



Inclusive CBDC designs

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** The presented views are those of the author and not necessarily those of the BIS*

Retail CBDC, the pandemic, and financial inclusion

1. The pandemic has put two challenges to the fore:
 - It accelerated the decline of cash use, and shift to digital payments
 - Payment systems featured prominently in government-to-person (G2P) payments
2. Going forward, retail CBDC designs must address the conflicting goals of low access hurdles but good identification
 - In design efforts, access framework & operational architecture are key

Will draw on:

Auer R, G Cornelli, J Frost (2020) "Covid-19, cash, and the future of payments" BIS Bulletin 3

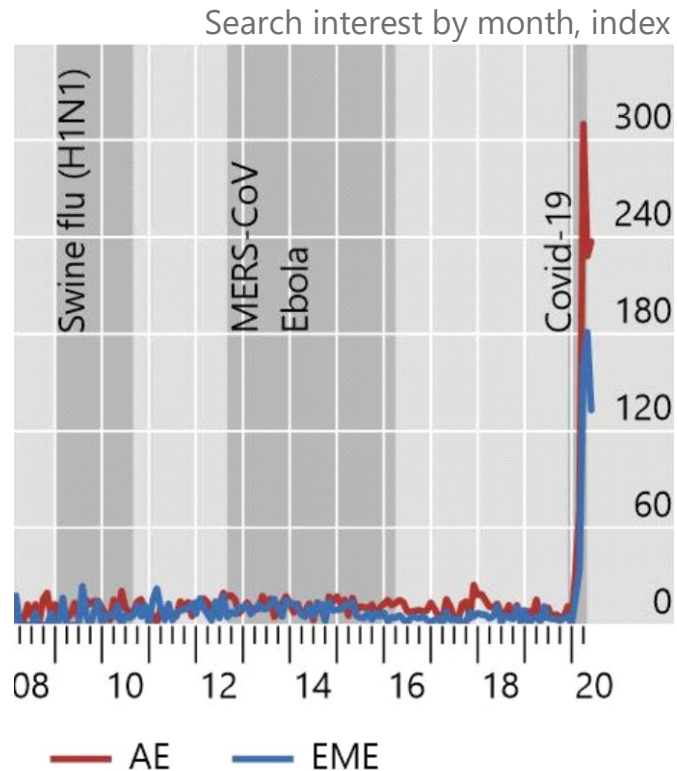
Auer R and R Boehme (2020) "The technology of retail central bank digital currency" BIS Quarterly Review, March.

Auer R, J Frost, T Lammer, T Rice, and A Wadsworth (2020) "Inclusive payments for the post-pandemic world" forthcoming.

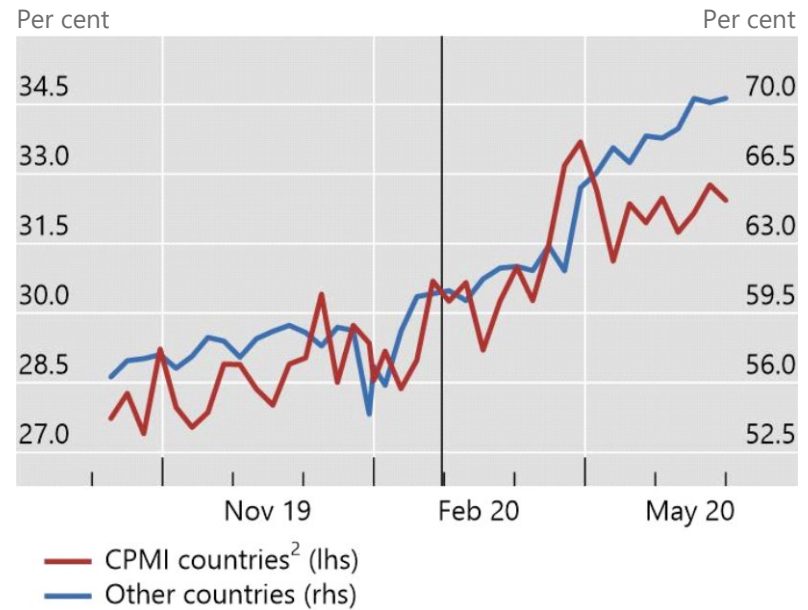
BIS (2020) "Central banks and payments in the digital era" Annual Economic Report, Chapter III.

Cash use is declining; in some jurisdictions its general acceptance is under threat

Concerns about viruses and cash^{1,2}



Contactless cards have seen rapid growth in the pandemic¹



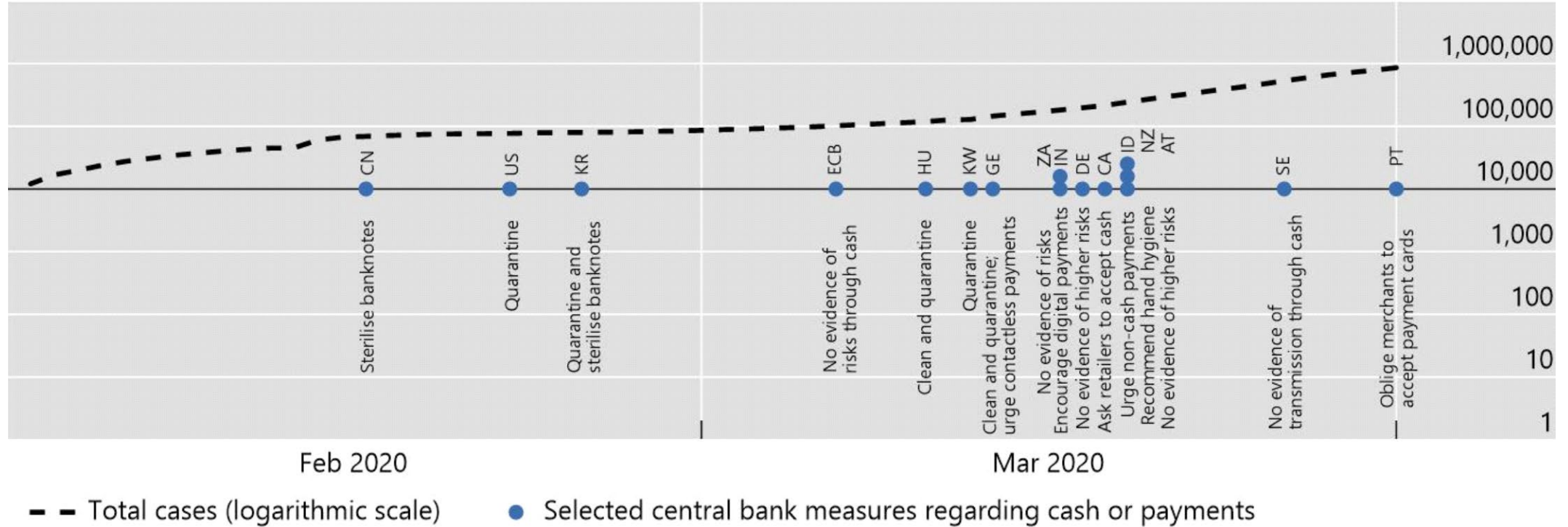
The black vertical lines indicate 30 Jan 2020, when the World Health emergency of international concern".



From Auer R, G Cornelli, J Frost (2020) "Covid-19, cash, and the future of payments" BIS Bulletin 3 and Auer R, J Frost, T Lammer, T Rice, and A Wadsworth (2020) "Inclusive payments for the post-pandemic world" forthcoming

Central banks are promoting trust in cash and universal acceptance

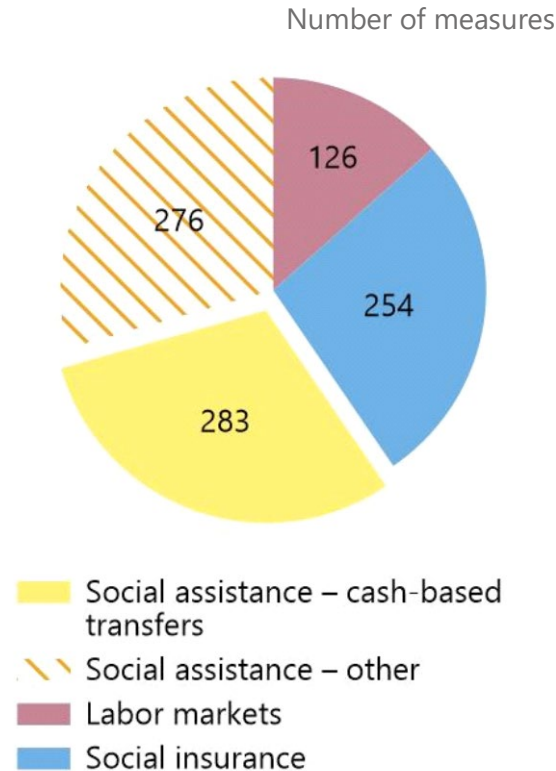
Number of Covid-19 cases, logarithmic scale



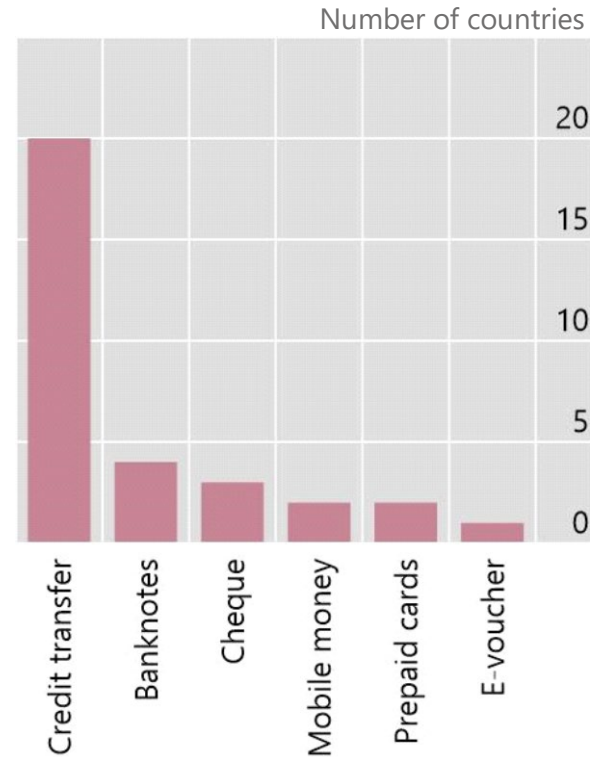
Source: R Auer, G Cornelli and J Frost, "Covid-19, cash and the future of payments", *BIS Bulletin*, No 3, April 2020.

G2P payments have become important during the pandemic

Global social protection responses¹



Type of G2P cash-based transfers²



Features of G2P cash-based transfers

	CT	CQ	BN	MM	EV	PC
Increases financial inclusion	✓			✓		
Serves digitally excluded		✓	✓	✓		✓
Fast & direct delivery	✓			✓		
Few leakages	✓			✓	✓	
Easy to use			✓	✓		✓
Easy to access		✓	✓		✓	✓

CT = credit transfer (electronic deposits directly into a bank account); CQ = cheque; BN = banknotes and similar tokens (eg physical vouchers); MM = mobile money (a form of e-money); EV= electronic vouchers; PC prepaid cards.

Source: R Auer, J Forst, T Lammer, T Rice and A Wadsworth, "Inclusive payments for the post-pandemic world", forthcoming, 2020.

The inclusive dimension of retail CBDC designs

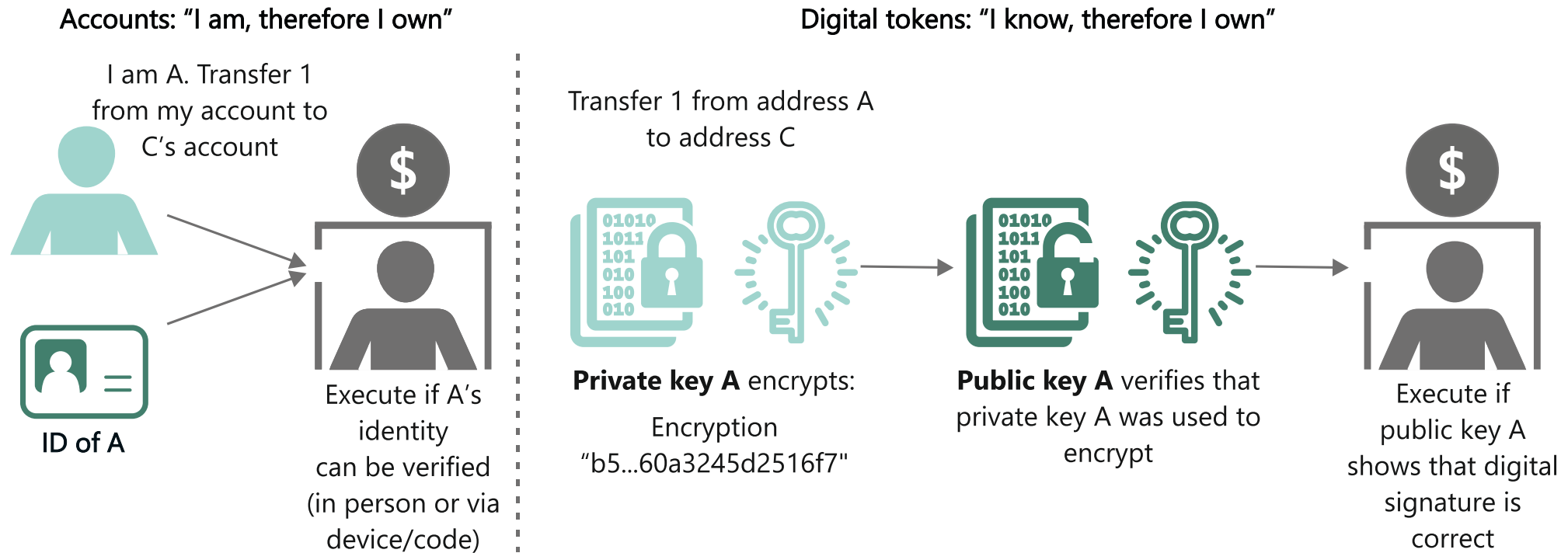
- **Two conflicting goals:**

- The need to offer a digital complement to cash that is accessible *requires low identification requirements*
- Long-term objectives, such as offering transaction accounts for all and tackling fraud in G2P payments require *high identification requirements*

- This highlights:

- The **access framework: value/token based vs accounts**
- The importance of the **CBDC architecture to tackle market failures in universal access to payments**

Account-based vs token-based access, following Kahn and Roberds (2009)



Source: R Auer and R Boehme (2020) "The technology of retail central bank digital currency" BIS Quarterly Review, March.

Which type of access is preferable?

- Token-based access allows for value-based CBDC, such as prepaid CBDC cards that can be used without identification
- Yet, long-term objectives include
 - Offering access to transaction accounts, maybe also as a bridge to saving accounts
 - Disbursements of G2P requires identification
- CBDC should enable both sets of goals
 - Mixed access frameworks (see e.g. ECB (2019)) may help

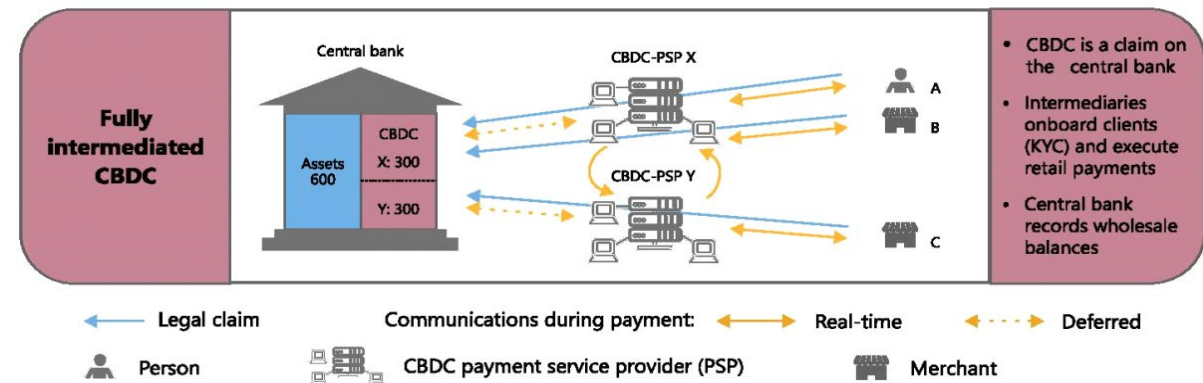
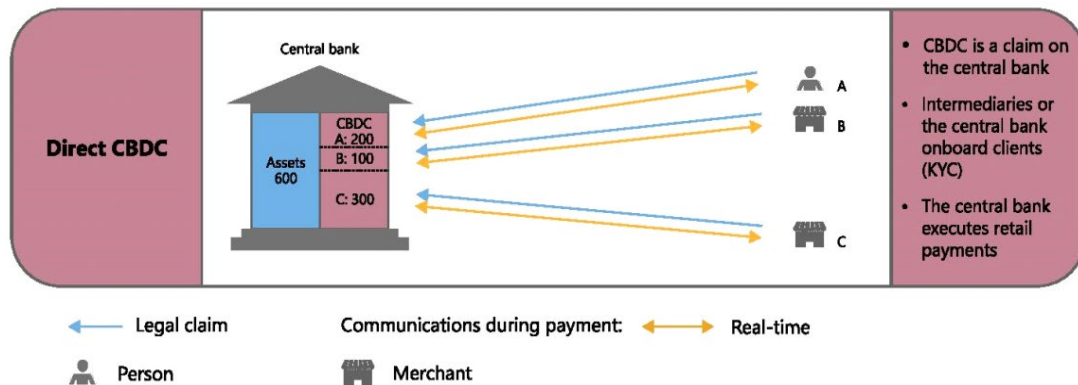
CBDC architectures and inclusion

- CBDC are not created equal. Three architectures with different implications for how the private and the public sector work together:
 - **Direct CBDC** – payments operated by the central bank
 - **Intermediated CBDC** – fully operated by private sector
 - **Hybrid CBDC** – operated by private sector, central bank backup
- The architecture of the CBDC matters for inclusion:
 - A CBDC is addressing market failures
 - Core question: **can the central bank execute some payments directly?**

Direct and Intermediated CBDC architectures: polar options

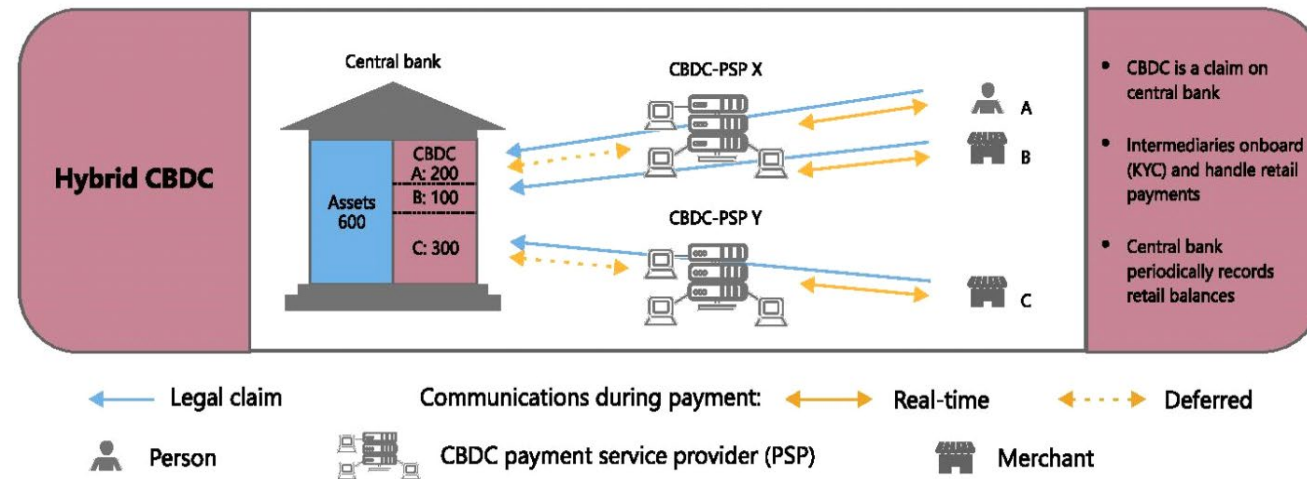
- Private sector provides user interfaces & conducts KYC
- **Yet, central bank operates all retail accounts in real time**
 - Can operate payments in line with social goals
 - How well-suited is the central bank for this activity?

- CBDC is a direct claim on the central bank
- **Central bank only operates wholesale accounts**
 - No balance sheet concerns
 - Yet, central bank cannot improve technical resilience & operate in line with social goals

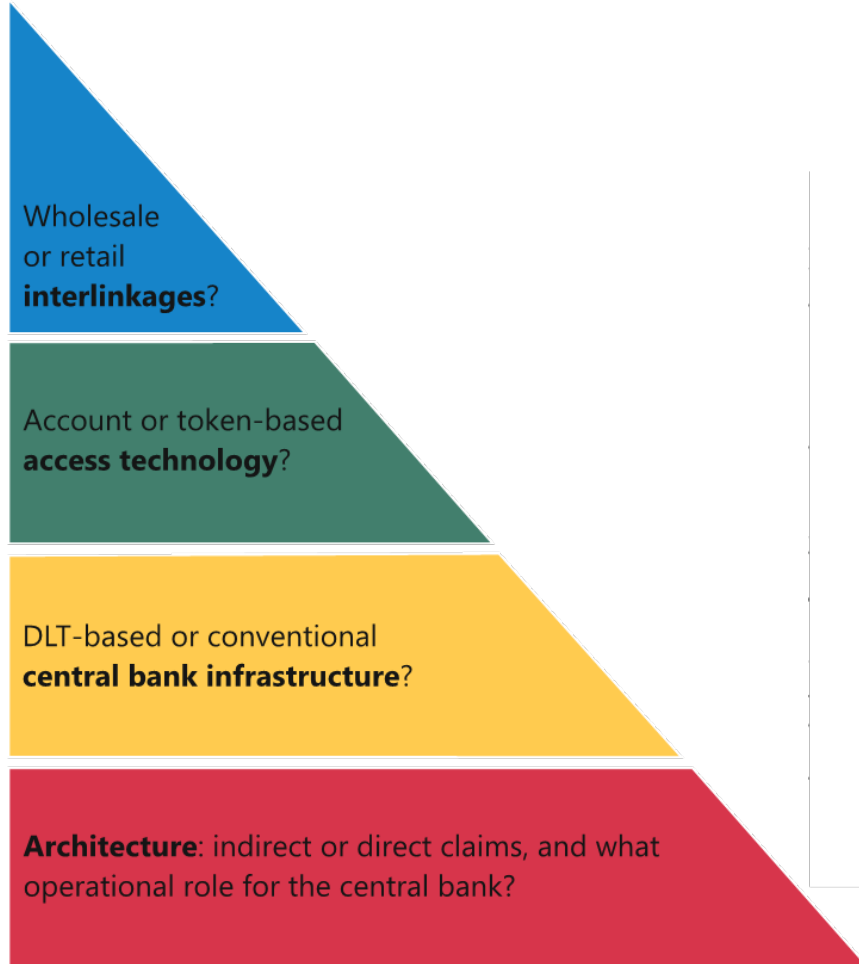


The Hybrid CBDC: an intermediate option

- Auer and Böhme (2020) also propose hybrid approach:
 - **Private sector operates payments by default**
 - **Central bank acts as a backstop.** It periodically retains a copy of the retail balances
 - Can switch retail client relations from a failing intermediary to a working one
 - Can operate some payments directly in line with social goals



The inclusive dimension of CBDC designs



- Underlying trade-off for CBDC design: low access hurdles but good identification
 - Access framework (tokens, accounts and mixed systems)
 - Architecture allowing the central bank to tackle market failures
- Design efforts should address both short- and long-run issues
- Only one aspect of a holistic design for all technology choices – see Auer and Böhme (2020) “The technology of retail CBDC” BIS Quarterly Review, March