

# Discussion of "Money Creation in Decentralized Finance: A Dynamic Model of Stablecoin and Crypto Shadow Banking" by Li and Mayer

Pablo D. Azar<sup>1</sup>

Federal Reserve Bank of NY

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<sup>1</sup>This presentation presents preliminary findings and is being distributed to economists and other interested readers solely to stimulate discussion and elicit comments. The views expressed in this presentation are those of the author and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System. Any errors or omissions are the responsibility of the author.

# Paper Overview

- A very thorough paper on overcollateralized stablecoins
- Stablecoin Issuer faces tradeoff between stability and profits
- Bimodal equilibrium distribution: (1) reserves are high and peg is maintained, and (2) reserves are low and the peg is not maintained.

# Paper Strengths

- State of the Art Model of Cryptocurrency Issuance
  - Grounded in the theory of Dynamic Corporate Cash Management
- Captures possibility that issuer will profit from
  - Fees
  - “Governance Token” Issuance
  - Big Data
- What if issuer profits from transaction data?
  - Surprising result: Issuer is incentivized to lower fees (and reserves-per-unit) to encourage more transactions. This may decrease stability.

# Suggestions for Improvement and New Work I

- Key Conceptual Issue: Most overcollateralized stablecoins do not use dollars as reserves
- They use BTC or ETH
- The price of BTC or ETH has a *jump component*:

$$\frac{dP_t}{P_t} = \mu_t^P dt + \sigma_t^P dZ_t + \lambda_t^P J_t$$

- What happens to MakerDAO if ETH crashes (March 2020)?
- May induce new equilibria in the model
- *Something I learned from the paper*: Positive Continuation Value may prevent these bad equilibria from happening

## Suggestions for Improvement and New Work II

- The model assumes one issuer, with control over fees and volatility.
- In reality, entry costs are relatively low, and stablecoin properties (fees, volatility) may be taken as dictated by the market
- Stablecoins may compete on other dimensions
  - Privacy
  - Auditability
  - Counterparty Risk
  - Cybersecurity
  - Ease of Use
- These dimensions are harder to quantify
- Some probability  $\rho > 0$  of losing the entire value of assets because of a bug or theft

## Suggestions for Improvement and New Work III

- Can the user's value be microfounded?
- Stablecoins can be used in decentralized finance protocols to obtain high yields
- In September 2020, the price of DAI was at \$1.10 because of high demand
- Possible variation of the model where stablecoins are not risk-free assets, but rather have some reward-risk profile which drives their demand

## Suggestions for Improvement and New Work IV

- Can the model be taken to the data?
- MakerDAO is a relatively liquid stablecoin whose architecture is captured by the model
- Fees have gone up and down over time
- Changes in policy:
  - Peg Stability Module tying DAI to USDC
  - Single-Collateral DAI to Multi-Collateral DAI
- Can authors use data to calibrate model?

# Suggestions for Improvement and New Work V

- Effect on Financial Stability?
- New Silver is collateralizing DAI with senior tranches of a Mortgage-Backed Asset
- Linkage between real estate and cryptocurrency markets
- What are the implications for credit supply?