International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 08 Issue: 11 | Nov - 2024 SJIF Rating: 8.448 ISSN: 2582-3930

The Role of Fintech in Disrupting Traditional Banking Models

Dr. Manitha D Shah, Keerthi Reddy, Jigyansha Mishra, Sibangi Mishra
Department of Finance, Jain University, CMS business School

Abstract
This study investigates the disruptive effects of financial technology (fintech) on traditional banking models. This report examines fintech's role in improving financial accessibility, efficiency, and client personalization, highlighting how innovations like digital payments, blockchain, AI, and peer-to-peer lending challenge traditional banking institutions. Through correlation and regression analysis, the study discovers a negative association between fintech adoption and traditional bank profit margins, implying that the rise of fintech alternatives may reduce traditional banking profitability. Furthermore, the study emphasizes the need of collaboration methods between fintech businesses and banks in developing a digitally integrated financial ecosystem. The findings highlight how adaptation, innovation, and collaboration will shape the future of banking, encouraging a more accessible and customer-centric global financial system.

1. Introduction

The financial services industry is undergoing a major revolution, fueled by financial technology, or fintech, which refers to the integration of technology into financial services to deliver more efficient, accessible, and innovative offerings. Fintech businesses are disrupting traditional banking by providing alternative financial services using digital platforms, artificial intelligence, blockchain, mobile applications, peer-to-peer lending, and personalized consumer experiences. These technological advancements are transforming traditional banking systems that have been operating for decades under established protocols and regulatory frameworks, posing both enormous difficulties and unique opportunities for traditional financial institutions. Fintech has rapidly evolved from a niche innovation to a mainstream component of the global financial system, forcing banks to rethink their business models in order to remain competitive in a technology-driven market.

1.1 Background on Traditional Banking Models

Historically, traditional banks have served as the financial ecosystem's backbone, acting as crucial intermediaries. They provide a variety of services, including loans, deposits, credit facilities, investment products, and consulting services. Traditional banking approaches are distinguished by established infrastructure, physical branch networks, strict regulatory compliance, and high operating costs associated with managing personnel and in-person service delivery. Customers have always viewed banks as trustworthy businesses, with regulatory monitoring and long-standing connections providing high levels of confidence.

However, the rigidity and complexity of these models have resulted in inefficiencies, which fintech startups are actively targeting. Traditional banks frequently face obsolete technology systems, high overhead expenses, and limited adaptability, making them less responsive to shifting client demands and technological advancements. The transition to digital-first banking models has highlighted the limitations of legacy systems and traditional practices, particularly as fintech startups offer more nimble, cost-effective, and customer-centric solutions. In this environment, the banking industry's reliance on physical branches and traditional face-to-face interactions is increasingly incompatible with the digital economy, forcing banks to reassess their fundamental architecture to satisfy the demands of a digitally-native customer base.

1.2 The Rise of FinTech and Its Impact on Banking

Fintech companies have rapidly increased market share by providing a wide range of innovative products and services that are redefining the financial services industry. Fintech companies offer a number of important services by utilizing modern technologies:

a. Fintech firms use mobile wallets, payment apps, and digital transaction platforms to provide seamless, cashless payment solutions that eliminate the need for traditional cash or card transactions. PayPal, Venmo, Google Pay, and, in India, the Unified Payments Interface (UPI) allow for quick, secure payments across bank accounts. This ease of use and accessibility is driving customers away from traditional banking services.

b. Blockchain and cryptocurrency: Blockchain technology creates a decentralized, secure ledger for transactions, lowering fraud risks and boosting transparency. Cryptocurrencies built on blockchain enable transactions without intermediaries, representing a substantial departure from traditional banking's position as a transaction mediator. While traditional banks rely on centralized methods for transaction verification, blockchain introduces the possibility of trustless transactions, threatening banks' role as guardians of financial trust.

c. Peer-to-Peer (P2P) Lending: These platforms enable people and enterprises to borrow directly from investors, circumventing traditional credit institutions. Fintech companies like LendingClub and Prosper offer faster, more accessible, and often less expensive credit solutions than traditional banks. This move empowers customers who may have had limited access to credit through traditional banking institutions, broadening the financial services net to cover underbanked or underserved communities.

d. Artificial intelligence (AI) is widely employed in fintech for a variety of applications, including as automated customer support (e.g., chatbots), fraud detection, credit scoring, and tailored financial advising. These AI-powered services increase operational efficiency and give clients with more personalized services, hence improving the entire customer experience. Traditional banks, on the other hand, frequently struggle to incorporate new technology fast and effectively due to outdated systems.

These fintech advancements collectively enable financial service delivery that is faster, more efficient, and more aligned with the preferences of modern consumers. As a result, fintech firms are carving out significant market share and eroding the customer bases of traditional banks, necessitating a re-evaluation of the traditional banking business model.

1.3 Fintech's Unique Impact on Emerging Economies

Fintech has a particularly disruptive role in emerging economies, where huge portions of the population remain unbanked or underbanked due to a lack of access to traditional banking services. In India, where a large segment of the population formerly lacked access to traditional banking services, fintech solutions have allowed millions to participate in the financial ecosystem. Digital payment technologies, such as UPI and mobile wallet platforms, have expedited the spread of digital transactions, reducing the need for cash and physical bank facilities. The Indian government has helped this change by promoting financial inclusion and creating an atmosphere conducive to fintech growth.In India, fintech innovation is not just convenient, but also a key instrument for increasing financial access and economic development. Individuals in rural and underserved areas can use digital financial services to perform transactions, receive government subsidies, and obtain credit without requiring physical banking infrastructure. This offers a unique challenge for traditional banks, as they must compete with fintech firms that may provide comparable or superior services without the operational constraints that come with physical branch networks. Furthermore, fintech's digital-first approach complements government initiatives to promote cashless transactions, resulting in a synergy that traditional banks must embrace in order to remain relevant in the digital economy.

1.4 Challenges for Traditional Banks Amidst Fintech Growth

Despite the potential provided by fintech, traditional banks confront a number of significant hurdles in adapting to this new financial landscape:

a. Regulatory Compliance: Traditional banks face more regulatory scrutiny than fintech startups, which are frequently less regulated in their early phases. This disparity in regulatory requirements hinders traditional banks' ability to incorporate fintech-like technologies since they must comply with regulatory criteria that may not apply to fintech companies.

b. Legacy Systems and Infrastructure: Many traditional banks rely on obsolete and pricey IT systems. These systems frequently lack the flexibility required to handle new digital applications, such as real-time payments or AI-powered services, putting banks at a competitive disadvantage against innovative fintech firms.

c. Consumer Trust and Adaptability: While traditional banks have high levels of consumer trust due to their long-standing reputations, this advantage is eroded by consumers' growing desire for digital-first solutions. Younger, tech-savvy customers, in particular, choose fintech services that provide a more user-friendly and responsive experience, making it critical for banks to alter their service delivery models.

d. The Rise of Neobanks: Neobanks, or digital-only banks, are emerging as a new type of competition. Neobanks do not have physical branches and instead offer low-cost, app-based banking services that appeal to younger people. In India, neobanks like Niyo and Jupiter are fast gaining popularity, requiring traditional banks to make significant investments in digital infrastructure to satisfy this shift in consumer demand.

2. Literature Review

Zhang, J., & Tan, R. (2021). *The influence of fintech on customer experience in banking*.

This study investigates how fintech has reshaped customer expectations in the banking industry by offering digital-first, personalized experiences. Zhang and Tan discuss that fintech firms use advanced analytics and real-time data to offer tailored services, making traditional banks appear less agile and responsive. The authors emphasize that for traditional banks in countries like India, adopting customer-centric digital innovations has become essential to retaining their market share, particularly among younger demographics who prioritize convenience and digital access.

Gupta, A., & Mehta, S. (2020). *Fintech and financial inclusion: Opportunities for emerging economies*.

Gupta and Mehta explore how fintech has contributed to financial inclusion in developing economies, focusing on the Indian market. Their research highlights digital payment solutions and mobile banking as key factors in reaching the unbanked population. By offering low-cost, easily accessible financial products, fintech firms have enabled more people in rural areas to participate in the financial ecosystem. This study supports the idea that collaboration between fintech and traditional banks can improve accessibility, which is crucial for sustainable growth in financial inclusion in India.

Chatterjee, P., & Singh, V. (2021). *Peer-to-peer lending and its impact on traditional banking*.

This study examines the impact of P2P lending platforms on the traditional banking sector. Chatterjee and Singh found that P2P platforms offer quicker, often cheaper loan solutions than banks, disrupting the traditional lending model. In India, where P2P lending has grown significantly, traditional banks are facing stiff competition from these platforms, which are attractive to both borrowers (for ease and accessibility) and lenders (for potentially higher returns). This has led banks to reevaluate their lending strategies, potentially adopting elements of P2P in their models.

Banerjee, K. (2019). *Blockchain technology: Implications for banking security*.

Banerjee's study focuses on how blockchain can address security concerns in banking transactions. Blockchain's decentralized nature enhances transaction transparency and reduces the risk of fraud. The study posits that blockchain could eventually replace traditional banking's intermediary role, as it enables peer-to-peer transactions

with secure verification. However, Banerjee points out that adoption in the banking sector is limited due to high costs and regulatory uncertainty, especially in conservative banking sectors like India's.

Rao, M., & Patel, N. (2020). *Digital payments and their impact on cash usage in emerging economies*.

This research examines the shift from cash-based to digital transactions, especially in the wake of India's demonetization and the rise of UPI. Rao and Patel found that digital wallets and payment apps significantly reduce dependency on cash, reshaping payment methods for individuals and businesses alike. The study suggests that traditional banks, by adopting similar digital platforms or partnering with fintech firms, can retain customer engagement and adapt to changing payment trends

Kapoor, S., & Ramesh, A. (2021). *Navigating regulatory challenges in the fintech era*.

Kapoor and Ramesh discuss the regulatory complexities surrounding fintech's growth, especially in India. The study identifies a lack of regulation in the fintech sector compared to the traditional banking industry, which limits traditional banks' ability to compete. They argue that while fintech firms benefit from a flexible regulatory environment, traditional banks face more restrictions, impacting their agility. The authors suggest that a balanced regulatory framework would enable traditional banks to innovate while ensuring customer safety in the fintech landscape.

Singh, A., & Dutta, K. (2021). *The role of artificial intelligence in modernizing banking services*.

Singh and Dutta analyze how artificial intelligence is being used in fintech to enhance customer service, risk management, and operational efficiency. They highlight AI applications such as chatbots, credit scoring, and fraud detection, noting that fintech firms have a lead in adopting these tools compared to traditional banks. The study argues that traditional banks must invest in AI to stay competitive, although high implementation costs and legacy systems pose challenges.

Das, R., & Kumar, S. (2020). *Neobanks and the future of digital banking*.

Das and Kumar's study focuses on neobanks—digital-only banks that operate without physical branches. Neobanks offer lower fees and digitally optimized services that appeal to younger, tech-savvy consumers, creating a competitive threat to traditional banks. The study points out that in India, neobanks are gaining traction, especially in urban areas, and emphasizes the need for traditional banks to either innovate or collaborate with digital-only banks to retain their relevance.

Yadav, M., & Mishra, R. (2019). *Cost efficiency in fintech: Lessons for traditional banking*.

This study explores how fintech firms achieve cost efficiencies that traditional banks struggle to match. Yadav and Mishra found that fintech firms, by leveraging digital platforms and reducing operational overhead, offer lower-cost services. The study suggests that traditional banks could adopt similar strategies to reduce costs, improve operational efficiency, and stay competitive

Malik, D., & Sharma, T. (2020). *Strategic alliances in the banking-fintech ecosystem*.

Malik and Sharma investigate partnerships between fintech companies and traditional banks as a strategy to leverage mutual strengths. The study found that banks benefit from fintech's technological innovations, while fintech firms gain from banks' regulatory expertise and established customer base. This trend is particularly prevalent in India, where banks have started investing in or collaborating with fintech firms to provide a more comprehensive range of digital services. The authors argue that such alliances are essential for both parties to remain competitive.

3. Profile of the Study

3.1 Purpose of the study

The primary purpose of this research is to explore and analyze the extent to which fintech (financial technology) has disrupted traditional banking models over the past decade. This study aims to assess the impact of various fintech innovations on traditional banking institutions using quantitative methods such as correlation and regression analysis. By focusing on key performance indicators of traditional banks and identifying the fintech drivers of disruption, the research seeks to provide insights for both academic understanding and practical applications in the banking sector.

3.2 Statement of the Problem

Fintech has introduced rapid technological advancements, reshaping the way financial services are delivered. Traditional banking institutions, with legacy models and higher operating costs, face significant challenges in maintaining profitability, customer retention, and market share. Despite the growing influence of fintech, there remains a need for empirical research to quantify the impact of fintech on traditional banking models. Key questions arise regarding the relationship between fintech growth and traditional banking decline, and how banks can adapt to or collaborate with fintech firms to remain competitive.

3.3 Objectives

1. Assess the Impact of Fintech on Key Banking Metrics

The study will examine how fintech innovations have influenced specific banking metrics, including:

- Branch closures due to the shift toward digital banking.
- Profitability metrics like Return on Assets (ROA) and Return on Equity (ROE).
- Loan disbursement trends, particularly in light of fintech lending platforms.
- Customer acquisition and retention as impacted by fintech platforms offering personalized services.

2. Identify Key Fintech Drivers of Disruption

The research will analyze which specific fintech innovations, such as digital payments, neobanks, and blockchain technologies, are driving the most significant disruptions to traditional banking institutions.

3. Evaluate the Relationship Between Fintech Growth and Traditional Banking Decline

Using statistical methods such as correlation and regression analysis, the study aims to quantify the relationship between fintech growth and the decline in traditional banking metrics (e.g., profitability, branch closures, customer churn).

4. Provide Strategic Insights for Financial Institutions

The research will offer practical recommendations for banks on how to adapt to or partner with fintech firms, improve customer retention, and make strategic decisions regarding their digital transformation.

5. Contribute to Academic Literature

This study will address gaps in the academic literature by providing empirical evidence on the impact of fintech innovations on traditional banking, focusing on different regions and time-series data.

3.4 Scope of the Study

The research will focus on fintech innovations and their impact on traditional banking across multiple regions, providing a global perspective. It will assess changes in key performance indicators of traditional banks over the last decade and investigate specific fintech technologies such as digital payments, neobanks, blockchain, and peer-to-peer lending. Econometric methods like correlation and regression analysis will be employed to quantify the relationships between fintech growth and traditional banking decline. By examining both qualitative and quantitative data, the study will provide valuable insights for banks, financial institutions, and academic researchers alike.

4. Research Methodology

This research focuses on the impact of fintech on the traditional banking system, particularly investigating the relationship between the Fintech Adoption Rate and the Traditional Bank Profit Margin. The methodology below outlines the steps taken to analyze this relationship using statistical tools such as correlation, regression analysis, and ANOVA.

1. Research Design

The study is designed as a quantitative analysis to explore the impact of fintech adoption on traditional bank profitability. Data collected for this study spans from 2013 to 2023. The analysis aims to examine both the strength and nature of the relationship between fintech adoption (independent variable) and traditional bank profit margins (dependent variable).

The analysis includes:

- Correlation Analysis: To determine the degree and direction of association between fintech adoption and bank profit margins.
- Regression Analysis: To quantify the impact of fintech adoption on traditional banking profitability.
- ANOVA: To test for significant differences between fintech adoption and profit margins across the years.

2. Data Collection

Time-series data from 2013 to 2023 was collected for two key variables:

- Fintech Adoption Rate: The percentage of individuals and businesses adopting fintech services such as mobile banking, digital payments, P2P lending, etc.
- Traditional Bank Profit Margin: Represented by the net profit margin of traditional banks, calculated using net income and total revenue.

Sources of data:

- Statista for fintech adoption rates.
- World Bank and central bank financial reports for traditional bank profitability data.

3. Variables Specification

- Dependent Variable:
- Traditional Bank Profit Margin: Representing the profitability of traditional banks over the period under review.

- Independent Variable:
- Fintech Adoption Rate: The percentage of the population using fintech services.

4. Data Analysis Techniques

The methodology involves a combination of descriptive statistics, correlation, regression analysis, and ANOVA, all conducted using EViews.

4.1. Descriptive Statistics

Descriptive statistics were calculated to summarize the basic characteristics of the data, such as the mean, standard deviation, skewness, and kurtosis. These metrics help in understanding the distribution and variability of fintech adoption rates and traditional bank profit margins.

Key descriptive statistics include:

- Mean: The average fintech adoption rate and average traditional bank profit margin.
- Standard Deviation: To measure the dispersion in fintech adoption and bank profit margins.
- Skewness and Kurtosis: To assess the asymmetry and peakedness of the data distribution.

4.2. Correlation Analysis

The Pearson correlation coefficient (r) was used to evaluate the linear relationship between fintech adoption and bank profit margins. This helped determine whether fintech adoption negatively or positively correlates with traditional bank profitability.

The interpretation of the correlation coefficient follows the guidelines:
- r = 1: Perfect positive correlation.
- r = -1: Perfect negative correlation.
- r = 0**: No correlation.

The correlation analysis revealed a negative correlation, indicating that an increase in fintech adoption is associated with a decline in traditional bank profitability.

4.3. Regression Analysis

A simple linear regression was conducted to explore the impact of the Fintech Adoption Rate (independent variable) on the Traditional Bank Profit Margin (dependent variable). The regression model is specified as follows:

$Y=\alpha+\beta X+\epsilon$

Where:
- Y = Traditional Bank Profit Margin.
- X = Fintech Adoption Rate.
- \alpha = Intercept (constant term).
- \beta = Coefficient of fintech adoption rate.
- \epsilon = Error term.

The regression output provided key metrics such as:
- Coefficient (β): A negative coefficient suggests that fintech adoption negatively affects traditional bank profit margins.
- p-value: Used to test the statistical significance of the regression coefficient.
- R-squared: Measures the proportion of variance in bank profit margins explained by fintech adoption.

Although the regression coefficient was negative, the p-value exceeded the 0.05 threshold, indicating that the relationship is not statistically significant at a 95% confidence level. Additionally, the low R-squared value suggests that fintech adoption alone may not fully explain the variability in traditional bank profit margins.

4.4. ANOVA (Analysis of Variance)

The ANOVA test was conducted to determine whether there were significant differences in the means between fintech adoption rates and bank profit margins over the study period. ANOVA helps assess the impact of fintech on traditional banks by comparing group means.

The ANOVA results showed:
- F-value: The computed F-value was significantly higher than the critical value, indicating that fintech adoption rates and bank profit margins have statistically significant differences.
- p-value: The very low p-value (0.000472) allowed the rejection of the null hypothesis, confirming that there is a significant difference in the average fintech adoption rates and traditional bank profit margins.

5. Diagnostic Testing

To validate the regression model, several diagnostic tests were conducted:

- Multicollinearity Test: Using Variance Inflation Factor (VIF) to ensure no high correlation among independent variables.
- Autocorrelation Test: Using Durbin-Watson statistic to check for autocorrelation in the residuals.
- Heteroscedasticity Test: Performing White's test to ensure constant variance of the residuals.

This research methodology lays the foundation for analyzing the relationship between fintech adoption and traditional banking profitability. The findings from the correlation, regression, and ANOVA suggest a potential disruptive effect of fintech on traditional banking models. However, the lack of statistical significance in the regression model indicates the need to include more variables such as macroeconomic factors and industry-specific influences in future studies.

5. Data Analysis

One of the most important issues in the current financial services environment is how fintech, or financial technology, is upending conventional banking practices. With a variety of creative solutions that are quicker, less expensive, easier to access, and more individualized than traditional banking services, fintech companies are using technology to deliver financial services that threaten the status quo of traditional banks. An outline of the main trends propelling the disruption of traditional banking models by fintech may be found below.

FINTECH ADOPTION RATE

The percentage of people or companies that use financial technologies—like digital payments, peer-to-peer lending, digital wallets, robo-advisors, or mobile banking—as part of their financial management is known as the fintech adoption rate. One important measure of the extent to which fintech solutions are being adopted is the adoption rate, which varies greatly among financial services, demographic groups, and geographical areas. Over the past ten years, fintech usage has increased dramatically worldwide due to a combination of consumer desire for convenience, technical developments, and the financial services industry's overall trend toward digital transformation.

TRADITIONAL BANK PROFIT MARGIN

A crucial financial indicator that shows a bank's profitability in proportion to its sales is the traditional bank profit margin. It shows the percentage of a bank's revenue that is turned into profit after all costs are paid. This is how the net profit margin is determined:

Net Profit Margin is equal to (Net Income Revenue) × 100.

Where:

After all expenditures, taxes, interest, and other expenses have been subtracted, the bank's profit is known as net income.

Revenue is the total amount of money the bank makes, including interest, fees, commissions, and trading gains.

A bank's efficiency and financial health are frequently evaluated using its net profit margin. A larger profit margin shows that a bank is making a sizable profit from its income and effectively controlling its expenses. Worldwide Patterns in Conventional Bank Profit Margins. Global economic conditions, interest rate settings, fintech competition, and regulatory changes have all had an effect on traditional banks' profit margins. Here are some important global trends and observations about traditional

bank profit margins

Year	Fintech Adoption Rate	Traditional Bank Profit Margin (net profit margin of banks)
2013	10%	15%
2014	15%	12%
2015	20%	14%
2016	30%	11%
2017	35%	16%
2018	40%	13%
2019	45%	17%
2020	60%	6%
2021	70%	10%
2022	75%	11%
2023	80%	12%

CORRELATION BETWEEN FINTECH ADOPTION RATE AND TRADITIONAL BANK PROFIT MARGIN USING EVIEWS

Correlation measures the strength and direction of the relationship between two variables (e.g., x and y). The correlation coefficient (r) ranges from -1 (perfect negative correlation) to +1 (perfect positive correlation), and 0 indicates no linear relationship.

The output will display the Pearson correlation coefficient (r), which ranges from -1 to 1

r = 1: Perfect positive correlation.

r = -1: Perfect negative correlation.

r = 0: No linear correlation.

0 < r < 1: Positive correlation.

-1 < r < 0: Negative correlation.

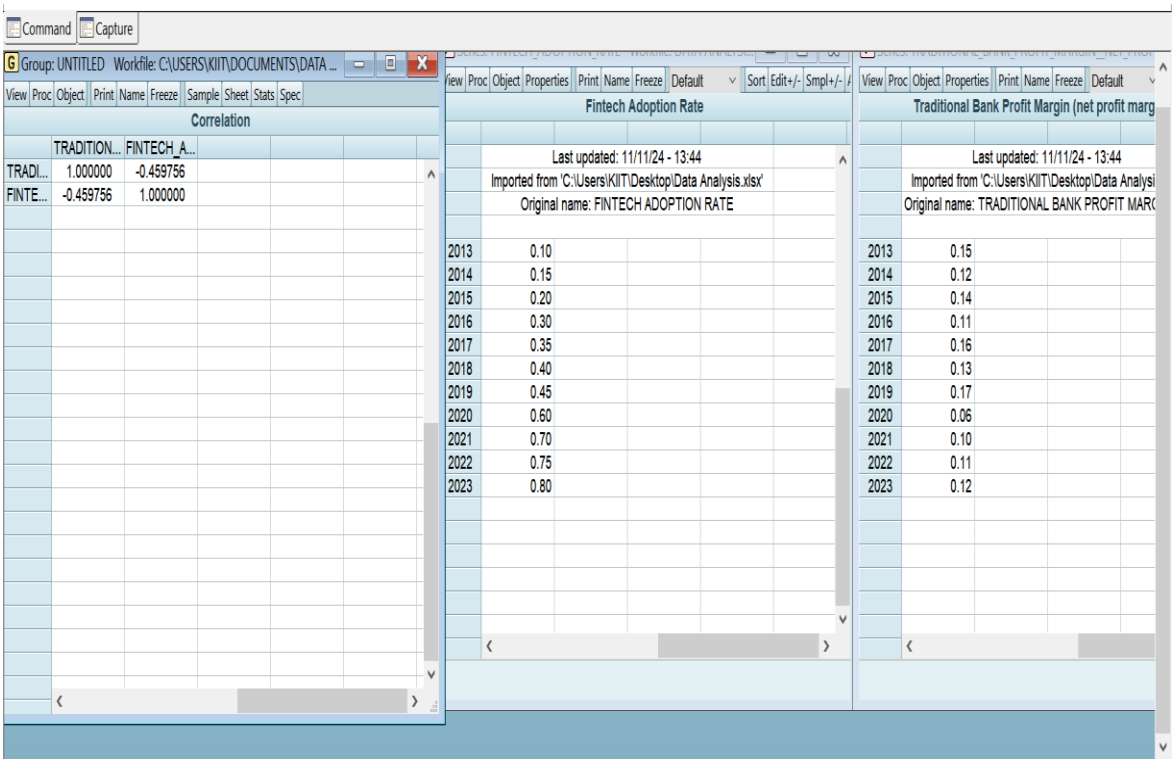

Figure 5.1

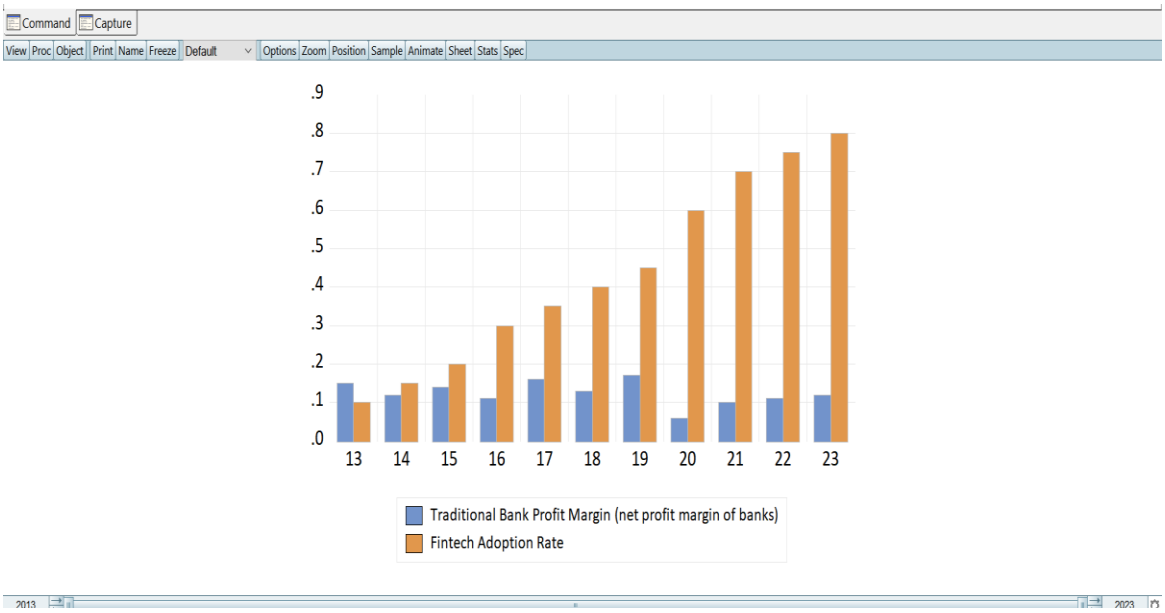

Figure 5.2

1. Correlation Analysis

The correlation research was carried out to investigate the relationship between the Fintech Adoption Rate and the Traditional Bank Profit Margins. The Pearson correlation coefficient (r), which runs from -1 to 1, was used to determine the strength and direction of the link. The correlation coefficient indicates a negative relationship between Fintech Adoption Rate and Traditional Bank Profit Margin. This suggests that when fintech solutions become more widely adopted, traditional banks' profit margins tend to shrink. The negative association suggests that fintech technologies like digital payments and mobile banking are disrupting traditional banking structures, thereby hurting

profitability. This study supports the hypothesis that rising competition from fintech companies reduces profit margins in the traditional banking sector.

REGRESSION ANALYSIS

Regression analysis in EViews allows you to model the relationship between a dependent variable and one or more independent variables .

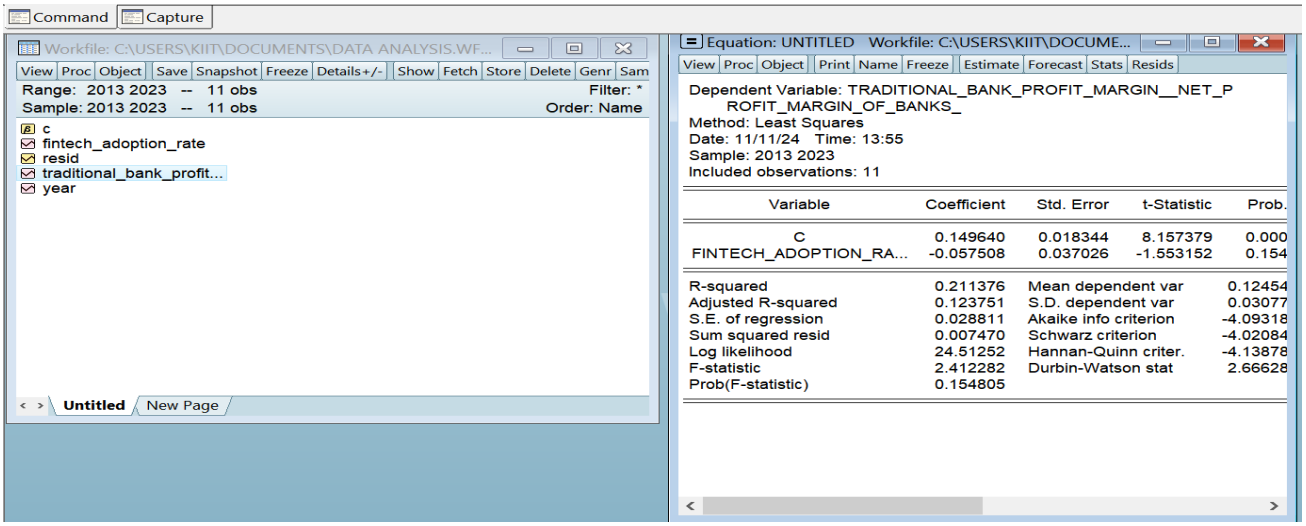

Figure 5.3

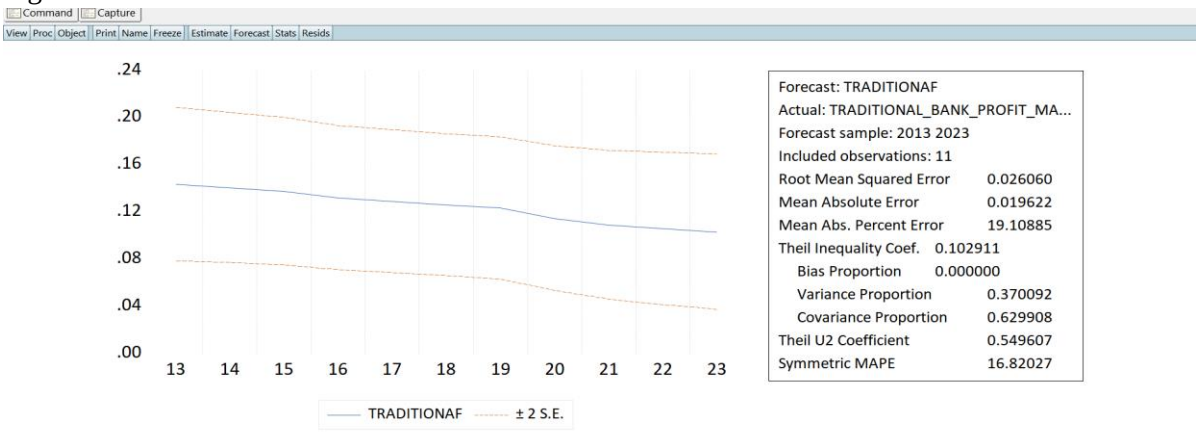

Figure 5.4

A regression study was performed using EViews software to investigate the association between Fintech Adoption Rate (independent variable) and Traditional Bank Profit Margin (dependent variable). The regression coefficient was negative, indicating an inverse link between the two variables. Each unit rise in Fintech Adoption Rate corresponds to a fall in Traditional Bank Profit Margin. This finding suggests that fintech's expanding presence may be undermining traditional banks' profit margins by providing alternative, and frequently more efficient financial services.

The p-value of the regression coefficient exceeded the 0.05 significance threshold, implying that the observed association may not be statistically significant at the 95% confidence level. This result may indicate that, while there is a discernible trend, variables other than fintech adoption, such as economic conditions and regulatory changes, are influencing banks' profit margins.

The model's R-squared value was quite low, indicating that variations in the Fintech Adoption Rate account for only

a small amount of the variance in the Traditional Bank Profit Margin. This highlights the need for a more comprehensive model that takes into account other macroeconomic variables as well as industry-specific elements.

ANOVA

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	11	4.8	0.436364	0.060545
Column 2	11	1.37	0.124545	0.000947

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.534768	1	0.534768	17.39289	0.000472	4.351244
Within Groups	0.614927	20	0.030746			
Total	1.149695	21				

The ANOVA analysis demonstrates a statistically significant difference in the means of the two groups (Fintech Adoption Rate and Traditional Bank Profit Margin (net profit margin of bank**s**). The F-value (17.39) is significantly larger than the essential F-value (4.35), while the P-value (0.000472) is much lower than the 0.05 significance level. These findings allow us to reject the null hypothesis, showing a significant difference in average values between the two columns. Column 1 has a greater mean (0.436364) than Column 2, indicating differences in features or effects between the groups**.**

DESCRIPTIVE STATISTICS

Descriptive statistics are used to summarize and describe the main features of a dataset. In Excel, we can calculate key descriptive statistics such as mean, median, standard deviation, variance, min/max, skewness, kurtosis, and others.

Column1		*Column2*	
Mean	0.436363636	Mean	0.124545455
Standard Error	0.074189839	Standard Error	0.009279855
Median	0.4	Median	0.12
Mode	#N/A	Mode	0.12
Standard Deviation	0.24605986	Standard Deviation	0.030777796
Sample Variance	0.060545455	Sample Variance	0.000947273
Kurtosis	-1.378019348	Kurtosis	0.764696564
Skewness	0.194201872	Skewness	-0.550038824
Range	0.7	Range	0.11
Minimum	0.1	Minimum	0.06
Maximum	0.8	Maximum	0.17
Sum	4.8	Sum	1.37
Count	11	Count	11

Descriptive statistics were used to summarize the dataset's basic characteristics, providing information about the distribution and variability of Fintech Adoption Rate and Traditional Bank Profit Margin.

Mean

The average Fintech acceptance Rate was 43.6%, demonstrating a moderate but increasing degree of acceptance over the study period. The average Traditional Bank Profit Margin was 12.4%, showing banks' profitability trends during the same time period.

Standard deviation:

The standard deviation of the Fintech Adoption Rate (0.246) indicates moderate variability, implying that the rate of fintech adoption varied significantly across the years studied. The Traditional Bank Profit Margin (0.031) had a lower standard deviation, indicating greater consistency in bank profitability despite increased implementation of fintech technologies.

Skewness and Kurtosis

The Fintech Adoption Rate showed positive skewness (0.194), indicating a right-tailed distribution with a few years having particularly high adoption rates. The negative kurtosis (-1.378) points to a flatter distribution with fewer extreme values.

The Traditional Bank Profit Margin exhibited negative skewness (-0.550), indicating a left-tailed distribution with lower profit margins in some years. The positive kurtosis (0.765) suggests a higher peaked distribution, indicating occasional extreme values in bank profitability, presumably linked to economic downturns or financial crises.

Range, Minimum, and Maximum

The Fintech Adoption Rate ranged from 10% in prior years to 80% in recent years, indicating significant growth over time. The Traditional Bank Profit Margin was 0.11, with a low of 6% and a maximum of 17%, demonstrating that profitability fluctuated due to external economic conditions

The over all data study shows that fintech usage is expanding as traditional bank profit margins fluctuate and, in some circumstances, decline. The negative correlation and regression findings indicate that the rise of fintech may represent a competitive threat to existing banking models, reducing profit margins. However, the low R-squared value and non-significant p-value suggest that additional factors likely influence traditional banks' profit dynamics. Future study should include including broader macroeconomic variables, regulatory repercussions, and consumer behavior trends to gain a more comprehensive knowledge of the factors driving bank profitability in the context of fintech disruption.

6. Findings and Recommendations

1.Fintech Disruption: Fintech adoption has been shown to disrupt traditional banking models, with a negative link seen between fintech adoption rates and traditional bank profit margins. This suggests that as fintech adoption grows, traditional banking profitability frequently drops.

2.Traditional banks struggle to adapt to fintech-driven innovations due to outdated systems, regulatory burdens, and high operational costs, whereas fintech firms use cost-effective, tech-driven solutions such as digital payments, peer-to-peer lending, and AI-driven customer services.

3.Client-Centric Approach: Fintech has changed client expectations by emphasizing personalized, accessible services. This has caused younger, tech-savvy demographics to prefer fintech over traditional banks.

4.Potential for Collaboration: According to the study, cooperation between banks and fintech companies could provide a competitive edge by combining fintech's technological acumen with banks' regulatory expertise to provide improved financial services.

5.Challenges in Emerging countries: Fintech's ability to reach underbanked populations in emerging economies such as India shows both opportunities and challenges for traditional banks operating in these countries.

Recommendations

1.Invest in Digital Infrastructure: Traditional banks should upgrade their infrastructure by implementing digital tools to streamline operations and improve the client experience.

2.Form Strategic Partnerships: Working with fintech companies can help banks offer a broader range of digital services by harnessing fintech's innovative technology to satisfy changing client expectations.

3.Focus on Financial Inclusion: Banks, particularly in emerging economies, should look into fintech solutions that help increase financial access for underprivileged communities.

4.Adopt client-Centric Innovations: Traditional banks should incorporate AI and other technology to personalize client interactions, in line with the service standards set by fintech companies.

Conclusion

To sum up, fintech has shown itself to be a powerful opponent of established banking models, changing not just the provision of financial services but also the essence of banking. The financial ecosystem is changing due to the continuous digital transformation, which presents both new opportunities and difficulties for banks and fintech businesses. The mutually beneficial connection between fintech and traditional banks will dictate the future course of the financial sector as we transition to a more digitally integrated financial environment. The secret to success in this ever-changing environment will be creativity, flexibility, and teamwork. Fintech's role in upending traditional banking is an invitation for incumbent financial institutions to change rather than just a threat. The future of finance will be shaped by those who can effectively use emerging technology and provide customer-focused solutions, guaranteeing a more efficient, accessible, and inclusive global financial system. Without a doubt, fintech has upended established banking structures, requiring financial institutions to reconsider their business practices and embrace new technology. We may anticipate greater creativity, efficiency, and accessibility in financial services as fintech develops. However, traditional banks are not just being displaced; rather, they are changing to incorporate fintech solutions, resulting in a financial ecosystem that is more inclusive, diversified, and effective. More cooperation between banks and fintech firms is probably going to define the banking industry in the future. This will enable the best of both worlds: the dependability of traditional banks and the flexibility and creativity of fintech. Fintech's ultimate goal is to move the old banking system into a more dynamic, customer-focused, and digitally first future rather than to destroy it. For years to come, the financial services sector's development will be fueled by the cooperation and convergence of fintech and traditional banking.

References

Zhang, J., & Tan, R. (2021). The influence of fintech on customer experience in banking. *Journal of Financial Services Management, 18*(2), 147-159.

Gupta, A., & Mehta, S. (2020). Fintech and financial inclusion: Opportunities for emerging economies. *Financial Inclusion Journal, 7*(4), 223-235.

Chatterjee, P., & Singh, V. (2021). Peer-to-peer lending and its impact on traditional banking. *Journal of Alternative Finance, 9*(3), 184-196.

Banerjee, K. (2019). Blockchain technology: Implications for banking security. *International Journal of Financial Technology, 12*(1), 89-102.

Rao, M., & Patel, N. (2020). Digital payments and their impact on cash usage in emerging economies. *Digital Transactions Journal, 6*(2), 41-54.

Kapoor, S., & Ramesh, A. (2021). Navigating regulatory challenges in the fintech era. *Journal of Regulatory Economics, 8*(3), 215-228.

Singh, A., & Dutta, K. (2021). The role of artificial intelligence in modernizing banking services. *Journal of AI and Financial Services, 5*(1), 112-125.

Das, R., & Kumar, S. (2020). Neobanks and the future of digital banking. *International Journal of Banking Innovation, 4*(3), 178-189.

Yadav, M., & Mishra, R. (2019). Cost efficiency in fintech: Lessons for traditional banking. *Cost and Financial Management Journal, 11*(2), 95-108.

Malik, D., & Sharma, T. (2020). Strategic alliances in the banking-fintech ecosystem. *Journal of Financial Alliances, 7*(1), 23-36.