



EUROPEAN CENTRAL BANK

EUROSYSTEM

# Discussion of Bidder, Jackson and Rottner

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CBDC and banks:  
Disintermediation fast  
and slow

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# Disclaimer

**The views expressed here are those of the presenter and do not necessarily reflect those of the ECB.**

# General remarks

## Great paper!

Very relevant topic in view of possible **risks** associated with the potential introduction of a **digital euro**.

- The authors combine **normal** and **crisis** times in a single model,
- They analyse the effects of **holding limits** and **remuneration**,
- They offer some **survey** evidence on the digital euro.
- ▶ It is a **must-read** for anybody interested in CBDC.
  - Very rich (survey and model).
  - Quite complex.

# The findings

The interaction of **slow** and **fast** disintermediation is key:

- CBDC **reduces** the **liquidity premium** that banks can earn on deposits, **lowers** the **deposit base** and makes it more difficult for banks to **attract deposits** after a run (liquidity premium channel).
- CBDC **lowers** the **threshold for a run** as it allows HHs to shift away from deposits more easily. But banks' deposit base is smaller so that a **bank run** is **less severe** (technical superiority channel).

The introduction of CBDC **lowers welfare** because the increased risk of bank runs dominates the gain arising from lower holding costs of CBDC.

Holding limits **increase welfare** because they **limit** the **shift into CBDC** during a bank run.

Time-varying CBDC **remuneration increases welfare even more** because it fosters slow disintermediation and discourages fast disintermediation.

## Some general comments

CBDC is modelled as a superior **store of value** that entails **no holding costs**. It expands the set of liquid assets but is **not superior** to cash in terms of **transaction services**.

**Slow disintermediation** does **not** seem to be **very harmful** in the model. The central bank holds more securities and is **less efficient** than banks, but **cash holding costs** are reduced.

A time-varying CBDC **remuneration** which is negative during runs yields **higher welfare** than a **holding limit** but might be (politically) difficult to implement.

# The model in a nutshell

HHs can invest in deposits, cash, CBDC and firm securities.

- **Deposits** yield a return of  $\bar{R}_{t-1}$  if no run and of  $x_t \bar{R}_{t-1}$  if a run occurs.
- **Cash** bears a quadratic holding cost.
- **CBDC** is safe and may or may not be remunerated.

Consumption purchases face a **transaction cost** that depends on the ratio of consumption to liquid assets  $C_t/M_t$ .

Liquid assets are defined as

$$M_t = \left[ C a_t^{\frac{\eta_m}{\eta_m-1}} + \mu_d D_t^{\frac{\eta_m}{\eta_m-1}} + \mu_{cb} D_{CB,t}^{\frac{\eta_m}{\eta_m-1}} \right]^{\frac{\eta_m-1}{\eta_m}}$$

# The model in a nutshell

HHs will only hold **deposits** at banks if they believe they will be **redeemed** at the agreed interest rate.

Banks can invest in two different types of **securities**; the **good** security has a **higher mean** *and* **lower variance** than the **bad** one.

Bank  $j$  earns a return of  $R_t^{Kj} = \omega_t^j R_t^K$

$\omega_t^j$  is **unity** if the bank invests in the **good** security,

It follows a conditionally **log-normal distribution** for the **bad** security.

**Limited liability** of the bank can make investment in the **bad security attractive** for the bank.

# Run dynamics

A run **wipes out** the banking sector. HHs move into cash, CBDC and securities, leading to a drop in asset prices.

The model generates a **time-varying, endogenous run probability**

$$p_t = \text{prob}(x_{t+1}^* < 1)Y$$

Banks are **fragile** if they can cover deposit withdrawals at the fundamental price but not at the fire-sale price for securities.

A **run** is triggered if banks are **fragile** *and* a **sun-spot shock** occurs.



# Some questions

The setup creates **time-varying leverage** and **endogenous run probability**.

- $\omega_t^j$  is **particular to bank  $j$** . Can some banks go bankrupt without triggering a systemic crisis?
- At which point in time do banks **invest** in the **bad security**?
  - Banks' incentive constraint ensures that the good security is chosen in equilibrium.
  - Investment in the bad security is an off-equilibrium strategy.
- How is the **timing of the sun-spot shock**? When do banks and HHs learn about the shock?

# A laundry list of other comments (1/2)

- Consider splitting the paper into two with a separate one on the survey results.
- Redraft the abstract – it does not really reflect what is done in the paper.
- Can you compare the survey results for Germany to those for other countries? How representative is the German respondent for the average euro-area citizen?
- Polish the text – there are a number of incomplete sentences, typos, grammatical errors, inconsistencies in indices, etc.

## A laundry list of other comments (2/2)

- Focus on the interactions between HHs and banks. The more standard parts of the model can be put into an appendix.
- The risky steady state is defined only in a footnote.
- Add welfare results for holding limits and remuneration to table 4.
- Consider discussing results in terms of averages over all run periods. I find figures 6 and 7 less informative than figure E.11.
- Skip the case with quadratic holding cost for CBDC. This is not something that has been discussed anywhere.

# Summing up

Really **nice paper** with a **rich structure** and **policy-relevant conclusions**.

## **Three main recommendations:**

- Put the survey results in a separate paper.
- Focus the description of the model on the interactions between HHs and banks.
- Elaborate more on the results, in particular holding limits and remuneration and their relative benefits.

**Very much enjoyed reading the paper!**