

Impact Of Fintech On Bank Performance

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Abstract

There has been a growing trend among financial institutions, including banks, to implement financial technology. The purpose of this inquiry was to ascertain whether the success of the 43 commercial banks in India was correlated with their utilization of financial technology. This study aims to ascertain the impact of emerging financial technologies by conducting an analysis of the financial position of commercial institutions in India. The research incorporated three distinct categories of banking services—online banking, mobile banking, and branchless banking—into its independent variables. The 43 institutions that were dispersed across India were the focus of this analysis. Subsequent sources were employed to undertake an analysis of data gathered from annual reports published between 2016 and 2020. The statistical software SPSS was employed to evaluate the descriptive statistics utilized in the study. Furthermore, the researchers employed multiple regression analyses. The research suggests that banks' effectiveness and efficiency could be significantly improved through the implementation of financial technology.

Keywords: fintech; financial services; financial inclusion; behavioral intention; service trust; usability; social influence

Introduction

The combination of the words "financial" and "technology" results in the coinage expression "fintech," which refers to the use of the Internet to provide a wide range of financial services, including but not limited to banking, insurance, investments, and other associated financial sectors. In recent years, the prevalent influence of the internet and the widespread adoption of mobile devices (e.g., smartphones and tablets) have significantly accelerated the development of financial technology, despite the fact that the concept has been around for a considerable time.

The improvement of banking service accessibility, specifically for the impoverished, has been the focus of endeavours undertaken by governmental bodies such as the Reserve Bank of India (RBI) and others. Through these efforts, an atmosphere that is favourable for both competition and innovation has been fostered in the emerging fintech industry of India. As a result, a financial system that is more secure and inclusive has been established through the collaboration of online and offline solutions.

The RBI has formed a multisectoral group to thoroughly assess India's fintech sector. Finding out how the financial system can adapt to the continuous changes is the goal, taking into account related risks and creating new financial models. The Reserve Bank of India has aggressively sponsored a number of innovative technologies, including peer-to-peer lending, digital payments, the United Progressive Finance Interface, the Bharat Bill Payments System, and algorithmic financial advice. Additionally, eleven fintech businesses have received approval to open payment banks, enabling them to offer a range of banking services such savings accounts, deposits, and money transfers.

Although fintech has the potential to revolutionize the business, clients' ability to adopt it still depends on the resolution of privacy and data security issues. Even while technical developments are more practical and cost-effective than traditional ways, customer trust is not immediately rebuilt.

From the Automated Electronic Payment System (AePS) and Aadhar Pay to money transfers and mobile phone recharges, Fintech companies have streamlined the accessibility of a vast array of financial services. The expanded availability of internet banking has greatly facilitated the engagement of a wider range of individuals in electronic transactions. Fintech's capacity to transform the way rural inhabitants obtain formal financial services has generated optimistic sentiments, which is extremely encouraging. In order to comprehend the transformative potential of fintech, it is crucial to delve into the multiple facets of this subject.

Fintech enterprises possess the capacity to promote competition and spur financial inclusion in India by extending financial services to underserved segments of the population, rural areas, and marginalised groups through cost reduction. These entities have a significant impact on the financial landscape as they utilise innovative software and business strategies. The main aim of this inquiry is to conduct a thorough examination of various viewpoints regarding the extent to which fintech has facilitated the expansion of financial services accessibility.

Literature And Review

Deng et al. (2021) Find out how fintech has changed financial institutions' risk-taking. An study was done to find out how the growth of fintech had changed the risk-taking habits of 155 small and medium-sized banks. Isnurhadi et al. (2020) carried out an examination of the connection between bank efficacy, capital, and risk. The research findings show that effectiveness has a major impact on organizations' propensity for accepting risks. A large bank with high capital is less likely to incur risks due to increased efficiency.

Rabbia Sajid et al. (2022) Fintech altered developing nations' finances. Fintech's impact on banks' operations and risk-taking is unclear. Discover fintech's influence on banks' risk tolerance. The study wants this. This quantitative research collected secondary data from 50 commercial banks in China, India, Pakistan, and Bangladesh from 2014 to 2021. Route analysis and structural equation modeling tests the theoretical mediation model using panel data. We know fintech reduces bank risk and boosts efficiency. According to route analysis, operational efficiency links fintech products with emerging nation banks' risk-taking. Study authors offer key advice to central and commercial banks. The study can help fintech businesses improve productivity and decrease risk. No other study has examined the link between fintech clients' risk tolerance, product release frequency, and developing nation bank success.

Asghar Kamal et al (2022) In recent decades, the subject of financial technology and stability has been the subject of considerable debate and investigation. This study investigates how the surge of Fintech has had a global impact on the viability of institutions. For this inquiry, articles were extracted from scholarly databases, including Research Gate, Science Direct, Welly, Emerald, Springer Link, and Google Scholar. By drawing upon scholarly publications, we construct a comprehensive chronology of the discipline from 1995 to 2022, emphasising significant progressions and recurring trends. Also investigated is the theoretical relationship between financial technology and financial security. We examine fintech, financial security, and their causal factors in depth. The study's authors offer a theoretical framework to clarify the dynamic link between FinTech and the financial industry's general stability. By embracing and applying optimal strategies in the domains of financial technology and financial stability, banks have the potential to enhance their competitive position and financial stability. Because of its access to state-of-the-art financial technologies, the global finance sector is now more secure.

Md Safiullah et al (2021) This study offers a previously unheard-of analysis of the impact FinTech

companies have on banks' financial soundness. We show that the financial soundness of banks has benefited from the expansion of financial technology (FinTech) companies between 2003 and 2018. based on an analysis of data from 26 bank in Malaysia, an emerging market. Subsequent analyses, which consider variables including bank type (Islamic versus conventional), corporate governance level, bank size, and bank type (conventional versus Islamic), yield additional insights that consistently bolster the claim that FinTech enterprises substantially contribute to the improvement of bank financial stability. Regardless of the model parameters, financial health indicators, or other facets of the FinTech industry, these results remain consistent.

Research Methodology

This study was descriptive. With no sampling, all 43 banks in ai were analyzed (based on the Central Bank of India's 2017 registration of regulated commercial banks). Only 38 banks had consistent data throughout the research. Indian reports from Bank of Baroda and Bank of India and conflicting data from Imperial Bank and Charter House presented a language challenge.

The researchers looked at information from five years ago, from 2013 to 2017.

It was possible to get both personal and numeric data. The numeric data included things like Return on Assets (ROA), Capital Expenditures (CAPEX), and company size. However, qualitative data covered client categories, managerial performance, and the economy.

The factors were split into two groups: those that were independent and those that were dependent. MS Excel and SPSS (Version 21.0) were used to look at the connections between the factors.

The variables will be measured as follows:

Variables	Measurement
Financial Performance	Return on Assets
Mobile banking	Total number of registered mobile banking clients in the year
Internet banking	Total annual transactions
Financial Technology	Total annual investment in financial technology
Mobile lending	Total annual amount lent out
Capital adequacy	Total annual investment in financial technology by the bank

Regression Model

These are the parts of the regression model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$$

The study used the coefficient of determination (R^2) to find out how well changes in financial technology (the independent variable) explained changes in financial success (the dependent variable). To find the values β_0 and β_1 , a multivariate regression model was used. This is the best time to see how the two factors are connected. The statistical reliability of the model was checked using an ANOVA table, and the consistency of each independent variable (beta) was looked into by looking at the results of the table. The F test, which looked at R in a useful way, was used to find out how statistically significant R was.

2.Return on Asset

The effectiveness of an investment portfolio is evaluated using a statistic called return on asset. This is the result of dividing net income by the average total assets. This measure is used to evaluate a financial institution's health and profitability.

With respect to mean returns on investment, 2016 had the greatest mean (3.9080) and lowest mean (3.1179). Imperial Bank's negative return on assets (ROA) has the highest standard deviation (2.0558).

Table 1 Financial Performance

	N	Mean (%)	Std Dev
2016	39	3.1179	1.8948
2017	39	3.2480	1.8922
2018	39	3.0380	2.0558
2019	39	3.2574	1.8642
2020	39	3.9080	2.0206

Mobile Banking

Research has demonstrated that financial institutions that provide mobile banking solutions, including mobile bill payments, mobile loans, mobile deposits and withdrawals, and mobile money transfers, generate substantial profits without incurring interest on their assets. In order to make meaningful comparisons, the researcher had to categorize the various mobile banking services offered by the majority of banks. The researcher was required to utilize categories such as "mobile loan," "short message services," and "withdrawal and

"Money transfer," "deposit," and "bill payment" are all functionalities accessible through the bank's mobile applications.

A mere 32 of the financial institutions offered every option; the remaining 10 solely utilized mobile banking for the purpose of receiving notifications. Conversely stated, 82% of the institutions surveyed claimed to have derived some benefit from utilizing these services.

While 18% of these financial institutions offer mobile banking, the functionalities they provide are insufficient to qualify as "full mobile banking." The huge rise in transaction volume from \$1.9 trillion in 2013 to \$3.9 trillion in 2017 indicates that a growing generation is using mobile banking.

Online Banking

Internet banking implementation constituted an additional element that impacted the bank's success. The investigation revealed that not every bank offered this particular service. In total, 32 financial institutions, or 82% of the total banking sector, offered this service. Online banking operations such as fund deposits and withdrawals, fund transfers, account statement reviews, and loan applications were among the services rendered, though not exhaustively. Only 18% of banks provide online banking, and even then, its features are mostly limited to checking account balances and operating withdrawal and deposit processes. Studies have indicated that financial institutions with a wide range of services attract much higher earnings for their owners since their customers have more alternatives.

Correlation Analysis

That is, a Spearman's correlation study is used to find out how connected the dependent and independent factors are. The number of Spearman's Correlation can be anywhere from -1 to +1. A strong positive correlation is shown by Spearman's rho when it is close to 1, and a strong negative correlation is shown when it is close to -1. A number close to 0 means that the variables don't have much of a link to each other.

There is a 0.16-point correlation between mobile banking and business growth. There is definitely a

connection, even if it's not a great one. The total amount of loans given to mobile banking customers is linked to this variable in a way that is statistically significant and positive.

Table 2: Spearman's Correlation Table.

	Y = ROA	X1 = Mobile Banking	X2 = Total loans	X3 = Internet Banking	X4 = Capital Adequacy	X5 = financial technology
Y = ROA	1					
X1 = Mobile Banking	0.164666442	1				
X2 = Total loans	0.566945445	-0.322506731	1			
X3 = Internet Banking	0.283169958	-0.675135422	0.750989154	1		
X4 = Capital Adequacy	-0.069567148	0.371089299	-0.446758919	-0.489144905	1	
X5 = financial technology	0.177663833	0.031507588	-0.077630574	-0.052246044	0.071426621	1

Source: Author, 2018

The correlation analysis reveals a positive albeit modest relationship of 0.28 between the volume of online banking transactions and the overall transaction quantity. Furthermore, the correlation coefficient between financial technology and financial performance stands at 0.17, while the correlation between financial performance and the capital adequacy ratio registers at -0.19. These findings signify the intricate interplay among online banking transactions, financial technology, financial performance, and the capital adequacy ratio. It is imperative to acknowledge the nuanced connections between these variables, shedding light on their intricate dynamics within the financial landscape.

Regression Analysis

This study uses a linear regression model to determine the independent-dependent relationship. The analysis will include tables and lectures.

Diagnostic Tests

Regression model restrictions are needed for linear regression analysis. We employ diagnostic analysis to verify data satisfies these standards. Normality tests assess if a variable's data is normally distributed.

Means of assessing normality include the Shapiro-Wilk test, as well as skewness and kurtosis. This analysis will utilise both Skewness and Kurtosis; a variable is considered non-normally distributed if either of these measures surpasses the range of [+3] to [-3].

Table 3: Normality Test Table

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Y = ROA	-.929	.184	1.371	.365

X1 = Mobile Banking	.827	.184	-.314	.365
X2 = Total loans	.171	.184	-.909	.365
X3 = Internet Banking	.419	.184	-.510	.365
X4 = Capital Adequacy	1.363	.184	2.764	.365
X5 = financial technology	.267	.184	-1.373	.365
Valid N (listwise)				

Source : Author, 2018.

The values exhibited for each variable in Table 1 are distributed over the interval of +3 to -3. In the absence of identified outliers, the data for all variables appear to be normal.

Additionally, the absence of multicollinearity among the variables under consideration is a requirement of regression analysis models. In order to evaluate multicollinearity, one utilises the Variable Inflation Factor (VIF). All variables that receive a VIF score of 10 or greater are automatically omitted from the model on the assumption that they exhibit multicollinearity.

Table 4: Multi Collinearity Test Table

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
X1 = Mobile Banking	.459	2.181
X2 = Total loans	.361	2.770
1		
X3 = Internet Banking	.224	4.462
X4 = Capital Adequacy	.733	1.364
X5 = financial technology	.992	1.008

Source: Author, 2018

In Table 3, all variables have VIFs below 10. It appears the data aren't multicollinear.

We measure correlations with the Durbin-Watson figure. If fewer than 4, the model has no autocorrelation. If at least 4, the model has autocorrelation. Table 5 shows this study's Durbin-Watson Score of 1.662. The model may have no associations.

Regression Analysis Model Summary

The executive summary illustrates the model's coefficient of determination, which predicts dependent variable movements.

Table 5: Model Summary

Model	R	R Square	Adjusted RSquare	Std. Error of the Estimate	Durbin-Watson
1	.720 ^a	.519	.504	1.9248577	1.662

Source: Author, 2018

The model accommodates 51.9% of the variance in the independent variable, as indicated by its R squared value of 0.519. Precise predictions regarding the dependent variable are feasible through the utilisation of this model.

F Test Statistic

The F-test statistic, which shows the significance level for accepting or refusing the null hypothesis, is a key part of this choice. The study's null hypothesis posits that there is no significant impact of financial technology on the profitability of business banks in India.

When the calculated F value is less than the important F value, the null hypothesis is thrown out because it doesn't make sense. The F test can also be used to find out how statistically significant any effect that is found is. In this step, alpha ($\pm$) and p numbers, which show the amount of significance, are compared. The measured result is statistically significant if there is a difference between the alpha and p-value. This is not the case if the alpha is greater than the p-value.

Table 6: ANOVA Table

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	674.537	5	134.907	36.411	.000 ^b
Residual	626.158	169	3.705		
Total	1300.695	174			

Source: Author, 2018

Use the ANOVA table to compute F statistics. The table indicates that the computed F value is 36.4111 and the relevant F value with 0.05 alpha, 5 degrees of freedom, and 169 degrees is 2.25. F is bigger than F crucial, thus we reject the null hypothesis and infer financial technology influences Indian commercial banks.

The table's p value, 0.00, is compared to the alpha value, 0.05, to establish model significance. The model is significant since p-value is less than alpha. This study implies financial technology statistically impacts India's commercial banks' profits.

Regression Coefficient

Table 7: Coefficients Table

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-17.260	1.744		-9.898	.000
X1 = Mobile Banking	34.583	6.554	.416	5.277	.000
X2 = Total loans	1.407	.184	.678	7.638	.000
X3 = Internet Banking	.145	.128	.127	1.130	.260
X4 = Capital Adequacy	.041	.020	.126	2.024	.045
X5 = financial technology	.022	.005	.215	4.009	.000

Source: Author, 2018

Regression has great predictive potential. Thus, the predictive model may be obtained by entering the variable coefficients into the coefficient table. In the Regression Model, $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$.

Thus, $Y = -17.26 + 34.58 X_1 + 1.407 X_2 + 0.145 X_3 + 0.041 X_4 + 0.022 X_5 + 1.744$.

Commercial banks' financial success was measured by return on assets. Each bank's mobile banking percentage was utilized to measure financial innovation. Additional control variables were capital sufficiency, internet banking transactions, and mobile banking loans.

The study shows that financial technology boosts India's commercial banks' profits. The research was statistically significant since the p value was smaller than the alpha value and the estimated F value was more than the essential F value, rejecting the null hypothesis. Financial technology affects India's commercial banks' bottom lines, according to the report.

Conclusion

In conclusion, the impact of asset acquisition on return on assets (ROA) is notably less pronounced than that of financial service provision via mobile banking, internet banking, and agency banking (average ROA = 4.23). Nevertheless, financial services do not significantly impact the acquisition of assets or the asset size of a company. Instead, these metrics are contingent upon a multitude of other variables, including client count, over-the-counter deposit and withdrawal volumes, and transaction length.

Two techniques that commercial banks might possibly employ to enhance their financial performance are the expansion of financial technology and the heightened uptake of mobile banking. This can be attributed to the favorable correlation shown in the research between financial technology and financial results. Further evidence that notable advancements in this area lead to better financial performance comes from the observation that financial technology has a noticeable impact.

References

1. L. Deng, Y. Lv, Y. Liu, and Y. Zhao, "Impact of Fintech on bank risk-taking: evidence from China," *Risks*, vol. 9, no. 5, p. 99, 2021.
2. Isnurhadi, M. Adam, S. Sulastri, I. Andriani, and M. Muizzuddin, "Bank capital, efficiency and risk: evidence from Islamic banks," *Journal of Asian Finance, Economics and Business*, vol. 8, no. 1, pp. 841–850, 2020.
3. Rabbia Sajid, Huma Ayub, Bushra F. Malik, Abida Ellahi, "The Role of Fintech on Bank Risk-Taking: Mediating Role of Bank's Operating Efficiency", *Human Behavior and Emerging Technologies*, vol. 2023, Article ID 7059307, 11 pages, 2023. <https://doi.org/10.1155/2023/7059307>
4. Kamal, Asghar & Sadil Ali, Muhammad & Khan, M.. (2022). Impact of Fintech on the Financial Stability of Banks: A Systematic Literature Review. *Global Economics Review*. 7. 33-40. 10.31703/ger.2022(VII-IV).03.
5. Safiullah, M., Paramati, S.R. The impact of FinTech firms on bank financial stability. *Electron Commer Res* (2022). <https://doi.org/10.1007/s10660-022-09595-z>
6. Dr. G.V. SatyaSekhar.(2013). Theorems and Theories of Financial Innovation: Models and Mechanism Perspective
7. Dunkley, E. (2015, December 8). *Lending services revolution piles pressure on banks as fintech sector grows*. Retrieved March 6, 2016, from Financial Times
8. European Banking Federation. (2015). The digital transformation of banks and the Digital Single Market. www.ebf.eu.

9. Equity Bank. (2016). *Annual Financial Report*. Retrieved on 23rd June 2017, from <http://www.equitygroup.co.ke/financials-reports/investor-reports>
10. Kariuki, J. W. (2012). *The effect of product development on the financial performance of commercial banks in India*. (Unpublished MBA project Nairobi) University of Nairobi.
11. Khrawish, H.A. (2011) Determinants of Commercial Banks Performance: Evidence from Jordan. *International Research Journal of Finance and Economics*. Zarqa University, 5(5), 19-45.
12. KPMG . (2016). *The Pulse of Fintech, 2015 in Review*. KPMG, London. Retrieved from <https://assets.kpmg.com/content/dam/kpmg/pdf/2016/03/the-pulse-of-fintech.pdf>
13. Lee, D. K. C., & Teo, E. G. S. (2015). Emergence of Fintech and the Lasic Principles, SSRN Scholarly Paper No. ID 2668049, , Rochester, NY: Social Science Research Network.
14. Lerner, J., & Tufano, P. (2011). The consequences of financial innovation: a counterfactual researchagenda, *National Bureau of Economic Research*. 1, 290-292.
15. Mersch, Yves. (2016), Distributed ledger technology – panacea or flash in the pan? *Speech at Deutsche Bank Transaction Bankers' Forum*, April 25, 2016
16. Mohammad, A. O & Saad, A. A. (2011). The impact of E-Banking on the performance of Jordanian banks. *Journal of Internet Banking and Commerce*, 16(2), 42-50.