

# Interview Slides

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Oxford Martin School

Biodiversity Modelling and Corporate Disclosures

Wenbin Wu

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# Outline

1. Self Introduction

2. Current work

3. Future

# Education

Wenbin Wu

- **King's College London**
  - PhD in Computer Science
  - MSc Banking and Finance
- **Peking University**
  - MS Computational Finance
- **University of Electronic Science and Technology of China**
  - BSc Information Security

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# PhD Research

## *Background and Question*

- **Background**

- Stablecoin is a type of decentralized cryptocurrency.
- Many stablecoins have experienced bank runs.
- Some encountered outright collapse, e.g., Terra  and Basis .

- **Question**

- What stabilization policies improve price stability?
- What is the implication of this?

# PhD Research

## *Methods and Findings*

- **Methods**

- Analysis of stylized blockchain data and smart contracts.
- Agent-based (ABM) simulation and validation.
- Some formal verification for the modeled stablecoin system.

- **Findings**

- Two key parameters are most notable, **collateralization ratio** and **auction discount curve**.
- High collateralization helps reduce irrational runs, and a steep discount curve limits the damage of rational runs.
- Runs are inevitable. Many on-chain stablecoins are taking up risky or dubious assets.

# Collaboration

## *Professional Collaborations and Roles*

- **SoCityDAO and MIT Media Lab**
  - Collaborated with SoCityDAO on carbon credit stablecoin.
  - Assisted in designing their token framework.
  - Advised on blockchain application for carbon credit trading.
- **School of Economics, Peking University**
  - Assisted in research on the Chinese CBDC under the guidance of a leading economist.
  - Contributed to conference presentations and policy briefs.

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# Highlights

## *Tools and Skills in PhD Research*

- Cryptocurrency and Blockchain Research
- Interdisciplinary experience intersecting with financial policy
- Tools:
  - Python and NetLogo for ABM
  - Python, R, and SQL for financial statistics
  - Solidity, Infura, and Web3 for blockchain integration

# Proposed Approach to the Role

## *Developing Guidance for Biodiversity Impact Monitoring*

- **Align with TNFD Framework:**

- Leverage TCFD/TNFD's methodologies for nature-related financial disclosures.

- **Incorporate DJSI Insights:**

- Benchmark sustainability performance metrics from DJSI.

- **Quantitative Methods:**

- Employ agent-based, statistical, or machine-learning models to quantify biodiversity impacts.

- **Stakeholder Engagement:**

- Engage with corporations and investors to align guidance with practical needs.

Thank you

## Appendix: Some Stylized Data

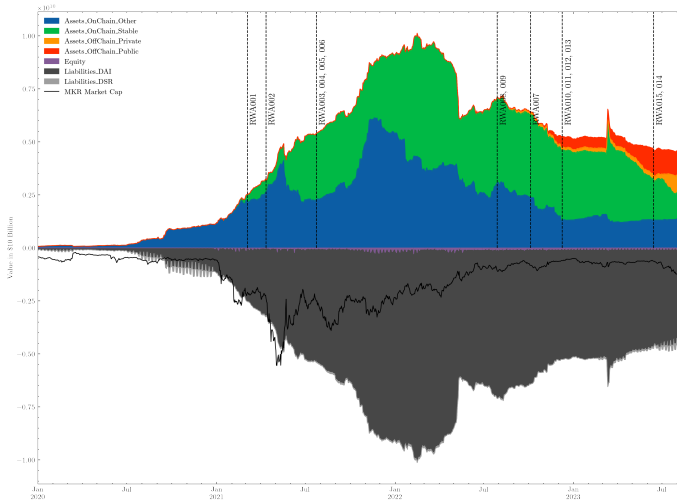


Figure: MakerDAO Balance Sheet, 2020-2023

## Appendix: Some System Components

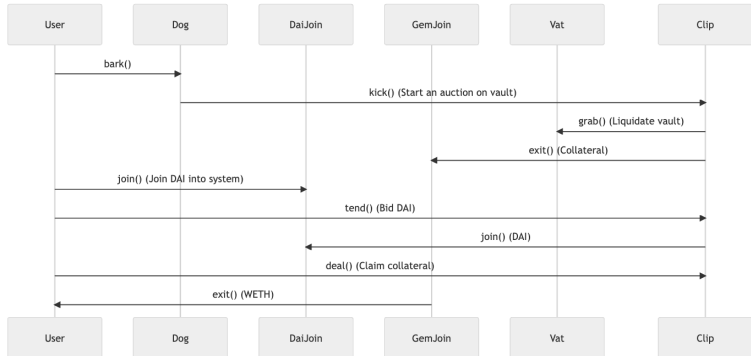


Figure: Simplified System Components of MakerDAO

## Appendix: Formal Design of Method

*Kick*

$\Delta\text{Clipper}$

$tab : \mathbb{R}$

$lot : \mathbb{R}$

$kpr : \text{seq } \text{CHAR}$

$now : \mathbb{N}$

$tab > 0$

$lot > 0$

$kicks' = kicks + 1$

$ACTIVE' = active \cup \{kicks'\}$

Schema: Begin Collateral Auction

# Appendix: Global Interactive Sensitivity

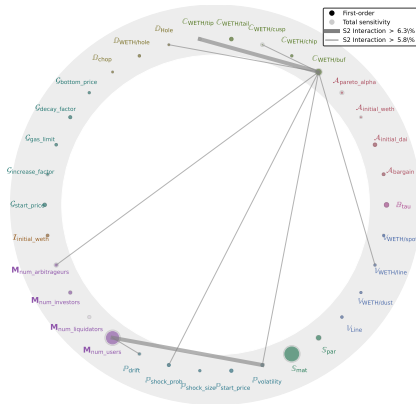


Figure: Global Sensitivity Analysis, 8960 model runs

## Appendix: Some Time series Sensitivity

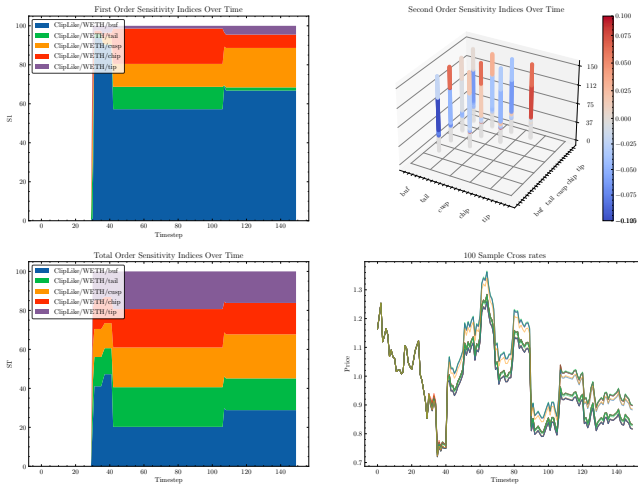


Figure: Sensitivity Analysis for Auction Parameters, 10240 Model Runs