Analysis of Maximal Extractable Value on the Algorand Blockchain

Jonas Gebele, January 09, 2023, Kick-off Presentation Guided Research

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1. Motivation and Background Information
2. Problem Statement
3. Research Objectives
   3.1. Analyze DeFi activity on Algorand for potential Maximal Extractable Value
   3.2. Approximate the quantity of Maximal Extractable Value on Algorand
   3.3. Find precedence of extracted Maximal Extractable Value on Algorand
4. Timeline
Motivation and Background Information

Maximal Extractable Value (MEV)

Flash Boys 2.0:
Frontrunning, Transaction Reordering, and Consensus Instability in Decentralized Exchanges

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Ethereum is a Dark Forest

Aug 28, 2020 | Dan Robinson, Georgios Konstantopoulos
Motivation and Background Information

Types of MEV

- Sandwich Attack
- Front Running
- Back Running
- Liquidations
- DEX Arbitrage
- Time Bandit Attack
Motivation and Background Information

Types of MEV

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Motivation and Background Information

Types of MEV

Sandwich Attack
Front Running
Back Running
Liquidations
DEX Arbitrage
Time Bandit Attack
$686,445,988
Total Extracted MEV

$202,553
Last 30 days Extracted MEV

k
Last 24h Extracted MEV
Outline

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Problem Statement
Algorand Consensus Rules

Sandwich Attack
Front Running
Back Running
Liquidations
DEX Arbitrage
Time Bandit Attack

NO TRANSACTION-ORDERING BY FEE
(transaction fees go to Algorand Foundation)

Most MEV only exploitable by block-producers*
(*assuming there is no transaction-congestion and a resulting fee market)
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   3.2. Approximate the quantity of DEX arbitrage MEV on Algorand
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Research Objectives
Research Objective 1 - DeFi activity

Analyze DeFi activity on Algorand for potential Maximal Extractable Value

- Decentralized Exchanges
  - tinyman
  - Pact
  - AlgoFi
  - Hub

- Prediction Markets
  - venue.one

- Lending Protocols
  - AlgoFi
  - GARD

- Option Markets
  - Silo
  - Algorai Finance
## Research Objectives

Research Objective 2 - DEX arbitrage MEV

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<th>24h Swap Volume</th>
<th>24h ALGO-USD Volume / 24h Total Volume</th>
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Research Objectives

Research Objective 2 - DEX arbitrage MEV
Find precedence of extracted Maximal Extractable Value on Algorand
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## Timeline and Future Work

### Timeline

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