European Economic Letters
ISSN 2323-5233
Vol 14, Issue 3 (2024)
http://eelet.org.uk

Decentralized Finance and Its Potential to Reshape Traditional Banking: A Critical Assessment

Dr. Durba Dutta[1*]
[1*]Senior Faculty, Dept. Of Economics, The Assam Royal Global University, Guwahati Assam, India
Email: durba786@gmail.com

***Corresponding Author:** Dr. Durba Dutta
*Senior Faculty, Dept. Of Economics, The Assam Royal Global University, Guwahati Assam, India
Email: durba786@gmail.com

Abstract:
DeFi is a new concept that disrupts the conventional finance industry by employing blockchain and decentralized structures. This critical evaluation aims to discuss how DeFi can disrupt the banking system and provide more transparency, efficiency, and inclusion. Based on the literature review of the works of leading scholars and the DeFi platform case analysis, the study reveals that DeFi has certain benefits compared to traditional financial systems, including lower fees for transactions and a more open financial system for the population. Nevertheless, the research also identifies some threats that may impact the adoption of DeFi including regulatory challenges and security threats. The study shows that despite the fact that DeFi is capable of revolutionizing the financial services industry, it will have to coexist with the traditional banking sector and one has to look at the regulatory and security issues. As shown above, there are several problems that deserve more attention and only more research and collaboration between various stakeholders will allow to unleash the full potential of DeFi. This paper helps to enrich the knowledge about DeFi and its role in the new financial paradigm and gives some ideas about the future of financial industry.

Keywords: Decentralized Finance, Traditional Banking, Blockchain Technology, Financial Inclusion, Regulatory Challenges.

1. Introduction

DeFi is one of the most significant innovations in the financial sector that can serve as the foundation for the new financial system that will not imply the usage of banks and other financial institutions. DeFi is a broad term that is used to refer to decentralized finance which employs the use of block chain technology to provide financial services in which the user does not have to be physically present to receive the services. DeFi is a new phenomenon in the financial industry and has attracted the attention of researchers, policymakers, and financial institutions and has led to questions about the potential of DeFi to transform banking systems (Gomber et al. , 2021).

They are decentralized with the majority of them running on smart contracts on blockchains such as Ethereum. Such smart contracts enable individuals to purchase products and services, borrow and lend, trade and invest among others without the help of middlemen (Schär, 2021). DeFi is open-sourced and has a transformative impact on the traditional financial system because it minimizes the control that banks have over the financial services while being less selective (Harvey et al. , 2021).

The last advantage of DeFi is in improving the financial literacy since that is where traditional banking services are deficient. DeFi can expand financial services using decentralized applications and this implies that it can provide credit, savings and investment products to consumers who are financially locked out (Demirgüç-Kunt et al. , 2018). This democratization of finance is regarded as one of the major achievements toward the eradication of financial inequality in the global society (Ameer & Junaid, 2021).

Furthermore, DeFi enhances trust since all the operations and smart contracts are transparent, and users can verify them in the blockchain. This is different from the structural complexity of the traditional banking systems where its financial operations and choices are not transparent to the public. The openness of DeFi not only enhances the level of trust but also minimizes the possibility of fraud and corruption which helps to offer users more reliable financial services (Catalini & Gans, 2020).

However, like any other innovation, DeFi has its strengths and weaknesses, with the following being the major disadvantages: The following are some of the risks that may be associated with the lack of regulation of DeFi; Consumer protection, financial stability, or its ability to be used for illicit activities such as money laundering and financing of terrorism (Philippon, 2020). Since DeFi has no control center, users are entirely left to their own devices in terms of their transactions, and this also applies to the outcomes of smart contract failure or hacking (Benedetti & Nikbakht, 2021). Such risks show that there is a need to regulate DeFi but at the same time, do not hinder innovation (Arner et al., 2020).

The issues of DeFi platforms' scalability and compatibility have not been solved yet. Almost all the DeFi applications are developed on the Ethereum platform which has issues with the transaction TPS and high gas fees particularly during traffic jams (Buterin, 2020). Such problems also lead to concerns about DeFi's capacity to evolve into a proper financial system and its capacity to compete with the effectiveness and development of the traditional banking system (Hsieh et al., 2021).

However, the technological aspect is not the only factor that defines the ability of DeFi to disrupt banking; regulators' and financial institutions' responses to it will also play a significant role. While some of the banks are considering how to incorporate DeFi technologies into their business models, others are urging governments to regulate the technology (Carstens, 2021). Such regulatory reactions and the DeFi environment's capability of handling such issues will define the future of DeFi and its integration with the traditional financial system (Zhao, 2021).

Therefore, DeFi can be regarded as a new direction in the financial sector that can replace the centralized banking system and become an open, democratic, and transparent platform. However, to unleash this potential, it is necessary to solve the main problems of DeFi, namely, threats of regulation, technological restrictions and incompatibility, and the problem of scalability. The purpose of this paper is to critically analyze the role of DeFi in changing the existing model of banking and the prospects and challenges associated with it.

1.1 Significance of the Study

The importance of this study is because the study seeks to establish the possibility of DeFi in transforming the traditional banking sector. With the emergence of financial technology, it is crucial to identify how DeFi affects the conventional financial systems for policymakers, financial gurus, and consumers. This paper aims at giving a glimpse of what DeFi can offer such as; improved financial inclusion, decentralization, and no third-party. In addition, it provides an evaluation of the prospects and problems of DeFi and its threats, legal, technical, and security considerations. Thus, the study contributes to the discussion about the future of finance and provides understanding of the factors that can be used in the creation of the policies and strategies for the proper use of the DeFi opportunities with the least negative consequences.

1.2 Research Aim

The goal of this work is to consider the potential of DeFi and its applicability to the transformation of the conventional banking system and to define its strengths and weaknesses for the development of the financial sector.

1.3 Research Objectives

1. To understand the specifics and operations of Decentralized Finance (DeFi) that will enable one to differentiate it from the banking systems.
2. To assess the potential of applying DeFi to enhance the current state of financial accessibility, raise the degree of openness, and reduce the price of operations.
3. To evaluate the strengths and weaknesses of DeFi and possible risks that can be connected with regulation, technology, and security.
4. To find out what may happen to the interaction or the rivalry between DeFi and traditional banking services in the future.

2. Research Methodology

2.1 Research Design

The study uses a quantitative research approach, and the evaluation of the subject matter is crucial to determine the impact of Decentralized Finance (DeFi) on traditional banking. It makes it possible to assess the DeFi effect and the advantages and disadvantages of this model simultaneously.

2.2 Data Collection Methods

Literature Review: To establish the theoretical framework and to identify the research gaps in DeFi, this paper examines the literature from academic journals, industry reports, and policies.

Case Studies: The real-world examples of selected DeFi platforms are used to provide the practical application, accomplishments, and challenges, providing the empirical context to theoretical discussions.

Expert Interviews: Heard blockchain technologists, finance professionals, and regulatory experts for the participant's view on the status, challenges, and opportunities of DeFi. 2.3 Data Analysis Techniques

Thematic Analysis: A brief of trends that are associated with the impact of DeFi on traditional banking systems including accessibility, openness, and regulation.

Comparative Analysis: Compares DeFi with traditional banking systems to see in what aspects they can complement or overlap each other or vie for the same market.

2.4 Limitations of the Study

Of course, this study has its limitations; first, DeFi is quite a new phenomenon; second, the research is qualitative, which means that it cannot be applied to other contexts; third, the interviews with experts may be subjective in some way. These factors should be taken into consideration when making the conclusions and they also indicate the need to carry out further studies.

3. Results and Discussion

Decentralized Finance also known as DeFi is a topic that is generic and has the potential to disrupt the conventional banking systems. This section provides the conclusion of the research work done through the analysis of the literature, case studies of DeFi platforms, and interviews with the experts. It also elaborates on the relevance of these findings for the literature on financial innovation and regulation.

3.1 DeFi and Traditional Banking

Defi Characteristics

DeFi is an idea that shifts from the current financial structures of large financial institutions and a system based on blockchain that provides P2P transactions. Some of the features of DeFi include smart contracts, decentralized applications, and the use of blockchain technology, which are cheaper, more transparent, and easily accessible than traditional banking (Zohar, 2021).

Traditional Banking

Traditional banking is the type of banking where the movement of money, transactions, loans, and deposits are all channeled through a large organization. This system is intermediated, regulated, and centralized especially in the aspects of record-keeping and transaction validation as noted by Jones and Smith (2020).

The literature review highlighted several critical themes in the DeFi and traditional banking comparison. The literature review also identified several important issues in the comparison of DeFi and traditional banking:

- **Transparency and Trust:** DeFi platforms use blockchain technology to ensure that the participants have an open ledger of all the transactions that take place. This is however different from traditional banking where there is normally very little transparency because of the complex and often obscure processes and decision making which are normally centralized (Schär, 2021). The usage of public ledgers makes real-time auditability of transactions and smart contracts, which is a feature of DeFi.
- **Financial Inclusion:** DeFi has the potential to enhance financial accessibility to people who cannot access banking services. The traditional banking systems have some limitations such as geographical limitations and credit policies that exclude some categories of people (Catalina & Gans, 2021). As opposed to the traditional financial platforms which are accessible through the internet and do not require intermediaries, DeFi platforms can extend financial services to a more extensive population (Narayanan et al., 2016).
- **Cost Efficiency:** Another advantage of DeFi is that it does not involve transaction fees and operational costs. They have overheads like branches, employees, and other compliance matters which are normally funded by the customers (Chiu & Koeppl, 2019). On the other hand, DeFi platforms, with the help of automation and decentralization, can largely reduce such costs (Miller et al., 2020).

3.2 Case Studies of DeFi Platforms

Case Study 1: Uniswap

Uniswap is an exchange platform that allows users to swap tokens without the use of a central marketplace. Unlike most exchange platforms, Uniswap is a decentralized platform that employs the AMM algorithms (Adams et al., 2020).

Table 1. Uniswap Vs Traditional Exchanges

Feature	Uniswap (DeFi)	Traditional Exchanges
Centralization	Decentralized	Centralized
Market Making	Automated Market Makers	Order Book System
Fees	Low	Higher
Accessibility	Global, 24/7	Limited by location and hours
Regulation	Minimal	Regulated

Uniswap proves that DeFi is inexpensive and available. It also does not involve the need for middlemen and thus the transaction costs are kept as low as possible. Some of the concerns that could be noted include the following: Lower liquidity as compared to the centralized exchanges; and susceptibility to smart contract bugs (Zhang et al., 2021).

Case Study 2: Compound

Compound is a lending and borrowing platform that is decentralized and operates with cryptocurrencies. It employs smart contracts for lending and for setting interest rates based on supply and demand (Hertzberg et al., 2021).

Table 2. Compound vs. Traditional Lending

Feature	Compound (DeFi)	Traditional Lending
Interest Rate Setting	Algorithmic	Market-based with intermediaries
Loan Collateralization	Crypto assets	Diverse assets (e.g., real estate)
Accessibility	Broad and borderless	Limited by location and credit history
Transparency	High	Limited
Regulatory Oversight	Minimal	Extensive

Compound proves that DeFi can offer better lending solutions that are not as obscure as the ones already present in the market. Nonetheless, some of the risks include the volatility of the value of the collateral, and no regulatory authority among others (Gudgeon et al., 2020).

3.3 Expert Insights

Trends and Challenges

Several points emerged from the interviews with the blockchain technology, finance, and regulation experts. Several findings were made during the interviews with the experts in blockchain technology, finance, and regulation. Several findings were made during the interviews with the experts in blockchain technology, finance, and regulation:

Technological Advancements: Some of the experts pointed out that technology played a part in the creation of the DeFi trends. The architecture, efficiency, and integration of blockchains need to be enhanced to support the expansion and usage of DeFi (Narayanan et al., 2016).

Regulatory Challenges: It is interesting to note that regulatory risks have continued to be among the most significant concerns in DeFi platforms. Some of the concerns that have been raised by the experts include the fact that as much as DeFi is a good thing, it has its drawbacks, and these include compliance and legal challenges. Now, the regulators are facing the problem of how to integrate DeFi into the existing legislation of the financial sector and not harm innovation (Zohar, 2021).

Security Concerns: The issue of security is still an issue with smart contracts being vulnerable to hacking and other cyber risks being very real. Security experts agreed that adequate security measures and vigilance should be put in place to counter such threats (Harris & McDonald, 2022).

Market Adoption and Integration: Some of the discussions that were held by experts about DeFi include how it can complement the traditional banking system. The integration of DeFi solutions in the present financial structures may be a combination of the two models as noted by Chiu and Koeppl (2019).

3.4 Discussion

Implications for Traditional Banking

The findings of the paper suggest that DeFi has the potential to transform banking services through offering enhanced transparency, low cost, and financial inclusion. However, the success of DeFi in achieving these outcomes will depend on several factors: However, the ability of the DeFi to deliver these outcomes will depend on the following factors:

Regulatory Adaptation: In this regard, there is a need for regulators to be able to approve new technologies and at the same time, safeguard consumers and ensure market stability for DeFi to grow to the desired potential. It means that regulators and DeFi leaders will have to find out what measures are the most effective in regulating the field that will not hinder innovation (Catalini & Gans, 2021).

Technological Integration: It is possible to assume that the combination of DeFi technologies with traditional banking models can contribute to such a shift and enhance the effectiveness of financial services. New ideas that would bring out the best of DeFi and the security of conventional organizations might emerge as feasible options (Jones & Smith, 2020).

Consumer Education and Trust: Trust is one of the main drivers that influence the adoption of DeFi platforms, and this is why it must be addressed. Thus, it is crucial to make people aware of the possibilities of DeFi as well as threats and to provide sufficient security to eliminate the barriers to its implementation (Schär, 2021).

Future Developments: As has been pointed out in previous sections, future advancements in technology and technological advancements are anticipated to affect the future of DeFi and its convergence with the conventional financial system. Further studies and innovations will need to be directed to the identified gaps and new opportunities for the application of DeFi in the financial industry (Miller et al., 2020).

The study also assumes that DeFi has the potential to disrupt the banking system by decentralizing it, making it more transparent, cheaper, and inclusive. However, issues of regulation, security, and market acceptance must be solved to the best of their possibilities to achieve such advantages. The combination of DeFi with the existing centralized financial systems might result in the development of new types of models that will combine both systems. Future research and cooperation will be required to address the future of DeFi and its role in the financial industry.

4. Conclusion

DeFi can be referred to as a revolution in the financial industry as it is an innovation that is based on a complete departure from the traditional banking systems. This critical analysis has considered some of the characteristics of DeFi including the use of blockchain technology which makes it transparent, decentralized and inexpensive. Since DeFi platforms use smart contracts and decentralized applications (dApps), they allow direct user to user transactions and thus, have lower transaction costs. This approach can help to bring much needed change in the financial industry for the unbanked and underbanked as they will not be restricted by geography or credit scores.

DeFi has some significant problems that need to be discussed and solved. The first is the regulatory risk which is a common factor in most firms. The current financial regulations are not suitable for addressing the new features of DeFi, which is why it is challenging to regulate this sector. Also, risks such as smart contract risks and cyber risks are some of the most significant challenges that DeFi faces and which endanger its stability. Such issues show that DeFi requires proper security and an adequate approach to the regulation to protect the users and ensure the effectiveness of decentralized solutions.

The possibilities that DeFi creates for traditional banking are rather large. It is possible to note that DeFi can compete with the traditional banking systems and even provide better, more effective, and more transparent services. This may mean that traditional banks may have to consider how they are going to incorporate the DeFi technologies into the banking system or how they can come up with a system that is halfway between the banking system and the decentralized system. It also could improve the effectiveness of operations and create new opportunities for monetary innovation that can lead to more effective and less rigid financial system.

There is a need to extend the research of the issues connected with DeFi and reveal how these issues can be addressed in the future. Thus, it is necessary to continue the discussion of the measures that would allow considering the specifics of DeFi while maintaining consumer protection. The authorities, the pioneers of DeFi, and conventional financial institutions

will have to work together and create rational and effective rules that will enable the formation of new financial instruments and prevent the emergence of threats to the financial system. Also, the future development of technology is also likely to define the future of DeFi and how it will transform the financial sector in the future.

Thus, DeFi can change the financial industry and introducing the changes that will make the existing services more effective, cheaper, and accessible to a greater number of people than in the banking system. However, the integration of DeFi into the existing financial system will be possible after addressing some challenges that are associated with regulation and security. Thus, the stakeholders can avoid these challenges and realize the potential of DeFi in the advancement of the financial sector.

REFERENCES:

1. Adams, H., et al. (2020). *Uniswap and Decentralized Exchanges*. Journal of Financial Technology.
2. Ameer, R., & Junaid, M. (2021). Decentralized finance and its role in democratizing financial services: Opportunities and challenges. *Journal of Financial Innovation*, 7(2), 101-120.
3. Arner, D. W., Barberis, J. N., & Buckley, R. P. (2020). The evolution of fintech: A new post-crisis paradigm? *Georgetown Journal of International Law*, 48(1), 127-193.
4. Benedetti, H., & Nikbakht, E. (2021). Decentralized finance: On blockchain- and smart contract-based financial markets. *Journal of Economic Perspectives*, 35(3), 123-140.
5. Buterin, V. (2020). The limits to blockchain scalability. *Ethereum Foundation Blog*.
6. Carstens, A. (2021). The road ahead for central banks: Navigating the rise of decentralized finance. *Bank for International Settlements Quarterly Review*, 17-29.
7. Catalini, C., & Gans, J. S. (2020). Some simple economics of the blockchain. *Journal of Legal Studies*, 49(1), 19-48.
8. Chiu, I., & Koeppl, T. V. (2019). *Cost Efficiency in Traditional and Decentralized Finance*. Economic Perspectives.
9. Demirgüç-Kunt, A., Klapper, L., Singer, D., & Van Oudheusden, P. (2018). The global Findex database 2017: Measuring financial inclusion and the fintech revolution. *World Bank Group.*
10. Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W. (2021). On the fintech revolution: Interpreting the forces of innovation, disruption, and transformation in financial services. *Journal of Management Information Systems*, 35(1), 10-29.
11. Gudgeon, L., et al. (2020). *Decentralized Lending: Opportunities and Risks*. Blockchain Research Review.
12. Harris, J., & McDonald, A. (2022). *Security Challenges in Decentralized Finance*. Cybersecurity Journal.
13. Harvey, C. R., Ramachandran, A., & Santoro, J. (2021). DeFi and the future of finance. *Journal of Financial Transformation*, 53(1), 123-141.
14. Hertzberg, A., et al. (2021). *Compound: A Case Study in Decentralized Lending*. Cryptocurrency Journal.
15. Hsieh, Y. Y., Vergne, J. P., & Wang, S. (2021). The internal and external governance of blockchain-based organizations: Evidence from cryptocurrencies. *Journal of Business Ethics*, 165(3), 367-387.
16. Jones, S., & Smith, L. (2020). *Traditional Banking vs. DeFi: A Comparative Analysis*. Banking Innovations Quarterly.
17. Miller, M., et al. (2020). *The Future of Decentralized Finance*. Journal of Financial Innovation.
18. Narayanan, A., et al. (2016). *Bitcoin and Cryptocurrency Technologies*. Princeton University Press.
19. Philippon, T. (2020). On fintech and financial inclusion. *National Bureau of Economic Research*.
20. Schär, F. (2021). *Decentralized Finance: The Future of Finance?* Financial Review.
21. Yermack, D. (2019). *Blockchain Technology and Financial Innovation*. Harvard Business Review.
22. Zetzsche, D. A., Buckley, R. P., Arner, D. W., & Barberis, J. N. (2020). Decentralized finance: The case for a cautious approach. *European Business Organization Law Review*, 21(1), 351-373.
23. Zhang, Y., et al. (2021). *Liquidity and Market Making in Decentralized Exchanges*. Journal of Financial Markets.
24. Zhao, L. (2021). The rise of DeFi and its impact on the traditional banking system. *Journal of Financial Services Research*, 60(2), 255-278.
25. Zohar, A. (2021). *Regulating DeFi: Challenges and Opportunities*. Regulation and Policy Journal.