Future of Digital Assets in the Post-Pandemic Era

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** The opinions expressed are those of the author and do not necessarily reflect the views of the Bank for International Settlements.*

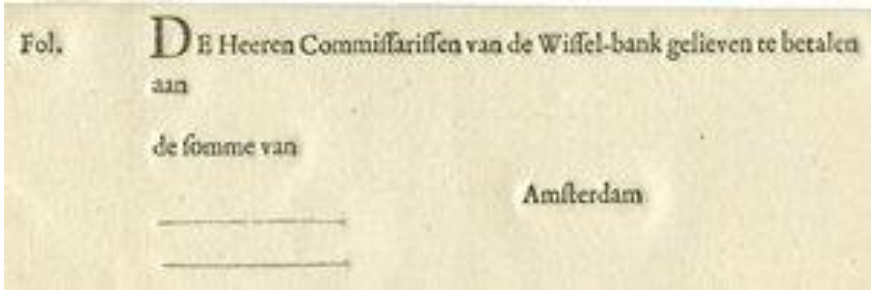
Motivation and Outline

- **Motivation**
  - Digitalisation is rapidly changing financial services, the Covid-pandemic accelerated it
  - Comes with benefits and opportunities, but also risks
  - International financial architecture can and should adapt to digitalisation
- **Outline**
  - Review why money is needed and how it is supplied
  - Effects of digitalisation on financial services
  - Crypto-assets, stable coins, fast payment systems: costs and benefits
  - CBDC: use case, designs and policy issues
  - Cross-border and international financial architecture: issues and agenda

Review of money

The Economic Organisation of a P.O.W. Camp

By R. A. Radford



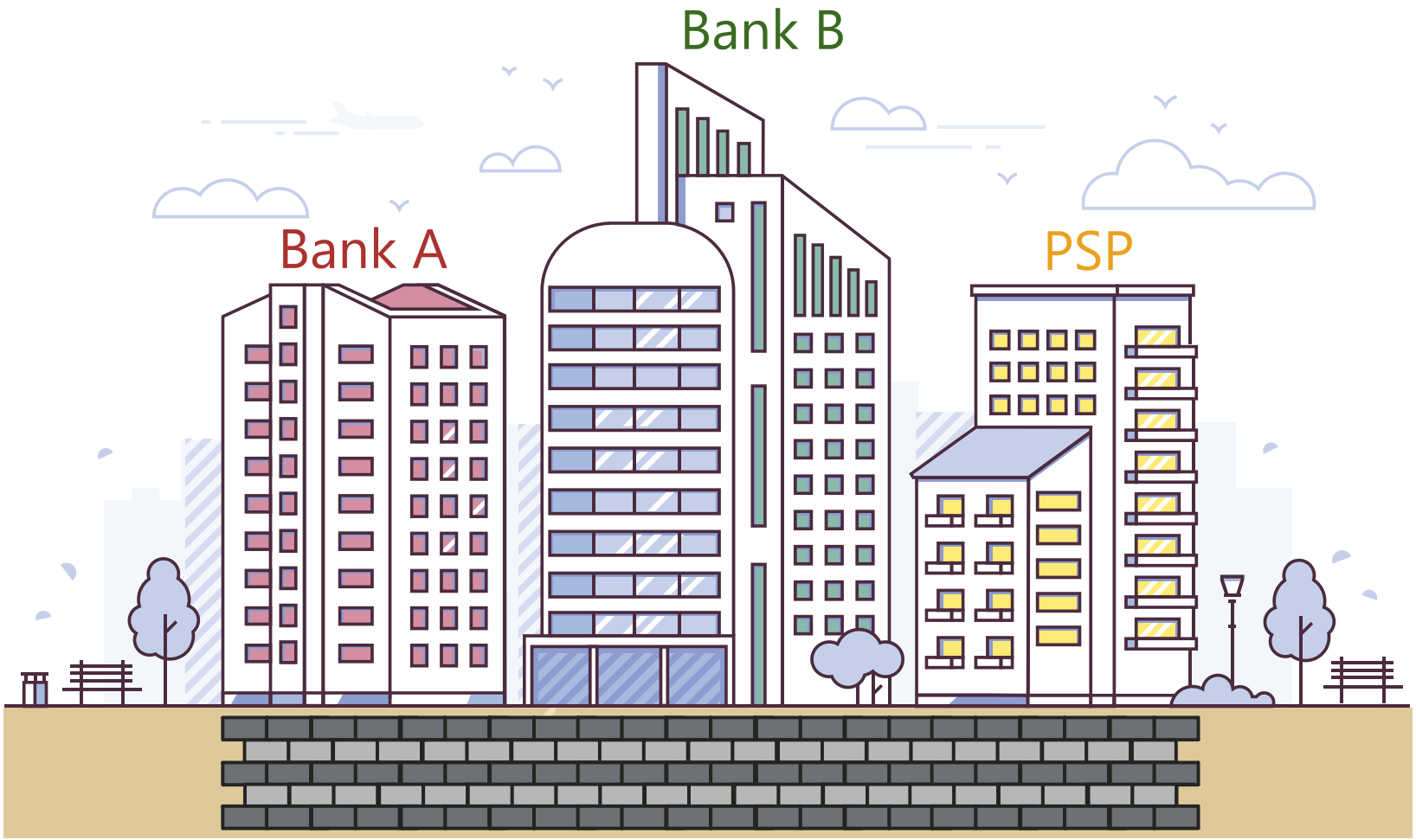
Money as a social contract

Two basic questions many have asked (and answered)

1. Why money?
   - Externalities of overcoming coincidence of double wants, barter
     - Network effects are the essence, arising from the virtuous circle of greater acceptance and greater use (without users, money would be a worthless token)
   - Information (instead of credit)
2. Why money as a social or public rather than a private institution?
   - To reduce costs of poor commitments about future collective decisions (intertemporal externality)
     - Competitive monies arose only rarely, often where government money was absent
     - Inability to make commitments means private money comes with instability

→ Central banks emerged as the institutional solution to both problems

Central bank foundations for the monetary, payment and financial system



Digitalisation and changes in financial services

Digitalisation impacts financial services along many dimensions

- Existing financial service providers
  - Alters production frontier → lower costs
- Adding new services, products
  - Extends frontier/supply → greater consumer surplus
- Lower cost (of access) for users, better information
  - Extends supply → more access/inclusion
- Entry, exit
  - Changes competition → alters revenues/profits and their distribution
- Overall market structure
  - Economies of scale, scope, related network externalities → IO of market changes

Effects of digitalisation show up in several ways, with benefits and risks

- Price: downward pressures on margins, fees, etc.
  - But also more scope for discrimination, cream-skimming, etc..
  - Can mean (some of the) consumer surplus goes to providers
- Quantity: less of some services, more, to other (new) providers
  - Some financial services to be more tailored, combined (eg smart. composability
  - Almost certain, migration away from existing providers
- Costs and profits: less for incumbents
  - Due to efficiency gains and competition, but also market structure related shifts

Effects vary by service as do $ @ risk

- Digitalisation's impact varies by function
  - Maturity transformation, information, risk management, payments, etc
  - ➢ Digitalisation affects various services differently and so does $@risk
    - ➢ Payments and retail banking most at risk

The importance of specific financial services for banks' earnings
(2021 data, main areas only)

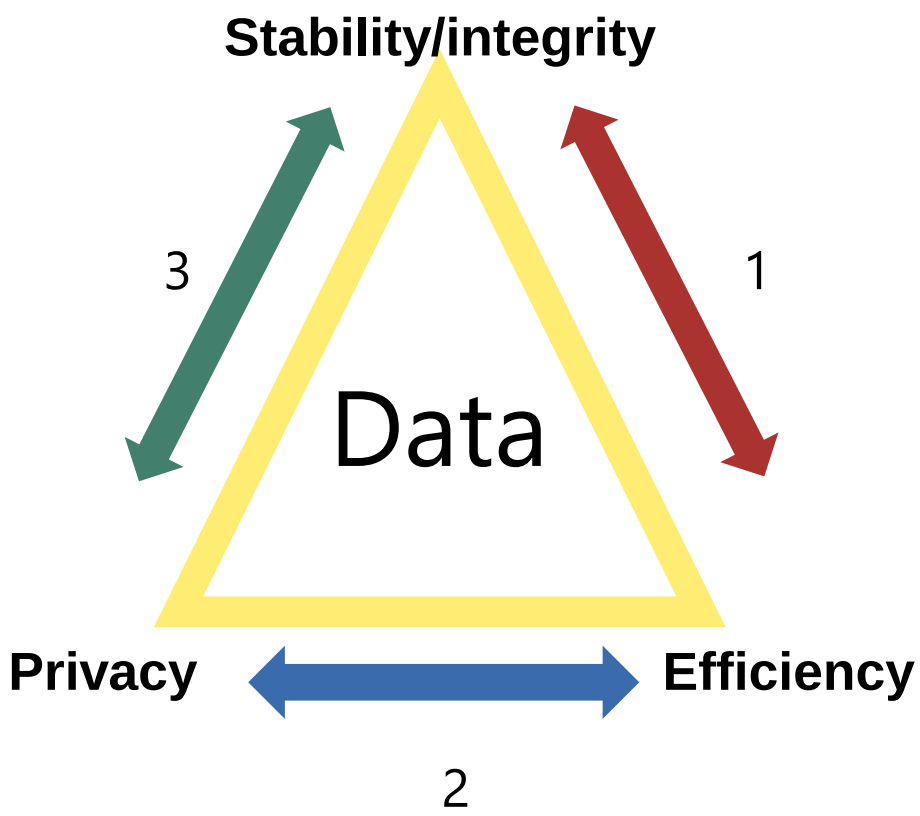
Activity	Affected?	At Risk
Retail banking	√ √	$1934 billion
Commercial and corporate banking	√	$2140 billion
Payments	√ √ √	$868 billion
Wealth and asset management	√	$796 billion

Source: McKinsey, 2022

New entrants, Fintech and Big Tech, making inroads

- Presence highest in payments, next in credit, still little in deposit, insurance
  - Payments
    - Relates to scope for network externalities, quality of services
  - Credit
    - Relates to the country's regulatory, competitive environment
  - Deposits
    - Little/last affected, requires much trust, regulatory know-how
  - Insurance
    - Some presence in P&C, not much in life insurance
- BigTechs' business model differs from FinTech, more transformational
  - Data analytics, Network externalities, and Activities ("DNA") are key reinforcing features

Greater digitalisation raises several new issues. Three objectives: Stability/integrity, Efficiency, Privacy. Trilogy, trilemma?



1. “Traditional” stability-competition tradeoff, to adapt

2. Access to data for providers vs anonymity (eg better/worse access to credit; or misuse)

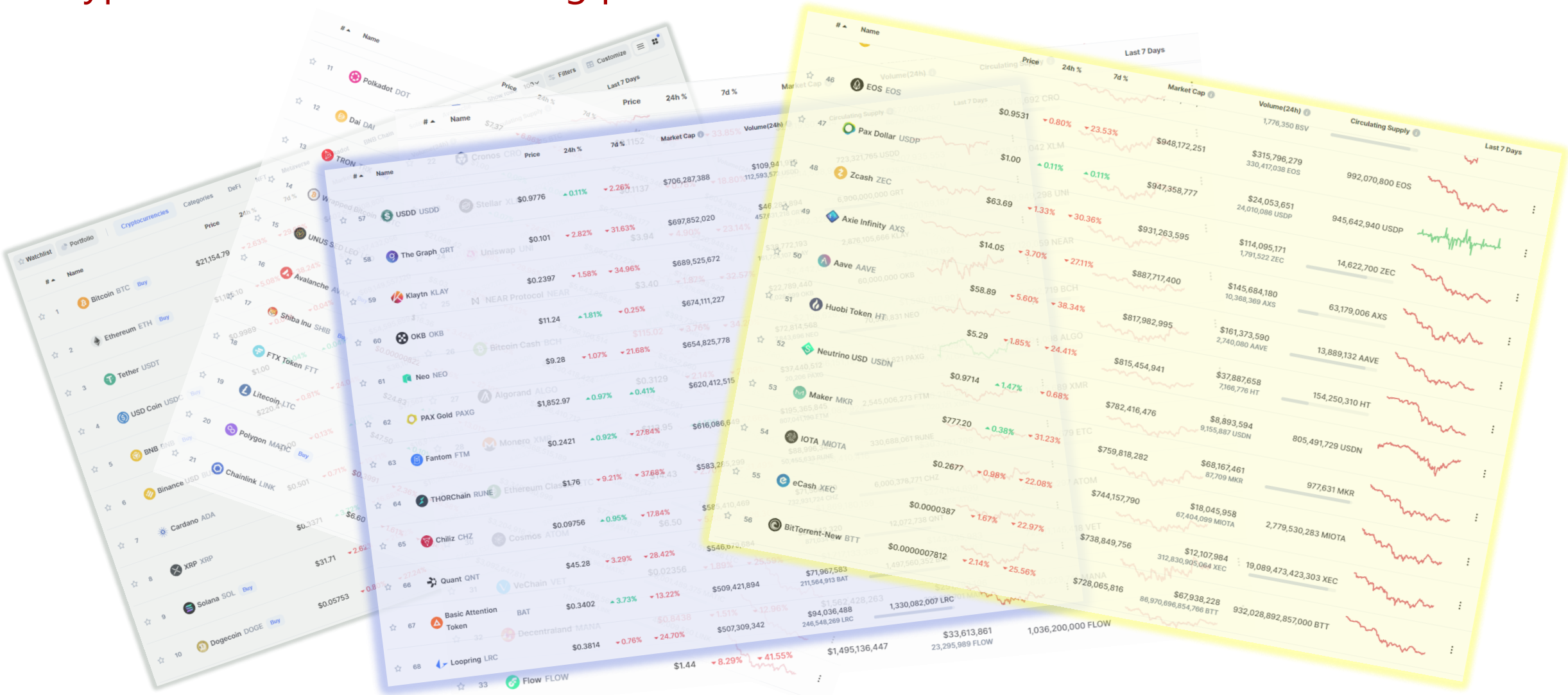
3. Access to data for regulatory goals vs anonymity (eg AML/CFT, supervision, judicial)

Three policy areas: some old (1+2), some new (2+3)

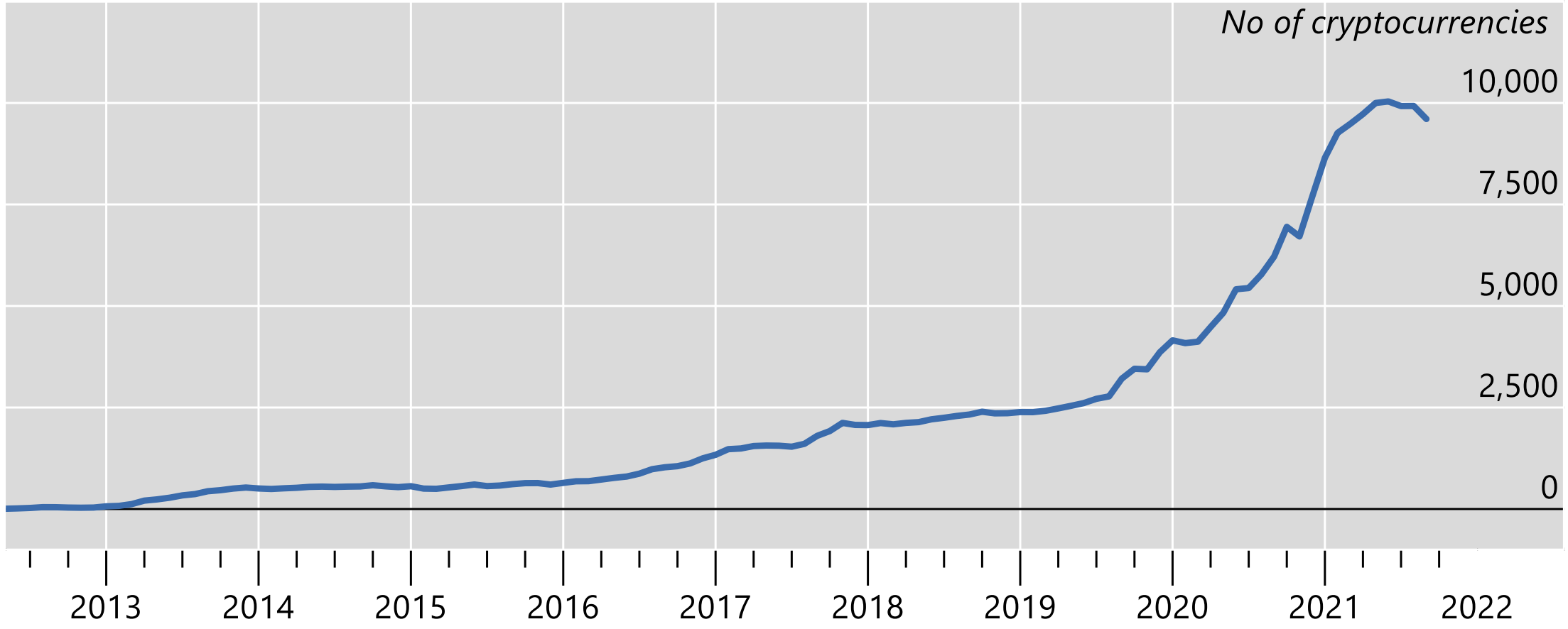
1. More activity-based approach and level playing field. How to apply?
   - Always challenging, needs to combine microprudential and macroprudential views
2. Competition policy. Need to adapt, but how?
   - Adapt more platform economics, eg learn from telecommunications, other services
   - Various (ex ante and ex-post) competition and anti-trust policies, eg access, break-up
   - Also organizational structures, eg holding companies, separate banking-commerce
3. Use of data. Maximize efficiency gains, while balancing privacy
   - Economics of data, but more to be developed, at a granular level

Crypto-assets, stable coins and fast payment systems

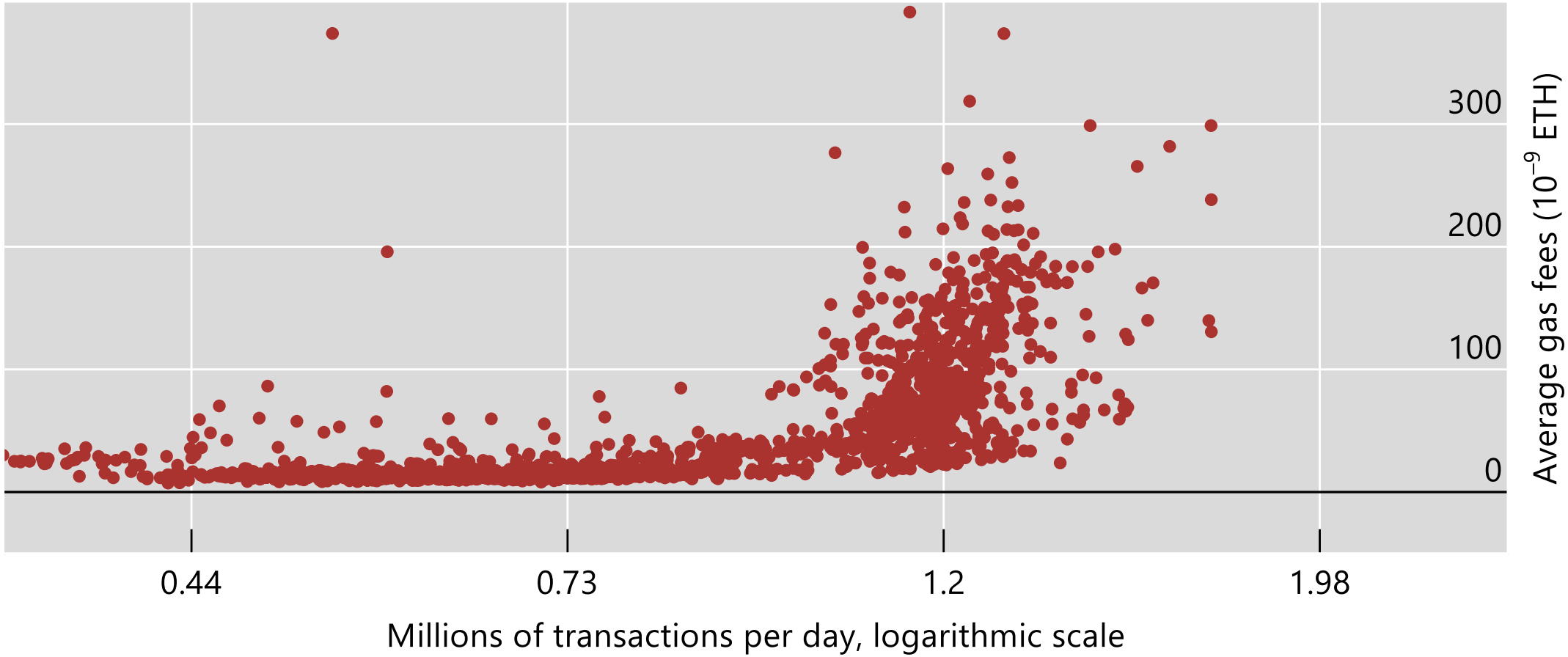
Crypto has seen a bewildering proliferation of coins…



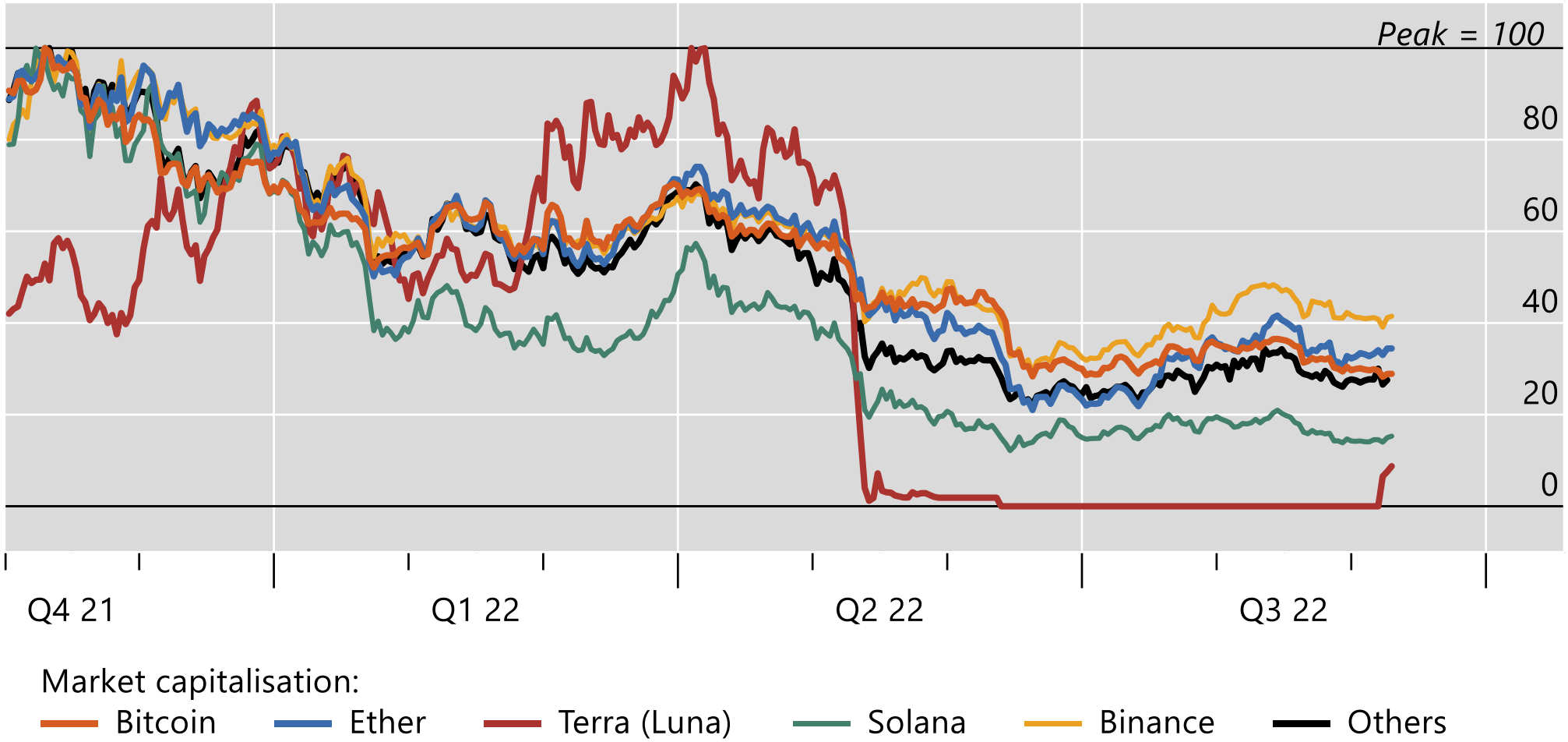
…with over 10,000 crypto coins jostling for a place in the limelight



Fragmentation of crypto arises because of the rents that go to validators. Network congestion and high fees are features, not bugs

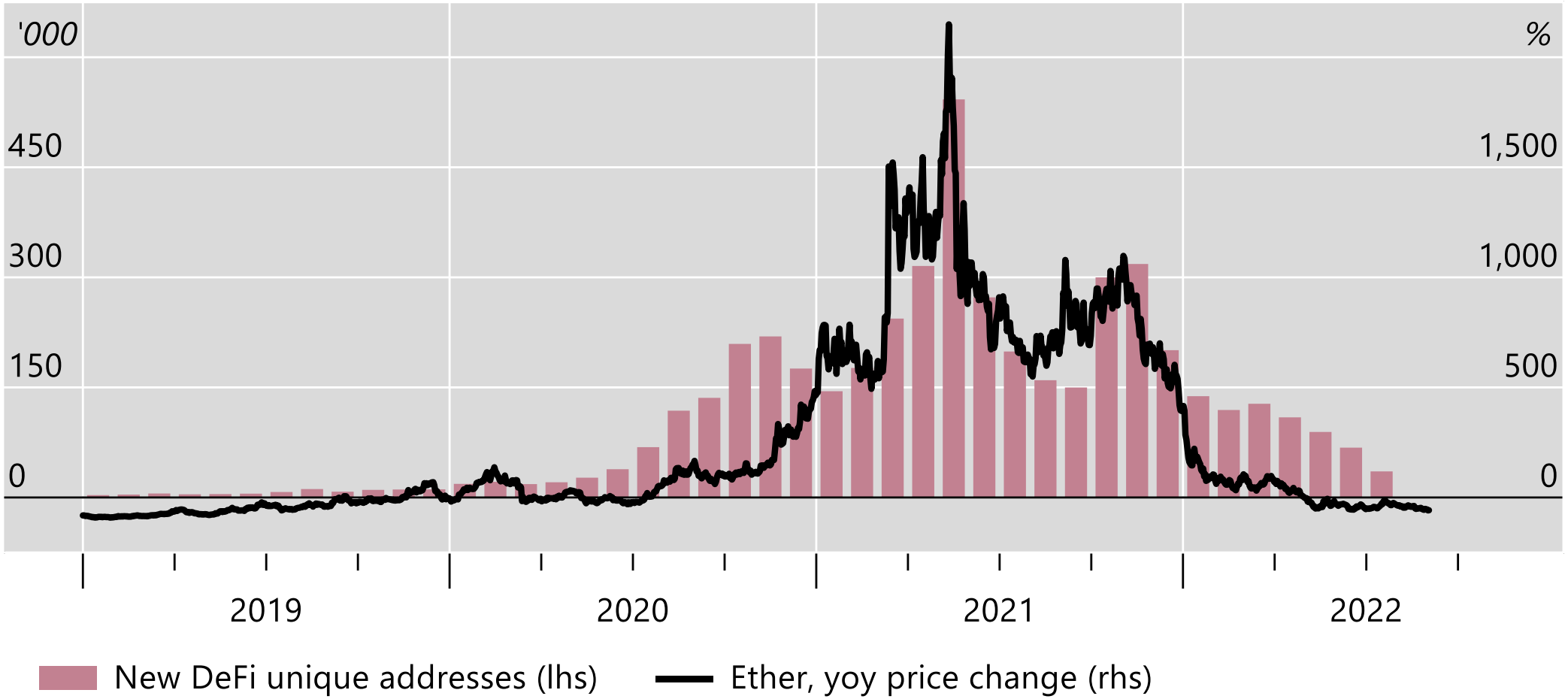


But crypto winter has set in..

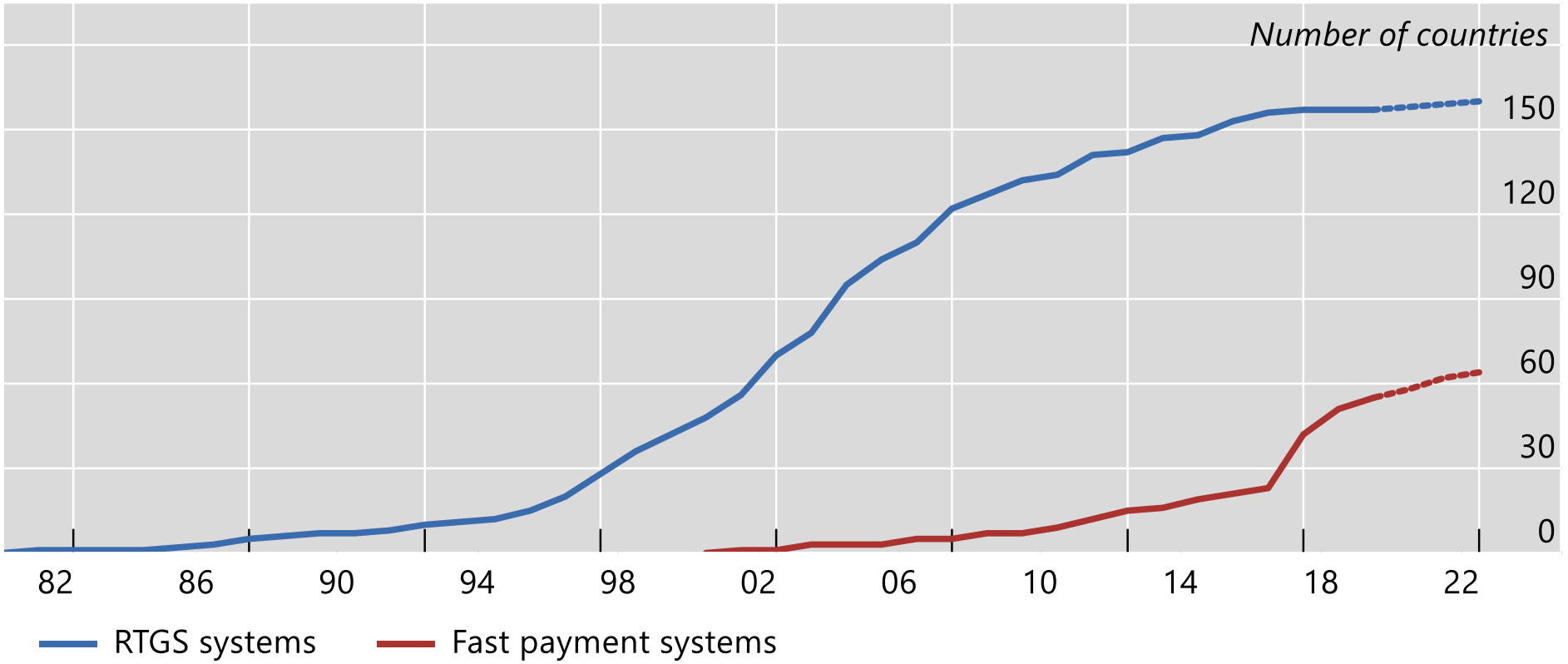


Stablecoins under pressure, as they search for a nominal anchor and need to piggyback on the credibility of central bank money

It is becoming clear that crypto only works with inflows of new users

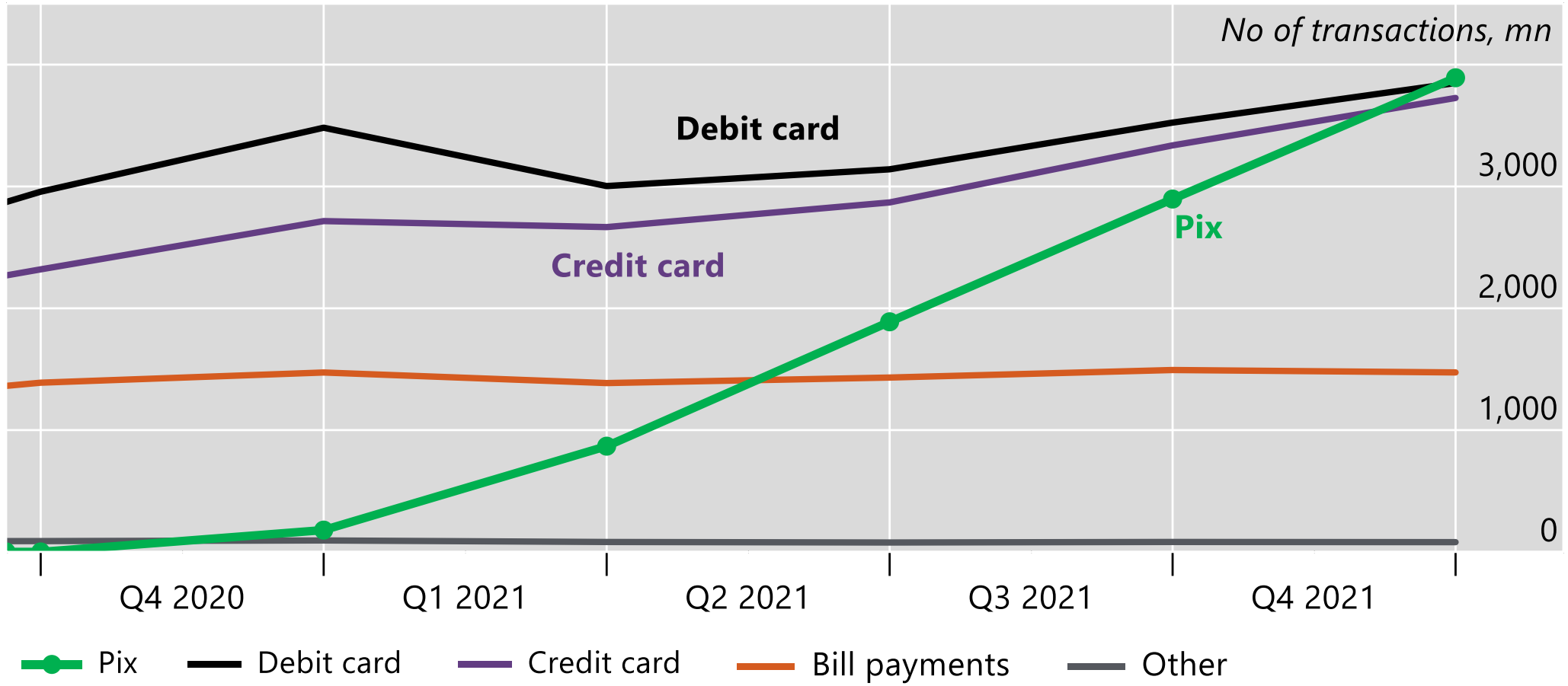


Alternatives: rapid diffusion of retail fast payment systems (FPS)

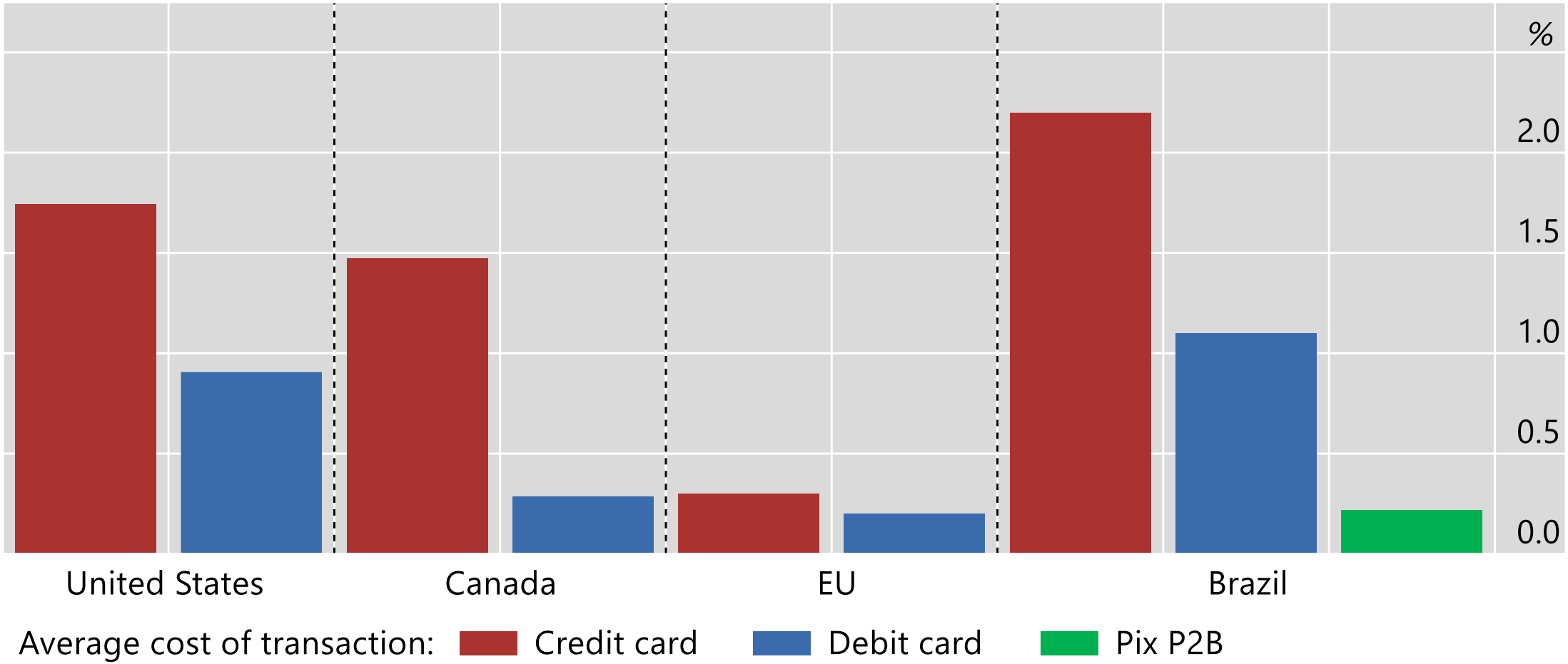


Source: BIS, "Central banks and payments in the digital era", Annual Economic Report, Chapter 3, pp 67-96, June 2020..

Retail FPS harness network effects, enhance financial inclusion: eg Pix in Brazil

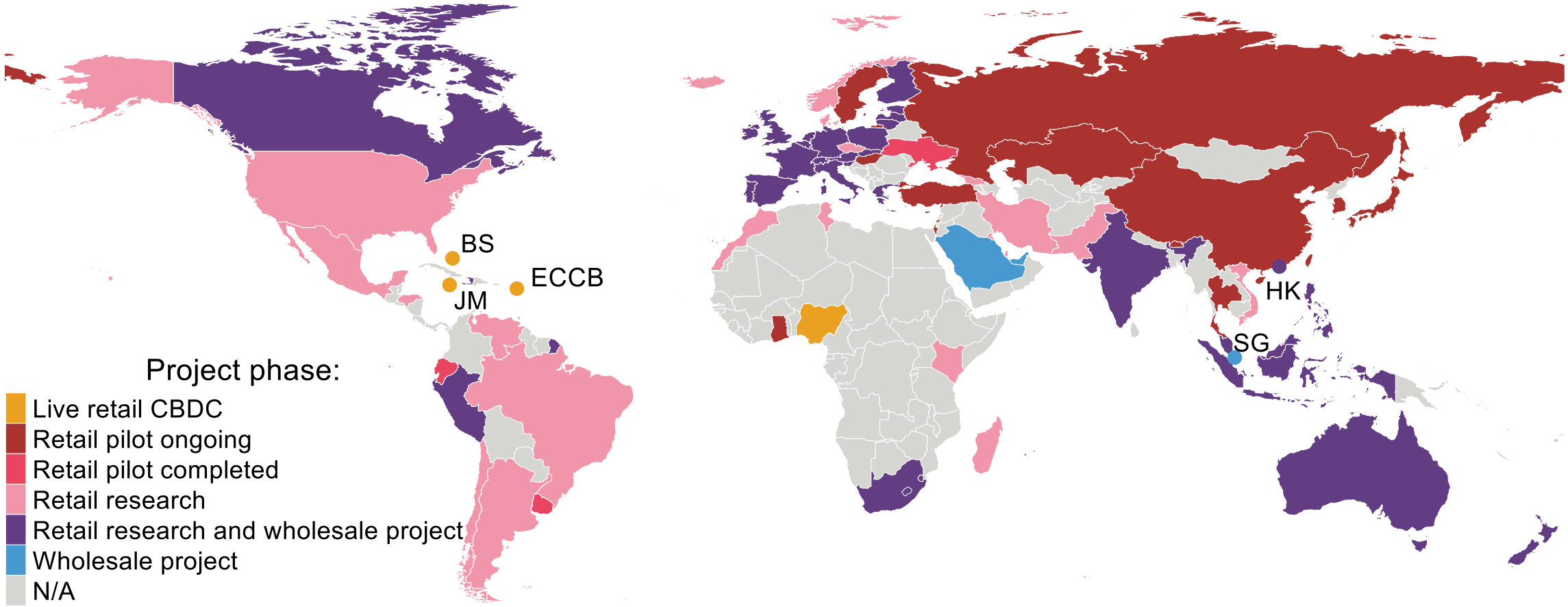


FPS can lower the high costs for merchants and other users



CBDC and their architectures

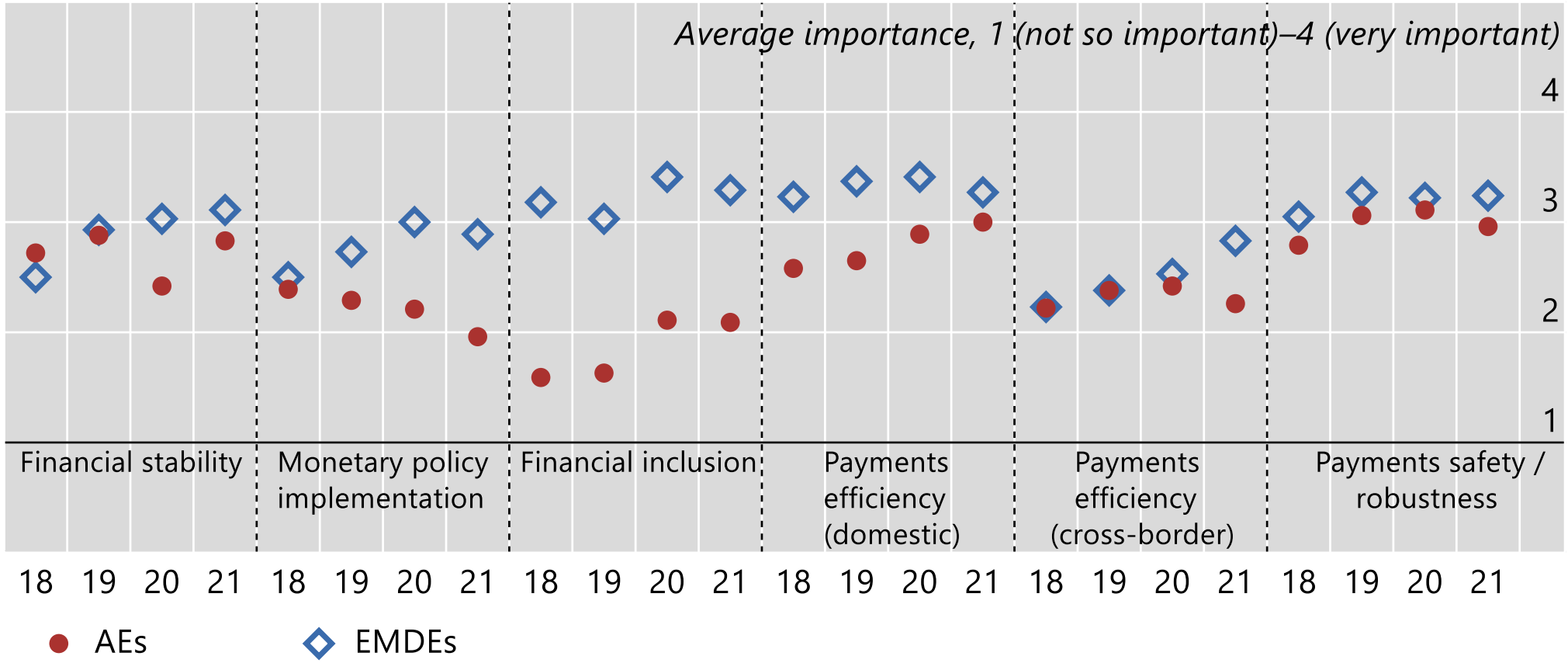
Active CBDC research, pilots and live CBDCs around the globe



BS = The Bahamas; ECCB = Eastern Caribbean Central Bank; HK = Hong Kong SAR; JM = Jamaica; SG = Singapore. The use of this map does not constitute, and should not be construed as constituting, an expression of a position by the BIS regarding the legal status of, or sovereignty of any territory or its authorities, to the delimitation of international frontiers and boundaries and/or to the name and designation of any territory, city or area.

Source: R Auer, G Cornelli and J Frost (2020), "Rise of the central bank digital currencies: drivers, approaches and technologies", *BIS working papers*, No 880, August.

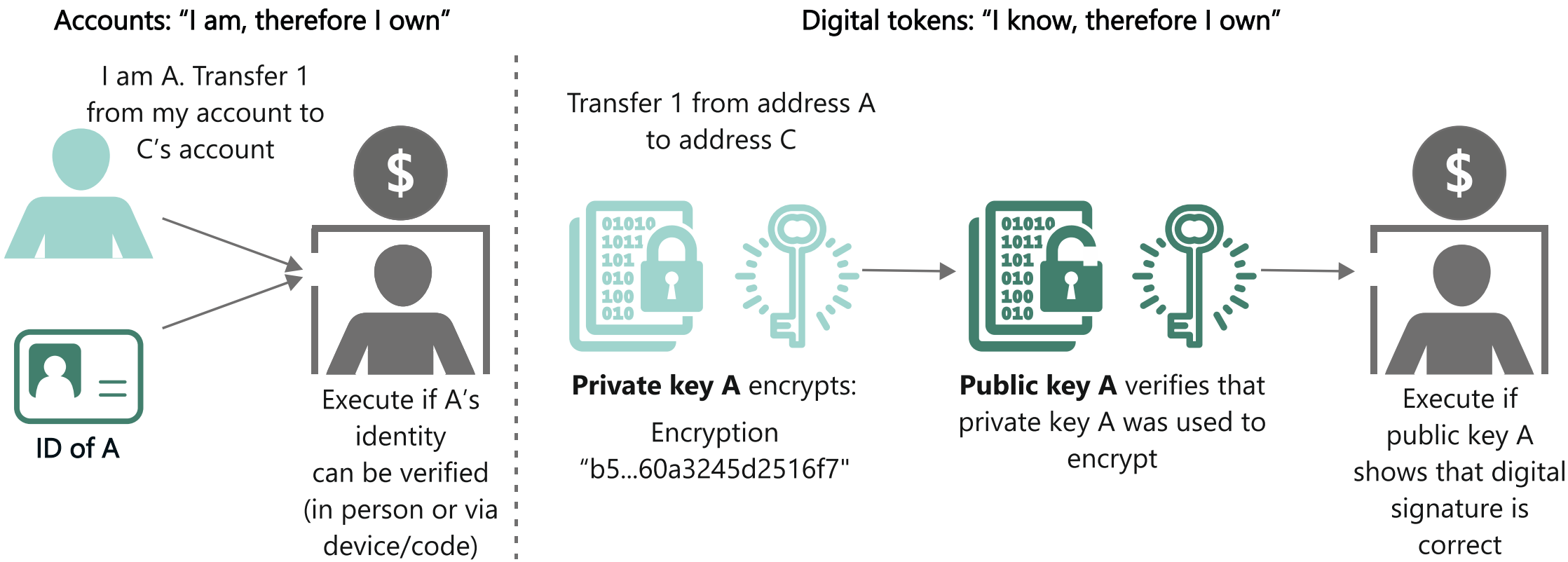
Motivations for issuing a retail CBDC vary, AEs can differ from EMDEs



Source: CPMI survey; A Kosse and I Mattei (2022): "Gaining momentum – Results of the 2021 BIS survey on central bank digital currencies", *BIS Papers*, no 125.

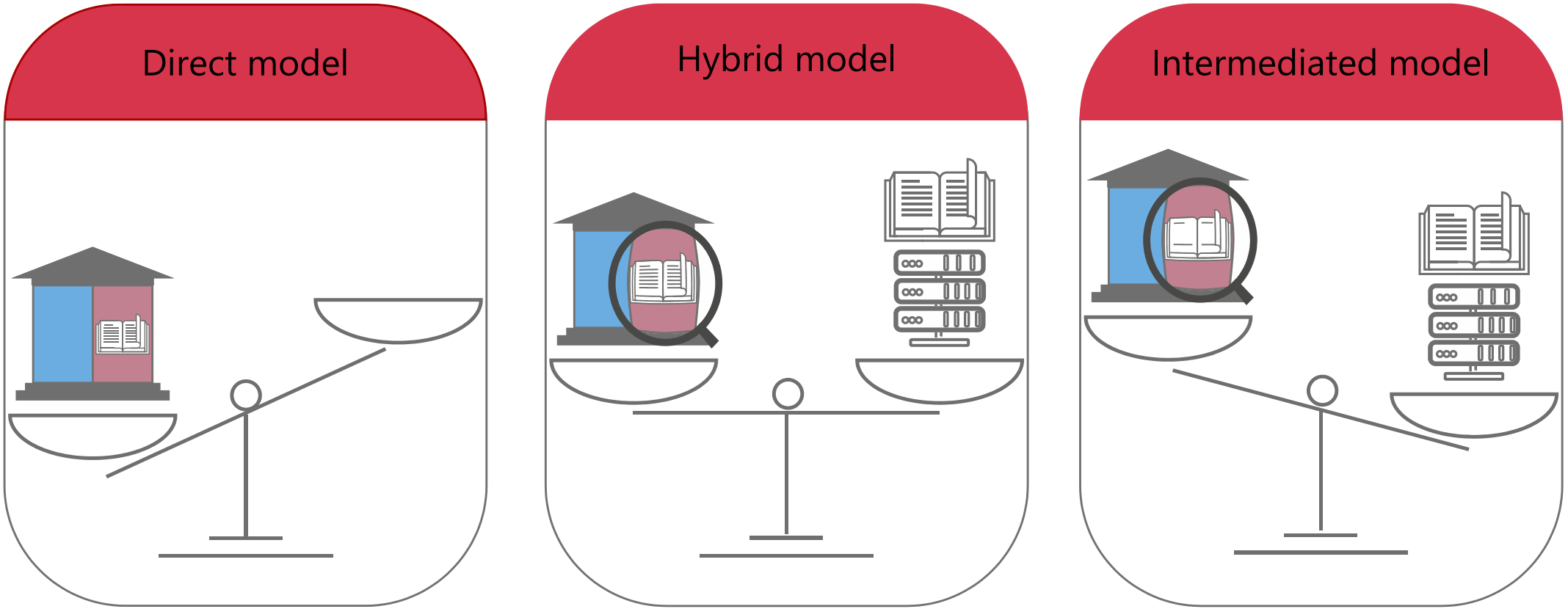
CBDC architectures and the financial system

Access is key design issue, with account-based preferred over token-based



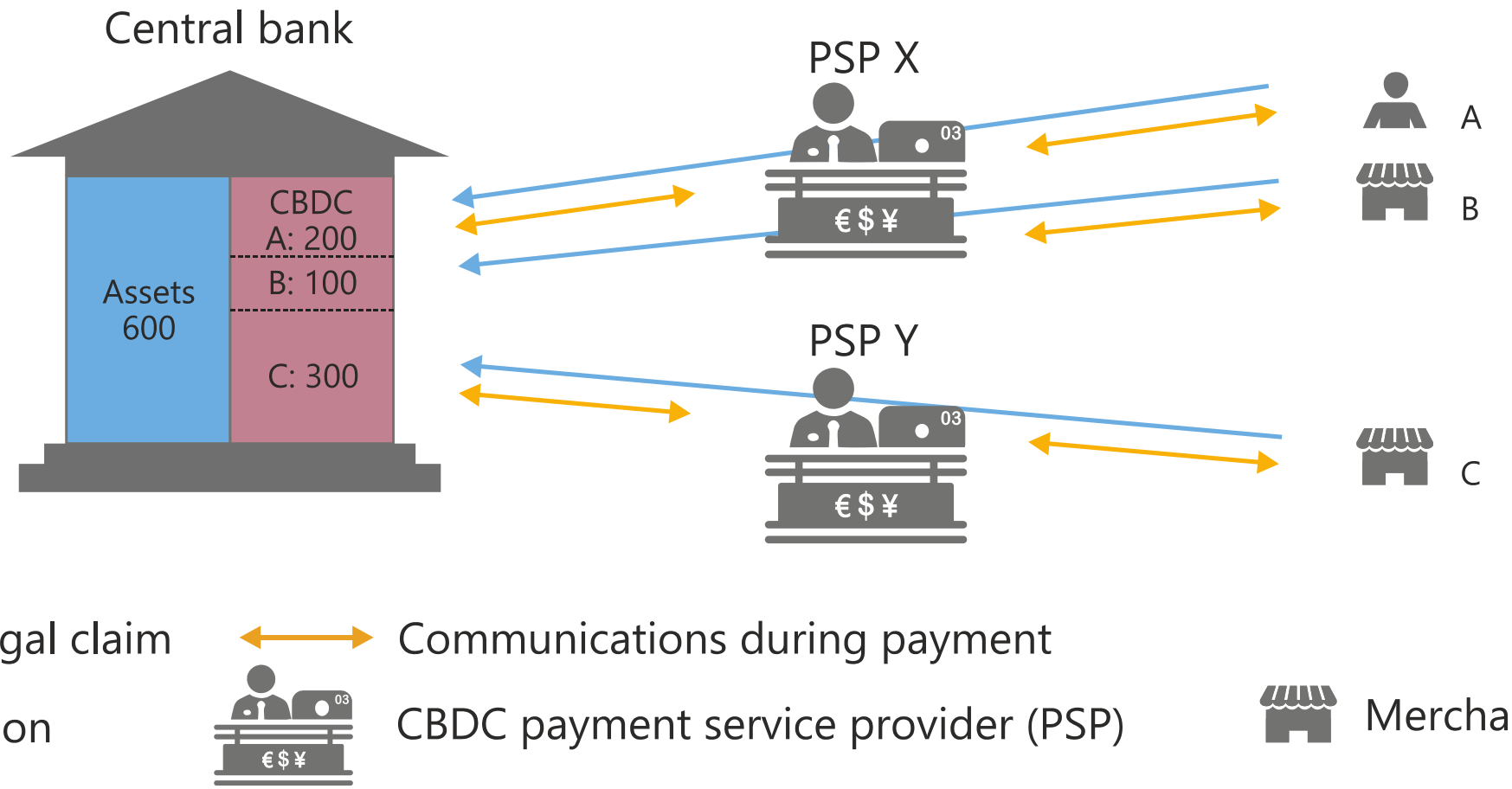
Source: R Auer and R Böhme, "The technology of retail central bank digital currency", *BIS Quarterly Review*, March 2020, pp 85–100.

Operational involvement of the central bank is highest in the direct model, and lowest in the intermediated model. Hybrid appears overall preferred.



Source: Adapted from R Auer and R Böhme, "Central bank digital currency: the quest for minimally invasive technology", *BIS Working Papers*, no 948, June 2021.

Hybrid architectures allow for public-private partnership in payments



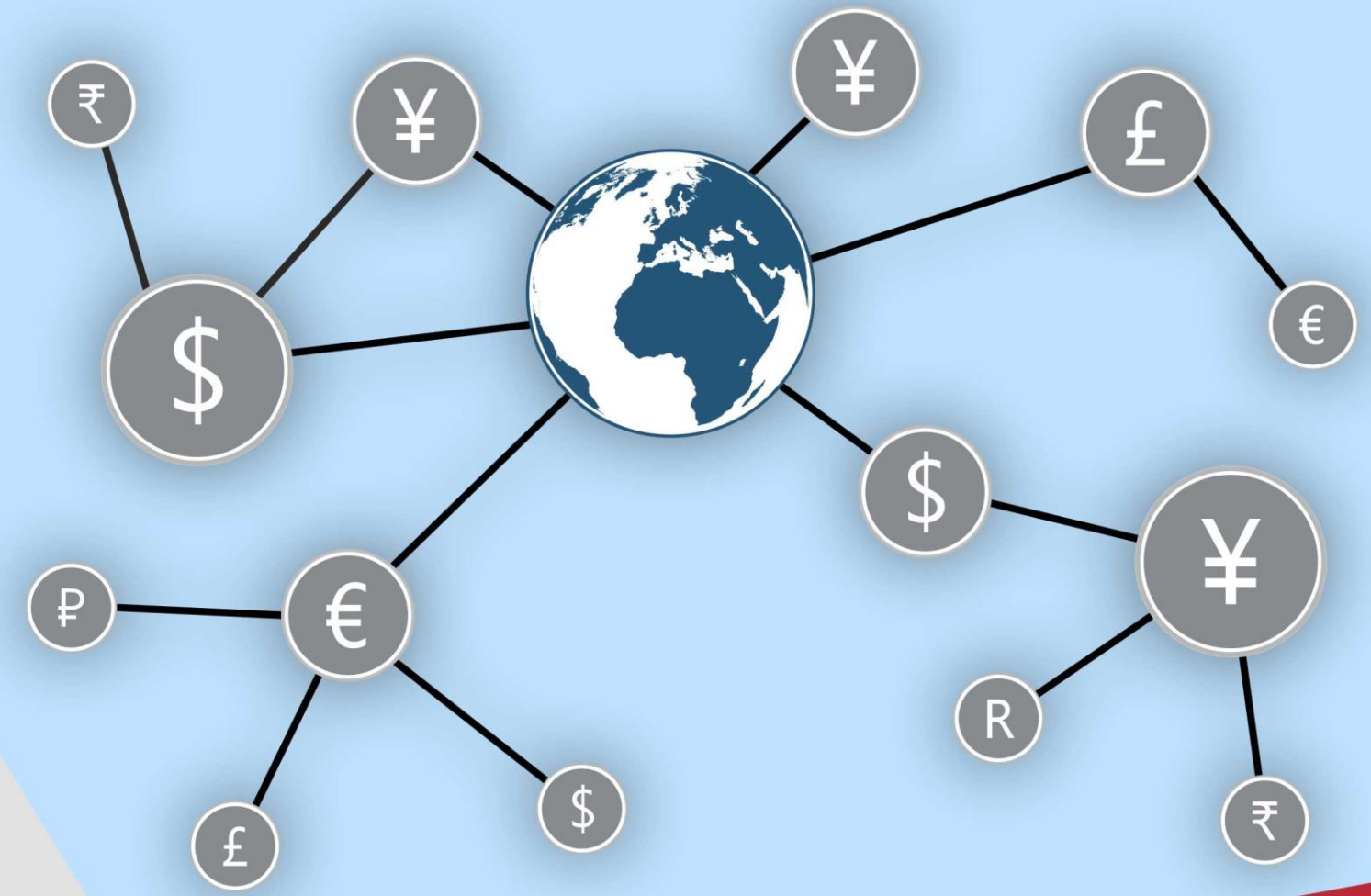
Sources: R Auer and R Böhme, "The technology of retail central bank digital currency", *BIS Quarterly Review*, March 2020, pp 85–100; R Auer and R Böhme, "Central bank digital currency: the quest for minimally invasive technology", *BIS Working Paper*, 2021.

Implications for banks and the future monetary system

Central bank should not take over private lending

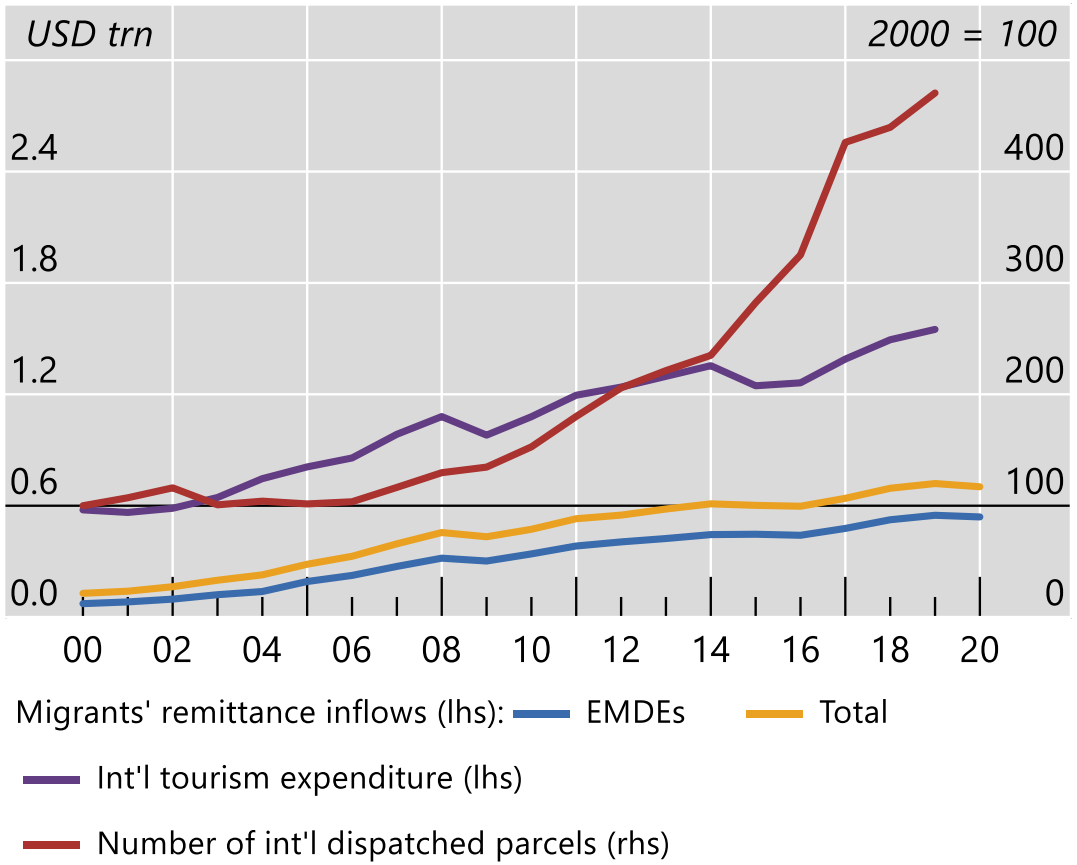
- Policy makers are carefully considering the impact of CBDC issuance on banking sector
  - Models, under development, differ as to degree of competition in the banking system
  - But broadly: by offering a retail CBDC, the central bank induces commercial banks to make their deposits more attractive and increases the costs of funding
- Migration much depends on equivalence between public and private money, often related to the regulatory and supervisory structures, including when this breaks down
- Overall, current CBDC designs explicitly aim to preserve private lending and two-tier system
  - "Do no harm" principle generally accepted
  - Related, monetary policy not a key consideration for most central banks
- Crucial policy-driver, however, is that most retail CBDC designs in consideration are non-remunerated, and many consider explicit limits on CBDC balances

The international dimensions of digitalisation and CBDC

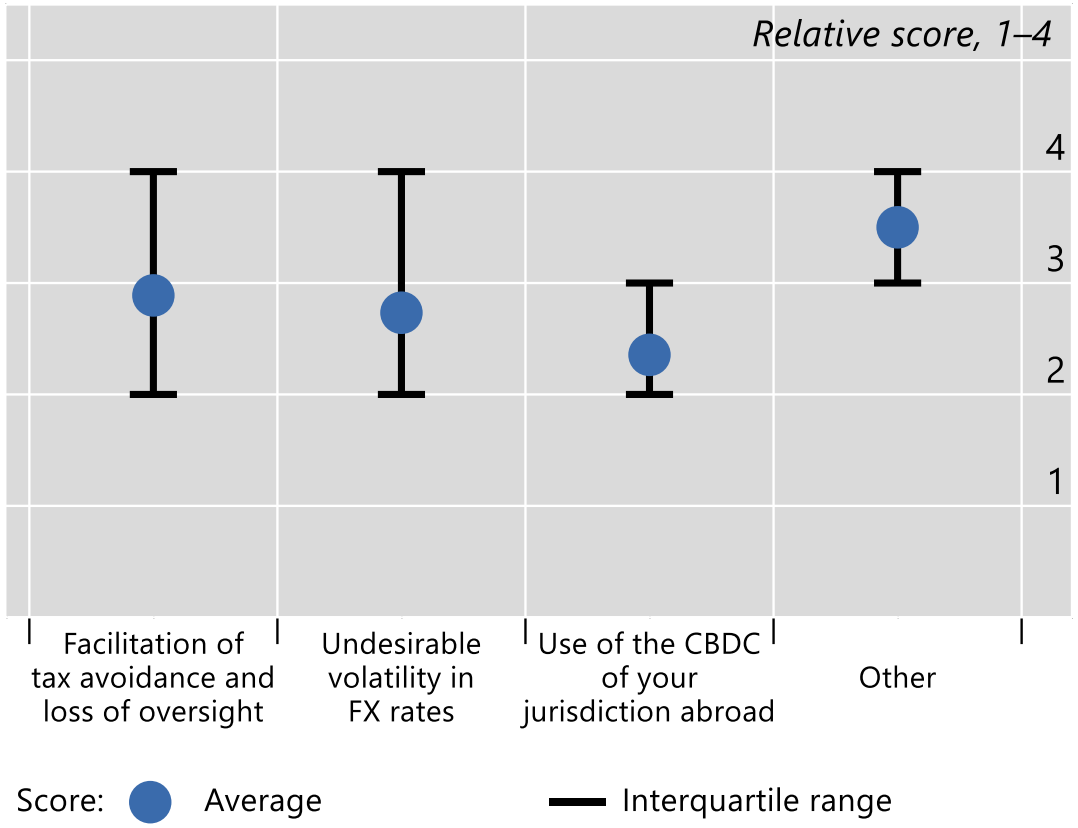


Improving cross-border payments is a priority area, with specific issues

Globalisation of retail activity

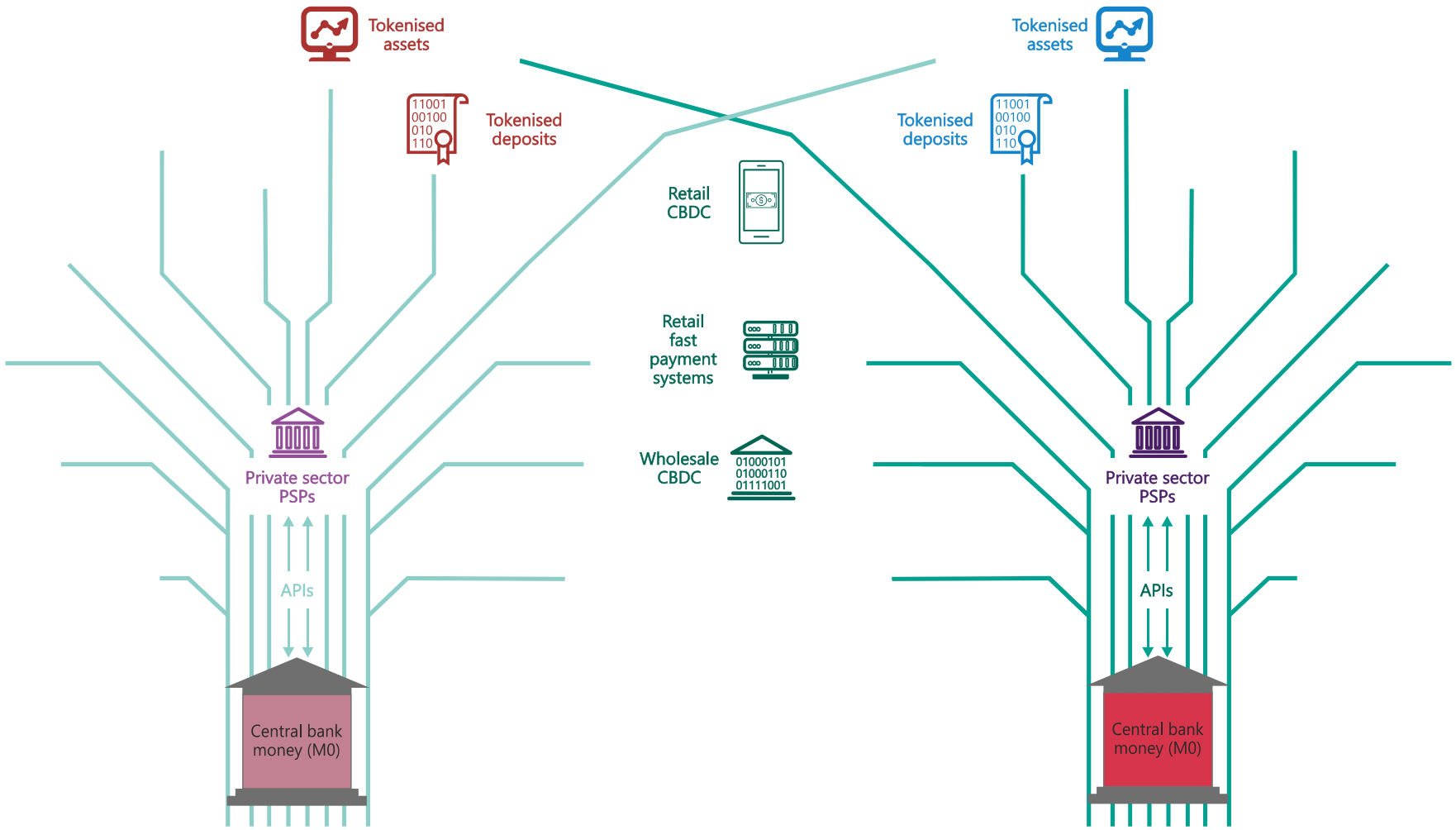


Foreign CBDC issuance risks

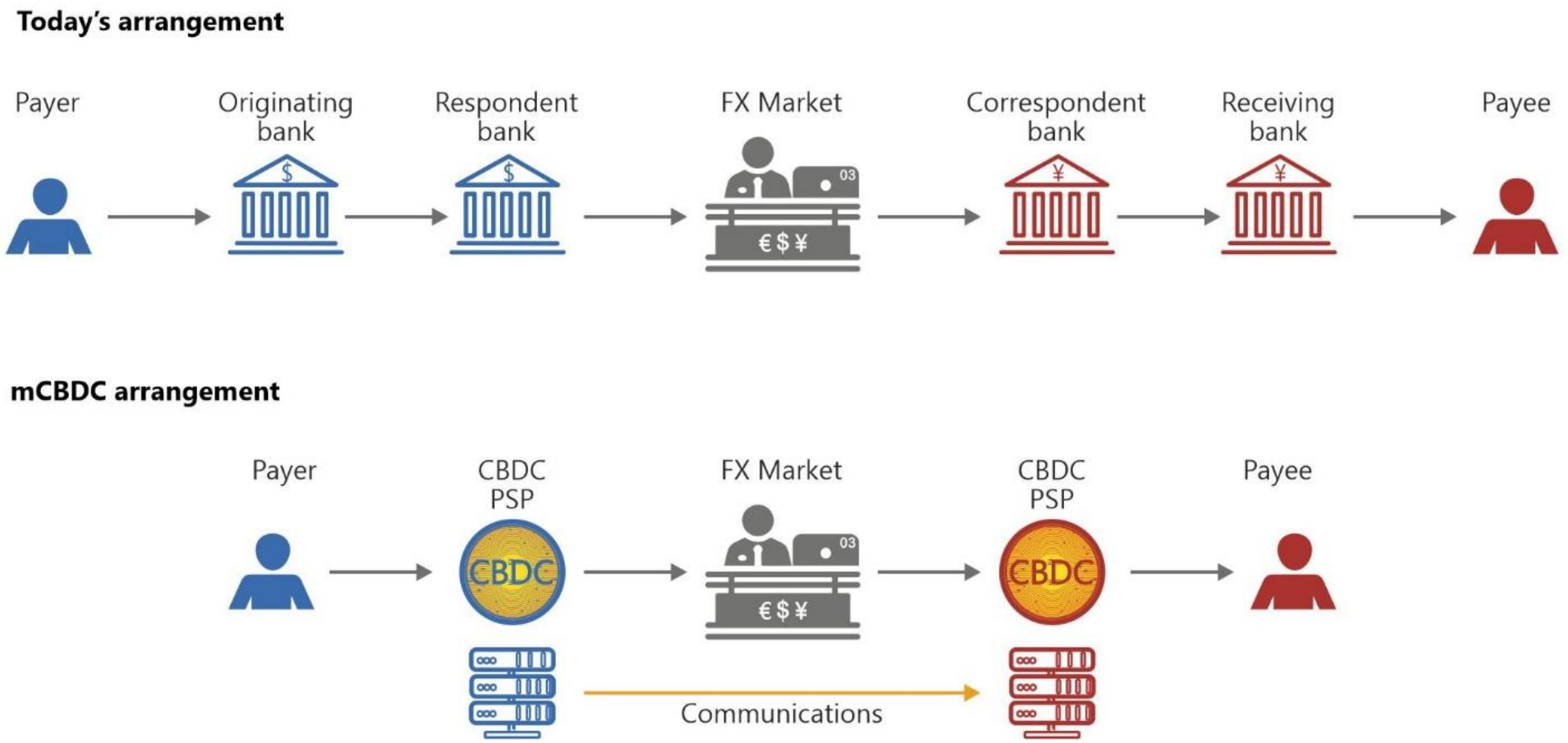


Sources: R Auer, C Boar, G Cornelli, J Frost, H Holden, A Wehrli, "CBDCs beyond borders: results from a survey of central banks", *BIS Papers*, no 116, June 2021; World Bank; Universal Postal Union; BIS calculations.

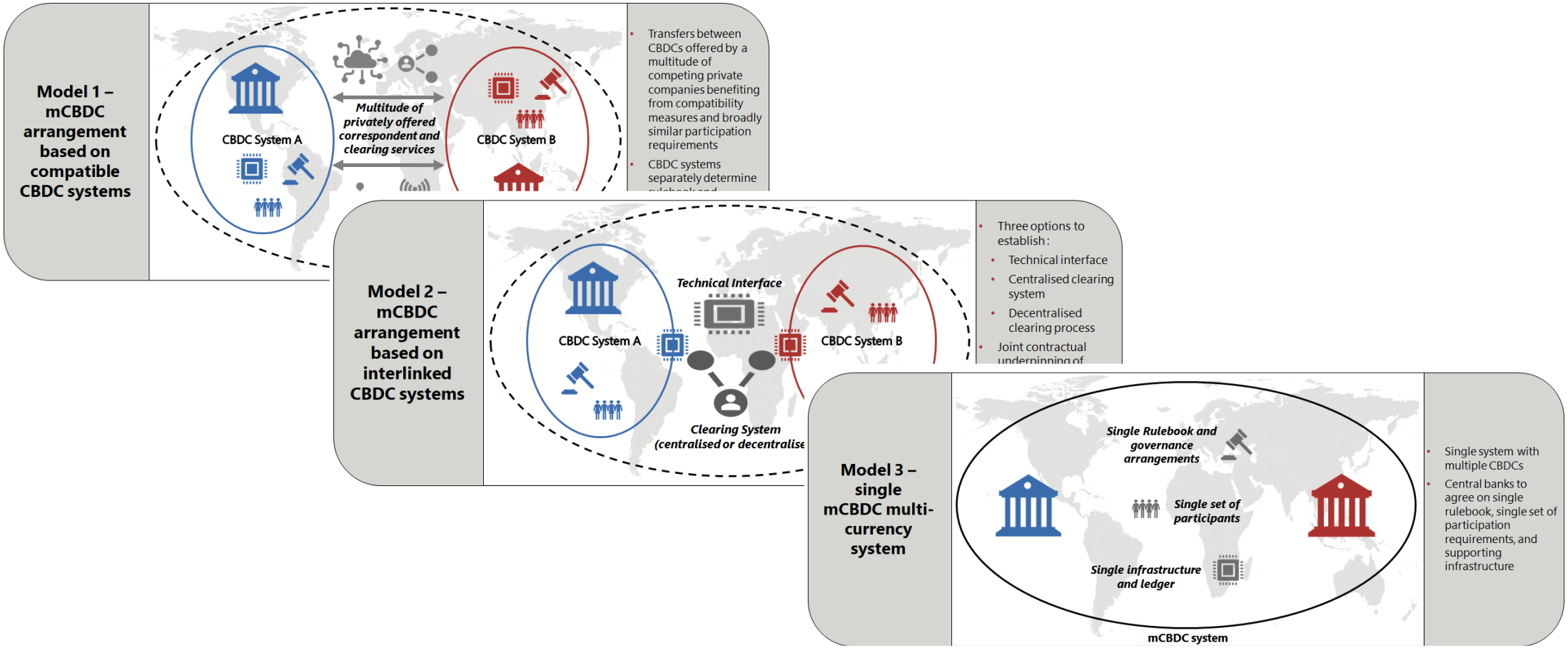
CBDCs can be linked across borders, much like the canopy of a forest



CBDCs could simplify monetary architecture and streamline cross-border payment chain; multi-CBDC (mCBDC) platforms show particular promise

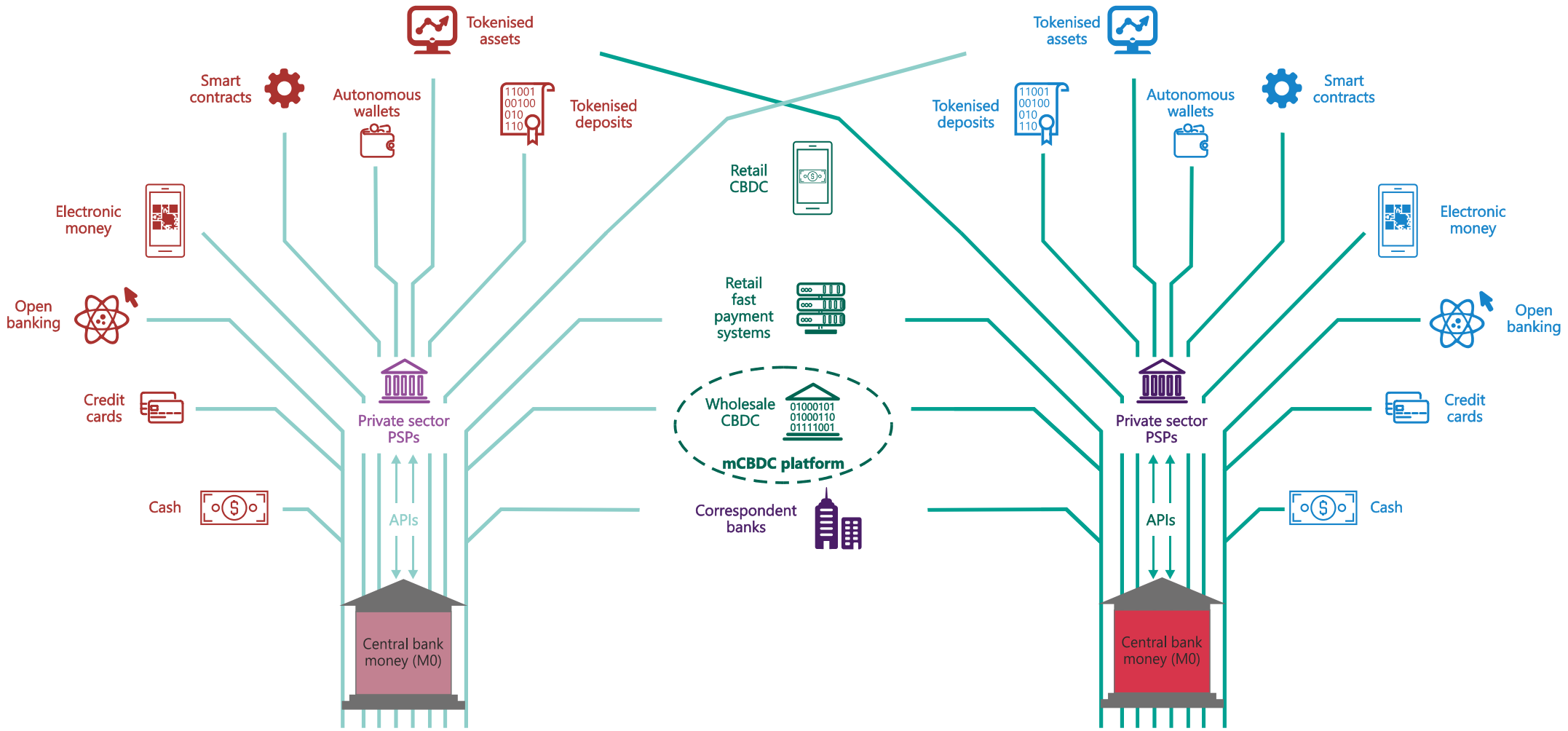


Potential models for multi-CBDC arrangements

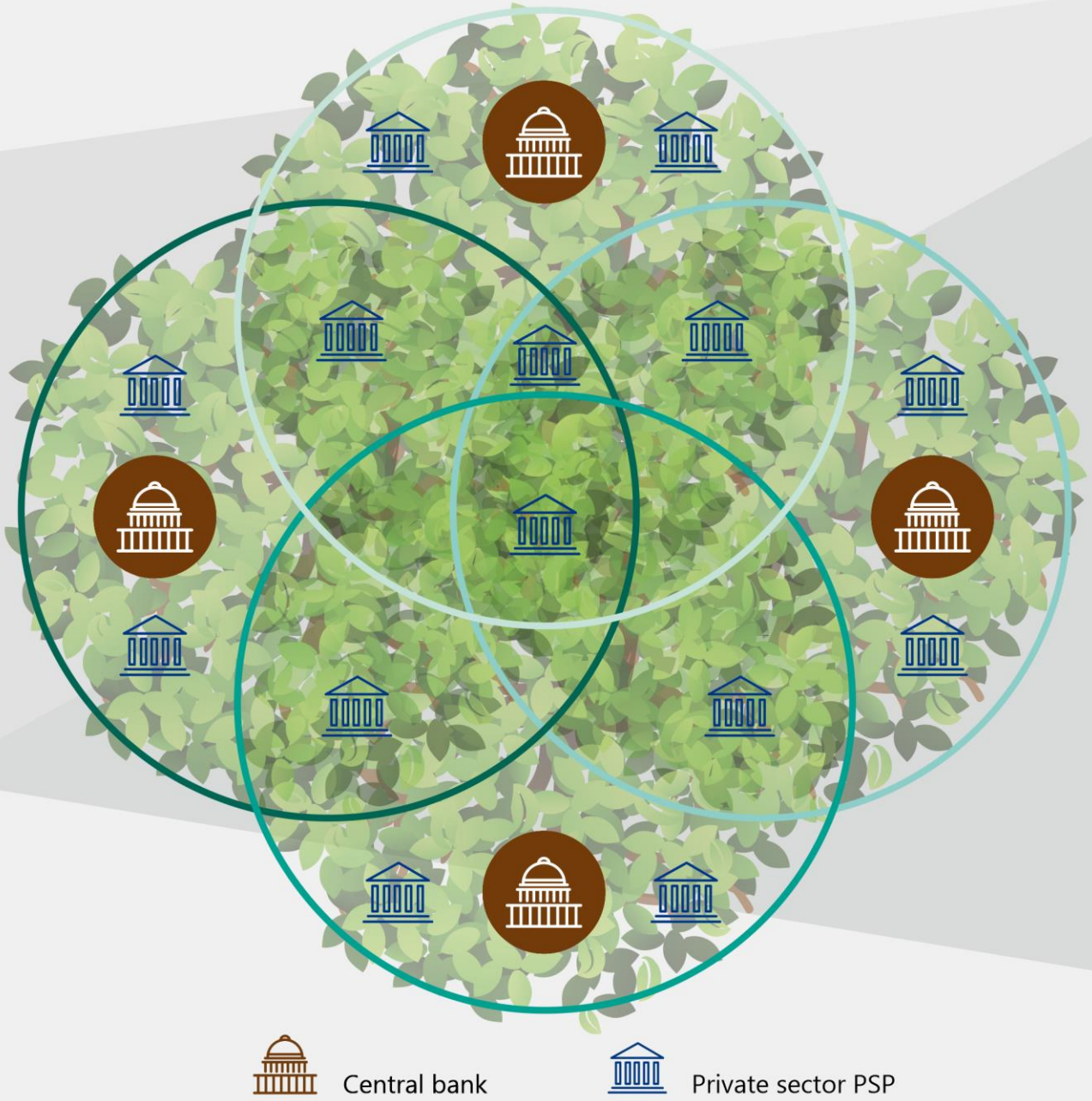


Source: R Auer, P Haene and H Holden, "Multi-CBDC arrangements and the future of cross-border payments", 2021.

Vision: a diverse global monetary (eco)system, rooted in central bank money



The goal: a canopy as a seamlessly integrated global system



Conclusions

- The ongoing digital transformation, accelerated by COVID-19, has major implications for financial services, including for enhancing financial inclusion
- Developments in crypto assets, stable coins, and fast payment systems offer useful lessons on respective costs and benefits, showing benefits of public goods
- The use cases for introducing a CBDC vary, as do their design choices and associated risks
- Various forms of digitalisation and other technical advances can improve the costs and reliability of financial services, including cross-border financial transactions
- But to do so, while assuring stable capital flows, calls for supportive institutions and systems
- In all these dimensions, central banks play key roles in assuring an open and global system, interoperability as a public good, and innovative and productive new technologies