

# Discussion of “The Coming Battle of Digital Currencies”<sup>1</sup> (by Cong and Mayer)

Joseph Abadi

Federal Reserve Bank of Philadelphia  
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<sup>1</sup>The views expressed in this paper are solely those of the authors and do not necessarily reflect the views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System. Any errors or omissions are the responsibility of the authors.

# Summary

- ▶ Model competition between “strong” currency, “weak” currency, and crypto
  - ▶ Rationalize key developments in adoption of digital currencies...
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- ▶ **Result 1:** Increase in crypto's value can hurt strong currency, benefit weak currency
  - ▶ Countries with weak currencies want to promote crypto, dominant country wants to regulate
- ▶ **Result 2:** Pecking order of CBDC issuance (in terms of currency strength)  
Moderate strength (e.g. China) > Dominant (e.g. US) > Weak (e.g. Argentina)

# Discussion overview

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Model overview and main results

Comments

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- ▶ Governments exert costly effort to develop CBDC ( $Z \uparrow$ ), Markov-perfect solution concept

# The main mechanism

► Equilibrium characterization in steady state:

1. Market clearing:

$$m^A + m^B + m^C = 1, \quad m^x = P^x$$

2. Optimal portfolio allocation:

$$Z^A v'(m^A) - \pi^A = Z^B v'(m^B) - \pi^B \frac{P^A}{P^B} = Y v'(m^C)$$

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- ▶ “Inflation tax” implies interesting **strategic complementarities** in portfolio choice

- ▶ Increased demand for  $B$  induces **self-reinforcing spiral**

$$\text{Demand for } B \uparrow \Rightarrow P^B \uparrow \Rightarrow \text{Inflation tax } \downarrow \Rightarrow P^B \uparrow \dots$$

- ▶ Increased demand for  $A$  **destabilizes** currency  $B$

$$\text{Demand for } A \uparrow \Rightarrow P^A \uparrow \Rightarrow \text{Inflation tax } \uparrow \Rightarrow P^B \downarrow \dots$$

## Intuition for results

- ▶ **Result 1:** Increase in  $Y \Rightarrow P^A \downarrow$ , but possible that  $P^B \uparrow$ !
  - ▶ Increase in  $Y \Rightarrow$  Substitution away from  $A$  into  $C$  to equalize convenience yields
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- ▶ **Result 2:** CBDC issuance more beneficial to  $B$  ( $\frac{dP^B}{dZ^B} > \frac{dP^A}{dZ^A}$ )
  - ▶ Increase in  $Z^B$  raises  $P^B$  through direct effect + strategic complementarity
  - ▶ Analogous mechanism isn't operative for  $Z^A \uparrow$
  - ▶ Numerical examples: This force increases incentives to issue CBDC when  $\pi^B$  is moderate

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# Big picture: Comments

▶ Model basics:

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## ▶ CBDC issuance and competition:

1. What are the specific incentives to issue CBDC when currencies compete as stores of value?
2. Two distinct dimensions of “strength” (low  $\pi$  + unit of account dominance)  
⇒ Pecking order implications?

# Currency competition and the roles of money

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  - ▶ OLG models: Dynamic complementarities in investment  $\Rightarrow$  Indeterminacy (Kareken-Wallace)
  - ▶ Novel **static** complementarity through inflation tax generates determinacy, key insights

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2. Fixed **unit of account** regime gives rise to interesting inflation tax mechanism
  - ▶ NK literature: Competition as unit of account  $\Rightarrow$  Firms can change contract denomination
  - ▶ Potentially important **interaction** btw dominant unit of account/safe asset status (Gopinath-Stein)

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3. Separable convenience yield  $\Rightarrow$  Also fixed **medium of exchange** regime
  - ▶ Like New Monetarist model where  $A, B, C$  used exclusively in different types of transactions
  - ▶ Strategic currency adoption, network effects, etc.  $\Rightarrow$  No separable convenience yield (e.g. Lester-Postlewaite-Wright)

## Comment 2: The inflation tax

- ▶ A lot of the model's key insights driven by inflation tax
  - ▶ Basic idea: Dollar appreciates  $\Rightarrow$  Gov.'t debt burden  $\uparrow$ , inflated away
  - ▶ Implied exchange rate dynamics potentially very important for monetary economics...

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- ▶ Is it possible to provide more micro-foundations for specific formulation?
  - ▶ Here currency stock exogenously fixed at 1, so model really only pins down

$$P^A = \text{Price of A} \times \text{Quantity of A} \quad (\text{market cap})$$

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- ▶ Empirical support for relationship btw dollar appreciation/inflation in other currencies?
  - ▶ Possible issues: Dollar reserve holdings + other gov.'t financing sources

## Comment 3: The incentives to issue CBDC

- ▶ **Store of value** competition: Gov.'t issues CBDC to increase currency's market cap
  - ▶ E.g., government issues CBDC to prevent capital from exiting the country
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  - ▶ Probably need micro-founded model of transactions to address these issues
- ▶ CBDC for monetary sovereignty  $\Rightarrow$  Need to think about **unit of account** competition
  - ▶ Often important motivation for central banks in developed countries (Auer et al. 2021)
  - ▶ Need theory where denomination of contracts is chosen endogenously

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- ▶ Give general theoretical argument for pecking order? (mid- $\pi$ , non-dominant  $\Rightarrow$  CBDC)
  - ▶ Example in paper might depend on functional form of convenience yield, etc.

# Conclusion

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- ▶ Suggestions: Highlight key features in very rich, detailed model
  1. Emphasize **store of value** competition under fixed **unit of account** regime
  2. Support novel inflation tax mechanism with more **microfoundations/empirical evidence**
  3. Distinguish btw **low inflation/dominant** currencies  $\Rightarrow$  More CBDC issuance implications