

**Alfred Lehar & Christine Parlour**  
**“Systemic Fragility in Decentralized Markets”**

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24 June 2022, 21st BIS Annual Conference

# A Glimpse Into DeFi Land

Fascinating look through magnifying glass ...

... among the first of its kind

~~Theory-empirics links unclear~~, keep theory, and add more!

Convincing evidence

- Selling has negative price impact
- Temporary and permanent
- Price effects propagate on- and off-chain

“[S]ystemic fragility of decentralized markets”

# On The Ground In DeFi Land

Liquidators spot insufficiently collateralized loans, acquire collateral “cheaply,” liquidate it

Financed by flash loans (more below)

Liquidation occurs on CPAMM liquidity pool (more below)

Oracles aggregate price information, trigger revaluation of collateral of other loan contracts, prompting more liquidations

# Why DeFi Land Is Different

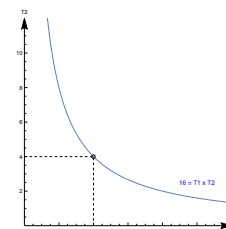
## Flash loan smart contract

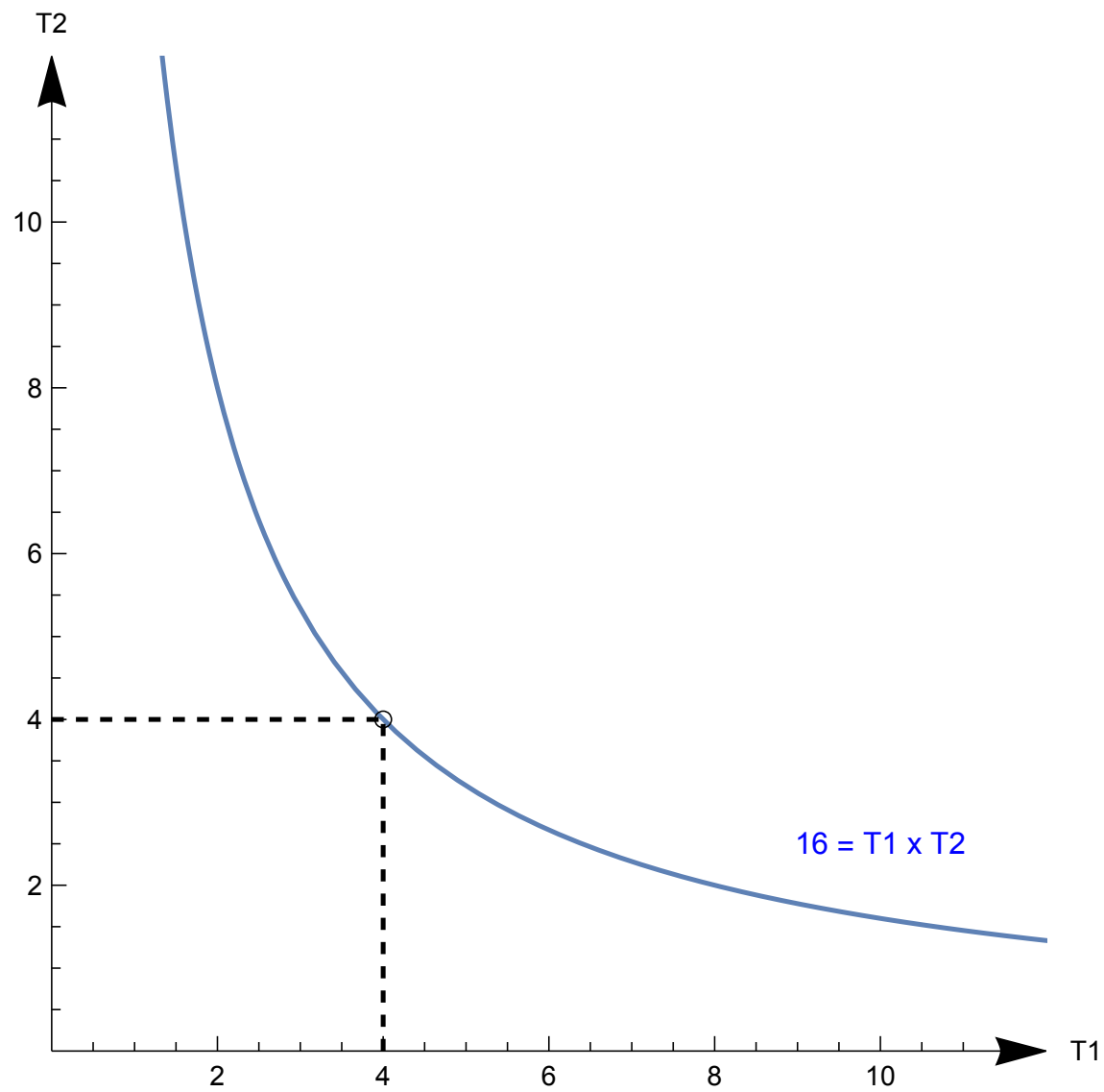
- All or nothing: [collect funding, trade, repay] executed on same block
- ⇒ Owner of contract does not need collateral or deep pockets

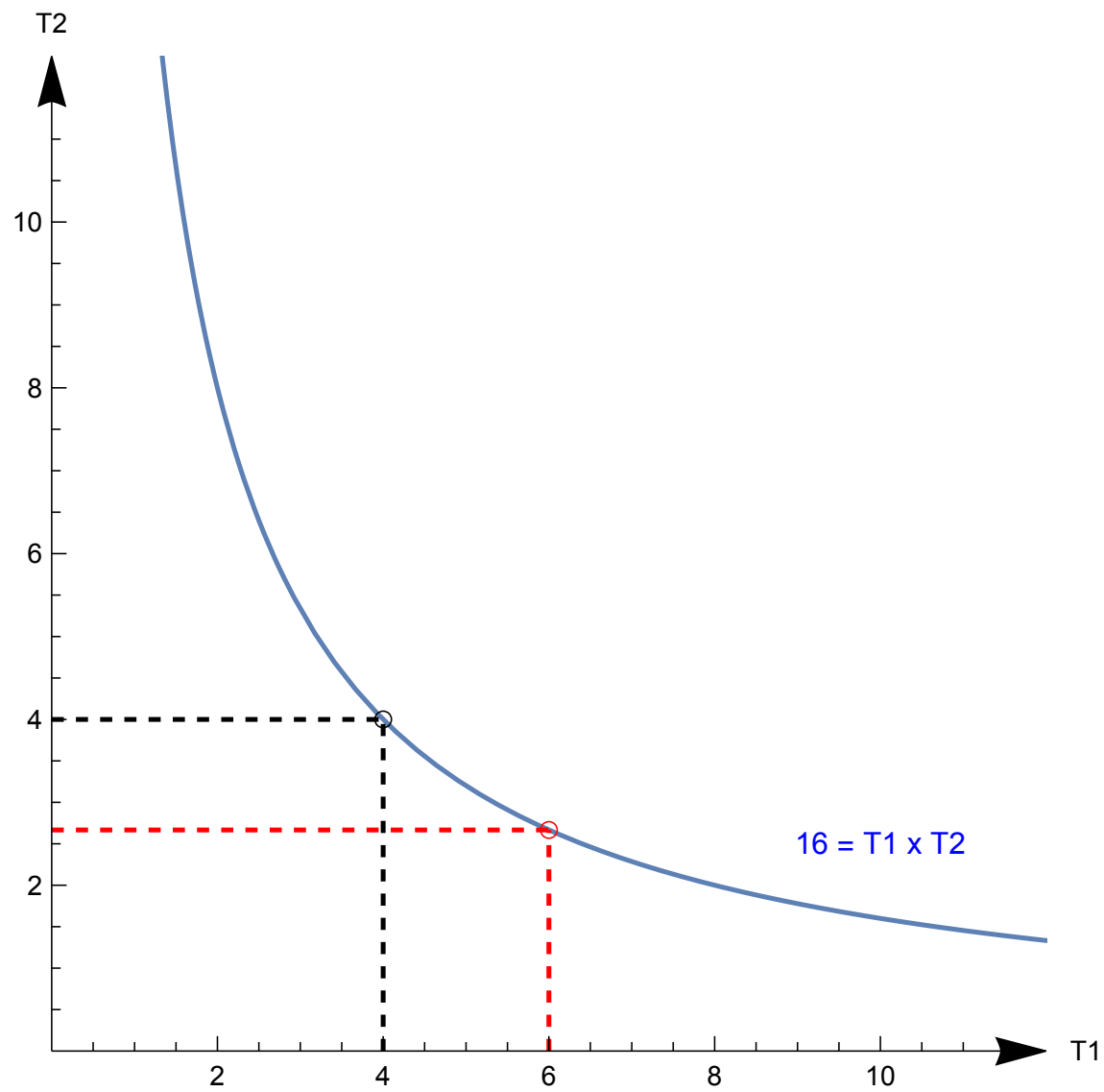
Arbitrage for the masses

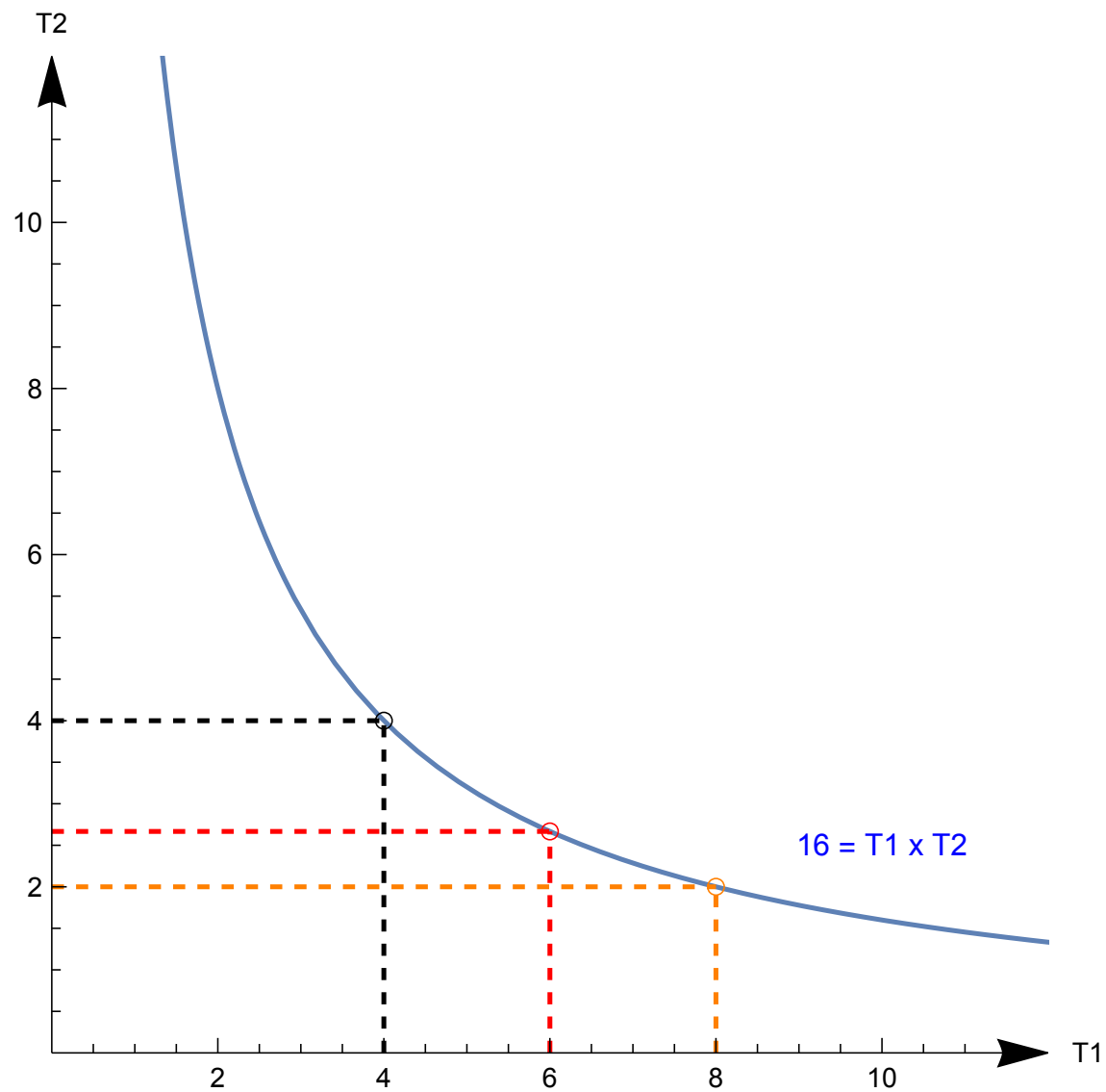
## Constant product autom market making (CPAMM) liquidity pool

- Inventory rebalancing along a bonding curve









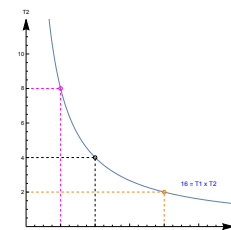
# Is DeFi Land The Promised Land?

Land of commitment?

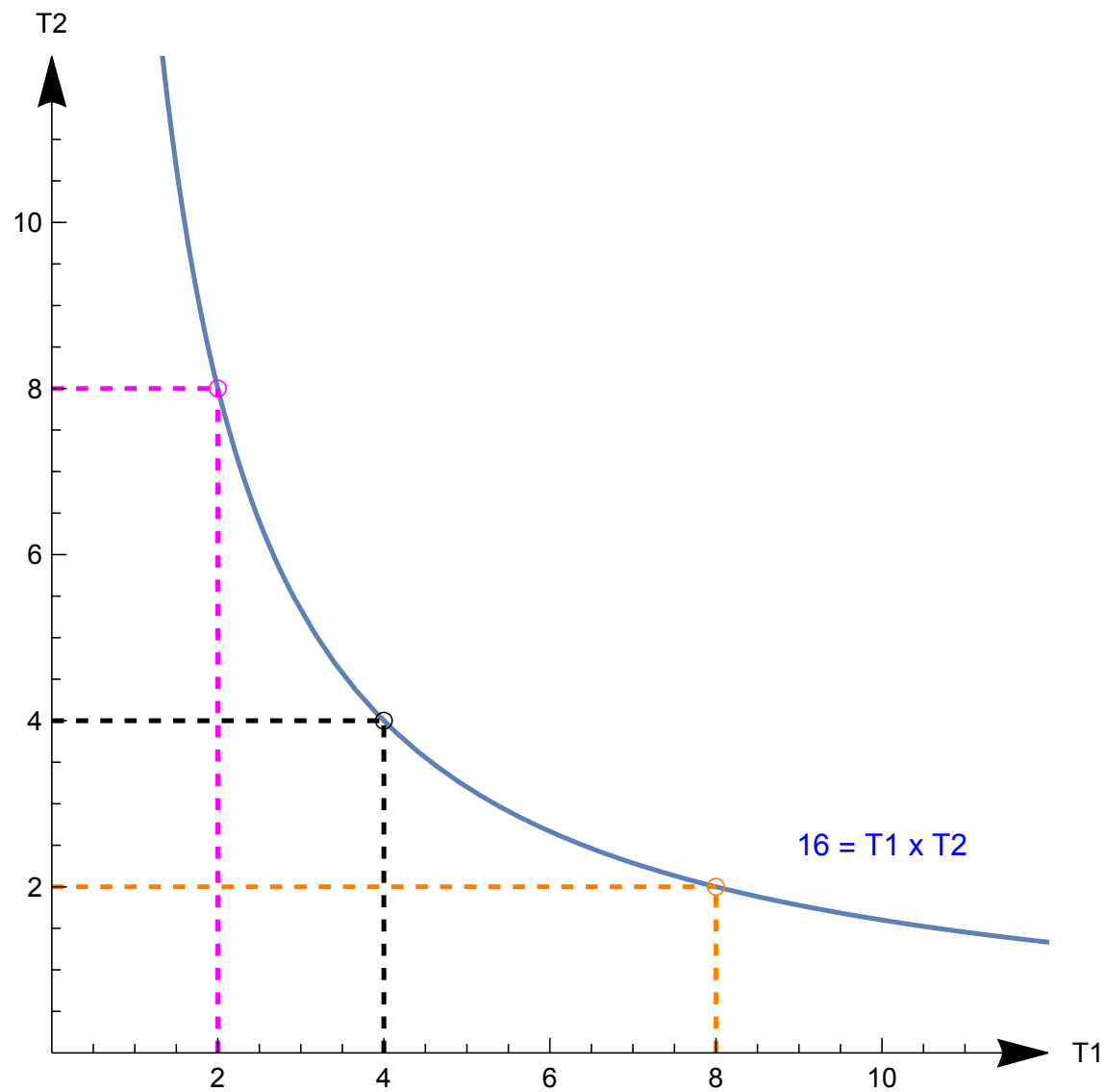
- Yes, with flash loans, essentially by eliminating time
- No, with front running miners reordering execution sequence

Land of transparency, liquidity?

- Yes, with observable trades, oracle use of public information
- No, due to incentives, e.g., to wait rather than trade







# Back To The Paper

Incentives? Theory could help to interpret data

- Fees, incentive to wait, deterrence of front running (protective fees, order smoothing), ... should affect sales dynamics
- Strategic incentives of liquidators (briefly discussed)

“Systemic fragility in decentralized markets”

- Different problems than in TradFi?
- Because sales respond to prices? No
- Because of mark-to-market collateral valuation?

# Back To The Paper, ctd.

“Liquidity sales,” why price impact?

- Market incompleteness rationale vs. arbitrage for the masses
- What is fundamental value when bubbles serve as collateral for other bubbles?

Information aggregation by oracles

- Exact mapping unknown
- Could use price data, network structure to back out?

DeFi land as testing ground for Hayek

# Big Picture—What To Take Away?

## Similarities TradFi, DeFi

- Price impact, “contagion”
- Liquidity pools resemble dealer inventories but rigid spreads

## Differences TradFi vs. DeFi

- Calendar time vs. blocks (commitment)
- Price discovery through bids vs. costly transactions
- Collateral for protection vs. to make money
- Banks as money creators vs. loanable funds