

# Discussion of “Central Bank Digital Currency: Stability and Information”, by Todd Keister and Cyril Monnet

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# Should we have a CBDC?

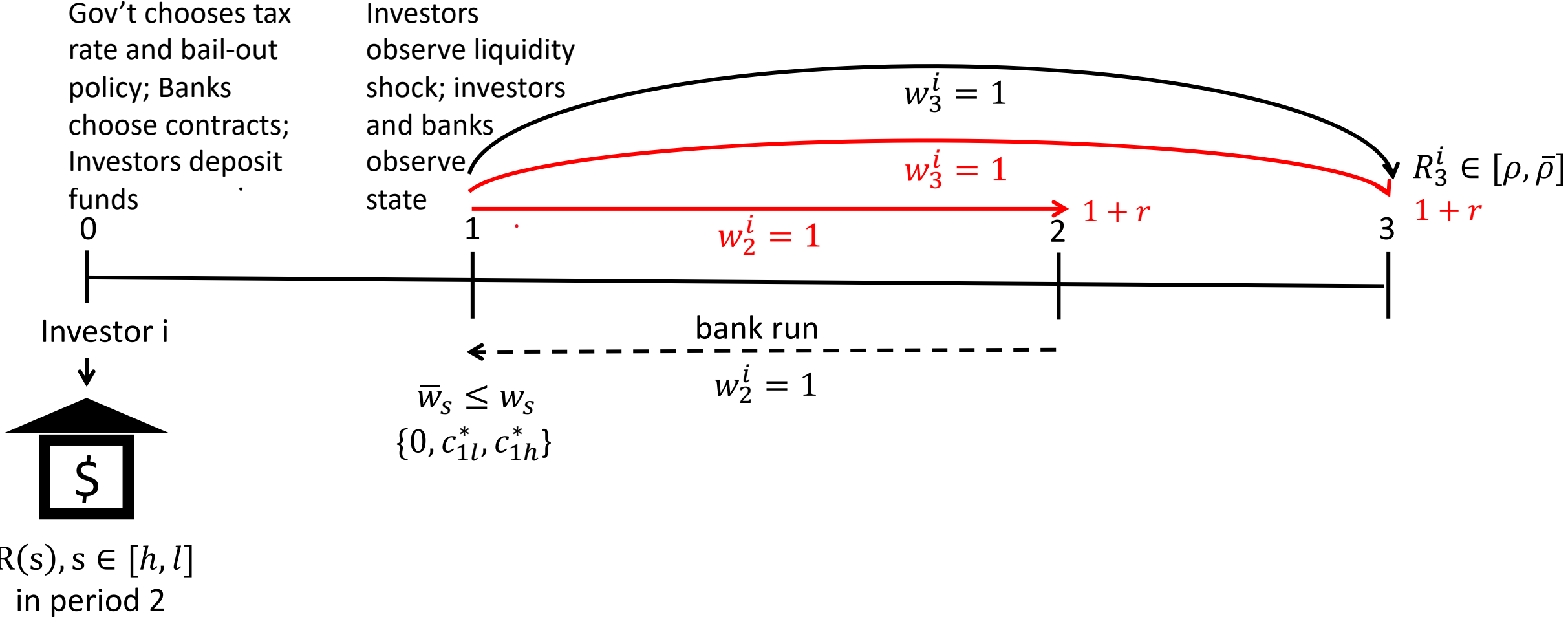
## For

1. Declining cash use
2. Credit risk free savings
3. Efficient medium of exchange
4. Privacy
5. Security
6. Financial Stability **Monnet, Petursdottir, and Rojas-Breu (2019), Fernández-Villaverde, Sanches, Schilling and Uhlig (2020), Williamson (2020), This paper**
7. Better monetary policy
8. Libraization/DCEP
9. Financial Inclusion
10. Programmable money/smart contracts

## Against

1. Not our mandate
2. Commercial bank deposits already free of credit risk
3. Disintermediate banks
4. Privacy
5. Security
6. Financial Stability

# Environment



# Key Components of the Game

1. **Players:** Investors, Banks, Regulator/Central Bank

2. **Strategies**

Investors

Without CBDC: Type 2 investors choose whether or not to withdraw in period 1 or 2. (Type 1 always withdraw and type 3 always invest in tech)

With CBDC: Type 2 investors choose whether or not to withdraw in period 1, buy CBDC in period 1, or withdraw in period 2.

Type 3 investors choose whether or not to invest in tech or in CBDC.

Banks Choose deposit contract: Amount paid to investors that withdraw in period 1 (other investors get what's left); includes the amount paid and fraction of investors that get paid

**Key Assumption 1.** Banks are constrained to pay either 0,  $c_{1l}^*$ , or  $c_{1h}^*$ .

Note: The amounts are the solutions of the planner's (constrained efficient) problem

Regulator

Without CBDC: Choose taxes  $\tau$  and bailout policy  $b$

With CBDC: Choose taxes  $\tau$ , bailout policy  $b$  and interest rate  $r$

### 3. Payoffs

Investor  $i$ :  $u(w_1^i c_1^i + w_2^i c_2^i + w_3^i c_3^i) + v(g)$ , where only one of  $w_1^i, w_2^i, w_3^i$  is positive

Bank: aggregate utility of investors from disbursements

Regulator: aggregate welfare of investors (including public good)

#### Differences in the information available and timing of actions

Regulator moves first and knows nothing

Investors know the actions taken by the regulator and banks before choosing their actions

Banks contract can be state contingent (subject to restriction) since they will observe aggregate states in period 1

# Qualitative Description of Result

Without CBDC: Banks have incentive to pay investors too much in the bad state. Moral hazard problem is caused by the bail out policy. Central bank does not learn about run until it is too late ie until bank asks for bail out.

With CBDC: Banks still have incentive to pay investors too much in the bad state. But their ability to do this is reduced because CB can detect bad behavior by flows into CBDC.

Lots of moving parts and solving this model is a technical feat! Also, includes example with illustration of welfare benefits.

# Comment 1

Uses model from Keister and Mitkov (2018), but ignores solution proposed in that paper

Eg. Mandatory bail-ins

## Comment 2

*“Trust is a valuable commodity. It is easily destroyed, but winning it takes time.”* Augustin Carstens 2018

In real world, banks are profitable and long-lived. Why would they do this and throw away future earnings?

Goes back to objective of banks. Most investors are not depositors. Share holders would not want banks to do this.

Different type of moral hazard (risky investments instead of overpaying depositors).



# Comment 3

## Implementation

- Banks are restricted to payments in the set  $\{0, c_{1l}^*, c_{1h}^*\}$ .
- These are solutions to the planner's problem.
- But banks do not attempt to implement efficient solution because they ignore impact on public good.

Is there a better set?

# Comment 4

## Problem solved by better reporting

- Could require that banks just report when outflows exceed prespecified limits.
- What are we looking for? Movements into cash? Banks already must report withdrawals over 10,000. Movements of reserves across banks (Fedwire data: autoencoder approach)

# Comment 5

Need for high limits on flows into CBDC to permit signal

- Could imagine soft limits, nonlinear tax
- Have to argue that other issues that arise with high limits (disintermediation, KYC, AML/CTF) do not impose prohibitively high costs (bigger picture: are the proposed benefits first order)

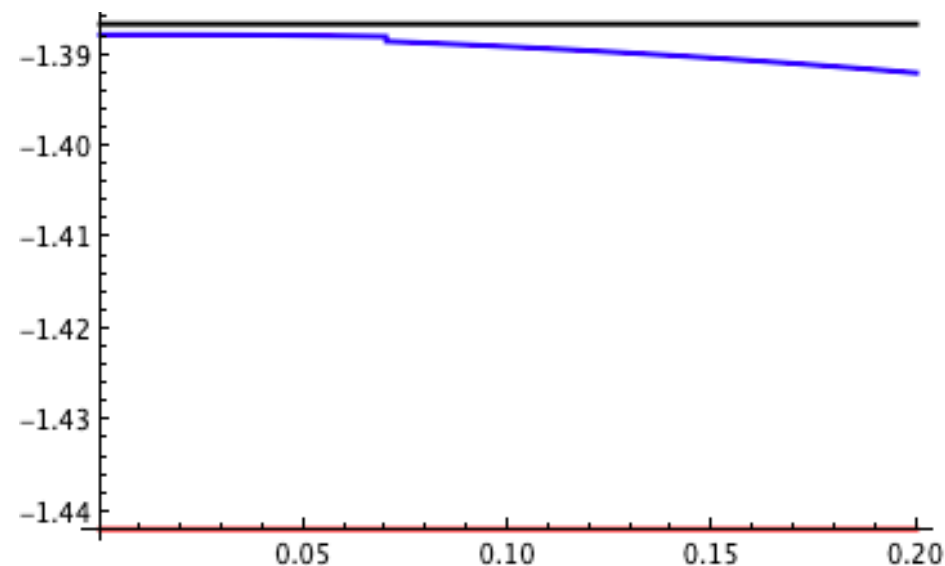


Figure 3

# Questions

1. Why are there multiple banks? Having many (a continuum) of banks allows each bank to take the level of the public good as given. But why can't objective of single bank simply be to maximize distribution of funds?
2. There are occasional references to moving deposits across banks, but this is not explained. What contract do they get? Eg if they do this in period 1 what happens at the new bank? Do they start over at period 0?
3. How is the share of depositors that start at each bank decided? Not modelled. Goes away if assume single bank. Still should model initial investment decision.
4. CBDC pays  $1+r$  regardless of whether it is held from period 1 to 2 or 1 to 3. Does that make sense?

Thank You!

# References

Keister, T. and Y. Mitkov (2018) “Bailouts, Bail-ins and Banking Crises,” mimeo.

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