THE POTENTIAL OF WEB3 REGARDING DECENTRALIZED FINANCE - DEFI

https://doi.org/10.47743/jopafl-2023-30-22

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Abstract: In this article, we discuss the potential of Web3 in the context of decentralized finance (DeFi). Web3, as the new generation of the internet and new approaches, comes with a decentralized architecture and increased security through the use of blockchain technology. These characteristics make Web3 a suitable environment for DeFi, which is a decentralized financial system based on blockchain technology and smart contracts to provide financial services. DeFi eliminates the need for intermediaries in financial transactions and can provide access to financial services globally, even for those who do not use traditional financial instruments. We address the various aspects of DeFi that are possible through the use of Web3, such as payments, loans, and digital asset exchanges. We also aim to address how Web3 can solve some of the current issues facing DeFi, such as scalability and interoperability. Additionally, we discuss the regulatory perspective, how these new financial systems bring and create new risks, and what the management tools for these risks can be from two perspectives: financial stability and the protection of consumers/investors, and financial education as a proactive element of self-management of increasingly complex new financial concepts. DeFi is one of the most innovative and exciting applications of blockchain technology that can transform and improve the global financial system. However, DeFi is still in its early stages and faces certain challenges, such as scalability and interoperability between different DeFi platforms. Web3 can play a significant role in addressing these challenges by creating a decentralized environment that can facilitate value transfer and interconnectivity between different DeFi platforms. Web3 can also enhance the security and transparency of DeFi platforms by leveraging blockchain technology and smart contracts. The emergence of DeFi also brings new risks and challenges, particularly in terms of regulation and consumer protection. Financial authorities must adopt a proactive approach to regulate these new financial systems and ensure their stability and security, while also promoting financial education and awareness among consumers and investors.
Keywords: DeFi, Web3, blockchain, financial markets
JEL Classification: G22, G23, G52

What does the concept of Web 3 represent?

Web 3.0 is an evolution of the internet that focuses on building a decentralized network based on blockchain that allows people to interact in a more secure, private, and intermediary-free way. In Web 3.0, information and assets are stored and managed through decentralized technologies like blockchain and can be accessed by users without central intermediaries. This evolution of the internet could have a significant impact on the financial market by changing the way financial transactions are managed and creating new

business models. Currently, the financial market is dominated by centralized intermediaries like banks and currency exchange houses, which often impose high fees and commissions and can limit access to financial services.

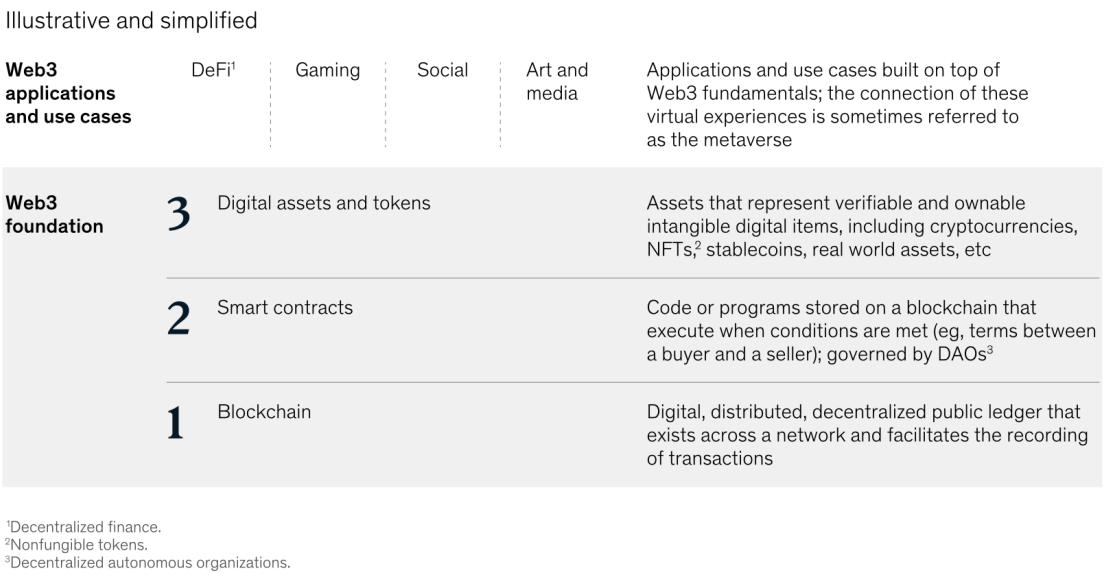
Web 3.0 can offer a cheaper, more efficient, and more transparent alternative to centralized intermediaries by using blockchain technologies. These technologies allow people to make financial transactions directly with each other without the need for central intermediaries. They also allow for the secure and decentralized storage and transfer of digital assets like cryptocurrencies. Additionally, Web 3.0 can facilitate the development of new business and financing models, such as crowdfunding and decentralized financing (DeFi). (https://www.mckinsey.com/industries/financial-services/our-insights/web3-beyond-the-hype)These new business models allow people to finance their projects and ideas without the need for central intermediaries and to benefit from greater transparency and accessibility to funding. In the same time, Web 3.0 can bring significant changes to the financial market by eliminating centralized intermediaries, creating new business models, and improving the security and transparency of financial transactions. However, there are also risks and challenges associated with using blockchain technologies in finance, such as cryptocurrency volatility and vulnerability to cyberattacks, which must be addressed before Web 3.0 becomes a reality in the financial world. Web 3.0 is expected to be more privacy-focused, giving users more control over their personal data. This is achieved through technologies like zero-knowledge proofs, which allow users to prove their identity or data without revealing any sensitive information.

Web 3.0 is also expected to enable greater interoperability between different blockchain networks and decentralized applications, allowing for seamless integration and communication between them. In the era of Web 3, when we talk about decentralization and decentralized finance, the emergence of new innovative products and services clearly indicates a shift, including new business models, access to products, and so on. The volumes traded through decentralized platforms exceeded $10 billion at their peak. (The Chainalysis state of Web 3 Report, 2022, https://go.chainalysis.com/2022-web3-report.html). Decentralization can manifest in multiple sectors of activity, from art, real estate, to sports, and other domains.

Web 3 - Premises and Functioning

Web 3 should be approached from multiple perspectives, especially when we associate this concept with the financial market. Blockchain is the technology that intervenes in the execution of operations, and smart contracts practically eliminate human intervention and reflect a consensus. We are talking about digital assets that are traded through smart contracts. All these concepts are integrated into the new paradigm that is increasingly making its presence felt in the financial market. (www.mckinsey.com).

Fig. 1 - Web 3 applications



Source: (www.mckinsey.com)

Decentralized Finance, or DeFi for short, is a new paradigm in the financial industry that leverages blockchain technology to create a decentralized and open financial system. Unlike traditional finance, where intermediaries such as banks and other financial institutions facilitate transactions, DeFi enables users to transact with each other directly without the need for intermediaries. This creates a more accessible, transparent, and inclusive financial system, where anyone with an internet connection can participate in various financial activities. On the other hand, a definition of what DeFi means can be found in the presentations of Fabian Schar, a blockchain professor at the University of Basel. He regards DeFi as: „Decentralized finance (DeFi) is a blockchain-based financial infrastructure that has recently gained a lot of traction. The term generally refers to an open, permissionless, and highly interoperable protocol stack built on public smart contract platforms, such as the Ethereum blockchain. It replicates existing financial services in a more open and transparent way. In particular, DeFi does not rely on intermediaries and centralized institutions. Instead, it is based on open protocols and decentralized applications (DApps). Agreements are enforced by code, transactions are executed in a secure and verifiable way, and legitimate state changes persist on a public blockchain. Thus, this architecture can create an immutable and highly interoperable financial system with unprecedented transparency, equal access rights, and little need for custodians, central clearing houses, or escrow services, as most of these roles can be assumed by smart contracts." (Decentralized Finance: On Blockchain- and Smart Contract-Based Financial Markets, Fabian Schar, 2021)

"In another approach, Web3 is based on the use of blockchain technology to create a more equitable internet, and decentralized finance is the Web3 version of a more transparent financial system. In this regard, DeFi is rapidly becoming a new paradigm that enables new forms of value and utility that are unseen in the traditional financial system. The emergence of DeFi can be traced back to the launch of Ethereum in 2015, which introduced smart

contract functionality to the blockchain. Smart contracts are self-executing agreements that can be programmed to perform specific tasks automatically when certain conditions are met. This made it possible to create decentralized applications that could perform various financial functions, such as lending, borrowing, trading, and investing, without the need for intermediaries." (https://www.gemini.com/cryptopedia/defi-and-web3-explained-defi-crypto-options-web3-crypto)

One of the key characteristics of DeFi is that it operates on an open and permissionless blockchain, which means that anyone can access and use the system without needing permission from any central authority. This makes DeFi more accessible than traditional finance, which often requires extensive KYC (Know Your Customer) and AML (Anti-Money Laundering) checks to comply with regulations. Another characteristic of DeFi is that it is transparent and immutable. All transactions and data are stored on the blockchain, which means that they are publicly accessible and cannot be altered once they are recorded. This creates a high level of transparency and accountability, which can help to reduce fraud and corruption in the financial system. DeFi also provides users with more control over their funds. Instead of relying on a centralized custodian to hold their assets, users can hold their assets in a decentralized wallet that they control. This eliminates the risk of losing funds due to the insolvency of a custodian or the risk of having their assets frozen or confiscated by a central authority. One of the most popular use cases of DeFi is decentralized lending and borrowing. This involves lending and borrowing assets without the need for a centralized intermediary. Instead, borrowers can use their assets as collateral to borrow other assets from lenders, who earn interest on their loans. This creates a more efficient and transparent lending market, where borrowers can access capital at lower rates and lenders can earn higher returns on their investments.

In the following, we present another perspective - DeFi is decentralized exchanges (DEXs), which allow users to trade cryptocurrencies without the need for a centralized intermediary. DEXs operate using automated market makers (AMMs), which use smart contracts to determine the price of assets based on supply and demand. This creates a more efficient and transparent trading market, where users can trade cryptocurrencies without the risk of losing their funds to hacks or other security breaches. Other use cases of DeFi include prediction markets, insurance, stablecoins, and yield farming. Insurance allows users to protect themselves against risks, such as hacks or smart contract failures. Stablecoins are cryptocurrencies that are pegged to the value of a fiat currency, such as the US dollar, and provide users with a stable store of value. Yield farming allows users to earn rewards for providing liquidity to DeFi protocols.

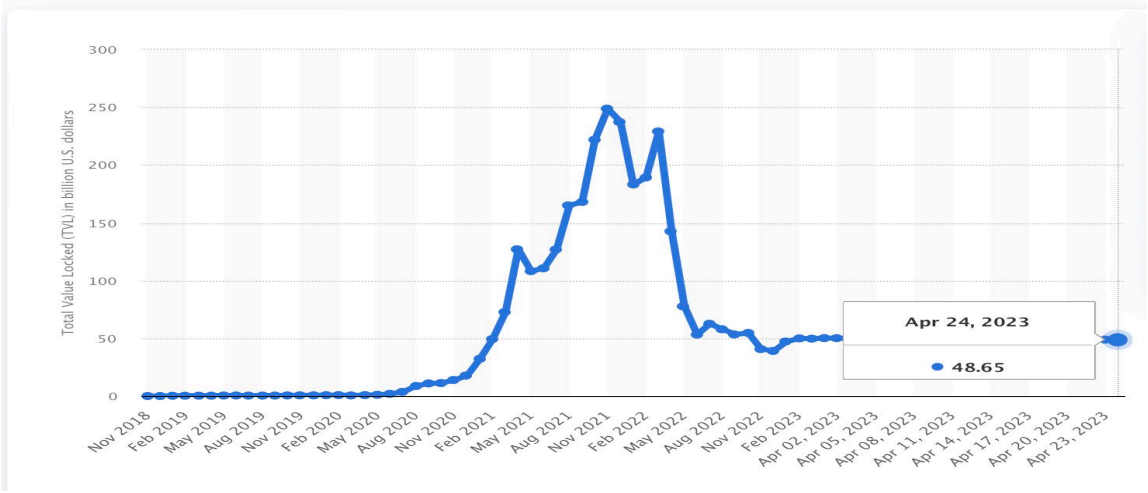
Given the above, in our opinion, DeFi is a revolutionary new paradigm in the financial industry that leverages blockchain technology to create a more accessible, transparent, and inclusive financial system. With the emergence of DeFi, anyone with an internet connection can participate in various financial activities without the need for intermediaries. DeFi provides users with more control over their funds, eliminates the risk of losing funds. When referring to DeFi, the term TVL (Total Value Locked) should be introduced. Total Value Locked (TVL) is a measure used in decentralized finance (DeFi) to evaluate the total value of assets locked in a specific DeFi protocol or application at a given time.

More specifically, TVL represents the sum of the monetary value of all cryptographic assets locked or engaged in a certain DeFi protocol. These assets can be, for example,

Ethereum (ETH), Bitcoin (BTC), stablecoins, or other tokens specific to a protocol. The TVL value is important for investors and developers as it can indicate the level of adoption and usage of a DeFi protocol, as well as the level of liquidity available in that protocol. Additionally, the TVL value can be used to compare the popularity and success of different DeFi applications. The adoption rate of decentralized finance can also represent a unit of measure for what the Web 3 concept aims to bring.

"The Blockchain technology can improve essential basic services in traditional finance and has the potential to become the foundation for decentralized business models, providing entrepreneurs and innovators with all the necessary tools. Through a distributed and trustworthy infrastructure, blockchain technology optimizes transaction costs and enables the emergence of innovative, interoperable, borderless, and transparent decentralized applications that facilitate open access and encourage permissionless innovation." (Decentralized Finance (DeFi) – The Lego of Finance, Andrei-Dragoş Popescu, 2020). One of the main problems that DeFi faces is the volatility of cryptocurrencies, which can fluctuate significantly in value in a short period of time. Additionally, there is also the risk of implosion of DeFi platforms, which could lead to significant losses for users.

Fig.2 - TVL (total value locked) across multiple Decentralized Finance (DeFi) blockchains



Source: (www.statista.com)

The connection between Web 3 and DeFi

As we have shown throughout the article, the technical connection between Web 3 and DeFi is that Web 3 technologies, such as blockchain and decentralized protocols, are used to build and power decentralized finance applications and systems. The use of Web 3 technologies allows for greater transparency, security, and trust in DeFi applications, as well as greater accessibility and interoperability. By leveraging Web 3 technologies, DeFi is able to create decentralized and trustless financial systems that are not subject to the control of centralized intermediaries, such as banks and financial institutions. Overall, Web 3 is a key enabler of DeFi, providing the technical foundation for the creation of a more open, transparent, and accessible financial system. Decentralized Finance (DeFi) is an emerging field that aims to provide financial services and applications using blockchain and Web3 technologies, as we have shown previously. The use of these technologies allows for the creation of decentralized and trustless financial systems that are not subject to the

control of centralized intermediaries, such as banks and financial institutions. One of the main advantages of DeFi is the ability to create a variety of financial applications, such as payments, loans, and digital asset exchanges, that are accessible to anyone with an internet connection. These applications are built on top of decentralized protocols, which are open source and transparent, allowing for greater trust and security compared to traditional financial systems. Payments are one of the most basic and widely used financial applications. With DeFi, payments can be made using cryptocurrencies, which are digital assets that are secured using cryptography and decentralized ledger technologies. Cryptocurrencies offer several advantages over traditional payment systems, such as lower transaction fees and faster settlement times. Another popular DeFi application is loans. With DeFi, loans can be made using cryptocurrencies as collateral, allowing for greater flexibility and accessibility compared to traditional loans. DeFi loans are typically facilitated through smart contracts, which are self-executing contracts that run on top of blockchain networks, allowing for greater automation and efficiency. Last but not least, digital asset exchanges are another key application of DeFi. With DeFi, digital assets can be exchanged in a decentralized and trustless manner, without the need for intermediaries such as centralized exchanges. Decentralized exchanges (DEXs) are built on top of decentralized protocols, allowing for greater transparency and security compared to centralized exchanges.

Regulatory perspective

From a regulatory perspective, DeFi presents significant challenges because it operates outside the traditional financial system, making it difficult to monitor and regulate. There is also a lack of clarity about the legal and regulatory framework for DeFi, which makes it challenging for regulators to determine how to manage the risks associated with it. One of the significant risks associated with DeFi is financial stability. The decentralized nature of DeFi means that there is no central authority or intermediary to regulate and manage the risks associated with the financial system. As a result, there is a higher risk of systemic failures, such as liquidity risks, market risks, and operational risks. To mitigate these risks, regulators need to implement regulatory frameworks that promote transparency, accountability, and risk management. They can do this by implementing regulations that require DeFi platforms to provide clear disclosures about their risks, performance, and governance. They can also require DeFi platforms to maintain adequate reserves to manage risks, ensure that DeFi protocols have sufficient liquidity, and require platforms to undergo regular audits to identify and mitigate any risks. Another significant risk associated with DeFi is the protection of consumers/investors. DeFi platforms operate in a decentralized environment, which means that there is no central authority to oversee the conduct of the platform operators. This makes it challenging to protect consumers/investors from fraud, theft, and other malicious activities. To manage such a risk, regulators can implement regulations that require DeFi platforms to adhere to the same consumer protection standards as traditional financial institutions. For example, they can require DeFi platforms to have a customer support mechanism, provide clear disclosures about their risks and fees, and ensure that investors have access to dispute resolution mechanisms.

From our perspective, regulation alone is not sufficient, and proactive risk management tools are needed to address the risks associated with new financial models. In our opinion, financial education is a proactive tool that can create healthy financial behaviors by

understanding the risks and making financial decisions that are in line with the real needs and risk appetite of each potential user or investor. Financial education is crucial in managing the risks associated with DeFi. The fast-paced nature of DeFi means that new financial concepts and products are continually emerging, making it challenging for consumers/investors to keep up. Therefore, education is essential to ensure that consumers/investors can make informed decisions about their investments in DeFi. In the same time, as we have shown, Web 3.0 represents a significant shift towards a more open, decentralized, and democratized internet. By eliminating intermediaries and giving users more control over their data and assets, Web 3.0 has the potential to revolutionize industries beyond finance, including media, gaming, and social networks, among others.

Conclusions

DeFi is a rapidly evolving field with the potential to revolutionize the financial industry by creating more open, transparent, and accessible financial systems that are not controlled by centralized intermediaries. DeFi presents significant opportunities and risks to the financial industry. To manage the risks associated with DeFi effectively, regulators need to implement regulatory frameworks that promote transparency, accountability, and risk management. Additionally, financial education is crucial in ensuring that consumers/investors can make informed decisions about their investments in DeFi. DeFi in Web 3.0 has the potential to revolutionize the financial industry by providing more open, transparent, and accessible financial services to everyone. However, to fully realize this potential, stakeholders must work together to manage the risks associated with these new technologies and ensure the safety and security of users and their assets.

This requires collaboration between developers, regulators, and users to establish robust security and risk management frameworks that protect against smart contract risks, liquidity risks, cybersecurity risks, and other potential threats. Additionally, financial education is essential to ensure that users have the knowledge and understanding necessary to make informed decisions and manage their assets effectively. In terms of DeFi, we can expect to see continued growth and innovation in decentralized finance protocols and applications. This may include the development of new DeFi platforms and tools, such as decentralized exchanges (DEXs), lending and borrowing protocols, stablecoins, and insurance products, among others. Additionally, we may see greater integration between DeFi and traditional finance, as more institutions and investors begin to recognize the potential benefits of decentralized finance.

As for Web 3.0, we can expect to see further development of decentralized technologies and applications, as well as greater adoption of blockchain and related technologies. This may include the development of new decentralized content creation and distribution platforms, gaming and social media platforms, and other applications that empower users and eliminate intermediaries. A general conclusion that we submit about DeFi and Web 3.0 is likely to be characterized by continued innovation, growth, and adoption, as more developers, entrepreneurs, and users recognize the potential benefits of decentralized technologies and work to realize their full potential.

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