Chapter 3
Decentralized Finance and the Role of Tokenized Assets

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ABSTRACT

Decentralized Finance (DeFi) has emerged as a transformative force in the financial sector, leveraging blockchain technology to enable permissionless and automated financial services. A key component of DeFi's expansion is the rise of tokenized assets, which represent digital ownership of real-world and virtual assets. This chapter explores the various forms of tokenization, including cryptocurrencies, asset-backed tokens, and Central Bank Digital Currencies (CBDCs), and their integration into the DeFi ecosystem. It examines how tokenized assets enhance liquidity, facilitate financial inclusion, and create new investment opportunities. Additionally, the chapter discusses the interplay between decentralized and centralized financial models, regulatory challenges, and the risks associated with smart contracts, price volatility, and governance. By analyzing case studies and emerging trends, the chapter provides insights into the future of the tokenized economy and its potential to bridge traditional finance with decentralized innovations.

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INTRODUCTION

The past few years have seen an influx of blockchain financial innovations. As the Bitcoin technology was introduced in 2008, thousands of so-called crypto projects have been created. Ethereium was released in 2015, to support smart contracts based on a blockchain. Since it has been applied to fund start-up projects (e.g., initial coin offerings, or ICOs), support institutional governance (e.g., decentralized autonomous organization, or DAO), provide financial services (e.g., decentralized finance, or DeFi), and address asset ownership (e.g., non-fungible tokens, or NFTs). This new ecosystem, however, requires a safe payment device in order to release all the promises. Well-known cryptocurrencies as Bitcoin and Ether are highly price volatile and not as attractive as a store of value or unit of account. Consequently, numerous people believe that they are too unstable to serve as a valuable mode of exchange in the crypto world. In order to close the gap that is created by the traditional payment methods, which cannot easily be expressed in the crypto space through regulatory and technological challenges, the private efforts have introduced different recipes to a stable crypto money (a.k.a. stablecoins). The rise of decentralized finance (DeFi) and tokenized assets could be considered as the most radical technological change in the financial services industry since the invention of internet. Since 2008 when the proof-of-concept of Bitcoin was first developed, all the way up to the prosperous ecosystems of decentralized exchanges, lending protocols and tokenized real-world assets (RWAs) the world financial system is radically being restructured. This has been marked in particular by the institutionalization of blockchain infrastructure since 2020, the emergence of Layer-2 scaling infrastructure, like Polygon and Arbitrum, and increased regulatory attention around markets in digital assets (BIS, 2023; McKinsey and Company, 2024). Decentralized finance is supposed to eliminate the need to rely on traditional intermediaries such as banks, clearing houses, and brokers and instead have direct, programmable financial relationships between participants based on blockchain-based smart contracts. The structural building blocks of this system are tokenized assets, which are partial or whole ownership of real or digital assets in a transparent and programmable and secure way (OECD, 2021). The convergence of DeFi and tokenization therefore reinvents the 21 st century way of forming, trading, and governing capital.