Advance Journal of Econometrics and Finance
Vol-4, Issue-1, 2026

Online ISSN
2959-8990
Print ISSN
2959-8982
https://ajeaf.com/index.php/Journal/About

Name of Publisher: SCHOLAR CRAFT EDUCATION & RESEARCH HUB
Review Type: Double Blind Peer Review
Jurnal Frequency: Quarterly Research Journal

# Impact Of Fintech On Financial Performance And Risk Of Commercial Banks In Pakistan

**Faluk Shair[1], Asma Nawaz[2], Mehmood Khan[3], Saleem Akbar[4], Meer Ahmed[5]**

**Faluk Shair***
Department of Management Sciences, Lasbela University of Agriculture, Water and Marine Sciences, Uthal
Email: Email: falak.malghani@gmail.com

**Asma Nawaz**
Putra Business School, Universiti Putra Malaysia, Serdang, Malysia

**Mehmood Khan**
Department of Management Sciences, Lasbela University of Agriculture, Water and Marine Sciences, Uthal

**Saleem Akbar**
Department of Management Sciences, Lasbela University of Agriculture, Water and Marine Sciences, Uthal

**Meer Ahmed**
Department of Management Sciences, Lasbela University of Agriculture, Water and Marine Sciences, Uthal p

## Abstract

The study looks on how Financial Technology (FinTech), shown by the quantity of ATMs, affects the overall performance and risk of commercial banks in Pakistan. It includes four major elements, namely Net Interest Margin, Yield on Earning Assets, Non-performing Loans, and Return on Equity. The data used in this research is secondary and is from 2019 to 2024. Statistical techniques like correlation and regression analysis used for this study. Due to abnormal data, log transformation was used before testing. Findings show that more ATMs generate more profits and better efficiency for banks. It also helps to improve interest margin and return on equity, while its effect on loan yield or bad loans is low. Finally, future studies on this topic should use better methods and more detailed data.

**Keywords:** Fintech, Banks Performance, Risk, Pakistani Banking Industry

## Introduction

Over a decade, because of financial technology the financial sector of the world has changed a lot, financial technology is also known as FinTech. Simply Fintech is the use of updated technology to provide and improve financial services. It involves digital tools and software that are used to make banking and financial processes faster, easier, and smoother. Previously, banks mostly worked through physical branches. People had to visit those branches for the purpose of opening accounts, depositing money, loans and investment s. The services were usually timeconsuming. From here, FinTech has been introduced with the aim to focus on speed, convenience, and accessibility. As you see now, people can perform almost any financial activity using just their mobile phones or laptops etc. Online mobile banking apps, online payments, and digital wallets have reduced the need to visit those physical branches of Banks. (Sha & Naveed Said, 2022). For instance, people can transfer money; pay their utility bills, or even can view their account balance from any corner of the world, at any time. In short Fintech has made financial services low cost and more convenient for users.

It has also established new financial products such as peer-to-peer lending, robot-advisors, and blockchain based systems. (Khan & Rooh Ul Amin, 2022). Due to these creations the role of intermediaries has reduced, transparency increased, and transaction costs become low. Because of these valuable results, FinTech companies and technology firms are now head-to-head and competing with traditional banks, simply by providing user-friendly and customer focused services. (Kumari & Devi 2022).

Same is the case in Pakistan, due to electronic banking and digital financial services. One important development was made by Habib Bank Limited (HBL), they launched Pakistan's first ever online banking platform back in 2001. Later, in 2008, the State Bank of Pakistan (SBP) followed the same path, (Siddique & Kamran Ali, 2022). Increased competition forced Telenor and Tameer Microfinance Bank to launches "The Easy-peasier", in 2012, the first mobile wallet in Pakistan. It enabled people to open an account with requirements of like CNIC and a valid sim, to use for money transfers and bill payments. (Bomer 2020).

Following Easy-peasier, other services like Jazz Cash, Sada Pay, Naya Pay, and Keanu became prominent and popular. The State Bank of Pakistan introduced RAAST, in 2021, a digital payment system that allows the transfer of money between banks at a very cheap cost. Banks have improved their efficiency and profitability because of these developments, but these developments have also raised new threats like cyber threats and issues of data privacy.

Many researchers over the globe have studied the impact of fintech on the financial performance of the banks because continues growth of digital innovation. However, proper research is still lacking on how FinTech specifically affects risk and performance of banks at the same time, specifically in a developing country like Pakistan. The study aims to find out how FinTech can affect the financial performance and risk level of banks in Pakistan. The dependent variable of the study is profitability. Simultaneously, it also focuses on how technology influences banking risk.

## Literature Review

The term "financial technology" (FinTech) may seem new, but its background can be traced back into the history of banking and finance. (Razzaque & Hamdan,2020). It has also been called the combination of both technology and financial services using information and communication technologies (ICT). This mix has many advances, it has tools like digital wallets and mobile banking from recent, to more common instruments such as credit cards, internet banking, and automated teller machines (ATMs) from past. (Xie & Lying Ye, 2021). Furthermore, FinTech also contains person-to-person lending, crowdsourcing, and online payment systems. It also has digital tools for planning, budgeting, and investing. (Schindler, 2017), Some authors believe that FinTech is a growing area widely influenced by both cutting edge and established technologies that include big data analytics, blockchain, and machine learning. There is a great possibility of development of advanced and complicated financial services because of this mix of technology and finance. And it also has high capabilities that can address sustainability problems by digitizing and easing financial procedures.

## Prior Literature

The connection between financial technology (fintech) and bank performance has been thoroughly studied in the past. For example, Phan & Paresh Kumar Narayan (2020) assess the impact the increase in fintech companies had on bank performance in the Indonesian market between the years 1998 and 2017. According to them, bank performance measured by ROA or return on assets, ROE or return on equity, NIM or net interest margin, and YEA or yield on earning assets is negatively affected by fintech companies' expansion. Katsumata & Paul B. McGuinness (2022) studied the effect brought about by the expansion of exchange-listed fintech lenders in China from 2013 to 2019 on banks' financial performance. They find that fintech companies entering the lending market undermine traditional banks' profitability measured through ROA and ROE. Zhao & Xinghua Li (2022) studied the spread of fintech in China and how it affected bank performance between 2003 and 2018.

Fintech development improves banks' capital adequacy and management efficiency but degrades asset quality and earning power, according to the fintech development index, which is based on the total number of fintech companies established, registered capital, number of financing events, and amount of financing. They contend that the asset quality and earning capacity of Chinese banks decline due to competition from the fintech sector (such as peer-to-peer lending).

Qian Li (2024) evaluate the effect of fintech on commercial banks' revenue margins by creating a fintech index using textual analysis of 36 Chinese commercial banks' annual reports from 2003 to 2019. They look at the four aspects of fintech: electronic communication (e-banks and online banks), electronic financing (Internet lending and network financing), electronic payment (mobile payment), and technology basis (represented by the terms big data, cloud computing, AI, blockchain, and biometrics). Their conclusions are contradictory in that commercial banks' performance is considerably impacted negatively by technology, while electronic payments have a favorable influence. Li & Renée Spigt, 2017 used the data from US digital banking startups (funding volume and number of agreements) and US retail banks from 2010 to 2016 to examine how these companies affect the stock returns of traditional banks. They discover a strong positive correlation between the growth of fintech funding and the quantity of fintech deals and the stock returns of established retail banks. They contend that the findings provide no proof that the expansion of the fintech sector has destroyed the value of incumbents, but rather that the fintech sector has beneficial effects on the conventional retail banking sector.

(Bayuk & Allen N. Berger (2025) show that loans from FinTech companies are risky and frequently take the place of loans from large banks. This is due to FinTech lenders' advantages in terms of efficiency while handling enormous volumes of data. Pierri and Timmer (2020) examine how non-performing loans (NPL) behaved in financial institutions that used information technology (IT) to assess bank loans during the 2008 global financial crisis. They found that banks with a high IT deployment intensity had fewer non-performing loans (NPL) during the global financial crisis. FinTech lenders are more active in the refinancing market, serve borrowers with higher creditworthiness, levy a premium of between 14 and 16 basis points, and offer convenience to borrowers rather than cost savings (Buchak & Gregor Matvos, 2018). Because FinTech loan providers have cheaper distribution channels and an information edge, traditional banks in China's credit market are unable to compete with them, according to research by Hau and Yi Huang (2019). In response to competitive pressure from FinTech lenders, banks smooth out unpredictable swings in income to control their reported profitability (Ozili, 2020).

They do this to control their income. Financial technology gives customers a new advantage through data securitization, digital payments, online lending, risk management, financing, and speculation (B.K. Rodin, 2019). Internet banking, ATMs, credit cards, electronic payments, and digitalization are just a few of the financial services that financial technology has brought about (Wonglimpiyarat & Jarunee, 2017). Users can use banking services at any time and from any location without fear thanks to these financial services (Tam & Oliveira, 2017). Fintech also offers insurance technology, crowd funding, blockchain, big data, artificial intelligence, and robot advising. Financial technology developments boost the services' efficiency (BRõTõŞANU, 2017). The improved capacity to spot fake and fraudulent data is one benefit of data mining and analysis. Clients can continue their transactions with ease thanks to e-banking's financial services (Deepak Chawla, 2017). Financial institutions can provide more innovative and financial services, enhance managerial abilities, and increase transaction volume by lowering transaction costs. Additionally, it promotes the use of FinTech, or new technology. By offering more financial services through cutting-edge technical models, banks can enhance their performance (Merton, 1995). FinTech influences the financial sector's performance, according to Spanish research. In addition to increasing deposits and clients, it may improve performance (Hernando & Nieto, 2007).

Butt & Khan (2019) studied problems banks go through in implementing and the strategic aspects of recognizing Fin-Tech investment opportunities. They did a study on problems faced by the banking industries while investing in Fin-Tech. This research used five Pakistani banks along with a convenience-based sampling case study approach. Some of the critical data sources include field notes, recordings, and transcriptions of branch manager interviews. It was concluded that in Pakistan's banking sector, Fin-Tech is in the nascent stage, and Pakistan prefers outsourcing the financial operations to the Fin-Tech firms due to various reasons such as high quality, advanced technology, software maintenance, or competitive market advantage.

## Underpinning Theories

### Theory of Disruptive Innovation

This plan looks at how alternatives can change established sectors. FinTech, as a quick area that uses technology to deliver new solutions, suits this idea well. FinTech startups often give affordable services to those who were ignored by older banks. By solving expensive fees and antique technology that traditional banks may overlook, FinTech catches more customers. Disruptive innovation theory shows how new companies find markets that are unloved and offer professional, technology-oriented solutions. Traditional institutions may face a really challenging threat when these new competitions grow. FinTech creates new financial products that force established players to change or risk losing market share. FinTech shows how new technology meets customer needs and gradually changes existing other old companies. FinTech’s growth in the finance department showcases how disruptive innovation theory applies to today’s corporation.

### The Theory of Financial Intermediation

This plan suggests banks act as important middlemen by moving money from savers to borrowers. Banks help lower transaction costs, manage risk, and fix information gaps between them, making markets work better. In new banking, FinTech increases this role by speeding transactions, improving credit checks with data analytics. Banks may improve their intermediary role and get better financial performance and risk management by using FinTech technologies.

## Hypothesis Development

**H1a:** No. of ATMs significantly predicts Net Interest Margin.
**H1b:** No. of ATMs significantly predicts Yield on Earning Assets.
**H2a:** No. of ATMs significantly predicts Non-performing Loans.
**H2b:** No. of ATMs significantly predicts Standard Deviation of Return on Equity.

## Methodology

### Research Design

The quantitative methodology is superior in terms of getting a better knowledge of the research topic by employing numerical data, as stated by (Mertens & M., 2019) and (Punch, 2013). Data may be examined in terms of numbers, numerical procedures, and can be analyzed and interpreted via the outcomes.
This study adopts a quantitative research design using secondary data to empirically examine the impact of FinTech adoption on the financial performance and risk of commercial banks in Pakistan.

### Population

The population refers to the entire group of people, events, or things of interest that researchers wish to investigate. It is the group of people, events, or things of interest for which the researcher wants to make inferences. The population of this study is all 25 commercial banks (20 private, and 5 government-owned) operating in Pakistan as per the State Bank of Pakistan (Pakistan, 2019). Specialized and foreign banks are excluded due to differences in operational focus and regulatory frameworks.

### Sampling Technique

Sampling is the technique of choosing a smaller group of people or objects from a larger population to draw conclusions. Sampling helps collect data more quickly and extend results to the whole population. In research, sampling is a key technique that lets researchers make inferences about a wider group by studying a smaller, manageable portion.
This study uses Convenience Sampling, which is a non-probability sampling method.

### Sample Size

A sample is a smaller set of data that a researcher chooses or selects from a larger population using pre-defined method. Creating a sample is an efficient method of conducting research. Researching the whole population is often impossible, costly, and time-consuming. Hence, examining the sample provides insights the researcher can apply to the entire population.
The sample size of this study is 9 commercial banks out of 25 commercial banks, ensuring representation across private and government owned institutions.

Advance Journal of Econometrics and Finance
Vol-4, Issue-1, 2026

**Data and Sources of Data Collection**
The Pakistan Stock Exchange and official sites of banks are the sources of all the data for the period of 2019-2024, from the annual reports and financial statements of the selected institutions, the information on the finances is required.

**Variables**
**Variable Dependent**
Two dependent variables are used in this study; these are financial performance and risk of commercial banks. Financial Performance of banks is measured using Net Interest Margin (NIM) and Yield on Earning Assets (YEA), while bank Risk will be measured using Non-Performing Loans (NPL) ratio and Standard Deviation Return on Equity (S.D ROE).

**Variable Independent**
The independent variable in this study is Financial Technology (Fintech) will be measured using Number of ATMs and Online Banking Users.

**Data Analysis and Testing**
To understand the relationships between ATM infrastructure and key financial performance indicators of commercial banks in Pakistan, a series of analyses were carried out using Python. This starts with descriptive statistics to summarize central tendencies and variability of variables such as ATM availability, interest margin (IM), loan yield, non-performing loans (NPL), and return on equity (ROE). Next, Pearson correlation coefficients were calculated to assess the strength and direction of bivariate relationships. Before running regression models, key statistical assumptions like normality, linearity, and multicollinearity were checked using Shapiro-Wilk tests and Variance Inflation Factor (VIF) scores. Because some variables violated normality. The impact of ATM deployment on each financial indicator was then assessed using multiple ordinary least square (OLS) regression models. All analyses were done with relevant Python libraries to ensure analytical correctness and repeatability.

**Data Analysis and Results**
**Descriptive Statistics**
Descriptive statistics concise the central tendency and dispersion of each variable.

**Table 1: Descriptive Statistics**

| Variable | Mean | Std. Deviation | Min | Max |
|---|---|---|---|---|
| ATM | 1084.15 | 609.75 | 278 | 2327 |
| IM | 0.0474 | 0.0189 | 0.0175 | 0.1123 |
| Yield | 0.1206 | 0.0465 | 0.0390 | 0.2208 |
| NPL | 0.0565 | 0.0296 | 0.0134 | 0.1470 |
| ROE | 0.0461 | 0.0258 | 0.0123 | 0.1297 |

ATM = Number of ATMs, IM = Interest Margin, Yield = Loan Yield, NPL = Non-Performing Loans, ROE = Return on Equity
On average, banks have 1084 ATMs with big dispersion. Mean values of financial performance indicators are moderately low: IM, Yield, ROE, while NPL has a slightly skewed distribution to low values.

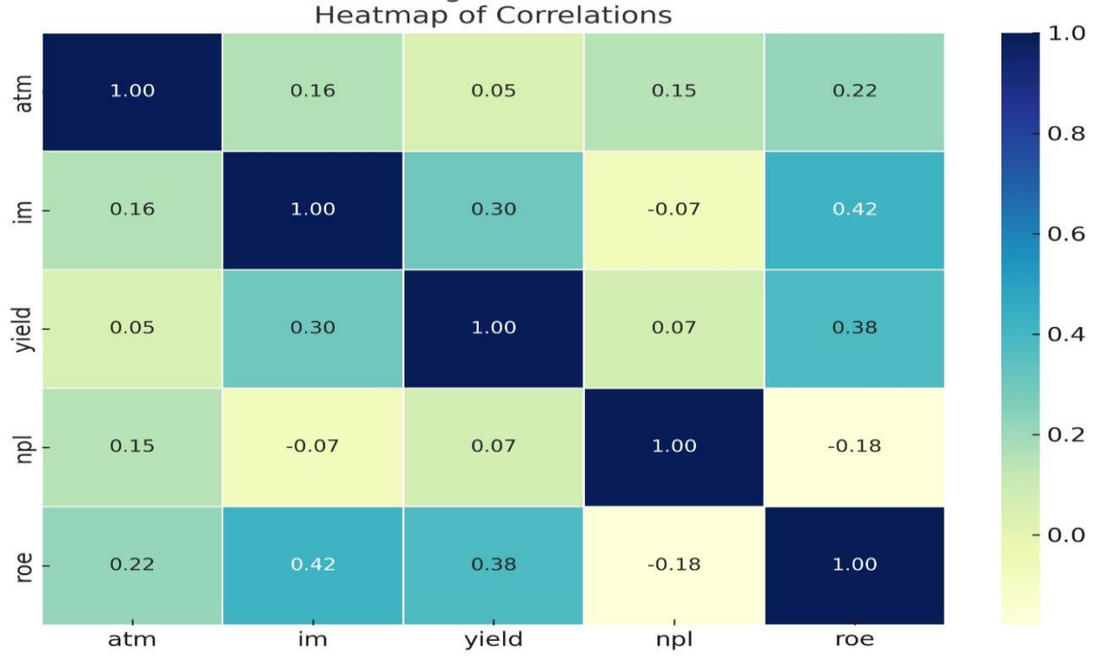
**Correlation Analysis**
Pearson correlation coefficient was calculated to explore associations between different variables.

*Table 2: Correlation Matrix of Variables*

| | ATM | IM | Yield | NPL | ROE |
|---|---|---|---|---|---|
| ATM | 1 | .16 | .05 | .15 | .22 |
| IM | .16 | 1 | .30 | -.07 | .42 |

| | | | | | |
|---|---|---|---|---|---|
| Yield | .05 | .30 | 1 | .07 | .38 |
| NPL | .15 | -.07 | .07 | 1 | -.18 |
| ROE | .22 | .42 | .38 | -.18 | 1 |

Figure 4.1
Heatmap of Correlations




ATM had a very weak positive relation to ROE (r =.22) while IM had a moderate positive relation with ROE, r= .42. A negative correlation of NPL and ROE, r = –.18 has been found which shows that increased bad loans lead to a decline in profitability. The multicollinearity assumption is not violated because not pairwise correlation is over ±0.80.

**Normal Testing**

The null hypothesis of this test is that the data points are from a normally distributed population.

*Table 3: Shapiro-Wilk Normality Test*

| **Variable** | **W-statistic** | **p-value** | **Normality** |
|---|---|---|---|
| ATM | 0.915 | 0.001 | Not Normal |
| IM | 0.901 | 0.000 | Not Normal |
| Yield | 0.933 | 0.005 | Not Normal |
| NPL | 0.919 | 0.001 | Not Normal |
| ROE | 0.897 | 0.000 | Not Normal |

There is a clear violation of normality for all variables since the p-value for each one was less than 0.05. As a result, log transformations were performed before regression analysis.

**Regression Analysis**

To assess the impact of ATM on financial indicators on a predictive basis, individual regressions were carried out for each dependent variable with ATM being log-transformed first. Each model is structured similarly to the following:

$DV=\beta 0+\beta 1.\log(ATM)+\epsilon$

**Model 1: ATM → IM**

*Table 4: Regression Output: ATM Predicting Interest Margin (IM)*

| Coefficient | B | SE | t-value | p-value |
|---|---|---|---|---|
| Constant | –4.477 | 0.516 | –8.67 | 0.000 |
| ATM | 0.199 | 0.076 | 2.64 | 0.011 |

$R^2$ = 0.118 | Adj. $R^2$ = 0.101 | F = 6.954 | p = .011
Durbin-Watson = 1.17

From an economic point of view, more ATM deployment might lead to higher interest margins for the bank. Research indicated that there was a positive and significant relationship between the number of ATMs and interest margin, as the β = 0.199 with a p-value of 0.011. So, more ATMs could mean more profit for banks. This lines up with what others have written: better digital stuff makes things easier to get to, cut down on branch costs, and can grow margins through customer loyalty and fees.

**Model 2: ATM → Yield**

*Table 5: Regression Output: ATM Predicting Yield*

| Coefficient | B | SE | t-value | p-value |
|---|---|---|---|---|
| Constant | –2.415 | 0.576 | –4.19 | 0.000 |
| ATM | 0.033 | 0.084 | 0.39 | 0.697 |

$R^2$ = 0.003 | Adj. $R^2$ = –0.016 | F = 0.153 | p = .697
Durbin-Watson = 0.83

It means that ATM availability might not directly influence the pricing of loans. The presence of ATMs has been shown to have no striking effect on loan yield (β = 0.033, p = 0.697). This goes against the notion that easier access to the bank may result in the bank charging higher interest. Perhaps the pricing of loans in Pakistan is so influenced by macroeconomic or regulatory factors like SBP monetary policy and competitive rates that digital infrastructure is of no influence at all.

**Model 3: ATM → NPL**

*Table 6: Regression Output: ATM Predicting NPL*

| Coefficient | B | SE | t-value | p-value |
|---|---|---|---|---|
| Constant | –3.507 | 0.775 | –4.52 | 0.000 |
| ATM | 0.074 | 0.113 | 0.65 | 0.520 |

$R^2$ = 0.008 | Adj. $R^2$ = –0.011 | F = 0.419 | p = .520
Durbin-Watson = 0.60

The relationship between the number of ATMs and non-performing loans is not statistically significant, with β = 0.074, p = 0.520. Of course, under the condition that digital access is faced with a good, maybe even better, monitoring system for the customers, credit risk is still largely determined by the underwriting practices and the characters of the borrowers rather than by ATMs. Good credit quality is based not only on building the necessary infrastructure but also on rigorous risk assessment.

**Model 4: ATM → ROE**

*Table 7: Regression Output: ATM Predicting ROE*

| Coefficient | B | SE | t-value | p-value |
|---|---|---|---|---|
| Constant | –5.281 | 0.840 | –6.28 | 0.000 |
| ATM | 0.300 | 0.123 | 2.44 | 0.018 |

$R^2$ = 0.102 | Adj. $R^2$ = 0.085 | F = 5.931 | p = .018

Durbin-Watson = 0.63
ATM accessibility considerably raised ROE (β = 0.300, p = 0.018), indicating that banks with a stronger online presence are more profitable. This aligns with modern banking concepts that emphasize how service scalability and cost effectiveness boost shareholder value. Digital infrastructure is a crucial component of profitability since it boosts asset utilization and reduces operational expenses.

**Summary of Hypotheses Decisions**

*Table 8: Hypotheses Testing Summary*

| Hypothesis | Statement | Result |
|---|---|---|
| **H1a** | No. of ATMs significantly predicts Net Interest Margin | Accepted |
| **H1b** | No. of ATMs significantly predicts Yield on Earning Assets | Rejected |
| **H2a** | No. of ATMs significantly predicts Non-performing Loans | Rejected |
| **H2b** | No. of ATMs significantly predicts Standard Deviation of Return on Equity | Accepted |

## Conclusion and Recommendations

### Conclusion

The aim of the study was to check how ATM infrastructure affected key financial measures, namely net interest margin, loan yield, non-performing loans, and return on equity. The data used for the research are from Pakistani banks over five years. The analysis includes following steps: first descriptive and correlation tests, then checking normality and regression assumptions, and lastly running several models of regression. The outcomes show that having more ATMs can significantly improve interest margin and return on equity. However, it does not show any notable effect on loan yield or non-performing loans. These results indicate that digital infrastructure works selectively, it may help some areas of financial performance such as profitability and operational efficiency, while on the other hand areas such as credit risk and pricing strategies remain largely unchanged.
The study gives new and clear empirical insight that how digital banking and financial results relate in a developing economy (Pakistan). The findings also show that ATMs may improve profit margins and shareholder returns, but they are not a full and reliable solution for managing credit risk or improving loan income. This study adds something new to current literature and offers clear guidance for future scholars who want to study technology and finance, for any purpose like policymaking.

### Practical Implications

The study's insights have crucial consequences for regulators, lawmakers, and bank managers. The results indicate that improving ATM infrastructure can raise profitability and margins, assisting bankers in a practical way to support their finances. However, these investments must be part of broader digital transformation efforts and not worked on in isolation. The data provided by the study can encourage the expansion of digital banking services for regulators and policymakers, mainly in areas where financial inclusion is low or poor.
Banks can improve and increase their access and efficiency by promoting digital adoption through subsidies or infrastructure. Finally, it guides investors and shareholders, that digital infrastructure such as ATMs have positive contribution to return on equity, which supports investment in technology-based growth strategies.

### Limitations

The limitations of this study are that it uses secondary data, which results in less suitable findings at times. Because it is a quantitative technique, the results might consist of some inefficiencies, and the validity of the data is lower compared to primary research. The sample of this study is small, that is why more accurate and significant findings are not possible. Also, a longer time (10 years), might make the influence stronger and more noticeable compared to short time(5years).

### Future Research

Future research should resemble the problems of this study's design and methods. This paper completely relies on secondary data, which is easily available and cheap to get but may cause difficulties with data quality, completeness, and context. Secondary data are not fully suitable as they don't show the subtle or continuous changing nature of bank performance, which results in poor interpretation.
A strict quantitative method can also limit the understanding, especially in areas like management views on ATM use where qualitative insights could be helpful. Future should improve validity and relevance, that is possible by using quantitative data with primary sources such as surveys or interviews. Increasing the size of sample and the study period for example to ten years rather than five years can generate more reliable, vastly applicable, and significant outcomes. Longitudinal studies would also be suitable to explain how digital infrastructure, like ATMs, affects the performance of the banks over time by identifying patterns and cycles.

## References

Ahmed, M., & Anand Kumar, M. T. (2024). Impact of Fintech on Pakistani Banking Sector. *Journal of Economic Info, 11*(1), 1-14.
Allen, F., & Santomero, A. M. (1997). The theory of financial intermediation. *Journal of banking and finance, 21*(11-12), 1461-1485.

Alterkawi, A., & Moayad, a. T. (2019). The Impact of Fintech Companies on Financial Institutions in Sweden.
Ashraf, A., & Dr. Surayya Jamal, M. A. (2025). Advancing in the Change Journey Towards Fintech: The Nexus Between Fintech and Financial Performance of Commercial Banks in Pakistan. *Journal for Social Science Archieves, 3*(1), 43-55.
B.K. Rodin, R. G. (2019). Fintech in digitalization of banking services. *International Scientific and Practical Conference on Digital Economy*, 830-833.
Balyuk, T., & Allen N Berger, J. H. (2025). What is fueling Fintech lending?The role of banking market structure. *The review of Corporate Finance Studies*.
Bömer, M. (2020). Competitiveness of Fintech: An Investigation into Different Levels of Competitiveness using Young Enterprises from the Financial Technology Industry. *Hinrich Heine University Duesseldorf*.
BRĂTĂȘANU, V. (2017). Digital Innovation the new paradigmfor financial services industry. *Theoretical and Applied Economics*, 24.
Buchak, G., & Gregor Matvos, T. P. (2018). Fintech, regulatory arbitrage, and the rise of shadow banks. *Journal of Financial Economics, 130*(3), 453-483.
Butt, S., & Khan, Z. A. (2019). Fintech in Pakistan: A qualitative study of banks strategic planning for an investment in fintech company and its challenges. *Independent Journal of Managemnet & Production, 10*(6), 2092-2101.
Dasilas, A., & Karanović, G. (2025). Impact of Fintech Firms on Bank Performance: Evidence from Uk. *EuroMed Journal of Business, 20*(1), 244-258.
Deepak Chawla, H. J. (2017). Consumer Percpectives about mobile banking adoption in India: A cluster analysis. *International Journal of Bank Marketing, 35*(4), 616-636.
Hau, H., & Yi Huang, H. S. (2019). How fintech enters China's credit market? *AEA Papers and Proceedings, 109*, 60-64.
Hernando, I., & Nieto, M. J. (2007). Is the Internet delivery channel changing banks' performance? The case of Spanish Banks. *Journal of Banking & Finance, 31*(4), 1083-1099.
Hu, Z., & Shuai Ding, S. L. (2019). Adoption intention of Fintech services for bank users: An empirical examination with an extended technology acceptance model. *Symmetry, 11*(3), 340.
Ibidunni, A. S., & Daniel E. Ufua, A. P. (2022). Linking disruptive innovation to sustainable entrepreneurship within the context of small and medium firms: A focus on Nigeria. *African Journal of Science, Technology, Innovation and Development, 14*(6), 1591-1607.
Katsiampa, P., & Paul B. McGuinness, J.-P. S. (2022). The financial and prudential performance of Chinese banks and Fintech lenders in the era of digitalization. *Review of Quantitative Finance and Accounting, 58*(4), 1451-1503.
Khan, D. I., & Rooh Ul Amin, N. S. (2022). Individualized consideration and idealized influence of transformational leadership: Mediating role of inspirational motivation and intellectual stimulation. *International Journal of Leadership in Education*, 1-11.
Kumari, A., & Devi, N. C. (2022). The impact of fintech and blockchain technologies on banking and financial services. *Technology Innovation Management Review, 12*(1/2).
Li, Y., & Renée Spigt, L. S. (2017). The impact of Fintech startups on incumbent retail banks' share prices. *Financial Innovation, 3*(1), 26.
Mertens, & M., d. (2019). Research and evaluation in education and psychology: Integrating diversity withquantitative, qualitative, and mixed methods. *Sage Publication*.
Merton, R. C. (1995). Financial innovation and the management and regulation of financial institutions. *Journal of Banking and Finance, 19*(3-4), 461-481.
Mutua, R. W. (2013). Effect of mobile banking on the financial performance of commercial banks in Kenya.
Ozili, P. K. (2020). Banking sector earnings managemnet using loan loss provisions in the Fintech era. *International Journal of Managerial Finance, 18*(1), 75-93.
Pakistan, S. B. (2019). *Half-Yearly Performance Review of the Banking Sector*.
Phan, D. H., & Paresh Kumar Narayan, R. E. (2020). Do financial technology firms influence bank performance? *Pacific-Basin finance journal*, 62(1),345-362.
Punch, K. F. (2013). Introduction to social search: Quantitative and qualitative approaches.
Qian Li, R. Z. (2024). Does the fintech create value? A textual analysis of commercial banks in China. *Technology Analysis and Strategic Management, 36*(10), 2398-2413.
Razzaque, A., & Hamdan, A. (2020). Role of financial technology fintech: A survey. *The International Conference on Artificial Intelligence and Computer Vision*, 112-117.
Schindler, J. (2017). Fintech and Financial Innovation: Drivers and Depth.
Shah, A. N., & Naveed Saif, M. T. (2022). Demographics impact on management capabilities through the lens of transactional and transformational leadership. *International Journal of Services and Operations Management, 43*(3), 338-358.
Sharma, R. (2022). A study on innovation in banking and its impact on customer satisfaction. *Integrated Journal for Research in Arts and Humanities, 2*(3), 67-72.
Siddique, M., & Dr. Kamran Ali, D. M. (2022). A qualitative assessment on the E-Banking Adoption in Banks: A case of HBL Pakistan. *Competitive Social Science Research Journal, 3*(1), 691-704.
Siek, M., & Sutanto, A. (2019). Impact Analysis of Fintech on Banking Industry. *International Conference on Information Management and Technology, 1*, 356-361.
Steven Si, H. C. (2020). A literature review of disruptive innovation: What it is, how it works and where it goes. *Journal of Engineering and Technology Management, 56*.
Tam, C., & Oliveira, T. (2017). Literature review of mobile banking and individual performance. *International Journal of bank Marketing, 35*(7), 1044-1067.
Wonglimpiyarat, & Jarunee. (2017). Fintech and evolving payment landscape. *Journal of Payment Strategy & System, 11*(3), 226-235.
Xie, J., & Liying Ye, W. H. (2021). Understanding Fintech Platform Adoption: Impacts of Perceived Value and Perceived Risk. *Journal of Theoretical and Applied Electronic Commerce, 16*(5), 1893-1911.
Zeb, A., & Anam Ashraf, S. I. (2024). Financial Technology's Impact on the Non-Performing Loans Held by Commercial Banks in Pakistan. *Kashf Journal of Multidisciplinary Research, 1*(12), 1-10.
Zhao, J., & Xinghao Li, C.-H. Y.-C. (2022). Riding the fintech innovation wave: Fintech, Patents and bank Performance. *Journal of International Money and Finance*, 122.