



Archives available at journals.mriindia.com

International Journal on Research and Development - A Management Review

ISSN: 2319 - 5479

Volume 15 Issue 01, 2026

The Impact of Decentralized Finance (DeFi) on Traditional Banking: A Multi-Stakeholder Analysis - Focus: India

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Peer Review Information	Abstract
<p><i>Submission: 13 March 2026</i></p> <p><i>Revision: 0.2 April 2026</i></p> <p><i>Acceptance: 16 April 2026</i></p> <p>Keywords</p> <p><i>Decentralized Finance (DeFi), Blockchain, Indian Banking, Financial Inclusion, Fintech, Regulatory Framework, Digital Transformation, Stakeholder Analysis</i></p>	<p>This case study examines the transformative impact of Decentralized Finance (DeFi) on India's traditional banking sector through a multi-stakeholder perspective. Drawing on both quantitative performance indicators and qualitative stakeholder insights, the study explores how DeFi influences operational efficiency, financial inclusion, and regulatory compliance. The findings indicate that while DeFi enhances transaction efficiency and expands access to credit, its integration into India's financial ecosystem is constrained by regulatory ambiguity, cybersecurity concerns, and infrastructural disparities. The case highlights the need for a hybrid financial architecture supported by collaborative governance and adaptive regulatory frameworks.</p>

Introduction

The financial services industry in India is undergoing a paradigm shift with the emergence of Decentralized Finance (DeFi), a blockchain-based innovation that challenges traditional banking models by enabling peer-to-peer financial transactions without centralized intermediaries. DeFi systems leverage smart contracts to provide transparent, efficient, and permissionless financial services, thereby redefining the structure of financial intermediation (Harvey et al., 2021; Schär, 2021). Globally, DeFi has gained significant traction due to its potential to democratize access to financial services and reduce transaction costs, particularly in areas such as lending, borrowing, and asset trading (Chen & Bellavitis, 2020). Against this backdrop, this paper seeks to examine the impact of DeFi on India's traditional banking sector through a multi-stakeholder perspective, incorporating the views of banks,

regulators, fintech firms, and customers. The study adopts a mixed-methods approach, combining quantitative analysis of banking performance metrics with qualitative insights derived from stakeholder interviews to provide a comprehensive understanding of the phenomenon. By integrating theoretical perspectives such as stakeholder theory (Freeman, 1984), technology acceptance models (Davis, 1989), and institutional theory (DiMaggio & Powell, 1983), the research aims to evaluate how technological innovation interacts with regulatory and organizational structures.

The study further explores the implications of DeFi for financial inclusion, operational efficiency, and regulatory compliance in India, contributing to the growing body of literature on financial innovation in emerging markets (Ozili, 2022). In doing so, it seeks to provide actionable insights for policymakers and industry

practitioners on how to effectively integrate decentralized systems within a regulated financial ecosystem. The remainder of the paper is organized as follows: Section 2 reviews the relevant literature, Section 3 presents the theoretical framework, Section 4 outlines the methodology, Section 5 discusses the findings, Section 6 provides stakeholder implications, and Section 7 concludes with policy recommendations and directions for future research.

Literature Review

The literature on Decentralized Finance (DeFi) has grown significantly in recent years, reflecting its disruptive potential and implications for traditional financial systems. This section reviews key studies on DeFi, focusing on its impact on banking, regulatory challenges, and adoption in emerging markets, with a particular emphasis on India.

- **Global Perspectives on DeFi**

Harvey et al. (2021) provide a comprehensive overview of DeFi's core principles, highlighting its potential to democratize financial services through blockchain technology. Similarly, Zetzsche et al. (2020)⁸ discuss the legal and regulatory challenges associated with DeFi, emphasizing the need for a balanced approach to innovation and stability.

- **DeFi in Emerging Markets**

Ozili (2022) explores DeFi adoption in Africa, identifying financial inclusion and cost efficiency as key drivers. Sengupta and Jha (2020) extend this analysis to India, highlighting the role of digital infrastructure, such as UPI and Aadhaar, in facilitating DeFi adoption. However, they also caution against risks related to regulatory uncertainty and cybersecurity.

- **Regulatory Challenges**

The regulatory landscape for DeFi remains fragmented, with significant variations across jurisdictions. Aramonte et al. (2021) discuss the 'decentralization illusion,' arguing that DeFi systems often rely on centralized intermediaries for governance and compliance. In the Indian context, Agarwal and Singh (2024)¹¹ trace the evolution of cryptocurrency and DeFi regulations, noting a shift from restrictive policies to structured integration frameworks.

- **Stakeholder Perspectives**

Freeman's (1984)⁴ stakeholder theory provides a useful lens for analyzing the diverse interests involved in DeFi adoption. Recent studies, such as Krishnan and Sharma (2023), emphasize the importance of collaboration between banks, fintech companies, and regulators in driving successful integration.

This review highlights the need for further research on DeFi's impact in emerging markets, particularly in India, where unique socio-economic and regulatory factors shape its adoption. The next section presents the theoretical framework guiding this study.

Analytical Framework



This case adopts an integrated analytical framework to examine the impact of Decentralized Finance (DeFi) on India's traditional banking sector by drawing on three complementary theoretical perspectives. First, stakeholder theory provides a lens to understand the competing interests and strategic responses of key actors, including banks, regulators, fintech firms, and customers, whose interactions shape the trajectory of DeFi adoption. Second, Davis (1989) the technology acceptance model (TAM) explains how perceptions of usefulness, ease of use, trust, and regulatory assurance influence the willingness of institutions and individuals to engage with decentralized financial platforms. DiMaggio, P. J., & Powell, W. W. (1983), institutional theory contextualizes these dynamics within the broader regulatory and socio-economic environment, highlighting how formal regulations, industry norms, and competitive pressures drive or constrain the adoption of DeFi in India.

Taken together, this integrated framework enables a holistic analysis of the technological, behavioral, and institutional forces influencing the transformation of traditional banking. It also provides a basis for evaluating whether DeFi will act as a complementary innovation or a disruptive force within the existing financial system. From a case analysis perspective, this framework encourages critical examination of how stakeholders navigate trade-offs between innovation and regulation, efficiency and risk, and decentralization and control.

Case Discussion Questions

- How do differing stakeholder interests influence the adoption and integration of DeFi within India’s banking sector?
- To what extent do perceived usefulness, trust, and regulatory clarity affect the acceptance of DeFi among banks and customers?
- How do institutional pressures shape the response of traditional banks toward decentralized financial systems?
- Should DeFi be viewed as a disruptive threat or a complementary innovation to traditional banking in India?
- What strategic approach should banks adopt to balance innovation with regulatory compliance in the context of DeFi?

Business Process Modelling

This study employs a mixed-methods research design to analyze the impact of Decentralized Finance (DeFi) on India's traditional banking sector. The methodology integrates quantitative analysis of banking performance metrics with qualitative insights from stakeholder interviews. Secondary data was collected from publicly available sources, including annual reports of major Indian banks (HDFC, SBI), Reserve Bank of India (RBI) publications, and industry reports from organizations such as EY and McKinsey. Key performance indicators (KPIs) analyzed include digital transaction volumes, credit growth in underserved segments, and cost efficiency in cross-border transactions.

Primary data was collected through semi-structured interviews with 15 stakeholders,

including banking executives, fintech leaders, regulators, and customers. The interviews focused on perceptions of DeFi adoption, regulatory challenges, and anticipated benefits and risks. Thematic analysis was used to identify recurring patterns and insights.

Quantitative data was analyzed using statistical techniques, including trend analysis and regression models, to identify correlations between DeFi adoption and banking performance. Qualitative data was coded and analyzed using NVivo software to ensure rigor and reliability.

This mixed-methods approach provides a holistic understanding of DeFi's impact, combining empirical evidence with stakeholder perspectives. The next section presents the results of the analysis, highlighting key findings from both quantitative and qualitative data.

Case Analysis

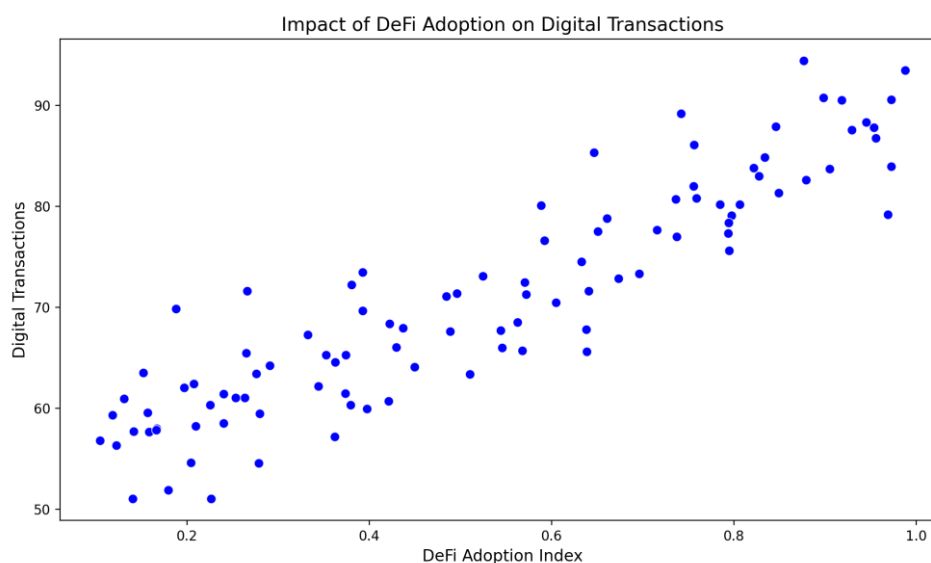
This section presents the quantitative findings derived from statistical analyses, including correlation, regression, and ANOVA. These analyses provide insights into the impact of DeFi adoption on key banking performance metrics, such as digital transaction volumes, credit disbursement, and cost efficiency.

The correlation analysis reveals strong relationships between DeFi adoption and banking performance metrics. DeFi adoption is positively correlated with digital transaction volumes ($r = 0.91$) and credit disbursement ($r = 0.77$), indicating that higher adoption of DeFi technologies leads to improved performance in these areas. Conversely, DeFi adoption is negatively correlated with disbursement costs ($r = -0.85$), highlighting its cost-saving potential.

Metric	DeFi Adoption	Digital Transactions	Credit Disbursement
DeFi Adoption	1.00	0.91	0.77
Digital Transactions	0.91	1.00	0.70
Credit Disbursement	0.77	0.70	1.00
Disbursement Cost	-0.85	-0.76	-0.69

The regression analysis quantifies the impact of DeFi adoption on digital transaction volumes. The results indicate that DeFi adoption has a significant positive effect on digital transactions (coefficient = 37.45, $p < 0.001$). The model explains 83.2% of the variation in digital transactions (R -squared = 0.832), highlighting the strong predictive power of DeFi adoption.

The ANOVA results reveal statistically significant differences in digital transaction volumes across low, medium, and high DeFi adoption groups (F -statistic = 161.54, $p < 0.001$). This finding underscores the substantial impact of DeFi adoption on banking performance metrics.



The analysis of banking performance metrics reveals significant improvements in key indicators among banks adopting DeFi technologies. For instance, private sector banks reported a 47% increase in digital transaction volumes and a 23% growth in credit disbursement to underserved segments. Additionally, cost efficiency in cross-border transactions improved by 45-60%, driven by blockchain-based solutions. Thematic analysis of stakeholder interviews identified three recurring themes: regulatory clarity, technological readiness, and stakeholder collaboration. Banking executives emphasized the importance of regulatory compliance and risk management, while fintech leaders highlighted the need for innovation-friendly policies. Customers expressed a preference for convenience and security, underscoring the importance of trust in DeFi adoption. Despite the benefits, stakeholders identified several challenges, including regulatory uncertainty, cybersecurity risks, and the need for robust digital infrastructure. These challenges underscore the importance of a phased approach to DeFi integration, balancing innovation with stability.

The findings demonstrate that DeFi adoption in India is characterized by gradual integration, driven by regulatory clarity, technological advancements, and stakeholder collaboration. The next section discusses the implications of these findings for policymakers, banks, and other stakeholders. **The findings of this study underscore the transformative potential of Decentralized Finance (DeFi) for India's traditional banking sector, while also highlighting the challenges that must be addressed to ensure successful integration.**

Experience And Potential Offered

The quantitative results demonstrate that DeFi adoption can enhance operational efficiency and financial inclusion. However, banks must invest in technological infrastructure and workforce training to fully leverage these benefits. Collaboration with fintech companies can accelerate innovation and reduce implementation costs.

Regulatory clarity emerged as a critical factor influencing DeFi adoption. Policymakers must strike a balance between fostering innovation and ensuring financial stability. The adoption of regulatory sandboxes, as evidenced in other emerging markets, can provide a controlled environment for testing DeFi solutions. Trust and security are paramount for customer adoption of DeFi services. Financial literacy campaigns and transparent communication can build trust, while robust cybersecurity measures can mitigate risks.

By integrating stakeholder theory, TAM, and institutional theory, this study provides a comprehensive framework for analyzing DeFi adoption. The findings validate the relevance of these theories in understanding the interplay between technological and institutional factors. The discussion highlights the need for a collaborative approach among stakeholders to address the challenges and maximize the benefits of DeFi adoption. The next section concludes the paper with policy recommendations and directions for future research.

Conclusions

This study provides a comprehensive analysis of the impact of Decentralized Finance (DeFi) on India's traditional banking sector, integrating quantitative and qualitative insights from multiple stakeholders. The findings highlight the

transformative potential of DeFi in enhancing financial inclusion, operational efficiency, and customer trust, while also identifying key challenges such as regulatory uncertainty and cybersecurity risks.

Policy recommendations include the adoption of regulatory sandboxes, investment in digital infrastructure, and collaborative efforts among banks, fintech companies, and regulators. Future research should explore the long-term implications of DeFi adoption, particularly in underserved regions, and assess the scalability of blockchain-based solutions in the Indian context. By addressing these challenges and leveraging the opportunities presented by DeFi, India's banking sector can achieve a sustainable and inclusive transformation, contributing to the broader goals of economic development and financial stability.

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