

# Kryptos am Finanzmarkt – Problem oder Lösung?



08. November 2022

# Decentralized Finance (DeFi)

Basic Concepts and Current Developments

Bernhard Haslhofer

Vienna, November 8<sup>th</sup>, 2022

# DeFi | Media Coverage

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Finance & economics | Battle of the blockchains

## The race to dominate the ecosystem is on

Why Ethereum is losing market share



Jan 22nd 2022

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Illustration: Scott Gelber for Bloomberg Businessweek

**The New York Times**

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## How a Trash-Talking Entrepreneur Caused a \$40 Billion Drop in Crypto

Do Kwon, a South Korean entrepreneur, caused a \$40 billion drop in TerraUSD cryptocurrencies. Their investors, however, are not the investment

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**The Defiant**

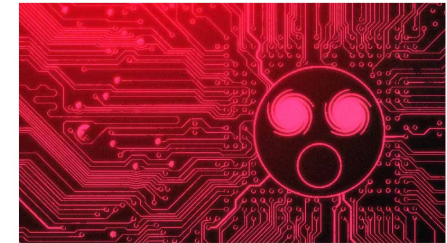
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## More Than \$760M Stolen in Exploits During 'Hacktober'

Bad Month for DeFi Security Highlights Pitfalls of Freewheeling Practices

By: [Owen Fernau](#) 2 hours ago



Call it Hacktober. The crypto market suffered a record \$760M in exploits in October, according to [PeckShield](#), a blockchain security company which lists MakerDAO, DeFi's largest protocol,

# DeFi | Media Coverage

The World Ahead | The World Ahead 2022

**The  
Economist**

## Decentralised finance is booming, but it has yet to find its purpose

Nov 8th 2021

DeFi is now the arena where the most exciting innovation is occurring

The problem is that all this fancy financial engineering has, as yet, no “real” economy to service. Instead it underpins an incorporeal casino: most of those using DeFi do so to facilitate or leverage their bets on one of many speculative tokens. That might change in 2022.

# DeFi | Concerns



Michal Hsu

Acting Comptroller of the Currency

“Crypto / DeFi today is on a path that looks similar to CDS in the early 2000’s”

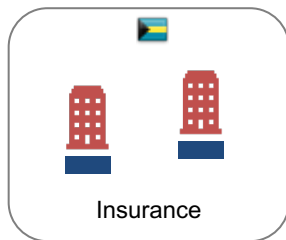
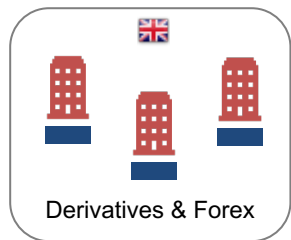
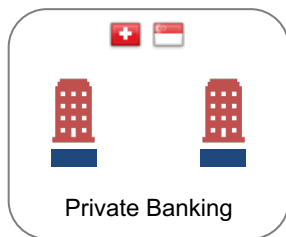
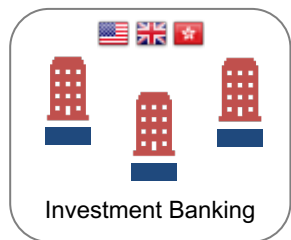
# DeFi | Concerns



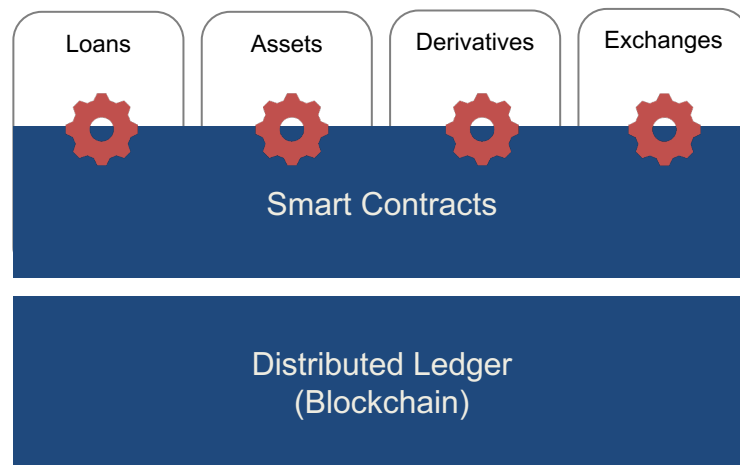
Elizabeth Warren  
United States Senator

“DeFi is the most dangerous part  
of the crypto world”

# DeFi | Basic Idea



Traditional Finance



Decentralized Finance (DeFi)



Swap

Tokens

Pool

🔍 Search tokens

⋮ Ethereum ▾

0x23ba...237e ▾

Swap ⚙️

0 ⚡ ETH ▾  
Balance: 0.02858 **Max**

↓

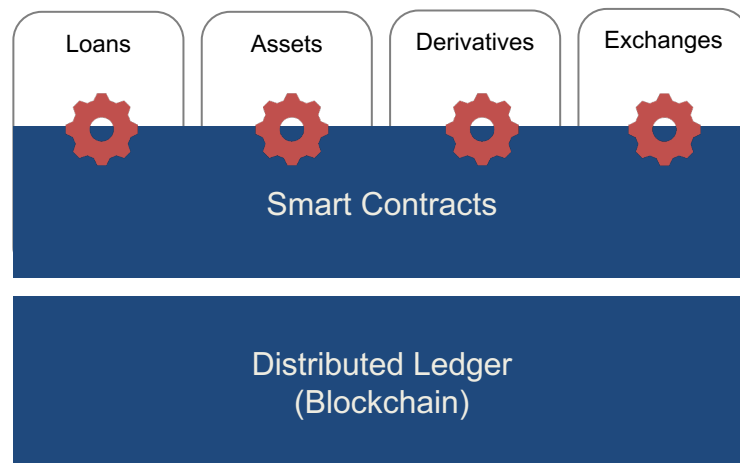
0 Select token ▾

Select a token



# DeFi | Promises

- Disintermediation
- Low transaction fees
- Censorship resistance
- Distributed governance

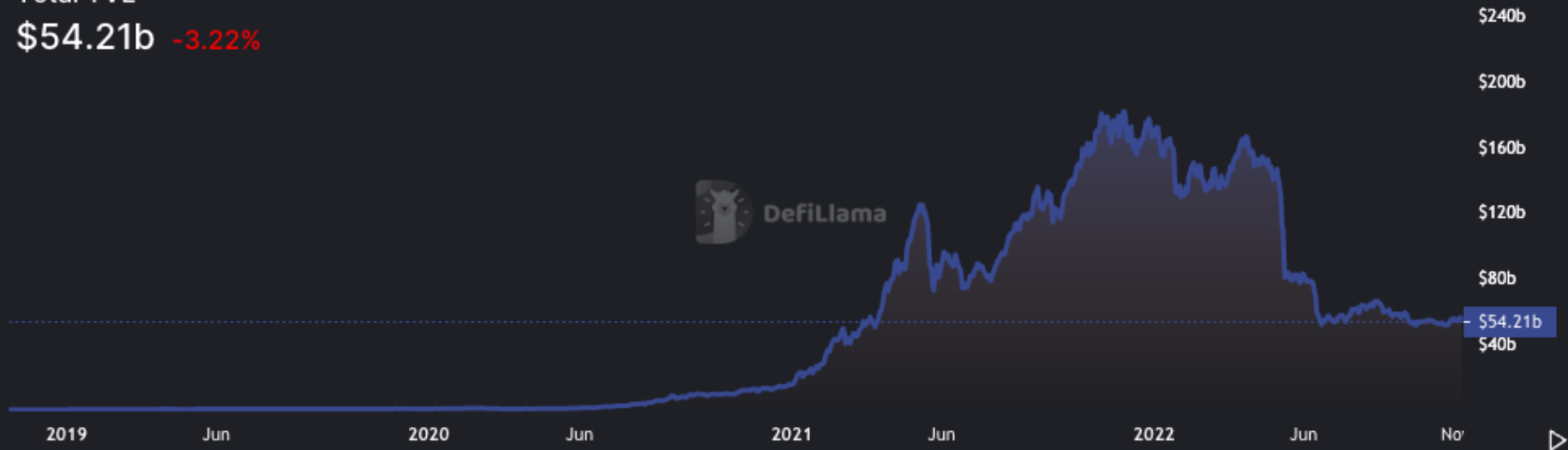


Decentralized Finance (DeFi)

# DeFi | Market

Total TVL

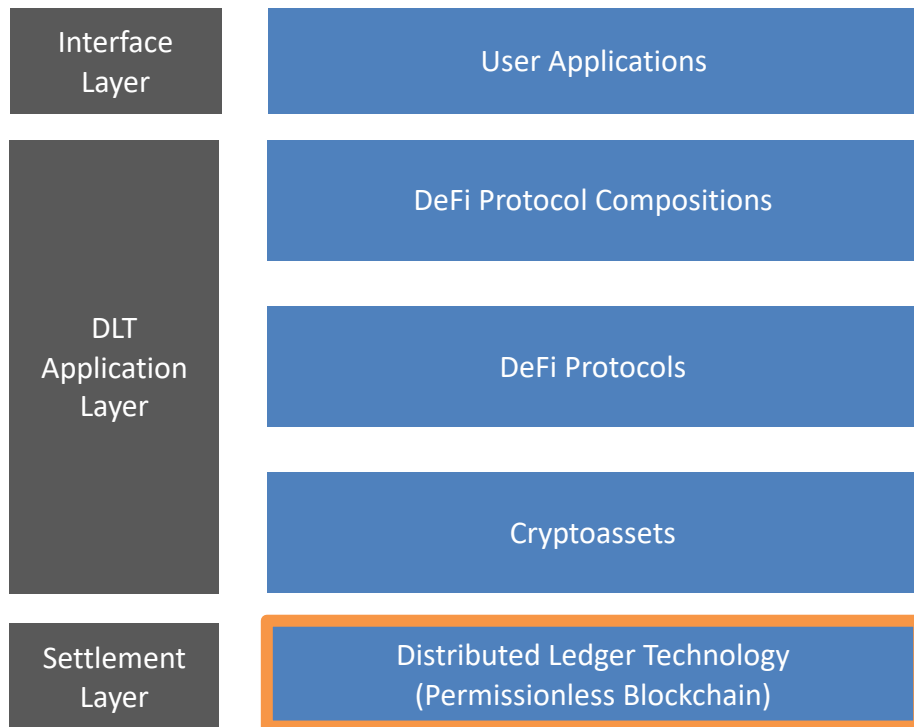
\$54.21b -3.22%



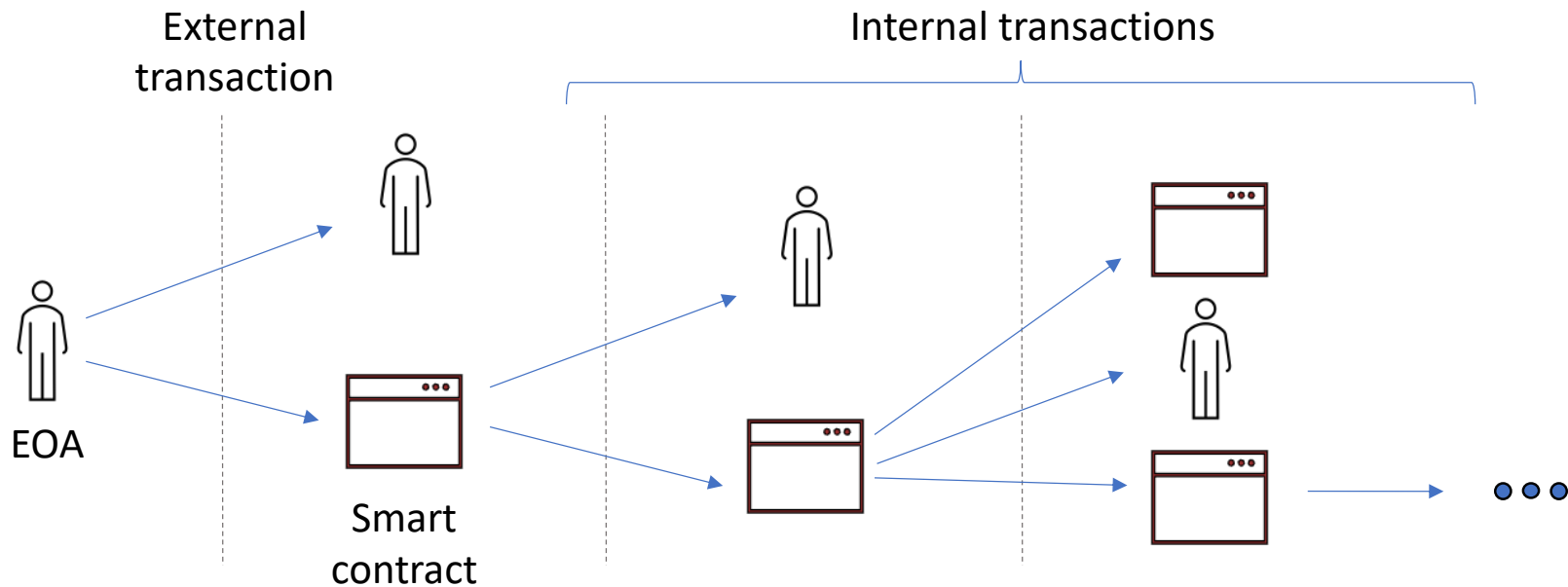
# DeFi | Behind the Scenes

Name	Total Locked Value	Venture Capitalist
Maker	\$17.2B	<b>Andreessen Horowitz</b> , Dragonfly Capital, Paradigm, Placeholder, ParaFi Capital, AU21 Capital, Morningstar Ventures, LD Capital, Moonrock Capital, Digital Finance Group, Double Peak, JRR Capital, Asymmetries Technologies
Curve	\$16.7B	<b>Codex Venture Partners</b> , <b>TrueWay Capital</b>
PancakeSwap	\$13.0B	Binance Accelerator Fund
Compound	\$12.6B	<b>Coinbase Ventures</b> , Dragonfly Capital, Paradigm, Polychain Capital, <b>Andreessen Horowitz</b>
Uniswap V2	\$12.4B	Paradigm, ParaFi Capital, <b>Andreessen Horowitz</b> , <b>Union Square Ventures</b>
Aave V2	\$11.1B	ParaFi Capital, Blockchain Capital, Standard Crypto, Blockchain.com Ventures, Three Arrows Capital, Framework Ventures, DTC Capital
SushiSwap	\$6.7B	Future Fund
Polygon Staking	\$3.9B	Mark Cuban, High Naut Capital, MiH Ventures, ZBS Capital, <b>Coinbase Ventures</b> , Polygon Fund/AU21

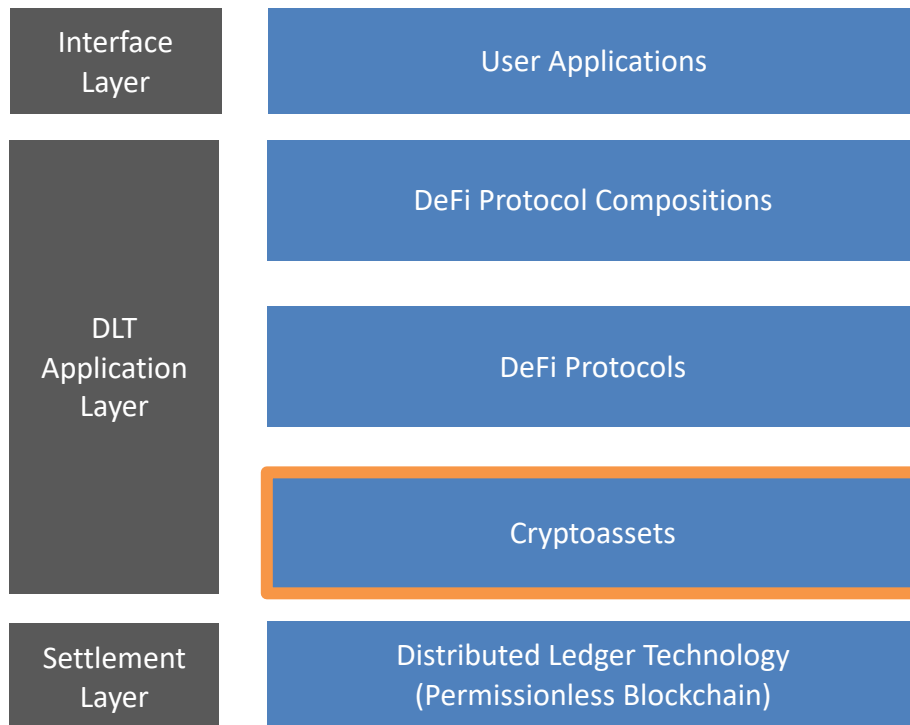
# DeFi | Technical Stack



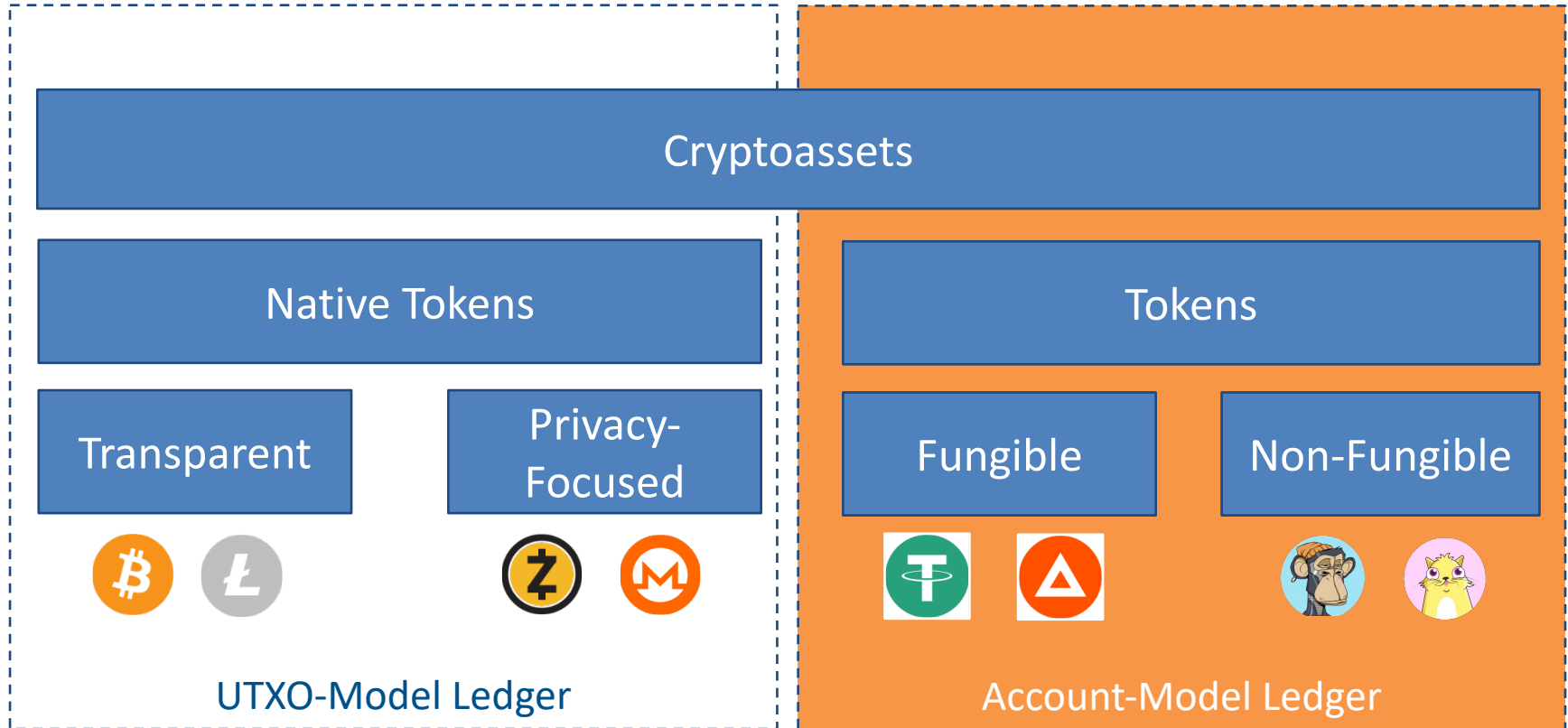
# Ethereum | Accounts and Transactions



# DeFi | Technical Stack



# Cryptoassets | Taxonomy

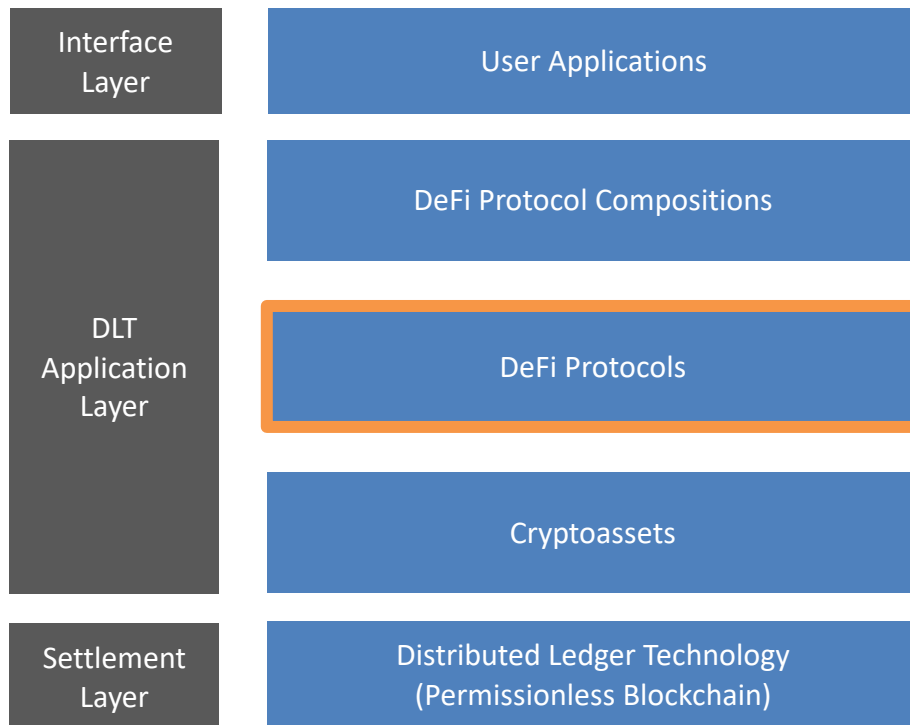


# Cryptoassets | Asset Tokenization

- Asset Tokenization is an essential feature in DeFi
- Tokens
  - can represent any on- or off-chain asset
  - are managed by specific smart contracts (token contract)
- Implementing a token contract is easy



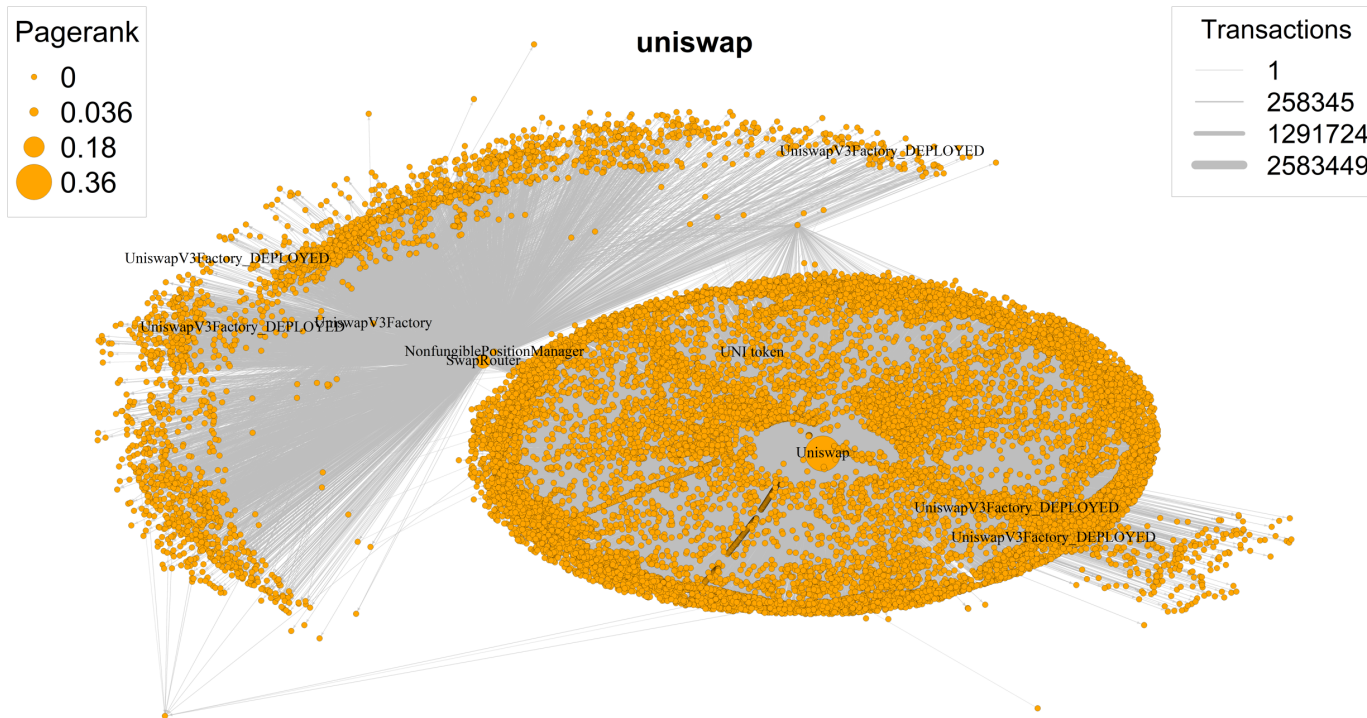
# DeFi | Technical Stack



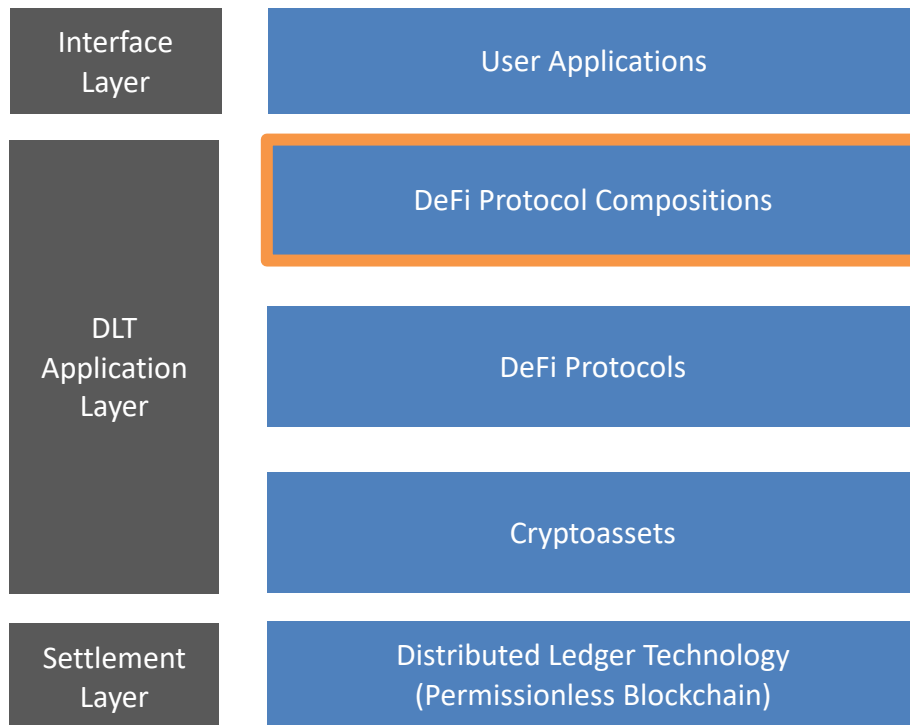
# DeFi Protocol | Definition

A DeFi protocol provides one or more **financial services** to economic agents, and financial services are implemented as **program functions** by one or more **smart contracts**.

# DeFi Protocol | Complexity



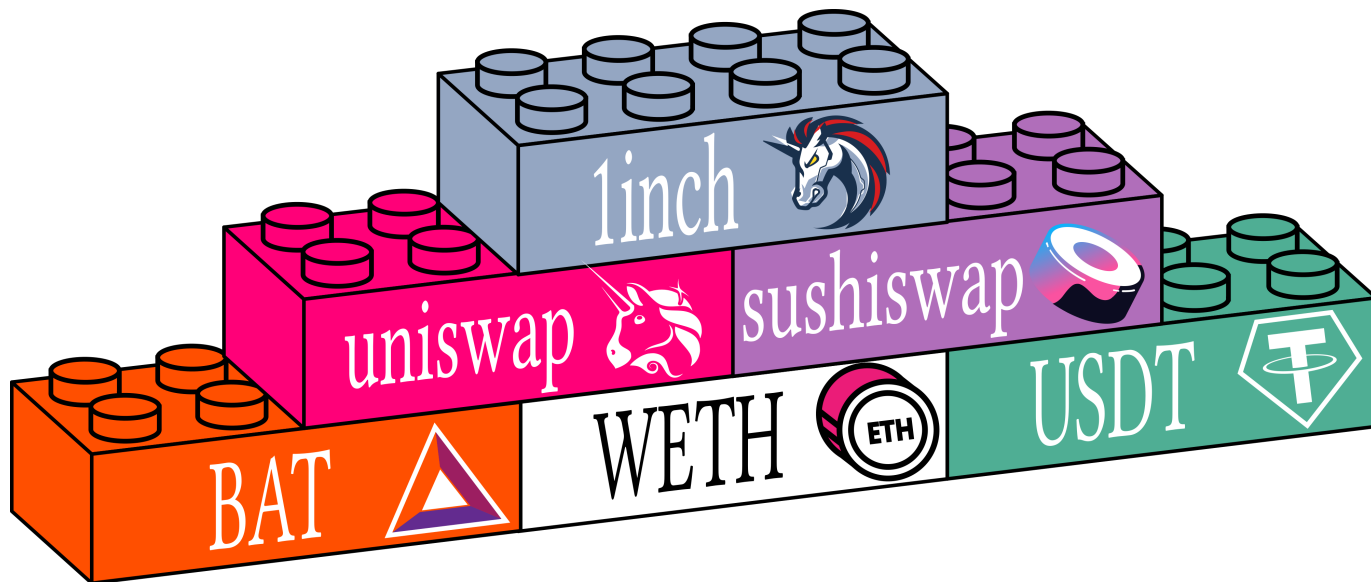
# DeFi | Technical Stack



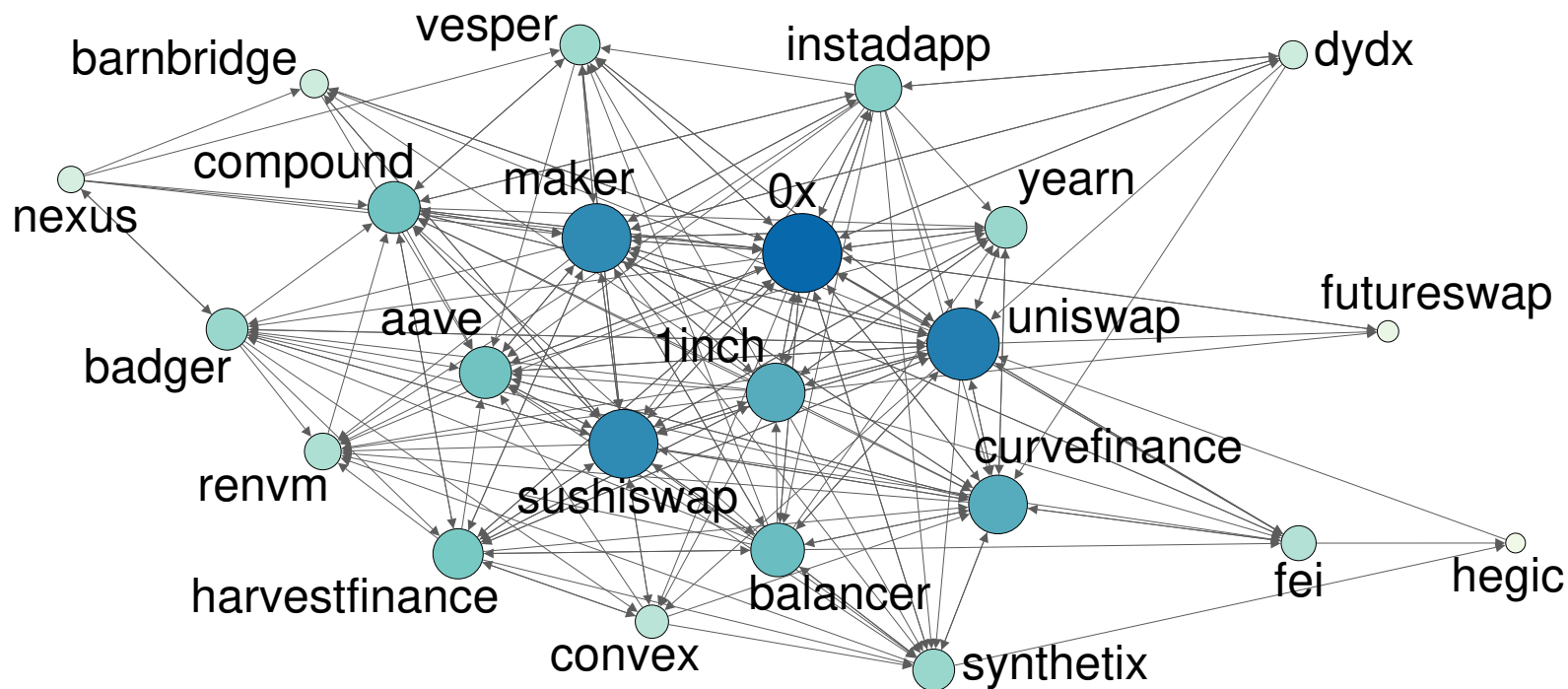
# DeFi Composition | Definition

A DeFi composition is a **combination of smart contract functionalities** that involves multiple DeFi protocol-specific smart contracts.

# DeFi Composition | Financial Lego

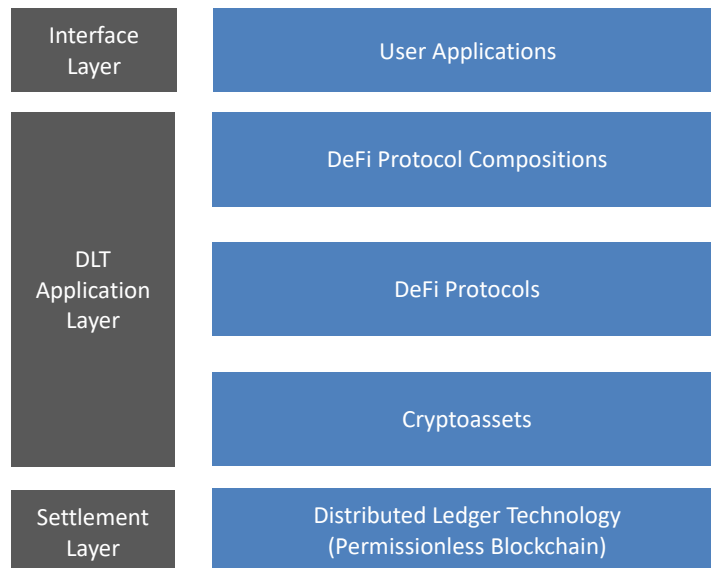


# DeFi Compositions | Increased Complexity



# DeFi | Technical Risks

An adversarial agent can gain profits by **exploiting the technical structure and design** of a blockchain system





# DeFi | Socio-Economic Risks

Incentive  
Models

Interface  
Layer

User Applications

Oracles

DeFi Protocol Compositions

DLT  
Application  
Layer

DeFi Protocols

Cryptoassets

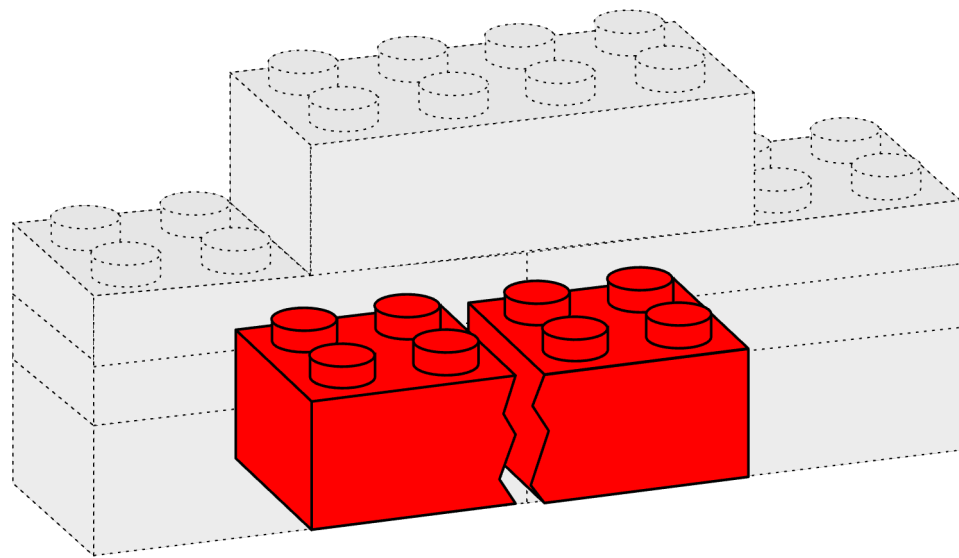
Governance  
Models

Settlement  
Layer

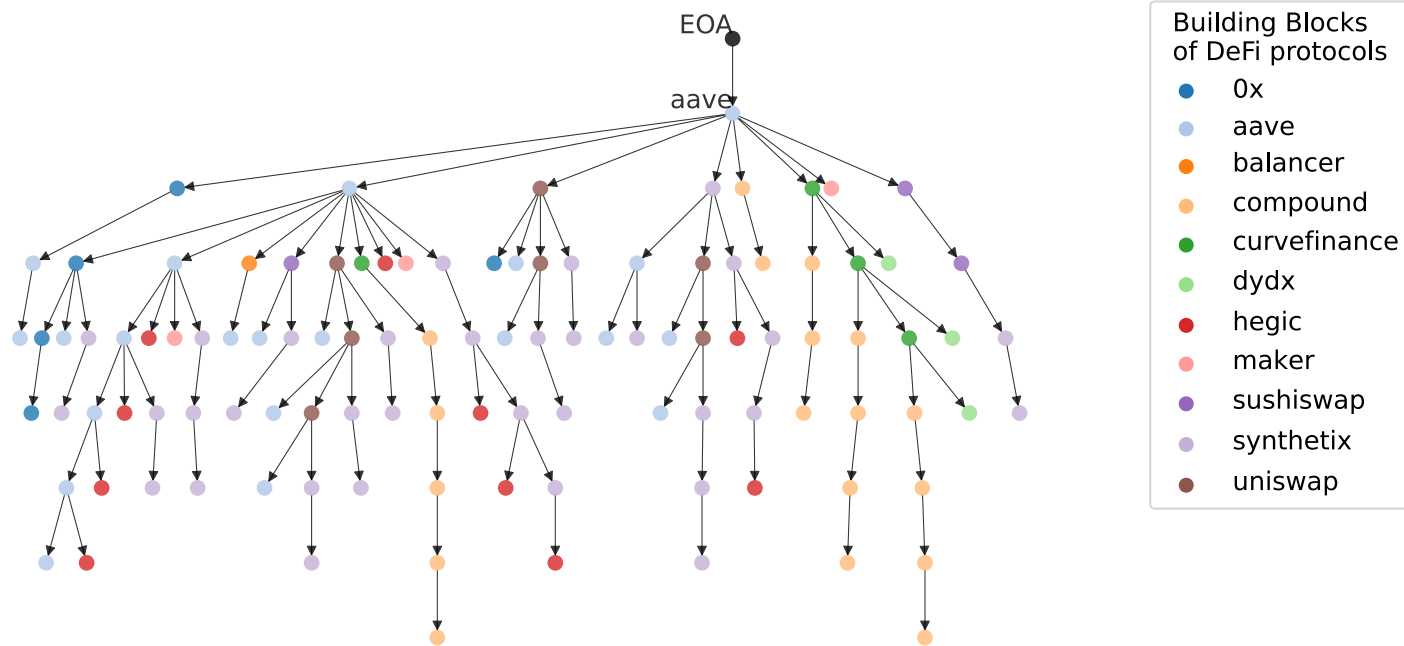
Distributed Ledger Technology  
(Permissionless Blockchain)

Miner Behavior

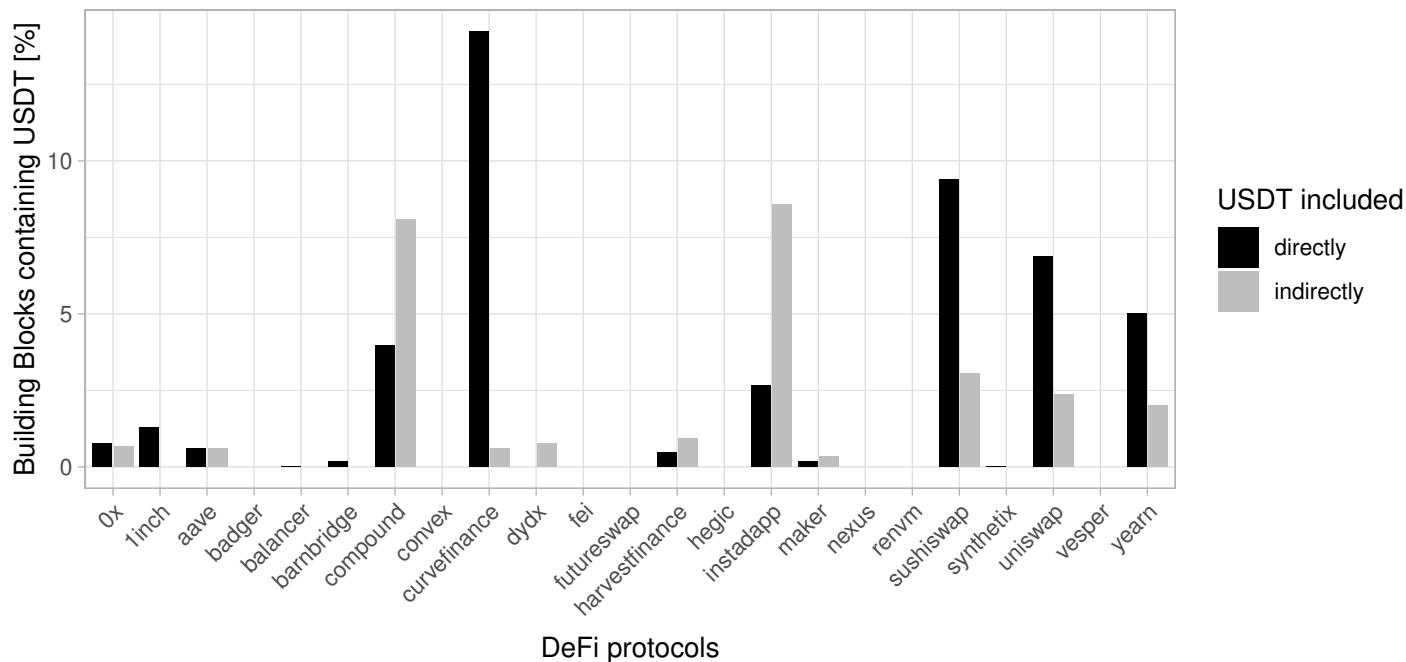
# DeFi | Composition Risks



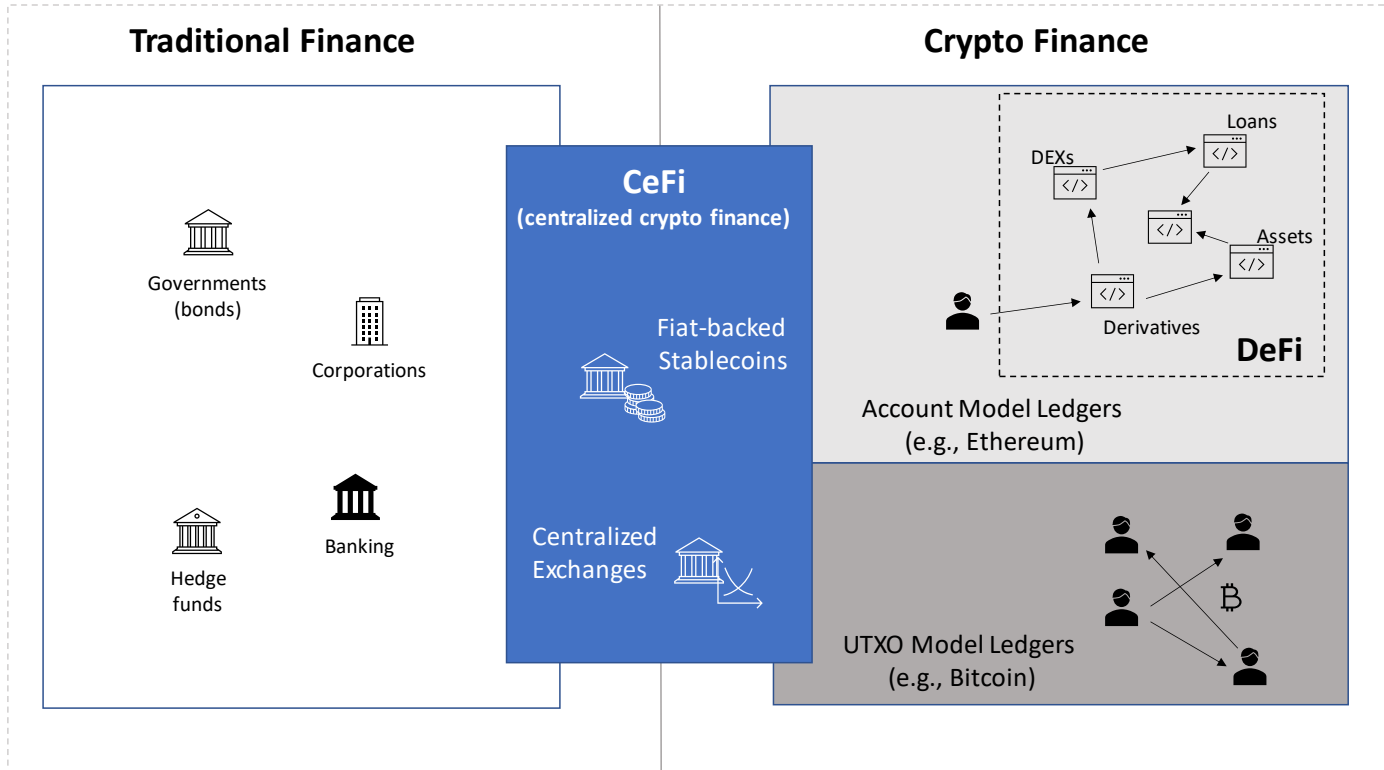
# Understanding Risks | Nested Services



# Understanding Risks | Contagion Effects



# Understanding Risks | Interfaces



# Understanding Risks | Importance



**Remarks of CFTC Commissioner Christy Goldsmith Romero  
before the International Swaps and Derivatives Association's  
Crypto Forum 2022, New York**

Financial Stability Risks of Crypto Assets

October 26, 2022

Today, I will talk first about how crypto presents many similar financial stability risks as the traditional financial system, with parallel themes to 2008, and the potential for that risk to become systemic.

Second, novel risks can apply to these novel assets, increasing financial stability risks.

# Concluding Remarks

1. It is still unclear if and to what extent DeFi will proliferate in the future
2. We consider DeFi to be a novel form of software-driven financial engineering
3. A profound understanding of DeFi protocols and associated risks is still missing
4. The scientific method embedded in a multi-disciplinary setting offers the most promising answers.