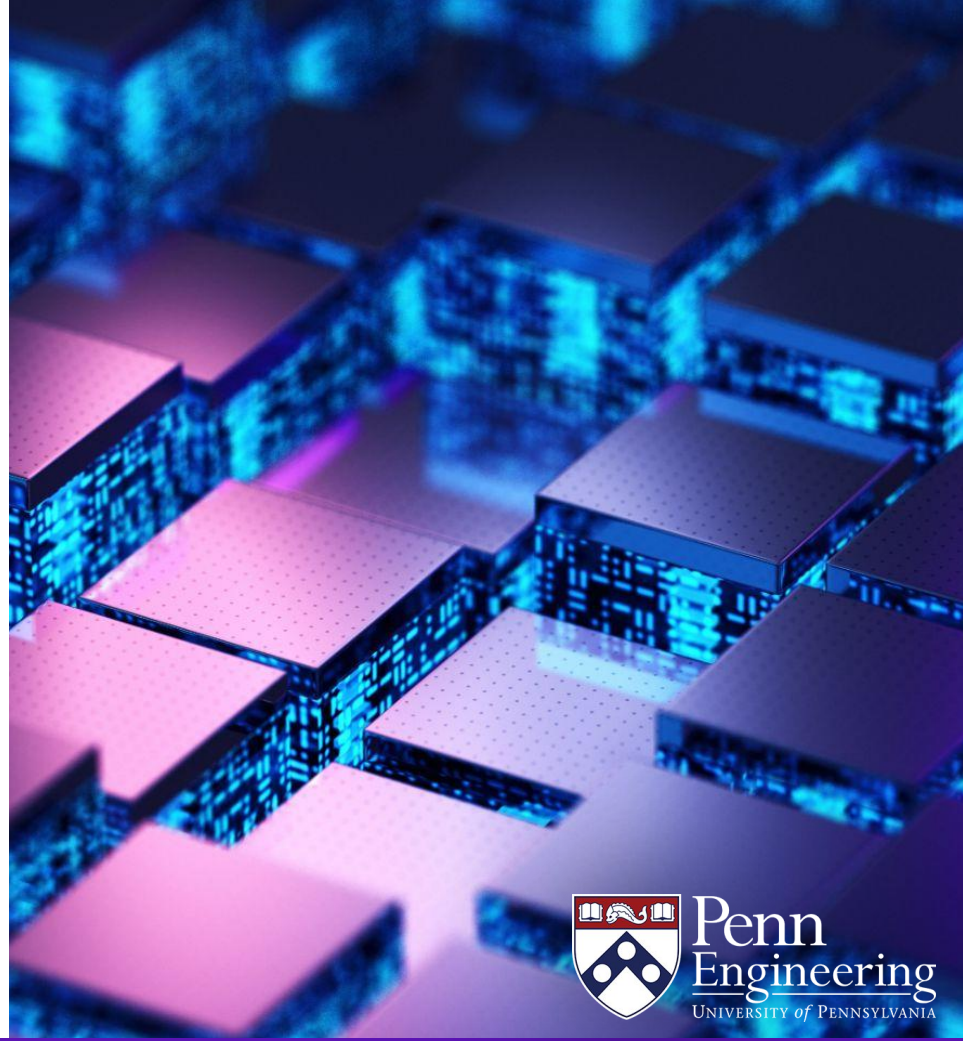
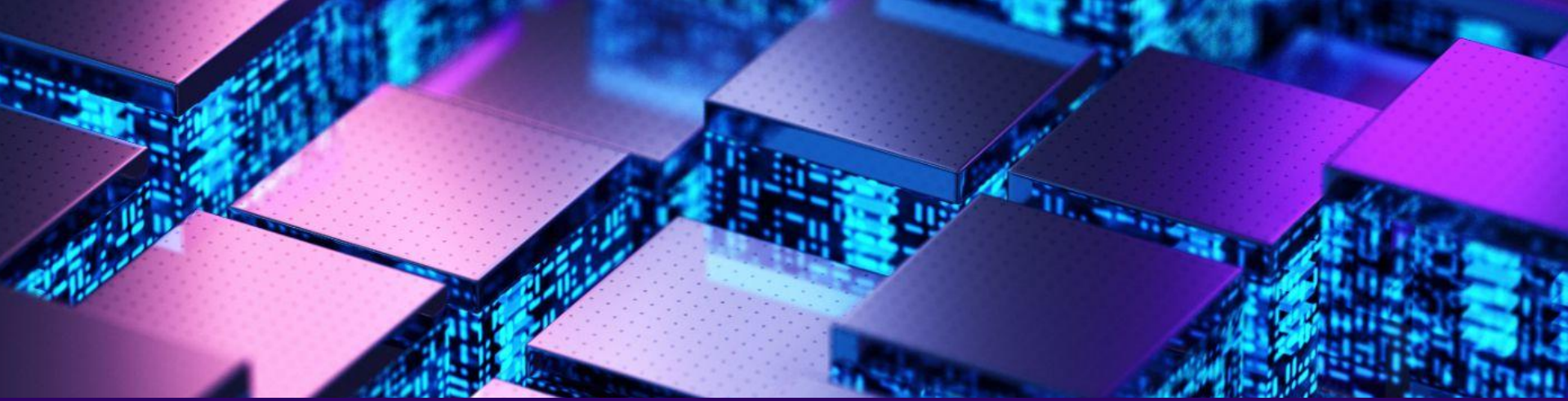
EAS 5830: BLOCKCHAINS

Liquid Staking

Professor Brett Hemenway Falk





Staking dynamics

Why stake?

- Staking secures the network
  - More stake makes it more difficult to maliciously fork the chain
- There is an opportunity cost of staking
- Cost is offset by block rewards (and transaction fees)
  - Algorand is the exception
    - No explicit staking and no rewards
    - Since opportunity cost is low, benefit platform may be sufficient reward

Why stake?

- Think of block rewards as “interest” on your staked tokens
- What if lending your tokens earns higher interest?
- Will anyone stake?
- Will the system become unstable?
    - Competitive equilibria between staking and on-chain lending

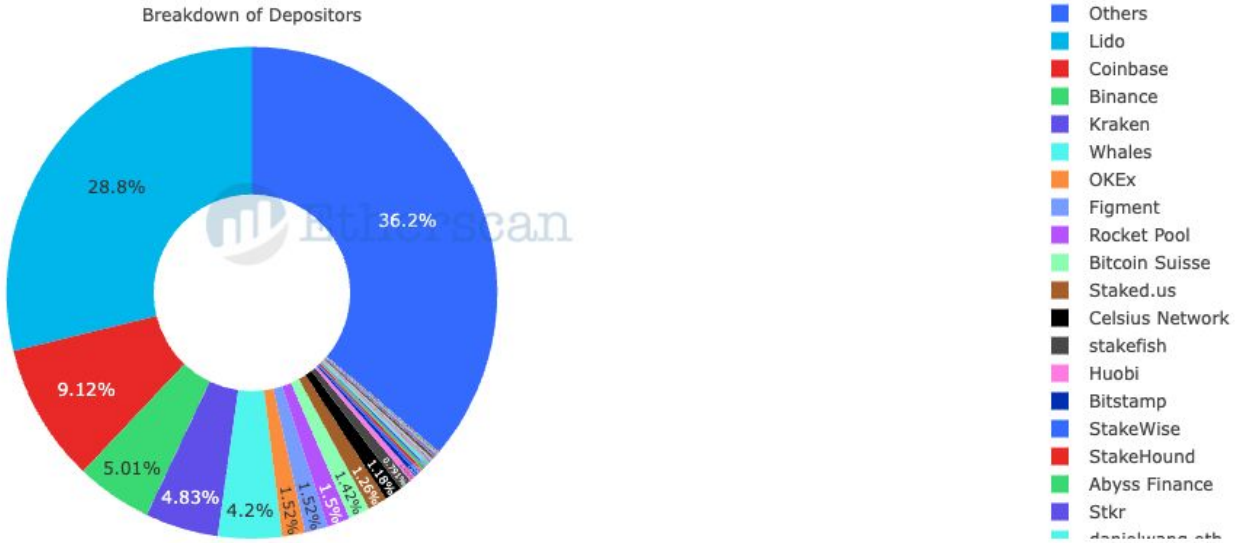
Liquid Staking

- What if you could borrow, using your staked assets as collateral?
  - Why stake when you can borrow?
- This is called: **Liquid Staking**

Liquid staking with Lido

- Deposit ETH into Lido pool
- Receive stETH in return
- Lido DAO chooses block producers and stakes ETH with them
- stETH can be traded while ETH is staked
- As block producers earn rewards, new stETH is issued

Ethereum Staking



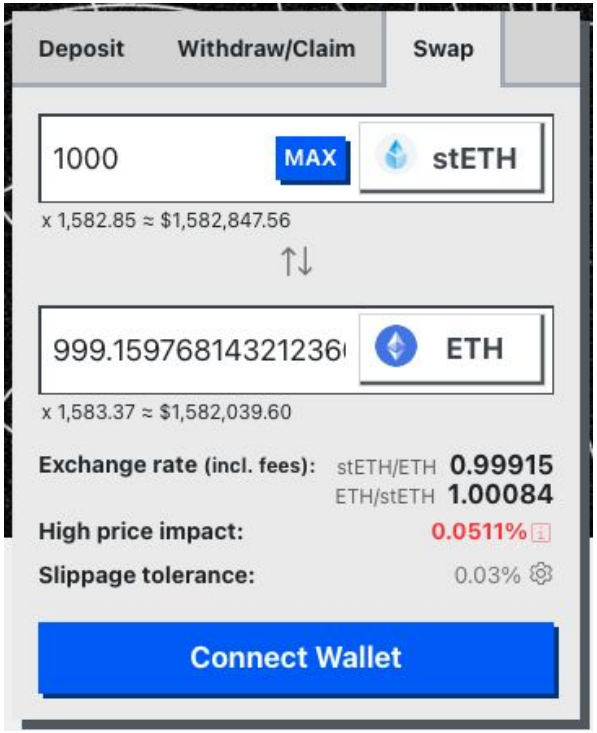
Liquid staking on other chains

Solana
stSOL

Polygon
stMATIC

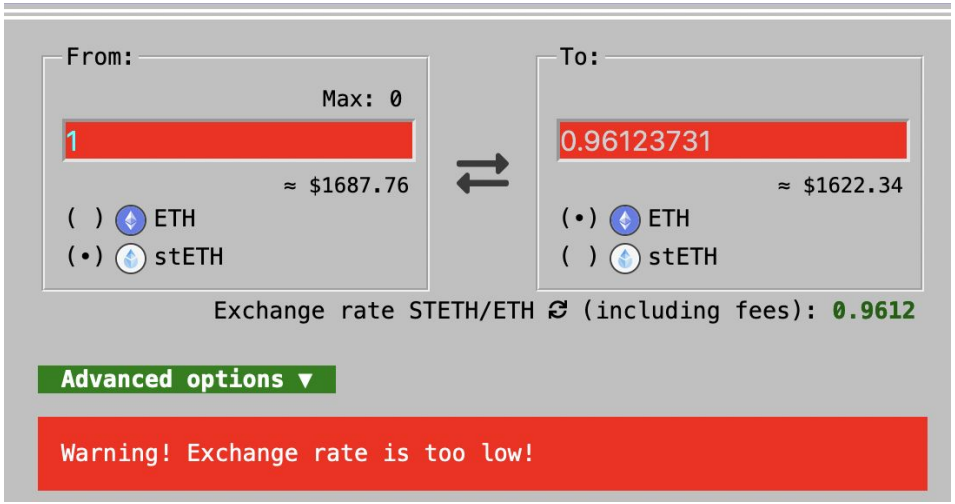
Benefits of Liquid Staking

- Unstaking
  - Most PoS systems require “unbonding” period before you can unstake your tokens
    - Cosmos has a 21-day unbonding period
    - Ethereum has a “withdrawal queue”
  - With Liquid Staking, you can sell your stETH immediately



Benefits of Liquid Staking

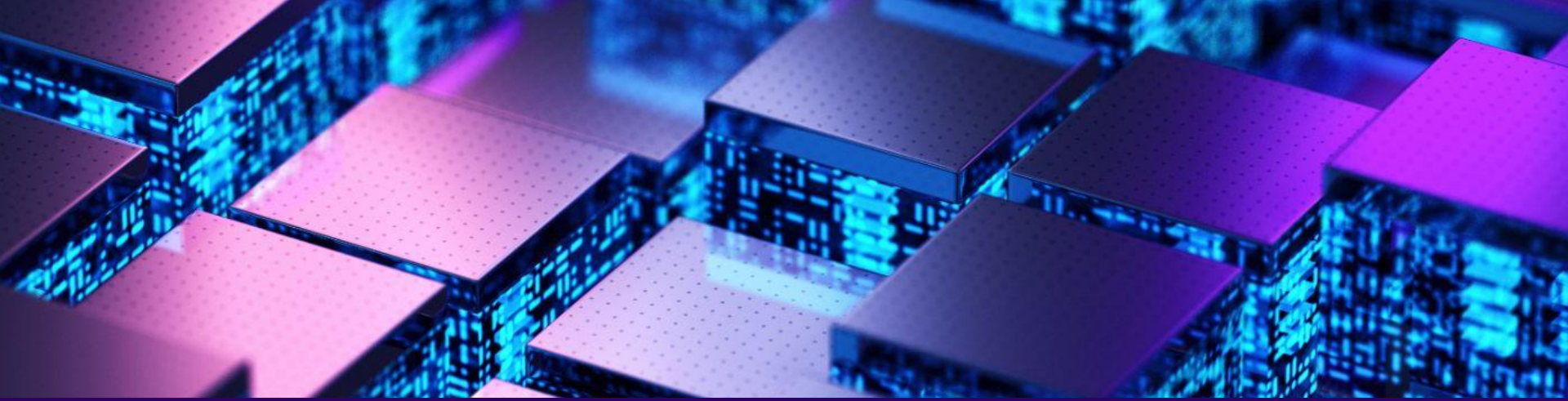
- Unstaking
  - It’s possible that the “liquid” token may not be all that liquid




Dec 21, 2020
→
Oct 16, 2023
Ξ1.050000
Ξ1.025000
Ξ1.000000
Ξ0.97500000
Ξ0.95000000
Ξ0.92500000
ETH
Jan '21
Jul '21
Jan '22
Jul '22
Jan '23
Jul '23
2021
2022
2023

Benefits of Liquid Staking: Yield leveraging

- Liquid staking can be used recursively to earn higher yield
  - Stake 100 ETH
  - Receive 100 stETH
  - Use the 100 stETH as collateral to borrow 70 ETH
  - Repeat
- Protocols like ETHMAXY are designed to do this for you, to triple your yield
  - $3 < 1 + .7 + .7^2 + .7^3 + .7^4 + ...$



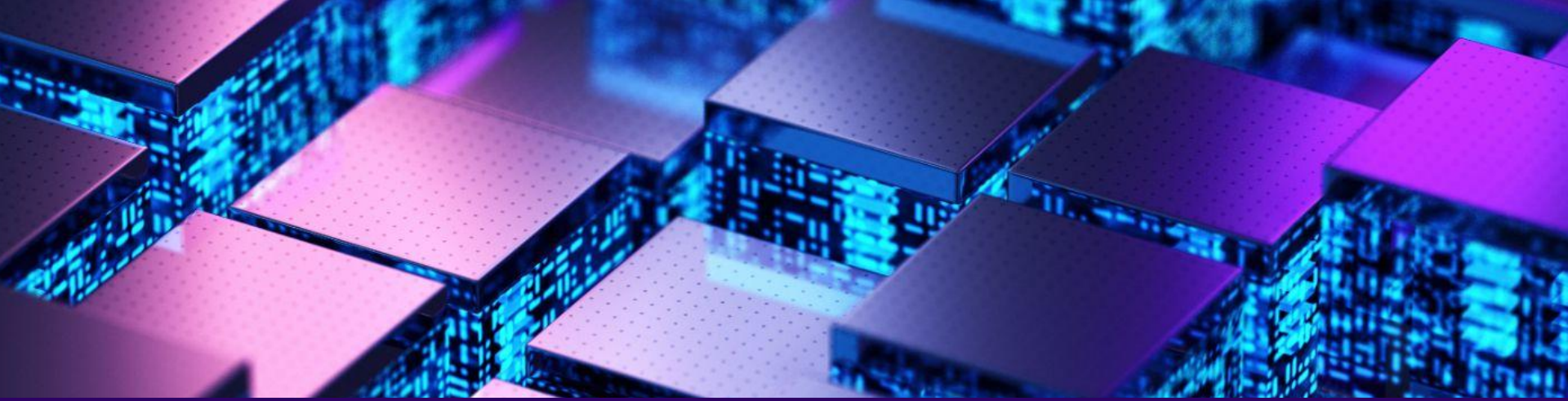
Superfluid Staking

Osmosis

- PoS blockchain built on the Cosmos SDK
- Native token OSMO
- Functions as a DEX
  - Liquidity providers provide pairs of tokens (e.g. OSMO / ATOM) into pool
  - Traders can trade against the pool
  - Similar to Balancer (but for Cosmos Ecosystem)

Superfluid staking

- Provide liquidity (e.g. OSMO / ATOM) to the DEX
  - Earn transaction fees as a liquidity provider
- Stake the OSMO in the liquidity pool
  - Earn staking rewards as well
- This can’t be done with a smart contract, requires changes at the blockchain level



Does this really work?

Dangers of Liquid Staking

- stETH is not “pegged” to ETH
  - stETH can be burned to withdraw ETH from Lido
  - There are risks
    - Validators can be slashed
    - Smart-contract risk
- Given the risk, why would stETH trading at par with ETH?

News ‣ DeFi

Lido Warns Leveraged Traders at Risk of Liquidation as 'Staked Ethereum' Loses Peg

A surge in staked Ethereum (stETH) redemptions has caused it to lose its 1:1 peg with Ethereum.

By Stacy Elliott

May 13, 2022

4 min read

News ▸ Coins

How the Celsius Liquidity Crunch Is Linked to Lido's Staked Ethereum

A core piece of Celsius's Earn strategy relies on Staked ETH not losing parity with Ethereum. But it has, and now customers want their money back.

By Stacy Elliott

Jun 13, 2022

5 min read

CONSUMER ALERT

CELSIUS NETWORK FILES CHAPTER 11 BANKRUPTCY

14 JULY 2022

Celsius Network files Chapter 11 bankruptcy

Celsius Network ("Celsius") is a cryptocurrency company, unlicensed in Vermont, that offers its customers interest-bearing crypto accounts. On June 12, 2022, Celsius announced it was pausing all withdrawals, swaps, and transfers between customer accounts. On July 13, 2022, Celsius and several of its affiliates commenced voluntary Chapter 11 bankruptcy proceedings in the U.S. Bankruptcy Court for the Southern District of New York. Chapter 11 is a type of bankruptcy designed to allow insolvent companies to restructure their financial obligations, through reorganization, sale or otherwise.

Dangers of Liquid Staking

- Could undermine PoS security
  - Validators could stake tons of ETH, sell stETH then act maliciously.
  - Slashing hurts stETH holders!
- How does recursive leverage change PoS security guarantees?
- "Proof-of-Stake protocols should see liquid staking not as a threat but as a positive force"
- Maybe Liquid Staking should even be enshrined in Ethereum's base layer