, or pool of assets): broad adoption could undermine the anchoring to central bank money → reduce CBs ability to control inflation and monitor financial stability

Reasons for exploring the idea of CBDCs (cont'd)

- Smooth and efficient operation of the of payment system
  - Within and across jurisdictions

- Promote financial inclusion
  - Countries where a large share of population does not have access to the financial system or digital payments
  - Resulting benefits may be relatively small in advanced economies, at least compared to those expected for developing economies

Concerns about CBDCs

- Successful CBDCs (safe assets with potentially positive remuneration) could lead to bank disintermediation
  - If banks have no market power, CBDCs may shift deposits away from the banking system → reduce bank lending
  - If banks have market power, CBDCs introduction may improve competition, incentivizing banks to offer better services & products and/or higher deposit rates
  - Possible effects on profitability:
    - Decrease in deposit funding base → shift to market funding → funding becomes more expensive → loss of competitiveness relative to other forms of funding for retail and corporate clients
    - Less cross-selling based on payment accounts
    - Lower interest margin (depending on interest on CBDC, pass on ability)

    ➢ ↓ bank profitability & ↓ ability to build capital buffers → affect depositors confidence
    ➢ ↑ bank risk-taking due to compressed interest margins

Concerns about CBDCs (cont'd)

- Presence of CBDCs may amplify bank run dynamics in times of stress
  - CBDCs would create an additional channel for deposit outflows
    - In a crisis, a flight towards CBDCs may occur faster and on a larger scale
    - Stronger incentives to move into CBDCs (riskless asset with no storage costs) than into cash (for which there are risks and costs associated with storing)
    - Information channel: The CBs learn about the state of the economy and respond more quickly → reduces costly liquidation and the misallocation of resources
    - Safe public money vs. private money protected by the deposit insurance scheme
- How to prevent excessive use as of store of value ?

Concerns about CBDCs (con't)

- CBDCs might distort existing payment systems → crowding out private payment solutions
- CBDCs must be interoperable with other forms of money and existing payment systems
  - How CBDCs would connect with instant payment infrastructure?
  - How CBDCs transactions can be processed at point of sale (PoS) terminals?
- How CBDCs might work for cross-border and foreign exchange payments?
  - Retail CBDCs (for individuals and non-financial firms payments) vs.
  - Wholesale CBDCs (for financial institutions transactions in financial markets)
- Cross-border payments are currently slow and inefficient: Removing the network of correspondent banks from the chain of transactions by introducing CBDCs (that allow CBs to communicate directly) can lead to substantial time and costs savings … How CBDCs connect across jurisdictions ?

Acceptability

- Why individuals and firms might us CBDCs as means of payment?
- CBDCs should be attractive for the user: generate sufficient demand to achieve the selected public policy objective(s)

- Consumers: in large currency zones (e.g., Euro area) there is no P2P payment solution available to a large share of population; local solutions exist though (e.g., Tikkie in The Netherlands, Swish in Sweden)

  - Individuals worry about privacy and anonymity

  - Some survey evidence (Bijlsma et al., 2021) suggests that adoption rate can be very high among Dutch consumers (~50%), with intended adoption of CBDCs positively related to respondents' knowledge of CBDCs, trust in CB and financial institutions, and interest rate offered
  - However, the adoption in countries where CBDCs were launched is not impressive (as a fraction of total currency in circulation)

- Merchants: transactions with CBDCs subject to fees and require specific equipment/infrastructure

Distribution

- A CBDC should preferably be distributed by supervised financial institutions (given their expertise in the provision of end-user services)
- How to incentivize financial intermediaries given the disintermediation concerns?
  - Better understanding of how their costs and revenues may be impacted by the presence of CBDCs

Design features

- Should be a response to the objectives that the a CB whishes to achieve
- Price and quantity approaches (or a mix)
- Price-based measures (i.e., fees, remuneration) are more flexible (allowing for any size of transactions or holdings)
  - Short-term interest rates (without limits on quantities)
    - Positive rates may fuel disintermediation
    - Unremunerated CBDC would affect the ability to conduct negative interest rate policy (NIRP)
  - Tired remuneration (with flexible 2nd tier) (with quantity limits for 1st tier)
    - Prevent CBDCs from undermining monetary policy and avoid bank disintermediation, by discouraging CBDCs as large-scale investment
    - Negative signaling effect: lowering the second tier's remuneration in time of distress could signal that a bank run has started → accelerates the run
- Quantity holding limits
    - Directly limit the extent of potential adverse effects on disintermediation
    - But… potentially harmful impact on adoption

Other aspects

- Investment in development and implementation carries meaningful costs
  - Significant investment should (ideally) be recovered (=the use of CBDCs should not be too little), but they should not gain excessive importance to undermine stability and crowd out private innovation
  - What would happen if large scale projects (e.g., digital euro) would be met with lack of enthusiasm and the adoption would be low so that the potential benefits would remain unachieved?
- Legal issues: new legislation may be required for the digital central bank money
- CBDCs designs are at the national (or currency-union) level: Who will set the global standard on how to design and use the CBDCs? Mutual recognition of legal systems and agreement on technical design issues are of paramount importance (BIS, 2022)

Conclusion

- Development of CBDCs poses complex challenges
- The debate on the merits and drawback of CBDCs is moving rapidly
- Implications for payments, financial stability, monetary policy depend on the specific design features and the economic environment
- Implementation of CBDCs requires careful considerations of
  - Benefits vs. potential externalities
  - Economic, technological and legal aspects
- Efforts done by CBs and academia advanced our understanding of complexities related to CBDCs

Thank you !