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INSIGHT

Decentralized Finance (DeFi) and Financial Services Disintermediation: Policy Challenges

July 28, 2021

Decentralized finance (DeFi) is one of the fastest-growing areas within the digital asset industry. Total value locked (TVL), a common measure of market size for DeFi referring to the value of the digital assets committed for transactions in DeFi systems, reportedly reached $89 billion in May 2021, up from around $1 billion a year before (although that amount has since dropped to about $66 billion as of July 26, 2021). *DeFi* does not yet have a standardized definition, but the term generally refers to the use of digital assets and blockchain technology to replicate and replace conventional delivery of financial services—such as loans, asset trading, insurance, and other services—through central financial intermediaries such as brokerages, exchanges, or banks. Characterized as *financial disintermediation*, or "cutting out the traditional middleman," DeFi aims to offer financial services through a direct peer-to-peer system that uses digital assets and "smart contracts," which are computer programs that automatically execute transactions via predetermined protocols. DeFi proponents believe that financial disintermediation could save transaction costs and revolutionize the operations of the industry; skeptics doubt it will significantly displace traditional intermediaries because of scalability and other concerns. In addition, others worry about the potential harm to investors and market integrity and possible disruptions to the existing financial system. They argue that the rise of DeFi may require a substantial regulatory revamp to keep up with the industry should it continue to grow at the current pace.

How Does DeFi Work?

DeFi applications are often built on blockchain-based networks, such as Ethereum. Participants holding digital assets (e.g., Bitcoin, Ether, and others) typically send the digital assets to a smart contract address (some of which are known as liquidity pools, where the assets of many holders are gathered together). The smart contracts "lock" the assets until the execution of a transaction, such as the lending of the digital assets to a borrower. As such, TVL is a common measure of DeFi's market size.

For example, Uniswap, one of the largest DeFi platforms, is a decentralized crypto-asset exchange that runs on two smart contracts that automatically execute transactions—one adds new digital assets, and the other facilitates trades. Uniswap's trading transactions rely on liquidity pools and automated market-maker smart-contract protocols that execute trades against the committed assets in the liquidity pool.

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IN11709

Another important operational aspect is DeFi's governance structure. The DeFi platforms aspire to decentralize decisionmaking and control. They often manage changes to smart contracts or other blockchain protocols using tokens that allocate voting rights to stakeholders. That practice is not uniform. Sometimes the developers maintain more control regarding altering the transaction terms, upgrading the system, and ending the contract, among other actions. Other times, the developers could be unable to pause the contracts, such as with Uniswap.

What Does Financial Disintermediation Mean?

At a fundamental level, financial intermediaries move money between (i) investors (or savers) and (ii) businesses (or individuals) who need money from loans and investments. Disintermediation means removing the "middleman" and their related services and connecting (i) investors and savers directly to (ii) the businesses and individuals seeking funding. The services that financial intermediaries generally provide can include pooling savings, safekeeping and accounting, providing liquidity, risk-sharing, information services, underwriting, acting as counterparties, and serving as market-makers, among others. The disintermediation process could mean that such services would no longer need to exist, or different methods would replace them in offering similar services. **Table 1** illustrates the differences between the traditional financial system and DeFi.

Table 1. Comparing Traditional Finance to DeFi

	Traditional Finance	DeFi
Custody of Assets	Held by a regulated service provider or custodian on asset owners' behalf	Held directly by users in non-custodial wallets or via smart contract-based escrow.
Units of Account	Typically denominated in fiat currency (e.g., U.S. dollars).	Denominated in digital assets or stablecoins (which may themselves be denominated in fiat money).
Execution	Intermediaries typically process transactions between parties.	Via smart contracts operating on the user's assets.
Clearing and Settlement	Processed by service providers or clearinghouses, typically after a period of time.	Writing transactions to the underlying blockchain completes the settlement process.
Governance	Specified by the rules of the service provider, marketplace, regulator and/or self-regulatory organization.	Managed by protocol developers or determined by users holding tokens granting voting rights.
Auditability	Authorized third-party audits of proprietary code or potential for open-source code that is publicly verified.	Open-source code and public ledger allow auditors to verify protocols and activity.
Collateral Requirements	Transactions may involve no collateral, or collateral less than or equal to the funds provided.	Overcollateralization generally required, due to digital asset volatility and absence of credit scoring.
Investor Protection	Government-mandated disclosure and consumer protections, anti-fraud enforcement, exposure limits, and insurance schemes.	Users assume all risks as a default, although private redress arrangements such as DeFi insurance offer some protection against losses.

Source: Wharton Blockchain and Digital Asset Project.

DeFi industry practitioners view financial intermediation as unnecessary. They believe the new DeFi applications can speed up financial operations and expand financial inclusion. Some believe that traditional financial intermediation contributes to slow settlement cycles and limitations on market access. They also attribute certain problems of market concentration, inequality, and financial instability to intermediaries.

However, some market observers believe that the consequences of DeFi-related disintermediation could include the absence of entities to "monitor markets for fraud and manipulation, prevent money laundering, safeguard deposited funds, ensure counterparty performance, or make customers whole when processes fail."

DeFi and the Financial Regulatory Framework

The emergence of DeFi challenges the fundamental thinking of financial regulation in two ways:

1. **Access points for financial regulation** traditionally focus on intermediaries. Part of the existing regulatory infrastructure emphasizes the oversight of intermediaries (e.g., investment funds, securities exchanges, and banks), which aggregate and channel industry activities. Without these centralized access points, traditional financial regulatory infrastructure could be difficult to apply. In addition, even when certain operators are identified, they may not be able to change or terminate the smart contract protocols that dictate the terms of transactions, challenging the precise targeting of financial regulation.
2. **Potential regulatory arbitrage** between more-regulated and less-regulated markets. According to one federal regulator, DeFi-related competition between more-regulated and less-regulated entities in the same market "can result in the regulated entities assuming either more risks in order to generate the higher yields necessary to compete with the unregulated competition, or seeking less regulation for themselves to level the playing field. Either of these reactions can introduce significant risks into the financial system."

The DeFi industry is still in its early stages. On one hand, some argue that a slower regulatory response could allow the industry more time to mature and demonstrate its full potential. Any fast rollout of a new regulatory framework could risk becoming obsolete if the target is rapidly evolving. On the other hand, the need to protect investors and market participants does exist. The longer the regulators wait, the harder it may be to intervene and address potential market manipulation, fraud, and other concerns. Some observers believe that DeFi's reliance on blockchain technology and the fact that the underlying infrastructure is un-owned introduce a new array of risks that may call for regulatory attention. These issues are particularly challenging, because related policy decisions could shape the directions of a perceived financial services revolution.

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