

“Assessing the Relationship between Financial Technology (FinTech) Implementation and Financial Performance: Evidence from NSE-Listed Banks in India”

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Abstract: Using digital innovations such as cloud computing, blockchain, big data analytics, mobile banking, and artificial intelligence to deliver financial services is known as Financial Technology (FinTech). FinTech prioritizes speed, accessibility, and user-centric design in contrast to traditional systems. This study examines the impact of Financial, Technology (FinTech) adoption on the financial performance of 32 public and private sector banks listed on the NSE in India from 2015–2016 to 2024–2025. FinTech tools such as mobile banking, credit/debit cards, UPI, AI, and blockchain have transformed India’s banking system by enhancing efficiency, accessibility, and customer experience, while also posing challenges in cybersecurity, regulation, and restructuring. The research uses a quantitative, descriptive design with secondary data from RBI, the World Bank, and banks’ annual reports, applying descriptive statistics, correlation, and regression analysis. FinTech adoption is measured through transaction-based indicators (mobile, credit, and debit usage), with bank size, GDP, and inflation as control variables. Findings indicate that FinTech adoption significantly improves financial performance. Mobile banking enhances capital adequacy and earnings through efficiency gains, while card usage strengthens liquidity and profitability via increased transactions and fee income. GDP growth further boosts bank performance, whereas inflation has mixed effects on asset quality and liquidity. Private banks, being more technologically agile, show faster adoption and better results compared to public banks, which face legacy infrastructure and administrative hurdles.

Keywords: digital innovations, mobile banking, blockchain, UPI, GDP, liquidity, and profitability.

I. Introduction:

The functioning of any economy is strongly supported by the banking system, which mobilizes resources, links savers with investors, and drives investment activities. However, the advent of Financial Technology (FinTech) over the past 20 years has significantly changed the business. In general, fintech refers to the use of cutting-edge technology like blockchain, cloud computing, digital wallets, mobile applications, artificial intelligence, and big data analytics to deliver financial services in a way that is more effective, accessible, and user-friendly. Banks now face both possibilities and problems due to wave of technological development, which has altered their business practices, service offerings, and competitive positioning in the financial industry.

In the past, banks provided services like deposits, loans, fund transfers, and investments through physical locations and in-person contacts. This approach was frequently expensive, time-consuming, and inaccessible to underserved or rural communities. This conventional approach was upended by the introduction of FinTech solutions, which provided quicker, less expensive, and more practical substitutes. Peer-to-peer (P2P) payment systems, online lending platforms, robo-advisors, mobile banking, and the Unified Payments Interface (UPI) are a few examples of developments that have fundamentally altered how consumers engage and respond to the financial institutions. Customers now demand instantaneous transactions, individualized goods, 24/7 access, and seamless digital experiences, forcing banks to reconsider their business plans and embrace new technologies.

From the perspective of banks, FinTech has a dual impact. On the positive side, the integration of FinTech brings several benefits, including reduction in the cost in transactions, greater operational efficiency, improved customer relationships, and access to fresh income channels. For example, the utilization of AI (Artificial Intelligence) in fraud detection and risk management has made banking safer and more reliable. Similarly, blockchain-based solutions are improving transparency and reducing settlement times in payments and trade finance. FinTech also allows banks to extend services to populations previously excluded from the formal financial system, thereby contributing to financial inclusion and long-term growth.

The impact of FinTech adoption on banks’ performance will be different from bank to bank due to different factors such as size, resources, technological readiness, customer base, and regulatory framework. Smaller banks might find the shift more difficult, but larger Indian private sector and Indian public sector banks typically have the know-how and resources to invest in digital infrastructure. While regulatory organizations such as the Central Bank of Indian, which also known as Reserve Bank of India (RBI) impact the rate of adoption through regulations on cybersecurity, digital transactions, and financial inclusion, customer trust and acceptance of digital banking also play a significant effect. In India, FinTech growth has been boosted by programs like Digital India, Jan Dhan Yojana (JDY), and UPI. Additionally, the businesses and consumers are forced to use digital platforms, making digital payments and mobile banking a significant component of transactions in COVID-19 Pandemic.

This study looks at how banks' performance is affected by the usage of FinTech in relation to important financial factors as capital adequacy (CA), asset quality (AQ), earnings, stability, and liquidity. Financial stability may be impacted by the high investment costs and risks associated with digital solutions, such as cyber threats, even while they increase productivity and profitability. The study emphasizes how FinTech is changing banks' overall competitiveness and health in a world that prioritizes digitalization.

II. Literature Review:

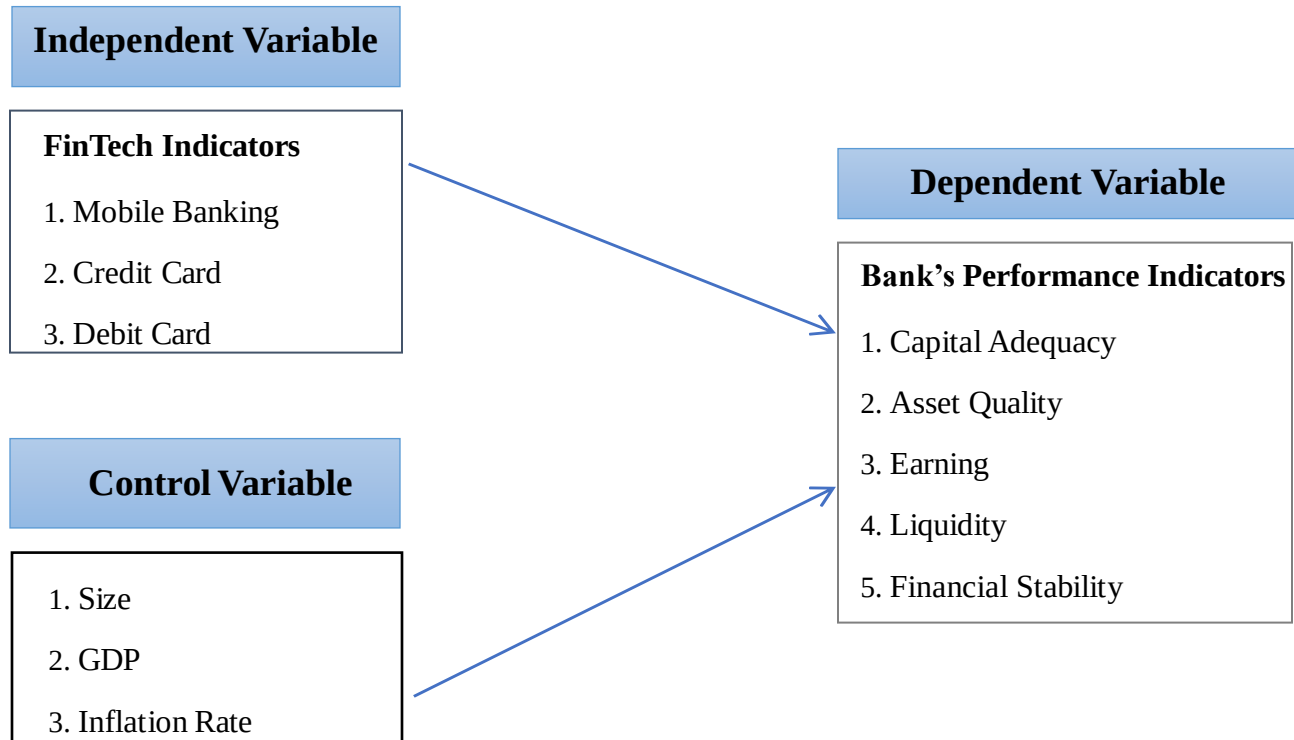
Xu (2025) conducted a systematic bibliometric review of FinTech–banking research, mapping publication trends, and main research clusters such as payments, blockchain, and AI. The study concluded that FinTech investments improve operational efficiency and non-interest income, though effects differ across bank sizes. It identifies methodological gaps that can be addressed by Indian-based empirical studies on NSE-listed banks. **Iatzaz Ul Hassan (2025)** examined FinTech adoption across Asian developing economies using panel and quantile regressions. The findings show that FinTech adoption enhances profitability, particularly for low-performing banks and those operating under stronger regulatory frameworks. The results underline the moderating role of governance in determining FinTech outcomes. **Albuainain and Ashby (2025)** presented a systematic review of factors enabling or hindering FinTech adoption in the banking sector. They emphasized customer acceptance, organizational readiness, and regulatory frameworks as critical success factors. Their review suggests that profitability improvements depend on both technological investment and consumer adoption. **Bueno et al. (2024)** analyzed the impact of digitization on operational efficiency across countries. They found that digitalization reduces operating costs and enhances service delivery, but benefits vary depending on the institution's legacy systems. The study recommends using the cost-to-income ratio as a measure of operational efficiency. **Shivakumar (2024)** conducted a panel data study on Indian commercial banks to examine FinTech adoption's effect on profitability. The research revealed that digital banking significantly improves ROA, particularly for smaller banks. It also established a link between FinTech adoption and enhanced customer retention. **Kharrat (2023)** proposed a FinTech index based on keyword analysis in bank disclosures to quantify digital adoption. This innovative approach found that FinTech intensity positively correlates with bank profitability. The method is suitable for replicating similar analyses for NSE-listed banks using textual data.

Global FinTech Adoption Index (2024) developed an NLP-based method to measure FinTech usage intensity in banks. The study linked FinTech adoption with improvements in non-interest income and operational performance. It supports the use of machine learning for measuring digital transformation. **A Bahrain-based study (2024)** analyzed Islamic and conventional banks using a FinTech index capturing AI, blockchain, and payments innovations. Results showed a strong positive link between FinTech output (e.g., mobile payment products) and profitability. The study encourages decomposing FinTech inputs and outputs in future banking research. **Pandey (2025)** examined digital transformation, customer experience, and efficiency in Indian banking. The research highlights that improved customer satisfaction through digital channels significantly boosts revenue growth and profitability. This suggests incorporating qualitative customer data in future FinTech impact assessments. **Shaikh (2025)** studied digitalization's impact on banking structure, employment, and profitability in India. Findings revealed short-term cost burdens due to high capex but longer-term efficiency gains. The author recommends using dynamic panel models to capture lagged effects. **PwC India (2024)** released an extensive industry report exploring FinTech's influence on traditional banks. It emphasizes collaboration between banks and startups, noting efficiency gains and innovation acceleration. This report is key for contextualizing India's FinTech ecosystem. **The India Brand Equity Foundation (2024)** summarized growth and digitalization trends in Indian banking. It outlines UPI adoption, branch digitization, and government incentives. The data can serve as contextual background for explaining FinTech intensity across NSE-listed banks. **Thakur (2023)** analyzed ICT spending and profitability in Indian banks using a nonlinear regression model. The study found diminishing returns to IT investment until a threshold level is reached, after which profitability rises. It advocates for testing quadratic FinTech terms in bank-performance models. **Ovenc (2025)** investigated how FinTech partnerships impact bank performance in developed markets. Results revealed increased revenues and reduced operational costs from collaborations but temporary profit declines during implementation. The study underlines the importance of measuring partnership variables. **Economic Times (2025)** reported growing risks associated with FinTech-driven personal loans in India. Rising delinquencies indicate that technology adoption can amplify credit risk exposure. These findings highlight the need to incorporate asset-quality controls such as NPL ratios in performance models. **Reuters (2024)** documented RBI's supervisory actions on digital banking, such as the Kotak Mahindra Bank case. It demonstrates that regulatory actions and IT governance influence FinTech expansion. This source offers real-world evidence of compliance and risk management shaping FinTech performance outcomes. **Comparative studies (2021–2024)** compared digital-first and conventional banks worldwide. These studies consistently found digital-first banks demonstrate higher efficiency but mixed profitability depending on funding models. This evidence suggests segmenting NSE banks by digital maturity for detailed insights. **Methodological guidance papers emphasize using difference-in-differences (DiD)** and staggered adoption designs. These allow causal estimation of FinTech impacts when banks implement new platforms at different times. The approach is directly applicable to Indian banks with phased digital rollouts. **Recent systematic reviews (2024–2025)** synthesize evidence on FinTech's positive effect on efficiency and inclusion while noting risks from cyber threats and operational disruptions. These reviews call for India-specific causal research. Your study directly contributes by examining listed banks under NSE.

Research Gap

This research aims to addresses a critical gap in the literature in understanding the impact of FinTech adoption on banks in an emerging economy context. The focus of this study is on the Indian banking industry, including public as well as private sector banks, and analyses their performance across pre- and post-COVID periods.

Conceptual Framework:



Research Objectives:

1. To Identify the factors that affects financial technology and financial performance of banks.
2. To examine the impact of financial technology on financial performance of selected banks.
3. To suggest the relevance of financial technologies in the business process and risk management.

III. Research Methodology:

Research Methodology is the methodical approach to addressing a research problem is known as research methodology. It covers the strategies, processes, and tactics needed to find, gather, examine, and interpret data to draw trustworthy conclusions. Applying systematic methods and techniques to assess data and accurately accomplish the study's goal is the aim of research methodology.

Research Design: - Quantitative and Descriptive Method

Sample: - Selected Indian public and private banks Sample size: - 32 banks

Sampling Technique: - Non-Probability Sampling (Purposive Sampling)

Data Collection Method: Data is collected from selected bank's annual report and RBI website for dependent and independent variable, and World Bank Data used to collect control(macroeconomics) variable like GDP and Inflation Rate.

Data Analysis Tool: - Descriptive Statistics, Correlation and Regression Analysis.

Period of the study: - 2015-2016 to 2024-2025

Limitation of the Study:

This study is limited by its dependency on secondary data, which may be subject to reporting delays, revisions, or inconsistencies across different sources. These results may not accurately portray the whole banking sector because the scope is limited to a few Indian public and private sector banks. The study ignores other digital breakthroughs like UPI, wallets, and blockchain-based services in favor of concentrating just on transaction-based fintech adoption, which includes mobile banking, debit card, and credit card usage. Furthermore, macroeconomic indicators like GDP and inflation rate. are taken into consideration as control

variables, but other outside impacts like shifts in policy or the state of the world economy, are not taken into consideration. As the study period spans 2015–2016 to 2024–2025, covering pre-, during, and post-COVID phases, the unusual effects of the pandemic may also influence results in ways that are difficult to isolate.

Hypothesis:

Null Hypothesis (H_0):

There is no significant impact of financial technology (FinTech) adoption on the financial performance of selected banks listed in the NSE, India.

Alternative Hypothesis (H_1):

There is a significant impact of financial technology (FinTech) adoption on the financial performance of selected banks listed in the NSE, India.

Analysis and Interpretation:

This investigation deals chiefly with analysis of data and interpretation. of results to evaluate the impact of financial technology adoption on the effectiveness of chosen Indian banks which are listed in NES, India during the period 2015–2016 to 2024–2025. The analysis focusing on the dependent variables: CA, AQ, Earnings, Liquidity, and Financial Stability. The independent variables are Mobile Banking Transactions, Debit Card Transactions, and Credit Card Transactions, while Bank's Asset, Inflation Rate, and GDP are control variables to eliminate the influence of size and macroeconomic fluctuations.

Table 6.1: -Table Showing Descriptive Statistics:

	N	Minimum	Maximum	Mean	Std. Deviation
CA	320	7.51	32.71	15.7943	3.92109
AQ	320	0.00	17.00	2.8141	2.88859
Earnings	320	-6.36	3.67	0.5083	1.13165
Liquidity	320	0.469876	5.560184	0.78402194	0.302492433
Financial Stability	320	-2.7560009	41.7669840	2.785914065	6.8013791480
Mobile Banking	320	0.00000000	81456799458	3561910458	8713956384
Credit Card	320	0.00000000	5724676253	161031928	676282512
Debit Card	320	184.8000000	13181622509	361438708.	1312320915
Size	320	11798.89	6676053.27	555337.6039	903345.71456
GDP	320	-5.8	9.7	5.607	4.4761
IR	320	3.30	6.70	5.1450	1.18262

Interpretation of Descriptive Statistics

From 320 observations, the results show that banks had a good level of capital adequacy on average of 15.79, meaning they kept enough capital to cover risks. Asset quality was moderate, with an NPA ratio of 2.81, while earnings were quite low at 0.50, and some banks even showed losses. Liquidity was steady at 0.78, but financial stability (Z-score) differed a lot across banks, showing that some were showed strong stability, in contrast to others that were weaker. In terms of fintech use, mobile banking transactions grew the most and showed huge variation, while credit card and debit card transactions also differed widely between banks. Bank size varied a lot too, with very large public sector banks and much smaller private banks. For the economy, GDP growth averaged 5.6% but included both strong growth years and some negative years, while inflation stayed stable around 5%. Overall, the numbers suggest that banks were stable in traditional measures, but fintech adoption grew quickly and unevenly.

Table 6.2: - Table Showing Correlations Analysis:

		CA	AQ	Earnings	Liquidity	Financial Stability	Mobile Banking	Credit Card	Debit Card	Size	GDP	IR
CA	Pearson Correlation	1	-.582*	.663**	.252**	.125*	.107	.090	.053	-.046	.145*	.318**

	Sig. (2-tailed)		.000	.000	.000	.026	.055	.106	.347	.417	.010	.000
	N	320	320	320	320	320	320	320	320	320	320	320
AQ	Pearson Correlation	-.582*	1	-.696**	-.204**	-.208**	-.258**	-.193**	-.196**	-.109	-.080	-.363**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.001	.000	.052	.154	.000
	N	320	320	320	320	320	320	320	320	320	320	320
Earnings	Pearson Correlation	.663*	-.696*	1	.137*	.279**	.234**	.213**	.152**	.099	.165*	.150**
	Sig. (2-tailed)	.000	.000		.014	.000	.000	.000	.006	.076	.003	.007
	N	320	320	320	320	320	320	320	320	320	320	320
Liquidity	Pearson Correlation	.252*	-.204*	.137*	1	.096	.021	.065	-.003	-.023	-.009	.008
	Sig. (2-tailed)	.000	.000	.014		.085	.702	.248	.961	.681	.874	.891
	N	320	320	320	320	320	320	320	320	320	320	320
Financial Stability	Pearson Correlation	.125*	-.208*	.279**	.096	1	.189**	.331**	.072	.198*	-.037	-.061
	Sig. (2-tailed)	.026	.000	.000	.085		.001	.000	.197	.000	.514	.279
	N	320	320	320	320	320	320	320	320	320	320	320
Mobile Banking	Pearson Correlation	.107	-.258*	.234**	.021	.189**	1	.805**	.882**	.847*	.095	.217**
	Sig. (2-tailed)	.055	.000	.000	.702	.001		.000	.000	.000	.091	.000
	N	320	320	320	320	320	320	320	320	320	320	320
Credit Card	Pearson Correlation	.090	-.193*	.213*	.065	.331**	.805**	1	.673**	.585*	.079	.135*
	Sig. (2-tailed)	.106	.001	.000	.248	.000	.000		.000	.000	.159	.016
	N	320	320	320	320	320	320	320	320	320	320	320
Debit Card	Pearson Correlation	.053	-.196*	.152*	-.003	.072	.882**	.673**	1	.732*	.107	.144*
	Sig. (2-tailed)	.347	.000	.006	.961	.197	.000	.000		.000	.057	.010
	N	320	320	320	320	320	320	320	320	320	320	320

	N	320	320	320	320	320	320	320	320	320	320	320
Size	Pearson Correlation	-.046	-.109	.099	-.023	.198**	.847**	.585**	.732**	1	.057	.127*
	Sig. (2-tailed)	.417	.052	.076	.681	.000	.000	.000	.000		.312	.023
	N	320	320	320	320	320	320	320	320	320	320	320
GDP	Pearson Correlation	.145**	-.080	.165**	-.009	-.037	.095	.079	.107	.057	1	-.124*
	Sig. (2-tailed)	.010	.154	.003	.874	.514	.091	.159	.057	.312		.027
	N	320	320	320	320	320	320	320	320	320	320	320
IR	Pearson Correlation	.318**	-.363**	.150**	.008	-.061	.217**	.135*	.144*	.127*	-.124*	1
	Sig. (2-tailed)	.000	.000	.007	.891	.279	.000	.016	.010	.023	.027	
	N	320	320	320	320	320	320	320	320	320	320	320
**. Correlation is significant at the 0.01 level (2-tailed).												
*. Correlation is significant at the 0.05 level (2-tailed).												

Interpretation of Correlation Analysis

The correlation analysis shows that capital adequacy (CA) has a strong positive relationship with earnings ($r = 0.663$), suggesting that banks with higher capital buffers generate better returns, while its link with asset quality ($r = -0.582$) is strongly negative, meaning higher NPAs reduce capital strength. Earnings are also negatively correlated with asset quality ($r = -0.695$), confirming that poor loan performance reduces profitability. Relationships of liquidity with CA ($r = 0.252$) and earnings ($r = 0.137$) are weak, while stability shows small positive associations with CA ($r = 0.124$) and earnings ($r = 0.278$). Among fintech indicators, mobile banking correlates positively with earnings ($r = 0.234$) and stability ($r = 0.189$); credit cards with stability ($r = 0.331$) and earnings ($r = 0.212$); and debit cards with earnings ($r = 0.152$) and stability ($r = 0.0724$). All three fintech indicators are strongly related to one another (mobile–debit $r = 0.882$; mobile–credit $r = 0.804$; debit–credit $r = 0.672$), showing that digital payment channels tend to expand together. For control variables, GDP growth has weak but positive links with CA ($r = 0.144$) and earnings ($r = 0.165$), while inflation rate shows a positive correlation with CA ($r = 0.318$) and earnings ($r = 0.150$), but a negative one with asset quality ($r = -0.363$). These results suggest that fintech adoption and macroeconomic factors both contribute to banking performance, with mobile and card-based transactions particularly supporting profitability and stability, while capital adequacy and asset quality remain crucial in explaining overall performance.

Table 6.3: - Summary All Regression Analysis Model

Variable	Model 1 CA	Model 2 AQ	Model 3 Earnings	Model 4 Liquidity	Model 5 Stability
Mobile Banking	0.000***	0.000***	0.000***	0.513	0.373
Credit Card	0.260	0.175	0.611	0.374	0.000***
Debit Card	0.080	0.228	0.017***	0.455	0.003***
Size	0.000***	0.000***	0.001***	0.281	0.007***
GDP	0.001***	0.065	0.004***	0.819	0.286
IR	0.000***	0.000***	0.103	0.908	0.088

Interpretation of Summary Table

The above regression analysis table indicates that mobile banking has a highly significant impact on capital adequacy, asset quality, and earnings, but no effect on liquidity or stability. Credit cards do not influence most models but are highly significant

for financial stability, while debit cards significantly affect earnings and stability. Bank size consistently plays a strong role in explaining capital adequacy, asset quality, earnings, and stability, but not liquidity. GDP growth significantly drives capital adequacy and earnings, while interest rates strongly affect capital adequacy and asset quality, with only a weak influence on stability. Interestingly, liquidity is not significantly explained by any of the variables, suggesting other factors may play a more dominant role. Overall, the findings highlight that digital channels (mobile, credit, and debit cards), along with macroeconomic factors (GDP and interest rate), are crucial for bank performance dimensions other than liquidity.

Table 6.4: - Decision of Hypothesis Testing:

Sl. No.	Hypothesis	Decision
H ₀	There is no significant impact of financial technology (FinTech) adoption on the financial performance of selected banks listed in the NSE, India.	Reject
H ₁	There is a significant impact of financial technology (FinTech) adoption on the financial performance of selected banks listed in the NSE, India.	Accept

IV. Findings, Suggestions and Conclusions

Findings

This research evaluated the influence of fintech adoption on the performance of selected Indian banks listed in the NSE, covering the period 2015–2016 to 2024–2025. The analysis was based on five dependent variables representing bank performance—CA, AQ, Earnings (financial performance), Liquidity, and Financial Stability. To capture fintech adoption, three independent variables were considered: Mobile Banking transactions, Debit Card transactions, and Credit Card transactions. In addition, 3 control variables were included to account for macroeconomic and institutional effects: Asset Size (total assets), GDP growth rate, and Interest Rate (IR %). The results reveal that fintech adoption has had a varied and multidimensional influence on the performance of Indian banks. Mobile banking emerges as the most influential driver, as it significantly improves capital adequacy and earnings by generating fee-based income, enhancing efficiency, and reducing operational costs. However, it also has a negative influence on asset quality, pointing to challenges such as greater exposure to defaults, digital lending risks, and potential cyber vulnerabilities. Debit card usage, although widely adopted, negatively affects profitability and financial stability due to its low margins and limited revenue potential. In contrast, credit card usage, while not significantly influencing capital adequacy or earnings, contributes positively and significantly to financial stability, underlining its importance as a fee-generating instrument that diversifies bank revenues.

Additionally, the study shows that bank size has a significant impact. Larger banks exhibit stronger asset quality and financial stability, largely due to better governance, diversified portfolios, and more advanced risk-management systems. At the same time, they display weaker capital adequacy and earnings efficiency, reflecting diseconomies of scale, structural inefficiencies, and higher administrative costs. From a macroeconomic perspective, GDP growth positively supports earnings and capital adequacy, indicating that banks benefit during periods of economic expansion through higher credit demand and investment activity. Alternatively, an increase in interest rates reduces asset quality and financial stability, since borrowers face repayment stress and banks are exposed to greater credit risks. Liquidity, however, remains the only performance dimension unaffected by fintech adoption or macroeconomic variables, demonstrating that liquidity management is shaped more by regulatory requirements (CRR, SLR) and treasury operations than by transaction-based fintech innovations.

In summary, the findings confirm that fintech adoption enhances efficiency, competitiveness, and profitability in the Indian banking sector, particularly through mobile banking and credit card operations. Nonetheless, it gives rise to new vulnerabilities that weaken asset quality and long-term stability. These results highlight the need for banks to balance technological adoption with effective risk management frameworks and supportive regulatory oversight.

Suggestions:

Strengthen digital risk management by adopting AI-driven credit scoring, predictive analytics, and real-time monitoring for mobile banking.

Improve debit card profitability through value-added services, innovative fee models, and merchant partnerships.

Expand credit card adoption responsibly under strong risk frameworks to ensure stability without raising default levels.

Address inefficiencies in large banks by modernizing legacy systems, cutting administrative costs, and automating operations.

Adopt interest rate hedging strategies, including stress testing and buffer capital, to dampen the effects of fluctuating rates.

Focus on liquidity resilience by enhancing treasury management, maintaining statutory reserves, and diversifying funding sources.

Enhance financial inclusion with safeguards by linking digital adoption to financial literacy and awareness programs.

Strengthen regulatory frameworks with stricter cybersecurity norms, consumer protection policies, and capital adequacy rule.

V. Conclusion:

The study concludes that fintech adoption considerably influences the performance of Indian banks. By analyzing 32 banks across public and private sectors over ten years, it was found that fintech tools such as mobile banking, credit cards, and debit cards affect different performance indicators in distinct ways. Mobile banking and GDP growth support stronger capital adequacy and higher earnings, while larger asset size and rising interest rates weaken banks' capital positions.

In capital adequacy, the findings indicate that mobile banking, and GDP growth strengthen banks' capital positions by improving efficiency and supporting stronger buffers. However, larger bank size and higher interest rates weaken capital adequacy, showing that growth without efficiency can put pressure on resources. This highlights that while fintech adoption has the potential to support stronger capital strength, other structural and macroeconomic factors also play a critical role.

For asset quality, Results suggest that mobile banking and elevated interest rates adversely affect loan performance, reflecting risks of defaults and repayment challenges in a digital environment. On the other hand, larger banks perform better in maintaining asset quality because of diversification and stronger monitoring systems. This suggests that fintech adoption brings benefits but also increases risks that need to be managed carefully to protect credit quality.

When it comes to earnings, mobile banking and GDP growth significantly improve profitability, underlining the efficiency gains and income opportunities created by digital transactions. However, debit card usage and larger asset size reduce profitability, reflecting the low margins of debit card services and inefficiencies in large institutions. Credit card usage not significantly boost earnings but plays a positive role in financial stability.

Liquidity and stability present mixed results. Liquidity is found to be largely unaffected by fintech adoption, showing its dependence on regulatory norms and treasury operations rather than transaction-based innovations. For stability, credit card usage, and larger bank size enhance resilience, while debit card usage, and high interest rates weaken it. Overall, fintech adoption acts as a double-edged sword: it improves profitability, capital strength, and competitiveness but simultaneously introduces risks to asset quality and stability. The conclusion is that fintech can deliver sustainable benefits only when combined with sound governance, robust risk management, and supportive regulatory oversight.

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