Committee on Payments
and Market Infrastructures

BIS

CBDC, monetary policy implementation, and the interbank market

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Summary

Key question

- Impact of CBDC uptake, remuneration and holding limits on interbank market rates?

Money market model of Berentsen and Monnet (2008) + CBDC model of Chiu et al. (2022)

- Banks have no market power when issuing deposits.
- [Investment round 1] Banks finance some entrepreneurs with deposits.
- Banks are subject to a reserve requirement as a function of the deposits issued.
- Banks acquire these either by issuing deposits or borrowing reserves on the interbank market.
- [Refinancing shock] Some entrepreneurs need more, either in the form of deposits or CBDC.
- Banks buy CBDC with reserves [subject to 100% reserve requirement] directly at central bank (CB)
- Banks only have access to CB's deposit and lending facilities and may to borrow these reserves.

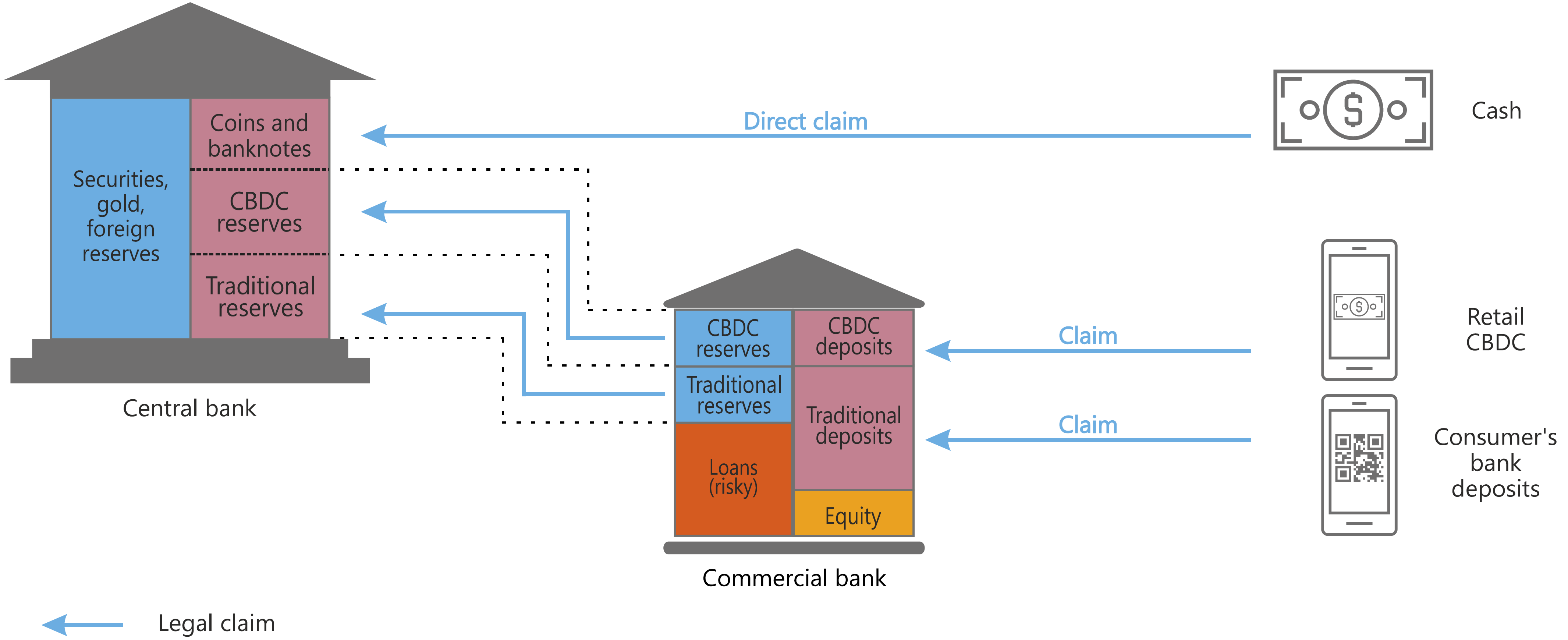
Summary

Findings

- Increasing CBDC usage drains reserves and may increase the interbank rate.
  - Banks might also increase deposit rates to increase deposits.
  - Central banks can undo the effects by supplying more reserves.
- Effect of CBDC remuneration is unclear:
  - Funding effect: less CBDC needed for same output → less reserves needed.
  - Investment effect: banks can fund more firms → more reserves needed.
- CBDC holding limits reduce interbank and commercial deposit rates.
  - Because banks require fewer deposits to buy reserves.
  - Central banks can reverse the decrease in investment by a higher CBDC rate.
- Tiered remuneration generates similar effects as a single (lower) rate.

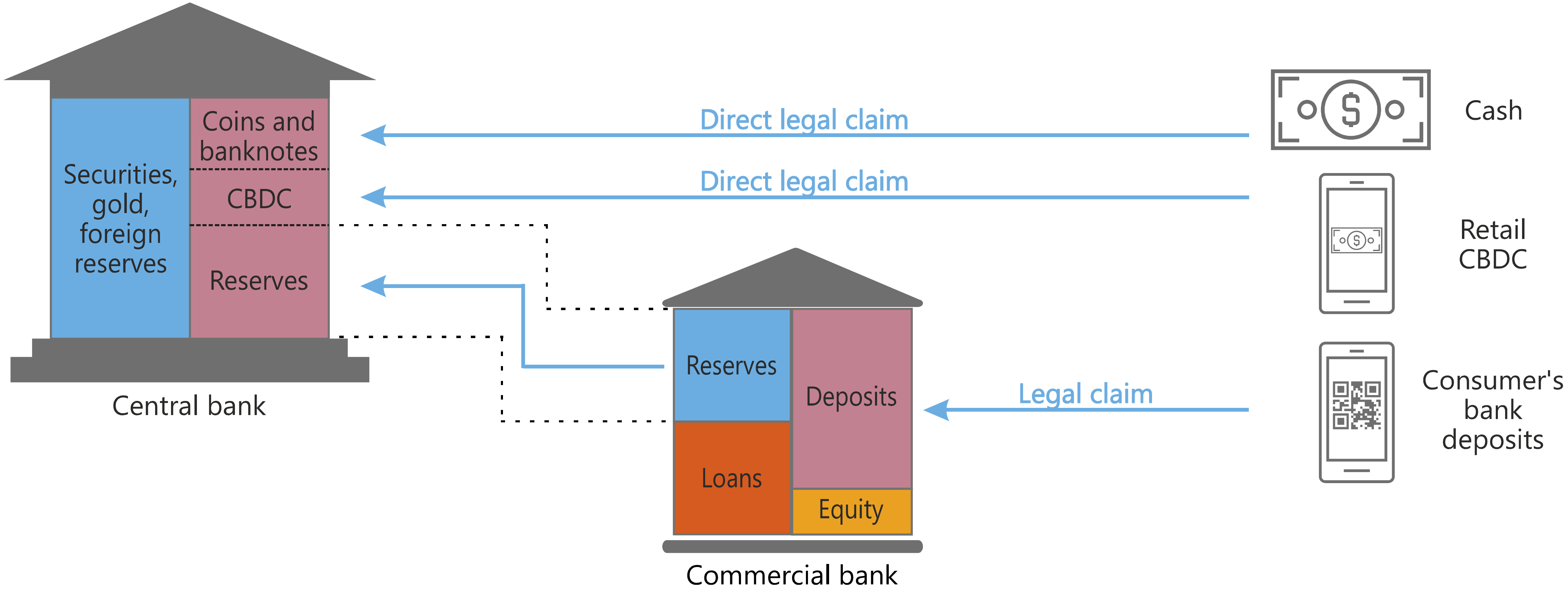
Discussion – point 1

"In our model, one can interpret CBDC as a type of commercial bank deposits carrying a 100% reserve requirement. Being ear-marked for CBDC, these reserves are remunerated at the rate i_e."



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

However, … a CBDC is a direct claim on the central bank and would not rely on the soundness of commercial banks.



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

Discussion – point 1

- Would the model and findings differ when assuming CBDCs to be a direct claim on central banks?
  - There are regulatory, supervisory, legal and deposit insurance differences.
  - But also monetary policy-related issues?
  - Or perhaps only in times of crises?

Discussion – point 2

Stickiness in deposits: trade off between remuneration and riskiness

- Concerns about disintermediation not only depend on features and remuneration of CBDC, but also on riskiness and remuneration of deposits.*
- Differences across banks?
- Differences in substitutability between insured and uninsured deposits?

* Adalid et al (2022): Central bank digital currency and bank intermediation, ECB Occasional Paper Series, no 293, May.

Discussion – point 3

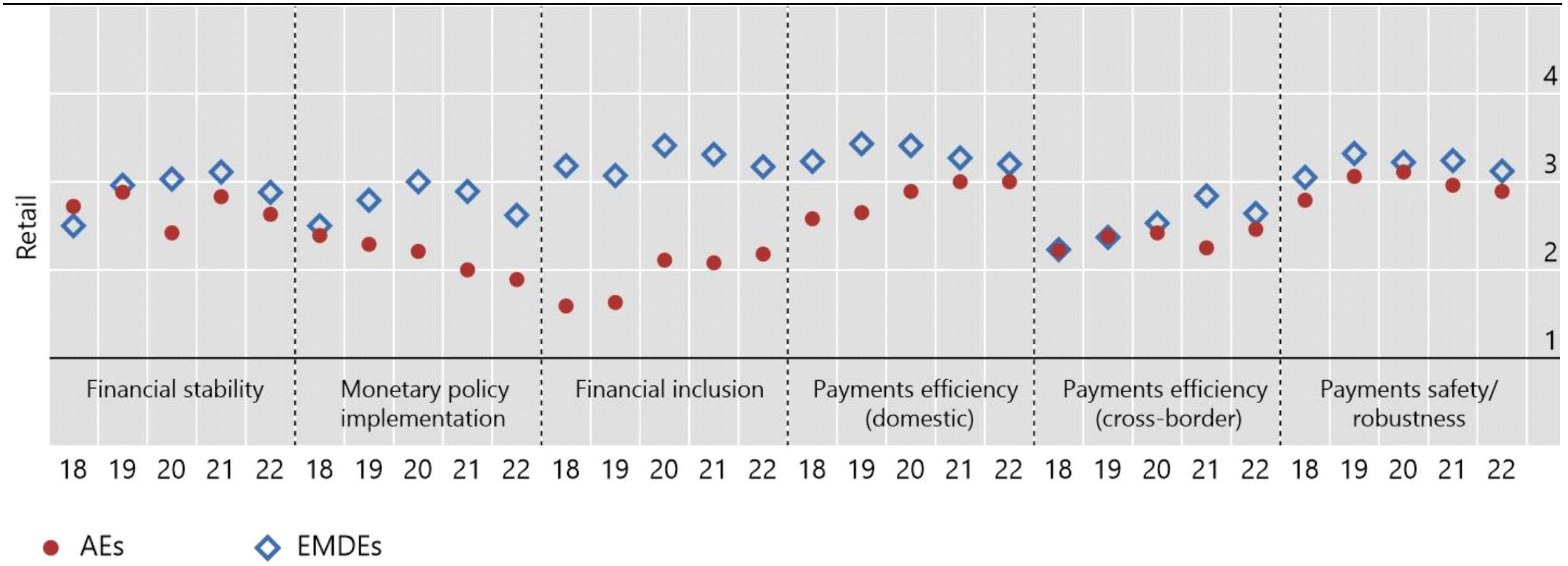
"No sellers ever accept cash in our economy. Clearly, one can question the validity of this assumption, but given the declining use of cash in modern economies, we do not see this assumption as being especially strong; even if the interest rate on CBDC is negative, CBDC could be preferred to cash as long as we understand that CBDC has more benefits than cash, eg it is useful to trade online."

- How would the results change when allowing for competition between CBDC and cash?
  - CBDC as a tool to enhance (digital) financial inclusion and digitalise P2P payments.
  - *Limit the decline* in demand for deposits?
  - Or even *increase* deposit demand when increasing demand for bank services more generally?

* See eg Kosse and Mattei (2023): Making headway – Results of the 2022 BIS survey on central bank digital currencies and crypto, BIS Papers, no 136, July.

Financial inclusion among the key drivers of CBDC work

Average importance, 1 (not so important) – 4 (very important)

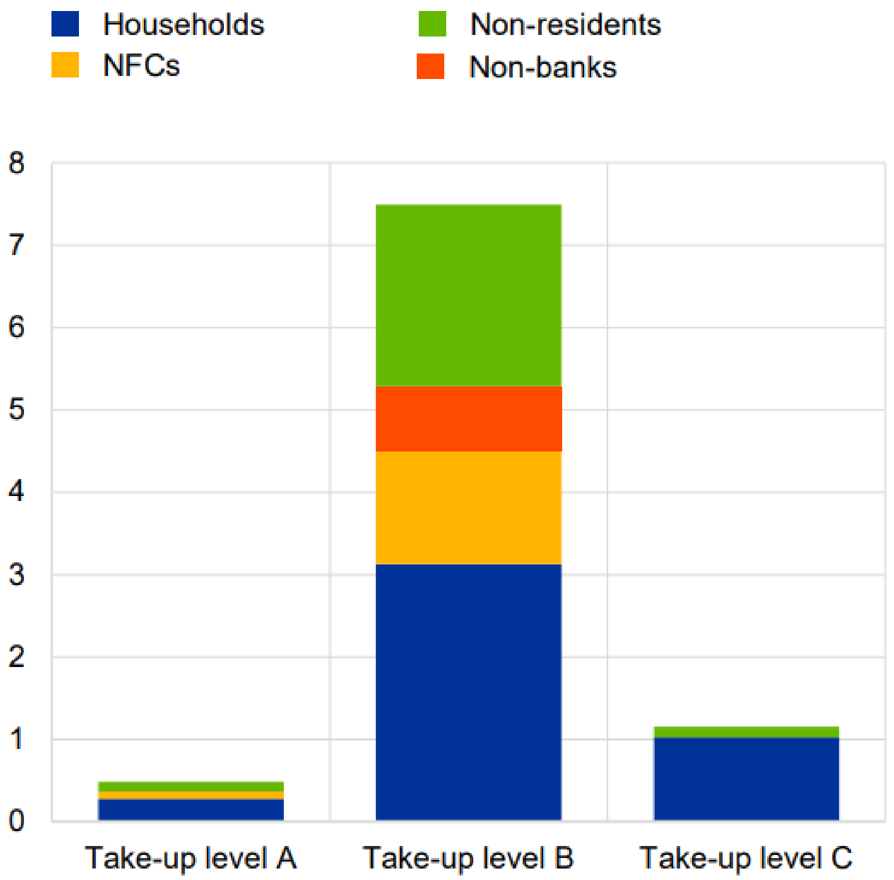


Graph taken from Kosse and Mattei (2023): Making headway – Results of the 2022 BIS survey on central bank digital currencies and crypto, BIS Papers, no 136, July.

Substitution of banknotes and overnight deposits in 3 hypothetical digital euro demand scenarios

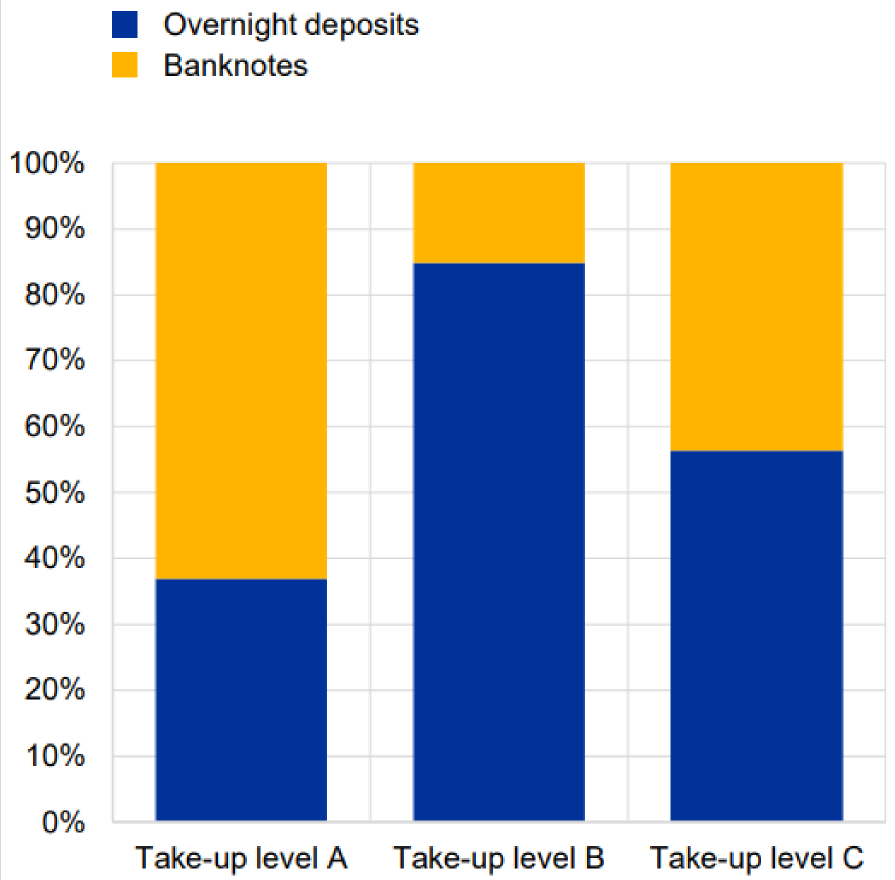
a) Digital euro take-ups by sector

(EUR trillions)



b) Digital euro substitution by instrument per hypothetical take-up

(percentages)



Graph taken from Adalid et al (2022): [Central bank digital currency and bank intermediation](), ECB Occasional Paper Series, no 293, May.

Thank you