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Assessing the Impact of CBDC on Private Banks

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What is CBDC?

- Deposit accounts located at central bank, available to all (token-based CBDC also a possibility, but will ignore in this talk).
 - Zero fees, no minimum balance requirement, fully-insured, no overdraft privileges—a *basic public option* (e.g., postal savings systems).
 - Could be made interest-bearing, with CBDC-rate a state-contingent monetary policy instrument.
- Weaker forms of CBDC...
 - CBDC accounts accessible via state banks.
 - CBDC accounts accessible via private banks.

Motivation

- Payments is about debiting/crediting accounts in a ledger—this is accounting, not rocket science.
- How would one design a national payment system from scratch?
 - In theory, secure central ledger with universal low-cost access. A basic public option (BPO).
 - CB seems like natural provider (though not essential).

Push-back

- CBs designed to serve wholesale market, not retail. Public sector notoriously bad at service, innovation, etc.
- Subsidized CBDC would create uneven playing field for banks.
- Banks would lose deposits to unfair CB competition
Negative impact on bank lending; economy would suffer.
- CBDC promotes financial instability.
Provides a convenient “flight-to-safety” vehicle for retail depositors.

Response to push-back

- If CB not able to manage retail payments, then delegate.
- Far from inhibiting innovation, BPO may promote it.
- Uneven playing field?
 - Like private sector complaining that public highway system makes building and operating private roads unprofitable.
 - Moreover, banks typically enjoy many privileges.
- What about disintermediation and financial stability concerns?
 - Appeal to my theoretical framework (*Economic Journal*, 2021).
 - Some indirect evidence.

HANC DGE model

- Klein (1971) and Monti (1972) monopoly bank in a Diamond (1965) OLG model of money, debt and physical capital.
- Population of entrepreneurs and (heterogeneous) workers.
- Bank creates deposits as it make loans to entrepreneurs, who need money to pay workers.
- Rich workers have bank accounts, poor workers use cash.
- Monopoly bank chooses lending rate and deposit rate to maximize profit subject to balance sheet constraint (and possible regulatory constraints).
- Monetary policy chooses interest-on-reserves (IOR) rate and CBDC rate. For now, assume IOR rate $>$ CBDC rate.

CBDC effect on deposits

- In reality (and in model) much depends on CBDC rate policy, availability of CB borrowing facilities (discount, repo facilities), design of monetary policy, regulations, etc.
- As long as CBDC rate $<$ IOR rate, CBDC induces monopoly bank to **increase its deposit rate** (in model, it matches CBDC rate).
- Higher deposit rate **increases financial inclusion** (poor workers switch out of cash into interest-bearing deposits).
- Substitution out of cash into deposits (CBDC and bank) **increases** available deposit-funding (and bank can compete for all of this).
- Profit margin on deposits [IOR – CBDC] declines. Profit on deposits also declines (despite larger depositor base).

CBDC effect on lending

- If regulatory constraints are not binding, then profit maximizing lending rate R maximizes $[R - \text{IOR}] * L(R)$.
- Note that CBDC rate does not appear in this expression (it only affects deposits, not lending).
- Proposition: As long as CBDC rate $<$ IOR rate, CBDC has **no impact on bank lending**.
- What if regulatory constraint (e.g., LCR) binds?
- Proposition: If LCR binds, then as long as CBDC rate $<$ IOR rate, **CBDC increases bank lending**.
 - Binding LCR means R set higher than profit-maximizing rate.
 - Increase in deposit funding goes to loans instead of reserves.

Assessment

- CBDC likely to reduce bank profits. Is this socially desirable?
- In reality, deposit funding likely to be crowded out a bit, but most depositors would likely keep multiple accounts.
Remember: CBDC a BPO (banks offer depositors more services).
- Also, banks could use more non-deposit funding (good/bad?).
- Bank lending not likely to be affected if CB targets $IOR > CBDC$.
- Shadow banks more likely to be disintermediated (good/bad?).
- Evidence from Canada, BoC 1935.

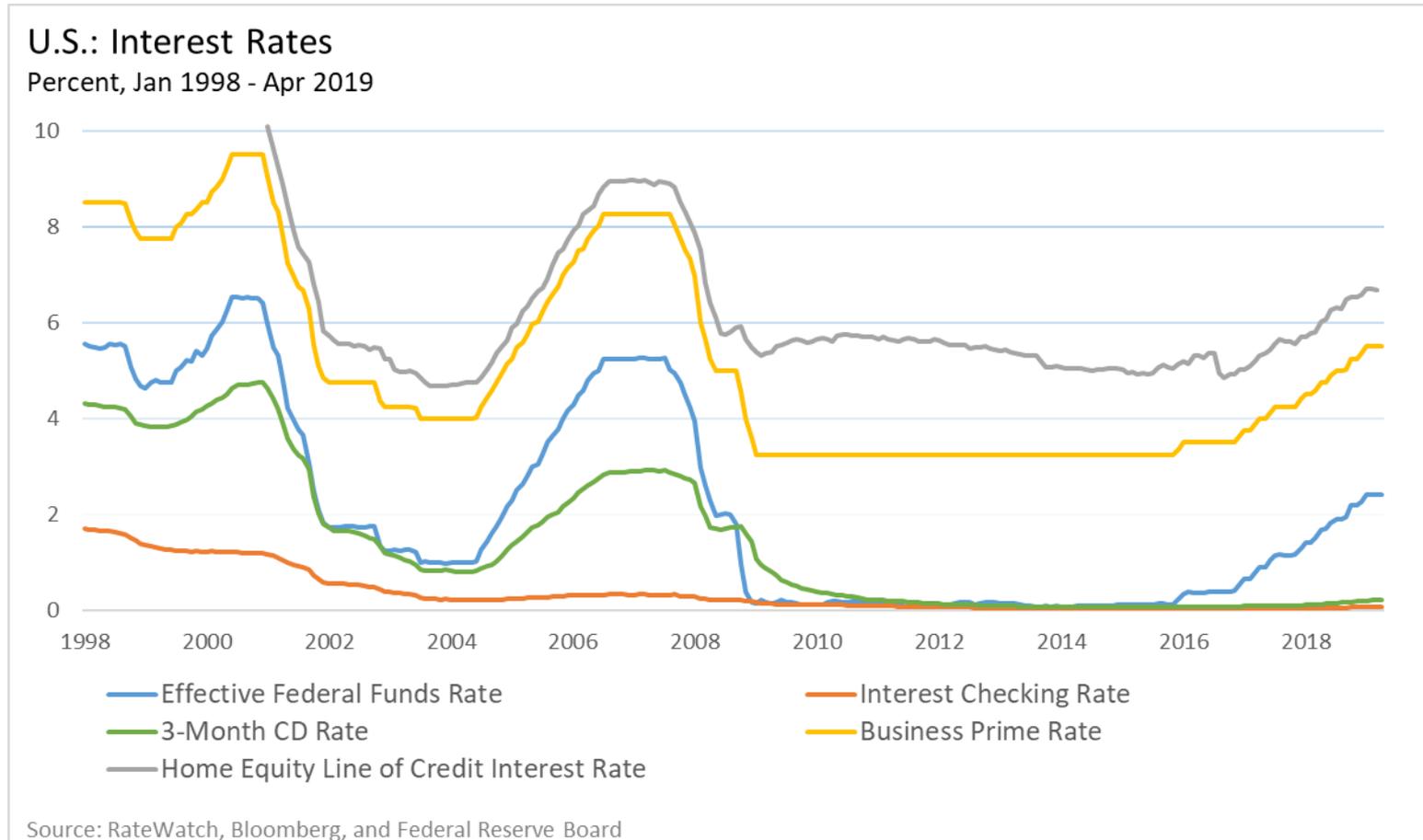
Threat of instability

- Idea is that retail-level depositors may panic, moving money from deposits to CBDC, resulting in banking crisis.
- This fear is substantially over-stated, in my opinion.
 - Why doesn't this happen with CBPC? (It once did, but we fixed it.)
 - Why doesn't same argument apply to government bonds?
 - CBDC rate can be made state-contingent (negative is possible).
 - If panic-induced run ever happened, banks should have LOLR facility.

The way forward

- Whether CBDC or some variant is desirable must be judged on a country-by-country basis.
- Much will depend on what is possible from existing (and future) database management systems. Should anticipate rapid technological advancements.
- No unique best design for CBDC or payment system. Probably many well-designed systems, whether private or public, will deliver close to same service.
- Need to focus on more on design, flexibility, incentives, broad policy goals, and less on whether payment system is located in public or private sector.
- Stablecoin threat should motivate private/public sector partnership.

U.S. Interest Rates 1998 - 2019



Canadian Interest Rates 1998 - 2019

