

**“Cryptocurrencies and Decentralized
Finance (DeFi),” by Igor Makarov and
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Agenda

1. Why is this topic important?
2. Do we believe the premise of DeFi?
3. Will DeFi ever disrupt banking?
4. What would have to happen for DeFi to disrupt banking?

DeFi Doesn't Amount to Much Now: Tournament

- There are many DeFis, about 250. There's a tournament going on currently. Only a few will survive.
- Thirty American manufacturers produced 2,500 motor vehicles in 1899. Some 485 companies entered the business in the next decade. The number of active automobile manufacturers dropped from 253 in 1908 to only 44 in 1929, with about 80 percent of the industry's output accounted for by Ford, General Motors, and Chrysler,

Net Work Effects

- The internet began in 1969 when ARPANET was started by the Defense Advanced Research Projects Agency (“DARPA”), a part of the Department of Defense. By the 1970s there were over 300 networks, but they were not interoperable, that is they couldn’t talk to each other, so to speak.
- Technological progress in the form of packet switching, a way to group data so that it can be transmitted over a digital network, allowed for the networks to be connected.
- Currently, there are about 1,500 blockchains, which are not (very) interoperable. And the blockchains are not very scalable. Nor is crypto space interoperable with the current financial sector, including banks and the payment system. But all this will change.

The Premise of DeFi

- DeFi has no central authority, but it has a governance mechanism in which there are voters using governance tokens.
- The claim is that agency costs are eliminated.

Agency Costs

- Agency costs is the central paradigm of corporate finance.
- Managers are entrenched due to the separation of ownership and control.
- Dyek and Zingales (2004) examined the premium attached to blocks of stock when they traded. The premium represents the value of the private benefits that will accrue to owner of the block. “Based on 393 control transactions between 1990 and 2000 we find that on average corporate control is worth 14 percent of the equity value” (p. 538).

Benefits

- There are benefits to delegating tasks to experts.
- Bennedsen, Perez-Gonzales, and Wolfenzon (2010) study the impact of CEOs on performance by analyzing the effect of CEO deaths and the deaths of CEOs' immediate family members." . . . we find that CEOs' (but not board members') deaths and deaths in CEOs' families are strongly correlated with declines in firm operating profitability, investment, and sales growth" (p. 1).

Does Decentralized Governance Work?

- Sun and Stasinkas, and Sermpinis (2022) collected information for the MakerDao (“Maker”) protocol performance, including all voters, their choices, and votes in Maker governance polls from August 5, 2019, to October 22, 2021.
- MakerDao is one of the older and most influential DeFis.
- They conclude that “By examining Maker governance polls, we find that voters are centralized in a small group, and voting power is unequally distributed among these voters. In most voting activities, the largest voters could account for a significant proportion of votes” (p. 3).

Do Agency Problems Arise Endogenously?

- Some participants become the agents of the others who become the principals.
- Some agents have more expertise than others. Other agents' sole job is to pay attention to the tasks. These agents have no or little expertise and not enough time to pay close attention.
- DeFi developers do not necessarily have the same goals as users.
- Having a group of anonymized individuals who decide to follow a certain protocol to make decisions does not seem like a viable alternative to corporate governance for large, complicated, organizations.

Are DeFis Cooperatives?

- The plywood cooperatives in the Northwest of the U.S. have been around for 70 years.
- Holmström (1999): “Collective decision making is always difficult. But it is more difficult the more the interests of the parties diverge. A group with common interests will have a much easier time to reach a good decision than a group with highly divergent interests.”
- In the case of DeFi, many of the major platforms are essentially controlled by the core teams who developed the DeFi. For example, approximately 46 percent of the DeFi Compound’s tokens were distributed to shareholders, founders, and the Compound team. But that leaves 54 percent for the Compound developers.

Will DeFi Disrupt the Banking System?

- Currently, DeFi activities are self-referential, meaning that all the activities occur in crypto space using a crypto currency. Borrowing and lending refers to lending a crypto currency to use for other purposes, like buying another cryptocurrency.
- DeFi derivatives are used to hedge the price risk associated with a crypto currency or to exploit speculative opportunities. These activities have nothing to do with the “real world”. And many of these activities are essentially zero-sum games.

Stablecoins

- Stablecoin issuers, however, are banks.
- Stablecoins are digital tokens residing on a blockchain that their issuers say are backed one-for-one with cash or safe assets. And their terms of service say that they are redeemable at par on demand.
- Their peg to the dollar holds about 85 percent of the time.
- But stablecoin issuers are not DeFis.

Stablecoins Cont.

- According to Kim (2022), a one standard deviation change in the daily issuance (= \$330M) of the top three stable coins results in a 7 percent increase in CP issuance the next day (= \$198M).
- So, although stablecoins might appear to be small compared to the regulated banking system, they are large enough to move money markets.

MakerDao

- The DeFi MakerDao has a “stablecoin” called Dai.
- MakerDao offers a smart contract where a user deposits collateral, which can be any Ethereum-based cryptocurrency, for a loan of an equivalent value of Dai.
- Maker maintains Dai at one dollar using a system of collateral and price feeds, managed by the MKR token holders; these are the governing agents.
- Dai has traded at a dollar only 53 percent of the time,
- But there is no link to reality. Other stablecoins hold assets off-chain.

Can DeFis Be Self-Contained?

- DeFis could make loans like banks. But DeFis do not have access to any big data, especially proprietary data.
- This raises the question of whether DeFi can truly be self-contained, so to speak?

Interoperability

- One can imagine banks being dramatically altered. Liabilities will be stablecoins and lending will be through platforms. Clearing and settlement, as it is currently constituted, will be eliminated.
- International payments will not go through inefficient chains of correspondent banks. Remittances will be much cheaper.
- To be a “bank” a DeFi needs to be linked to the existing payments system—which means having a master account at the Fed.

Fed Master Accounts

- The Fed has consistently refused to grant master accounts to any bank based on new technology.
- There is no engagement with the new technology.
- Not a good policy stance.

Final Thoughts

- This space is growing at warp speed.
- It's important to keep up.