My Main Question

• What are the key features/foci of useful models of central bank digital currency (CBDC)?
Answer 1: Cash and CBDC

• At its heart: CBDC is a substitute payments technology for physical currency (henceforth: cash).

Useful models of CBDC should be grounded in the role of currency – both physical and virtual – in the economy.
Answer 2: Banks and CBDC

- CBDC can (and likely will) be implemented so that it poses little risk to banks’ role in liquidity transformation.

- But CBDC may well threaten banks’ fee income from payment services.

Models of CBDC should be able to assess the costs/benefits of banks’ privileged roles in the payment system.
CBDC and Cash
What is CBDC?

• Like cash, CBDC is primarily a recordkeeping device.
  • They both encode the net value of a person’s past “gifts” to others.

• Unlike cash, CBDC is virtual.

• In language of Kocherlakota (1998): cash is “money” and CBDC is “memory”.
Key Differences Between CBDC and Cash

• CBDC can (and likely will) encode a great deal more information about various agents’ transaction histories (for potential use by the government).
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• CBDC can be used between *non-proximal* agents
Key Differences Between CBDC and Cash

• CBDC can (and likely will) encode a great deal more information about the history of transactions (for potential use by the government).

• CBDC can be used between *non-proximal* agents

• CBDC can be easily designed to pay negative interest in at least some circumstances.
Key Differences Between CBDC and Cash

• (Much) Less Privacy

• (Possibly) Less Proximity

• (Possibility of) Negativity

Useful models of CBDC should capture implications of these differences and their possible interactions.
CBDC and Banks
CBDC and Liquidity Transformation

• At least initially, CBDC seem likely to be designed to mimic cash and pay no interest (see Riksbank report 1 or Engert and Fung (2017)).

• My own conjecture: central banks are likely to charge fees/interest for use of CBDC (especially as part of NIRP or during financial crises).

• **CBDC seems unlikely to be any more of a threat to (taxpayer-subsidized!) bank liquidity transformation than cash itself.**
  — Piazzesi-Schneider paper shows why this may be a good thing.
Bank Payments: Observations

• Banks (in the US) earn rents from:
  – Debit/credit card transactions (arguably)
  – Wire transfers (inarguably)

• In the future: I would expect that they will likely earn rents from real-time value transfer networks like Zelle.
CBDC and Bank Payments: Questions

• How will different implementations of CBDC affect the banks’ rents from the payment system?

• And what level of these bank rents is socially desirable?
Concluding Questions
Modeling Question 1: CBDC and Cash

• CBDC differs from cash because:
  – it is less private
  – eliminates the need for proximity
  – allows for negative interest

• How would adding these features (and their interactions) affect the economy?
Modeling Question 2: CBDC and Banks

• CBDC seems unlikely to undercut bank liquidity transformation any more than cash itself.

• But CBDC seems likely to affect banks’ payment system functionality and profitability.
  – Are those effects desirable ones?