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**Major/No. BBA22**

**Impact of Digital Payment Systems on the Profitability of Commercial Banks in  
Pakistan**



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## Executive Summary

This Final Year Project examines the impact of digital payment systems and FinTech adoption on the profitability of commercial banks in Pakistan. With rapid growth in mobile banking, internet banking, card payments, and instant payment rails, banks are increasingly investing in digital channels to improve customer convenience, expand outreach, and enhance operational efficiency. The study focuses specifically on Allied Bank Limited (ABL) and Bank Alfalah Limited (BAFL) over the period 2019 to 2023, combining bank-level performance indicators with broader national digital payment developments reflected in State Bank of Pakistan (SBP) publications and payment-system trends.

The research adopts a quantitative, secondary data approach and evaluates bank profitability through standard financial ratios primarily Return on Assets (ROA) and Return on Equity (ROE) while also considering stability and risk coverage through indicators such as the Capital Adequacy Ratio (CAR). The project links these profitability outcomes with digital growth proxies, including the expansion in digital banking usage and transaction volumes, reflecting how far each bank has progressed in shifting customers from traditional branch-based activity toward digital payment channels.

Findings indicate that both banks experienced overall improvement in profitability across the study period alongside major digital expansion. For Allied Bank, net profit after tax increased from PKR 14.1 billion (2019) to PKR 40.7 billion (2023), while ROA improved from 1.0% to 1.78% and ROE rose from 16.0% to 29.4%. For Bank Alfalah, net income increased from PKR 12.7 billion (2019) to PKR 36.5 billion (2023), with ROA improving from 1.26% to 1.36% and ROE rising from 15.7% to 31.7%. Importantly, the results also show that profitability impacts were not perfectly linear: around 2020, profitability weakened due to COVID-19 related pressures even as digital transaction volumes continued to rise sharply.

Overall, the study concludes that digital payment expansion is associated with improved banking performance over time, mainly through scale, service efficiency, and the gradual development of digital revenue models. The report recommends that banks continue strengthening mobile and online platforms, promote adoption of electronic payments including SBP-supported initiatives such as Raast, invest in cybersecurity and customer trust, leverage analytics for product personalization, and collaborate with fintech partners to accelerate innovation and inclusion.

<b>Chapter 1- INTRODUCTION</b> .....	6
<b>1.1 Background of the Study</b> .....	6
<b>1.2 Historical Development of Payment Systems in Pakistan</b> .....	7
<b>1.3 Phases of Digital Payment Evolution in Pakistan</b> .....	9
Phase 1 (1990s–early 2000s) .....	9
Phase 2 (late 2000s–2015) .....	9
Phase 3 (2016–present) .....	10
<b>1.4 Allied Bank Limited Digital Banking Initiatives and Performance</b> .....	10
<b>1.5 Bank Alfalah Limited Digital Infrastructure and Key Statistics</b> .....	12
<b>1.6 Problems in Implementing Digital Payment Systems in Pakistani Banks</b> .....	14
Key Challenges Highlighted .....	15
<b>1.7 Impact on Profitability Metrics (ROA, ROE, Cost-to-Income, Net Profit)</b> .....	15
Digital Payments and Bank Profitability Indicators .....	15
Profitability Trends of Allied Bank and Bank Alfalah (2019–2023) .....	16
Short-Term Pressures, Digital Transaction Growth, and Cost Efficiency .....	17
<b>1.8 RESEARCH QUESTIONS</b> .....	17
<b>1.9 OBJECTIVES OF THE STUDY</b> .....	18
<b>1.10 Scope of the Study</b> .....	18
<b>1.12 Strategic Recommendations for Banks, Regulators, and IT Teams</b> .....	22
For Bank Management and Operations .....	22
For Regulators and Policymakers .....	23
For IT Teams and Technology Partners .....	24
Key IT and Technology Challenges and Requirements .....	24
<b>Chapter 2-Relevant Studies and Theories</b> .....	7
<b>2.1 Concept of Digital Banking</b> .....	7
<b>2.2 Role of SBP in Digital Transformation</b> .....	8
<b>2.3 Digital Payment Infrastructure in Pakistan</b> .....	9
<b>2.4 Impact of SBP's Digital Payment Policies on Bank Profitability</b> .....	11
Fee-Based Income Compression .....	11
<b>2.5 Cost and Compliance Implications</b> .....	12
<b>2.6 Competitive Pressure from EMIs</b> .....	14
<b>2.7 THEORETICAL FRAMEWORK</b> .....	16
Overview of the Theoretical Framework .....	16
Theoretical Justification .....	19

<b>Link to Research Questions</b> .....	19
<b>RESEARCH GAP</b> .....	20
<b>CHAPTER 3-METHODS AND TECHNIQUES (METHODOLOGY)</b> .....	22
<b>3.1 Research Design</b> .....	22
<b>3.2 Type of Study (Quantitative / Secondary Data)</b> .....	23
<b>3.3 Population and Sample (ABL &amp; BAFL)</b> .....	24
<b>3.4 Study Period (2019–2023)</b> .....	24
<b>3.5.1 Dependent Variable: Profitability (ROA, ROE)</b> .....	26
<b>3.5.2 Independent Variable: Digital Payments Proxy (Digital growth indicators)</b> .....	29
<b>3.5.3 Control Variable: CAR</b> .....	30
<b>DATA COLLECTION</b> .....	31
<b>3.6 Data Sources (Annual Reports and SBP Publications)</b> .....	31
<b>A) Bank-Level Data Sources (Allied Bank Limited &amp; Bank Alfalah Limited)</b> .....	31
<b>B) SBP Sources (National Payment-System Context)</b> .....	32
<b>3.7 Data Analysis Technique</b> .....	33
<b>Step-by-Step Analytical Procedure</b> .....	33
<b>3.7.1 Ratio Analysis (ROA, ROE, CAR)</b> .....	34
<b>3.7.2 Trend and Comparative Analysis (2019–2023)</b> .....	35
<b>3.8 Ethical Considerations</b> .....	35
<b>CHAPTER 4-PROJECT OUTCOMES / RESULTS</b> .....	36
<b>4.1 Digital Payment and Digital Banking Growth (ABL vs BAFL)</b> .....	36
<b>4.2 SBP (Industry-Level) Evidence of Digital Growth 2019–2023 )</b> .....	36
<b>4.3 Digital Banking Growth Allied Bank Limited (ABL)</b> .....	37
<b>4.4 Digital Banking Growth Bank Alfalah Limited (BAFL)</b> .....	38
<b>Overall Result Insight (Linking Digital Growth to Profitability)</b> .....	39
<b>4.5 Continued Digital Expansion Bank Alfalah Limited (BAFL)</b> .....	40
<b>4.6 Comparative Digital Discussion</b> .....	41
<b>Overall Comparative Insight</b> .....	41
<b>4.4 Comparative Discussion (Allied Bank Limited vs Bank Alfalah Limited)</b> .....	44
<b>4.5 Summary of Findings</b> .....	46
<b>Chapter5- Project Benefits</b> .....	47
<b>5.1 Benefits for Commercial Banks</b> .....	47
<b>5.2 Benefits for Customers and Financial Inclusion</b> .....	48
<b>5.3 Benefits for Regulators and the Economy</b> .....	49
<b>5.4 Practical Recommendations for Allied Bank and Bank Alfalah</b> .....	49
<b>Concluding Remark</b> .....	51

<b>CHAPTER 6 – LIMITATIONS AND CONCLUSION</b> .....	51
<b>6.1 Conclusion</b> .....	51
<b>6.2 Limitations of the Study</b> .....	52
<b>6.3 Future Research Directions</b> .....	53
<b>Final Remark</b> .....	54
<b>REFERENCE</b> .....	55

## **Graphs and Figure**

<b>Figure 2 Digital Banking Innovation</b> .....	11
<b>Figure 3 Source Payment Systems Reviews</b> .....	11
<b>Figure 4 Bank Alfalah Infrastructure Footprint</b> .....	13
<b>Figure 5 Bank Alfalah Transaction (2022)</b> .....	13
<b>Figure 6 Bank Alfalah Deposits (2023) Figure 7 Bank Alfalah Profit Tax Growth</b> .....	13
<b>Figure 8 Net Profit Growth Due to Digital Expansion</b> .....	16
<b>Figure 10 How Big Pakistani Banks Spend on Technology</b> .....	21
<b>Figure 14 Expansion of Digital Payment Infrastructure in Pakistan</b> .....	6
<b>Figure 15 Digital Payments Momentum</b> .....	9
<b>Figure 16 Digital OTC Bill Payments</b> .....	10
<b>Figure 18 Conceptual Flow of the Framework</b> .....	19
<b>Figure 20 Return on Assets (ROA) 2019-2023</b> .....	26
<b>Figure 21 Return on Equity (ROE) 2019-2023</b> .....	27

## Tables

<b>Table 1 Payment System Review Annual Presented on State Bank of Paksitan Website For The Financial Year 22-23 .....</b>	<b>8</b>
<b>Table 2 Comparision of ABL and BAFL Banks.....</b>	<b>13</b>
<b>Table 3 Profitability Trends of Allied Bank and Alfalah Bank .....</b>	<b>16</b>
<b>Table 4 SBP Payments Systems (FY25).....</b>	<b>6</b>
<b>Table 5 Digital Paymet Channels in Pakistan (FY25).....</b>	<b>6</b>
<b>Table 6 Comparative Competitive Analysis of Commercial Banks and EMI/PSI/PSO .....</b>	<b>15</b>
<b>Table 7 Variables and Measurement .....</b>	<b>25</b>
<b>Table 8 Bank Profitability &amp; Stability Ratios (2019–2023) .....</b>	<b>28</b>
<b>Table 9 Raw Inputs Used to Compute ROA (PKR Millions) ABL and BAFL .....</b>	<b>28</b>
<b>Table 10 SBP Digital Payments Baseline (FY2019).....</b>	<b>28</b>
<b>Table 11 Digital Payments Proxy Indicators (2019–2023) .....</b>	<b>30</b>
<b>Table 12 Digital Growth Bank Alfalah (2019-2023 .....</b>	<b>40</b>
<b>Table 13 Profitability Analysis Allied Bank (2019-2023) .....</b>	<b>42</b>
<b>Table 14 ROE Inputs Allied Bank (PKR Millions) .....</b>	<b>42</b>
<b>Table 15 CAR Component Allied Bank .....</b>	<b>43</b>
<b>Table 16 Profitability Analysis Ratio Analysis Allied Bank (%Values) .....</b>	<b>43</b>
<b>Table 17 Profitability Analysis ROA Trend And Interpreation Bank Alfalah (2019-2023) .....</b>	<b>43</b>
<b>Table 18 ROA Trend And Interpretation Bank Alfalah.....</b>	<b>44</b>
<b>Table 19 CAR Trend &amp; Interpretation (BAFL) CAR Components Bank Alfalah.....</b>	<b>44</b>
<b>Table 20 Profitability Ratios Summary (BAFL) Analysis – Bank Alfalah (% values) .....</b>	<b>44</b>

# Chapter 1- INTRODUCTION

## 1.1 Background of the Study

Digital payment systems have become a cornerstone of modern banking, transforming how financial transactions are conducted in Pakistan and worldwide. In essence, digital payments refer to transactions executed electronically encompassing online banking transfers, card payments, mobile wallets, and other electronic fund transfers as opposed to traditional cash or paper-based methods. In Pakistan, the State Bank of Pakistan (SBP) has championed the advancement of electronic payment systems, recognizing them as critical drivers of financial inclusion and efficiency. Over the past decade, the country's financial landscape has witnessed a rapid expansion of digital channels: from mobile banking apps and internet portals to branchless banking agents and fintech platforms. According to SBP's recent reviews, Pakistan recorded 6.4 billion retail payment transactions in FY2024, of which a remarkable 84% were conducted through digital channels a leap from 76% just a year earlier. This surge reflects a clear shift in consumer behavior towards online transactions, propelled by the convenience and 24/7 accessibility of digital services. However, despite this progress, cash remains deeply ingrained; for instance, over 98% of ATM usage in Pakistan is still for cash withdrawals, underscoring the country's "sticky cash culture" where many daily transactions continue to be cash-based. These nuances highlight the dynamic yet challenging environment in which Pakistani banks operate as they balance digital innovation with ingrained customer preferences.

Within this evolving digital payments landscape, commercial banks play a pivotal role as both service providers and beneficiaries. This study zeroes in on Allied Bank Limited (ABL) and Bank Alfalah Limited, two leading commercial banks in Pakistan, to examine how the rise of digital payment systems impacts their profitability. Both banks are among the industry's frontrunners in adopting digital banking technologies and expanding e-banking services. Allied Bank, established in 1942 (making it one of Pakistan's oldest banks), today boasts a nationwide presence with over 1,482 branches and more than 1,500 ATMs serving its customers. Bank Alfalah, a younger institution founded in 1997 and backed by the Abu Dhabi Group, has rapidly grown into one of the largest private banks with a network of around 1,000 branches across 200+ cities and an expanding fleet of ATMs and cash deposit

machines. Both institutions have invested heavily in digital infrastructure from online banking platforms and mobile applications to extensive ATM/POS networks and fintech partnerships aiming to enhance customer experience and operational efficiency. The rationale for focusing on these two banks lies in their significant market share and their reputation as early adopters of digital banking in Pakistan. By analyzing ABL and Bank Alfalah digital initiatives and financial outcomes, this study will illuminate the broader impact of digital payment system adoption on the profitability of commercial banks in the Pakistani context.

## **1.2 Historical Development of Payment Systems in Pakistan**

Pakistan's payment system has evolved from manual paper based processes to a comprehensive digital framework through a series of regulatory and technological milestones. In the early period, banking transactions relied mainly on cash, cheques, and pay orders, with cheque clearing handled through State Bank of Pakistan (SBP) offices. A major early reform came with the establishment of National Institutional Facilitation Technologies (NIFT) in 1995, which automated cheque clearing and laid the foundation for modern payment processing. Further momentum was gained in the early 2000s when SBP, with World Bank support, launched an IT modernization program, culminating in the introduction of PRISM in 2008. As Pakistan's first real-time gross settlement system, PRISM enabled instant settlement of high value interbank transactions and now handles around PKR 1.2 trillion daily. This infrastructure development was supported by the Payment Systems and Electronic Funds Transfer Act 2007 which provided the legal basis for electronic payments and empowered SBP to regulate payment systems.

On the retail side, electronic payments expanded steadily with the introduction of ATMs in the mid-1980s and their rapid growth in the early 2000s following the creation of interoperable ATM networks through MNET and 1LINK under SBP's direction. Regulatory mandates, including the requirement for at least one ATM per branch, significantly expanded ATM coverage nationwide. The late 2000s marked another shift with the launch of branchless banking, enabled by SBP's 2008 regulatory framework allowing banks to partner with mobile network operators. Services such as Easypaisa and JazzCash extended basic financial services to unbanked populations and grew into large agent networks supporting domestic remittances and payments. During the 2010s, the spread of debit and credit cards, internet banking, and mobile banking was reinforced by SBP regulations on security

standards, EMV chip migration, and the introduction of the domestic PayPak card scheme, alongside adoption of IBAN to improve transfer efficiency.

In the 2020s, Pakistan’s payment ecosystem entered a real time, fintech driven phase. SBP introduced regulatory frameworks for payment service providers and electronic money institutions encouraging non-bank participation and digital wallet solutions. This transformation was anchored by the launch of Raast in 2021, Pakistan’s first instant payment system, which has processed approximately 1.9 billion transactions worth Rs 44.3 trillion by late 2025, significantly accelerating digital retail payments. Complementing this, SBP introduced PRISM+ in 2025, upgrading the RTGS infrastructure to international standards. Overall, Pakistan’s payment system development reflects a gradual transition from basic automation to a fully digital, interoperable, and real-time payments ecosystem driven by sustained regulatory support and technological innovation.

**Table 1 Payment System Review Annual Presented on State Bank of Paksitan Website For The Financial Year 22-23**

	FY19	FY20	FY21	FY22*	FY23*
Commercial Banks	34	33	33	33	33
Microfinance Banks (MFBs)	11	11	11	11	11
Development Financial Institutions (DFIs)	8	8	8	9	9
Payment Service Operators (PSOs)/ Service Providers (PSPs)*	3	4	6	5	5
Electronic Money Institutions (EMIs)*	-	-	-	4	4
Branchless Banks	14	16	16	16	16
PRISM Participants	45	50	54	59	59
Commercial Banks/ MFBs Branches	15,398	16,067	16,308	17,031	17,693
<i>of which</i>					
RTOB Branches	13,481	15,922	16,170	16,892	17,547
Mutual Branches	28	33	35	48	64
Overseas Branches	89	112	103	91	82
ATMs	14,722	15,612	16,355	17,133	17,808
POS Machines	56,911	49,067	71,907	104,865	115,288
Internet Banking Users	3,278,611	3,983,235	5,239,301	8,369,872	9,636,899
Mobile Phone Banking Users	5,626,137	8,451,997	10,872,844	12,339,053	16,061,403
Call Centers/ IVR Banking Users	29,748,743	32,322,973	33,436,122	35,351,561	37,573,162
e-Wallets by EMIs	-	-	-	362,373	2,015,764
Branchless Banking Mobile App Users	-	-	-	40,797,793	57,812,353
e-Commerce Merchants Registered with Banks	1,307	1,707	3,003	4,887	6,889
Merchants Registered with EMIs	-	-	-	4,951	4,956
Freelancers Registered with EMIs	-	-	-	-	46,809
Branchless Banking Agents	421,053	445,181	534,460	637,231	630,033

***I.. PAYMENT SYSTEM REVIEW ANNUAL PRESENTED ON STATE BANK OF PAKISTAN’S WEBSITE FOR THE FINANCIAL YEAR 22-23***

### **1.3 Phases of Digital Payment Evolution in Pakistan**

The evolution of digital payments in Pakistan can be delineated in several “waves” or phases, each marked by distinct technologies and adoption trends

#### **Phase 1 (1990s–early 2000s)**

Focused on early automation and connectivity, laying the foundation for digital banking. During this period banks transitioned to real-time online branch (RTOB) systems, allowing customers to transact nationwide rather than being restricted to a home branch. Interbank ATM connectivity emerged through shared networks such as MNET in 2001 and 1LINK in 2003, culminating in full ATM interoperability by 2004 under SBP’s mandate. Debit card usage for ATM withdrawals and limited POS transactions began to take hold. This phase also included critical infrastructure and legal developments, notably the enactment of the PS&EFT Act 2007 and the launch of the PRISM RTGS system in 2008 for high-value interbank payments. By the end of this phase, nationwide ATM-based banking and electronic fund transfers had become established supported by a growing ATM network and improved interbank settlement mechanisms.

#### **Phase 2 (late 2000s–2015)**

Marked the expansion of digital payments to the mass retail market. The introduction of branchless banking in 2008 enabled banks, in partnership with telecom operators, to offer mobile wallets and agent-based services, significantly extending financial access. Platforms such as Easypaisa and JazzCash facilitated domestic remittances and bill payments, particularly for unbanked populations. At the same time, conventional banks expanded internet and mobile banking services, with most major banks offering online portals and smartphone apps by the mid-2010s. Debit cards became widespread, credit card usage increased under SBP’s 2009 regulations, and the introduction of the domestic PayPak card scheme in 2016 supported further card penetration. By around 2015, Pakistan’s retail payment mix was gradually shifting, with digital channels increasingly replacing paper-based transactions. This shift was reflected in a nearly 50% increase in e-banking transaction volumes between FY2013 and FY2015.

### **Phase 3 (2016–present)**

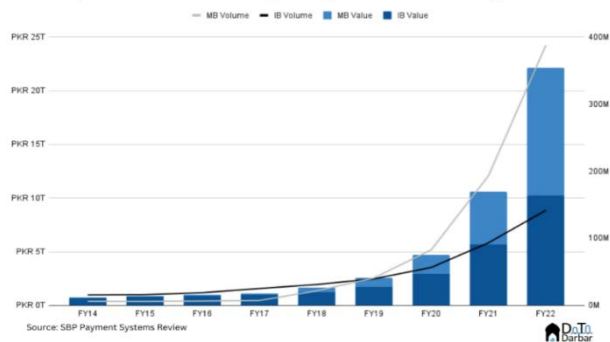
Its characterized by fintech integration and the rise of instant payments. SBP’s introduction of EMI and PSO/PSP frameworks around 2018-19 enabled non-bank fintech firms to enter the payments ecosystem, offering digital wallets, payment gateways, and other specialized services. A major milestone was the launch of Raast in 2021, which introduced free, instant peer-to-peer payments and significantly reduced reliance on cash for small-value transfers. Digital transaction volumes accelerated rapidly, with digital channels accounting for nearly 88% of retail transactions by volume by FY2025. Supporting infrastructure expanded in parallel, including sharp growth in POS terminals, QR-code payments, and digital merchant acceptance. E-commerce payments also shifted decisively toward digital modes, while banks increasingly adopted QR-based and app-driven payment solutions. Although challenges such as cybersecurity risks and uneven access remain, this phase reflects a clear transition toward digital-first payment behavior. Through these phases, one constant has been the SBP’s proactive stance in guiding and facilitating payment innovations. Whether through mandating infrastructure upgrades like ATM expansion and EMV compliance or launching its own services Raast, PRISM and sandboxes, the regulator has significantly shaped the digital payments ecosystem. This evolutionary journey now sets the backdrop for understanding how individual banks are leveraging digital payment systems and what it means for their performance particularly in terms of profitability and growth.

#### **1.4 Allied Bank Limited Digital Banking Initiatives and Performance**

Allied Bank Limited (ABL) represents a successful transformation of a traditional bank into a digitally driven institution. With over 75 years of operations, ABL currently operates 1,500+ online branches and 1,500+ ATMs across Pakistan and has made sustained investments in technology-led banking services. Its core digital platform, myABL Digital Banking, integrates internet and mobile banking and has achieved strong customer adoption. By mid-2024, myABL had over 1.9 million registered users, processing approximately 65 million transactions. Reflecting this shift, 83% of ABL’s total customer transactions were conducted through digital channels by June 2024, up from 77% a year earlier, indicating a sharp reduction in reliance on physical branches for routine banking activities.



**The Exponential Growth Trajectory of Online Banking in Pakistan**



**Figure 1 Digital Banking Innovation** **Figure 2 Source Payment Systems Reviews**

ABL has complemented its core platform with multiple digital innovations to enhance accessibility and convenience. By the end of 2023 the bank had established 14 fully digital self-service branches, equipped with ATMs, interactive kiosks, and video banking facilities. Its myABL WhatsApp Banking service attracted over 1.1 million users within three years, enabling customers to access basic banking services through a familiar messaging interface. Additional initiatives include talking ATMs for visually impaired users, virtual Visa debit cards, QR-based payments, and Raast enabled instant transfers through the myABL app. To encourage digital usage, ABL launched myABL Coinsa loyalty program covering over 3 million cardholders, allowing reward redemption through international networks.

These initiatives have translated into measurable performance outcomes. ABL reported 42% growth in accounts opened through digital channels, indicating that a significant share of new customers are now onboarded digitally. Increased digital adoption has supported deposit growth and reduced transaction costs by shifting activity away from branch-based services. In 2023 Allied Bank’s profit after tax rose to Rs 40.7 billion, nearly doubling from Rs 21.1 billion in 2022 while Return on Equity increased to 29% from 18%. While broader macroeconomic factors also contributed ABL’s management attributes part of this improvement to its digital strategy, automation, and enhanced customer experience. Overall, Allied Bank’s experience illustrates how digital banking and payment systems can strengthen service delivery, operational efficiency, and financial performance.

## **1.5 Bank Alfalah Limited Digital Infrastructure and Key Statistics**

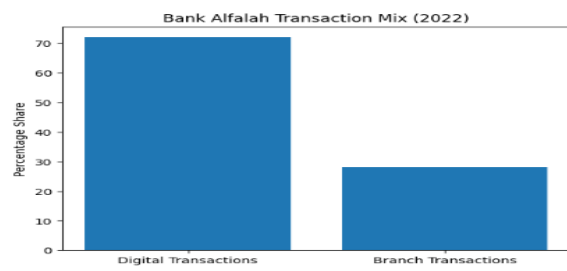
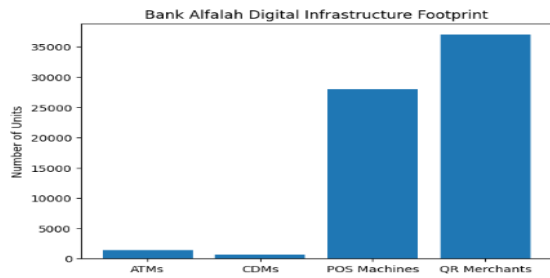
Bank Alfalah Limited has positioned itself as one of Pakistan's leading digitally driven banks, consistently introducing advanced technologies within the financial sector. Established in 1997 and part of the Abu Dhabi Group, the bank operates over 890 branches in Pakistan, crossing the 1,000-branch milestone in 2023 alongside an international presence in Bangladesh, Afghanistan, Bahrain, and the UAE. To complement its physical network, Bank Alfalah has developed a strong alternate delivery infrastructure, including 1,400+ ATMs, 680 Cash Deposit Machines (CDMs), 28,000+ POS terminals, and 37,000+ QR enabled merchants as of 2025. In addition, the bank works with approximately 41,000 branchless banking agents, significantly extending digital financial services to underbanked and remote areas.

At the core of Bank Alfalah's digital strategy is the Alfa mobile banking ecosystem, which provides a comprehensive range of services including fund transfers, bill payments, mobile top-ups, and integrated digital commerce through Alfa Mall. A key achievement has been digital account opening, with over 80% of new accounts opened digitally without paperwork, contributing to rapid customer base expansion..

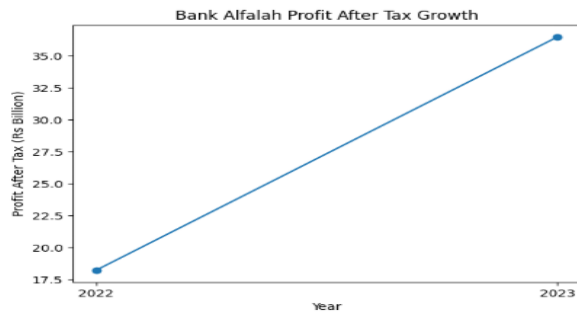
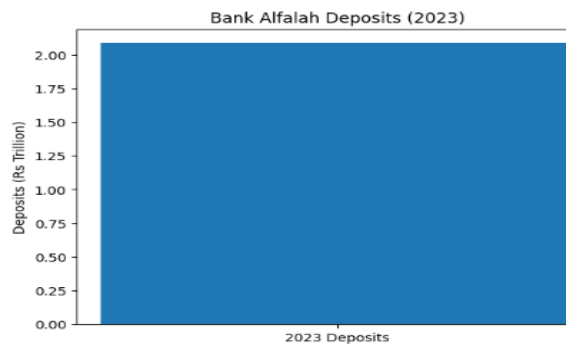
The bank has also led innovation in digital payments and acceptance infrastructure. Bank Alfalah was among the first to offer virtual debit cards for e-commerce promote contactless NFC payments, and deploy Raast P2P and P2M services within its mobile app. It operates a major internet payment gateway, integrating nearly 4,800 e-commerce merchants by 2025. In 2023, the bank launched Pakistan's first "Digital Lifestyle Branch," emphasizing digital onboarding, self-service technologies, and minimal manual processing. These initiatives have earned Bank Alfalah strong industry recognition, including the Pakistan Banking Award for Best Digital Banking (2022).

The expansion of digital infrastructure has been closely linked to improved financial performance. In 2023 Bank Alfalah's deposits rose to Rs 2.085 trillion, representing 40% year-on-year growth, supported by digital savings products and Roshan Digital Accounts. Profit after tax increased to Rs 36.46 billion in 2023, more than double the Rs 18.21 billion recorded in 2022. The bank maintained a solid capital adequacy ratio of 16.7%, indicating that digital expansion was achieved alongside financial stability. Overall, Bank Alfalah's

experience demonstrates how large scale digital infrastructure, combined with high customer adoption, can support growth, efficiency, and profitability in Pakistan’s banking sector.



**Figure 3 Bank Alfalah Infrastructure Footprint** **Figure 4 Bank Alfalah Transaction (2022)**



**Figure 5 Bank Alfalah Deposits (2023)** **Figure 6 Bank Alfalah Profit Tax Growth**

**Table 2 Comparison of ABL and BAFL Banks**

Aspect	Allied Bank Limited (ABL)	Bank Alfalah Limited (BAFL)
<b>Year Established</b>	1942 (75+ years legacy)	1997
<b>Branch Network (Pakistan)</b>	1,500+ online branches	890+ branches (crossed 1,000 in 2023)
<b>ATM Network</b>	1,500+ ATMs	1,400+ ATMs
<b>Digital Banking Platform</b>	myABL (Mobile & Internet Banking)	Alfa Mobile Banking Ecosystem
<b>Digital Users</b>	1.9+ million users (mid-2024)	9.6 million customers (2025), majority digital users
<b>Share of Digital Transactions</b>	83% (June 2024)	72% (2022, increased further thereafter)

<b>Digital Account Opening</b>	42% growth via digital channels	80%+ new accounts opened digitally
<b>Digital Innovations</b>	Digital branches, WhatsApp Banking, QR payments, virtual debit cards, Raast integration	Virtual cards, Alfa Mall, QR & Raast payments, Digital Lifestyle Branch
<b>Branchless / Agent Network</b>	—	41,000+ agents
<b>POS / QR Merchants</b>	—	28,000+ POS, 37,000+ QR merchants
<b>Profit After Tax (2023)</b>	Rs 40.7 billion	Rs 36.46 billion
<b>ROE (Latest)</b>	~29% (2023)	~31.7% (2023)
<b>Key Recognition</b>	Strong digital adoption leadership	Pakistan Banking Award – Best Digital Banking (2022)

## 1.6 Problems in Implementing Digital Payment Systems in Pakistani Banks

Commercial banks in Pakistan, including Allied Bank Limited and Bank Alfalah, face multiple challenges in implementing digital payment systems. A major obstacle is the deep-rooted cash dependency in the economy where customers continue to prefer cash despite the availability of modern digital payment infrastructure. The State Bank of Pakistan has identified this entrenched behavior as a major barrier to digital adoption, requiring banks to invest heavily in customer education and incentives. Another challenge is low customer trust and slow adoption of digital channels. Even with advanced platforms such as myABL and Alfa customers remain concerned about security, reliability and fraud risks. Rising cybersecurity threats further complicate adoption forcing banks to make substantial investments in security systems and customer awareness to build confidence.

High infrastructure and operational costs also hinder digital transformation. Banks must invest heavily in IT systems, mobile applications, servers, and cybersecurity while continuing to maintain traditional branch networks. This dual structure can temporarily worsen cost-to-income ratios, especially when digital usage grows slowly. Operational challenges such as staff retraining, process redesign, and system integration further increase complexity.

Additionally, market and regulatory issues persist, particularly low merchant acceptance of digital payments due to taxes and service fees. Limited acceptance infrastructure reduces the usefulness of digital payments for customers, creating a cycle of low demand and low supply. Although SBP has introduced regulatory frameworks for EMIs, PSOs, and PSPs, consistent regulation and enforcement remain critical to ensuring consumer trust and system stability.

### **Key Challenges Highlighted**

Strong cash preference among customers limits digital payment adoption

Low trust in digital channels due to security and fraud concerns

Rising cybersecurity risks increase compliance and protection costs

High upfront IT investment and ongoing maintenance expenses

Dual cost burden of maintaining branches and digital channels simultaneously

Slow merchant adoption due to taxes and transaction fees

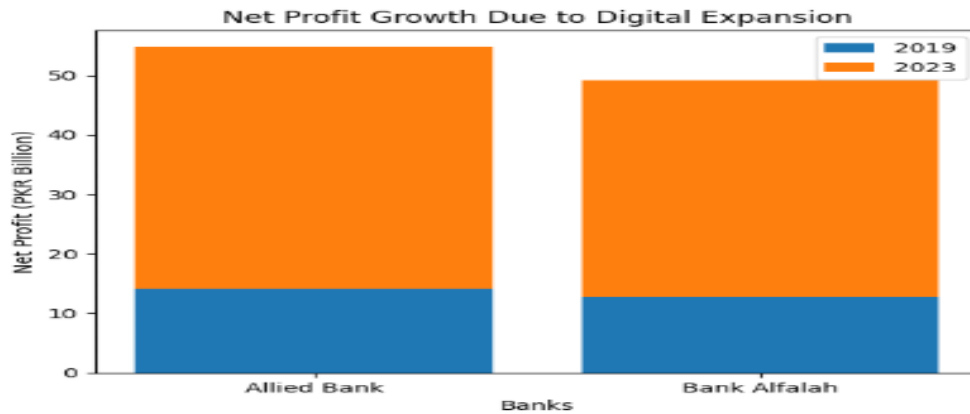
Integration issues with legacy banking systems

Need for clear and consistent regulatory oversight to protect consumers

### **1.7 Impact on Profitability Metrics (ROA, ROE, Cost-to-Income, Net Profit)**

#### **Digital Payments and Bank Profitability Indicators**

The expansion of digital payment systems has direct implications for bank profitability. Key financial indicators such as Return on Assets (ROA), Return on Equity (ROE), net profit, and the cost-to-income ratio are commonly used to assess whether digital investments are generating financial value. The experiences of Allied Bank and Bank Alfalah demonstrate that the impact of digital transformation on these metrics is complex and gradual rather than immediate.



**Figure 7 Net Profit Growth Due to Digital Expansion**

**Profitability Trends of Allied Bank and Bank Alfalah (2019–2023)**

Both banks recorded overall improvements in profitability during the period of digital expansion.

**Allied Bank**

Net profit after tax increased from PKR 14.1 billion in 2019 to PKR 40.7 billion in 2023

ROA improved from 1.0% to 1.78

ROE rose from 16.0% to 29.4%

**Bank Alfalah**

Net income increased from PKR 12.7 billion in 2019 to PKR 36.5 billion in 2023

ROA improved from 1.26% to 1.36%

ROE increased significantly from 15.7% to 31.7%

These trends indicate that, by the end of the period, digital initiatives alongside other strategies were associated with improved profitability and more efficient utilization of assets and equity.

**Table 3 Profitability Trends of Allied Bank and Alfalah Bank**

Bank	Metric	2019	2023
Allied Bank	Net Profit (PKR bn)	14.1	40.7
Allied Bank	ROE (%)	16.0	29.4

<b>Bank Alfalah</b>	Net Profit (PKR bn)	12.7	36.5
<b>Bank Alfalah</b>	ROE (%)	15.7	31.7

### **Short-Term Pressures, Digital Transaction Growth, and Cost Efficiency**

- The impact of digital payments on profitability is not immediate or linear
- Early digital implementation involved high investment costs and exposure to external economic shocks
- Around 2020, profitability indicators weakened
- Bank Alfalah ROA declined from 1.26% (2019) to 0.87%
- Bank Alfalah ROE fell to 11.5%
- These declines were mainly due to loan loss provisions and write-offs during COVID19
- Allied Bank recorded a slight decline in net profit in 2021
- Despite profitability pressure, digital transaction volumes increased sharply
- Allied Bank mobile banking transactions grew from PKR 125 billion (2019) to over PKR 1.5 trillion (2023)
- Bank Alfalah total digital transactions reached approximately PKR 4.0 trillion in 2023
- The sharp rise in digital transactions did not immediately translate into proportional profit growth due to:
  1. Developing revenue models
  2. Customer adoption dynamics
  3. External cost pressures
- Over time, digital payment systems support cost efficiency by reducing transaction and servicing costs
- Both banks reported that expense growth remained below income growth, supporting profitability improvements
- Efficiency gains depend on achieving sufficient scale in digital adoption

### **1.8 RESEARCH QUESTIONS**

The study is guided by the following research questions, which reflect genuine financial and strategic concerns faced by commercial banks in Pakistan

- To what extent has the growth of digital payment systems influenced the profitability of Allied Bank Limited and Bank Alfalah Limited?
- How do changes in digital transaction volumes and digital channel usage relate to key profitability indicators such as ROA, ROE, and net profit?
- Does increased reliance on digital payments contribute to improved cost efficiency in commercial banks, or does it initially exert pressure on financial performance due to high investment costs?
- How do the digital transformation outcomes of Allied Bank Limited compare with those of Bank Alfalah Limited in terms of profitability and operational efficiency?
- What challenges limit the ability of digital payment systems to generate immediate financial returns for Pakistani banks?

## **1.9 OBJECTIVES OF THE STUDY**

The main objective of this study is to examine the impact of digital payment systems on the profitability of selected commercial banks in Pakistan.

The specific objectives are

- To analyze the growth and adoption of digital payment systems in Allied Bank Limited and Bank Alfalah Limited.
- To evaluate trends in profitability indicators (ROA, ROE, net profit, and cost-to-income ratio) of the selected banks during the period of increasing digitalization.
- To assess the relationship between digital transaction growth and financial performance of the selected banks.
- To compare the digital banking strategies and profitability outcomes of Allied Bank Limited and Bank Alfalah Limited.
- To identify operational and structural challenges that affect the realization of profitability gains from digital payment systems.

## **1.10 Scope of the Study**

This study is limited to examining the impact of digital payment systems within the Pakistani banking sector, with a specific focus on selected commercial banks. The scope of the research is outlined below

### **Institutional Scope**

The research concentrates on two major commercial banks operating in Pakistan, namely Allied Bank Limited (ABL) and Bank Alfalah Limited. These banks have been selected because of their prominent role in digital banking and their active involvement in the development and expansion of digital payment services within the country.

### **Conceptual Scope**

The study focuses on digital payment systems used by commercial banks, including mobile and internet banking, card-based transactions, ATMs, POS and QR-code payments, branchless banking services, and instant payment platforms such as Raast. The impact of these systems is evaluated in relation to bank profitability, measured through financial indicators such as return on assets (ROA), return on equity (ROE), net profit, and cost efficiency.

### **TimeScope**

The analysis covers the period from 2019 to 2023, a phase marked by rapid growth in digital payment adoption in Pakistan. Where relevant, recent developments extending into 2024 are also considered to provide contextual support.

### **Data Scope**

The study is based entirely on secondary data obtained from the published annual reports of Allied Bank Limited and Bank Alfalah Limited, along with official reports and statistical publications issued by the State Bank of Pakistan.

### **Geographical Scope**

The research is confined to Pakistan and examines only the domestic operations of the selected banks. International activities or overseas branches of Allied Bank Limited and Bank Alfalah Limited are outside the scope of this study.

## **1.11 Operational, Financial, and Technological Requirements to Bridge the Investment Profitability Gap**

To bridge the gap between heavy digital investment and actual profitability gains, banks must meet several operational, financial, and technological requirements. Essentially the goal is to

ensure that digital payment systems are not only implemented, but also utilized effectively to generate returns.

### **Operational requirements**

To succeed in the digital age banks must fundamentally reengineer their internal processes and customer service models. This requires training employees and customers on new platforms, redesigning workflows, and fostering an organizational culture that embraces innovation. Both Allied Bank and Bank Alfalah integrated digital workflows such as fully online customer onboarding and handling service requests through in-app chat, call centers, or digital helpdesks instead of branch visits. A critical operational requirement is designing intuitive user interfaces and smooth customer journeys so that even less tech-savvy customers can comfortably migrate to digital channels. Improving digital onboarding plays a central role; for example, Allied Bank's branchless wallet launched in 2020 enabled customers to open accounts via mobile without visiting a branch, significantly lowering access barriers and encouraging adoption. Banks must also ensure robust customer support mechanisms, including 24/7 helplines, chatbots, and digital service desks, to resolve issues quickly and build trust in digital services.

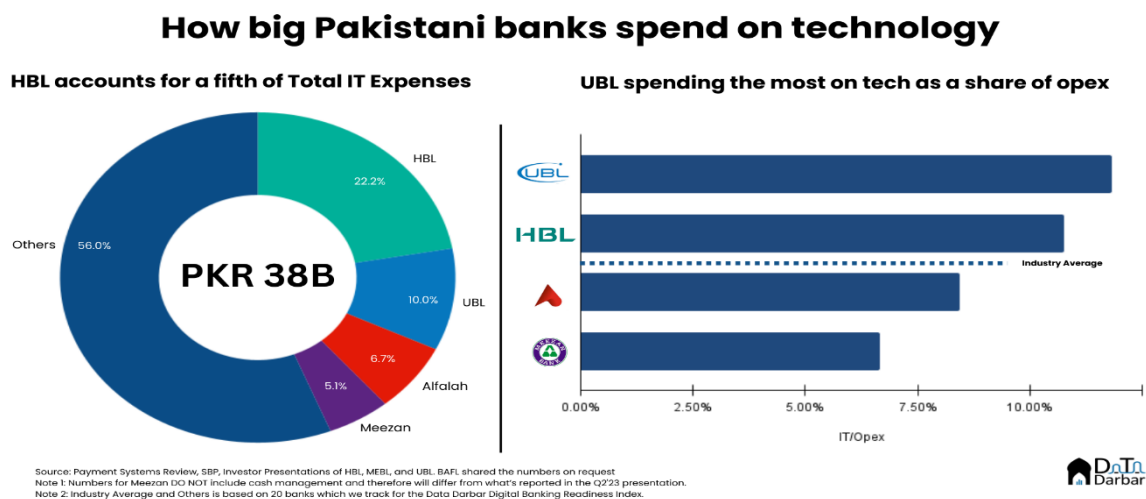
Another key operational requirement is aligning fintech initiatives with the bank's overall strategy rather than adopting technology in isolation. Digital services should clearly enhance efficiency or revenue generation. Bank Alfalah partnership with organizations such as EOBI to digitize pension payments illustrates how targeted digital initiatives can rapidly expand the customer base. By prioritizing high-impact use cases such as bill payments, e-commerce integration, and payroll solutions, banks can ensure digital channels contribute meaningfully to transaction volumes and fee income. Continuous optimization is also essential, as digital banking success depends not only on attracting users but also on retaining them through improved app performance, new features, and personalized services. The gradual evolution of Allied Bank's internet banking into the myABL app and the continuous expansion of Bank Alfalah Alfa ecosystem demonstrate the sustained commitment required at the operational level.

### **Financial Requirements**

Bridging the gap between digital investment and profitability requires careful financial planning. Banks must allocate adequate budgets for digital transformation while managing

the impact on financial ratios. This includes conducting cost-benefit analyses to estimate adoption thresholds needed to recover investment costs. Both Allied Bank and Bank Alfalah reached such tipping points as digital usage scaled; Allied’s app users increased from 426,000 in 2019 to 1.66 million by 2023, while Bank Alfalah active digital customers reached 6.8 million by 2023. Achieving this scale is essential to dilute fixed IT costs. In the early stages, banks may need to subsidize digital adoption through fee waivers, incentives, or awareness campaigns as a long-term investment in profitability.

Cost optimization is another major financial requirement. Banks must convert digital adoption into tangible cost savings by reducing reliance on manual processes, cash handling, and paper-based operations. This may involve branch rationalization, conversion of branches into digital service centers, automation of back-office processes, and reduced physical documentation. Evidence from fintech adoption suggests that digital channels such as ATMs and mobile banking lower operating costs per transaction. Additionally, banks must maintain financial resilience during the transition by preserving strong capital buffers and liquidity. Despite fluctuations in short-term profitability, both Allied Bank and Bank Alfalah maintained capital adequacy within regulatory requirements during their digital expansion, with Allied Bank’s CAR rising to 26.2% in 2023 and Bank Alfalah remaining around 16–17%. This highlights the importance of balancing aggressive digital investment with prudent risk and capital management.



**Figure 8 How Big Pakistani Banks Spend on Technology**

## Technological Requirements

From a technological perspective, banks require a secure, scalable, and interoperable digital infrastructure. Core systems must support high-volume real-time transactions and seamless integration across channels such as mobile banking, internet banking, ATMs, and external payment networks. Interoperability is particularly important, including connectivity with national systems like Raast and compatibility with fintech platforms and payment gateways. Both Allied Bank and Bank Alfalah attribute their digital growth to early and sustained technology investments; Allied Bank began developing internet banking in 2006 and continuously upgraded its platforms, enabling scalability as user numbers surged.

Modern technological practices such as cloud computing, API-based modular architectures, and advanced data analytics are also essential. These technologies allow faster deployment of new services, improved system resilience, and better handling of peak transaction loads. Cybersecurity remains a non-negotiable requirement, as digital expansion increases exposure to cyber threats. Banks must implement strong security measures including encryption, multi-factor authentication, real-time fraud monitoring, and regular security audits. Both Allied Bank and Bank Alfalah strengthened their cybersecurity frameworks alongside digital rollouts, recognizing that customer trust depends heavily on system safety. In addition, system reliability and user experience are critical slow or unstable applications can undermine adoption. Continuous testing, customer feedback mechanisms, and iterative improvements are therefore integral technological requirements for making digital payments a sustainable and profitable banking channel.

## **1.12 Strategic Recommendations for Banks, Regulators, and IT Teams**

Successfully integrating digital payment systems in a way that boosts profitability will require coordinated strategy from banks, regulators, and their IT teams. Below are strategic requirements and recommendations for each stakeholder:

### **For Bank Management and Operations**

Commercial banks should prioritize customer centric innovation and outreach to accelerate digital payment adoption. This includes conducting awareness campaigns that emphasize the convenience, speed, and security of digital payments to overcome customer skepticism. Educating users that mobile and app-based payments are often faster and cheaper than cash transactions can reinforce trust in digital channels. Banks should also streamline onboarding by simplifying account opening and digital enrollment processes, such as adopting e-KYC

procedures and providing step-by-step guidance within mobile applications. Reducing friction at the entry stage is critical to increasing user participation.

In parallel, banks must expand the acceptance ecosystem by forming partnerships with merchants and businesses. Incentivizing retailers to adopt POS terminals or QR payment solutions through fee reductions, equipment subsidies, or reward schemes can help address resistance caused by transaction charges or tax concerns. As digital usage grows, banks should pursue cost optimization by gradually repurposing or consolidating physical branches and shifting staff from routine transaction roles to advisory and customer support functions. To remain competitive, banks must continuously adopt emerging technologies, including mobile wallets, contactless and QR payments, and fintech collaborations such as open banking initiatives. Developing an organizational culture that supports innovation and agility is therefore essential for sustaining market relevance in a rapidly evolving banking environment.

### **For Regulators and Policymakers**

Regulators, particularly the State Bank of Pakistan (SBP), play a central role in creating an enabling environment for digital payments. Strengthening regulatory frameworks for e-money, consumer protection, data privacy, and cybersecurity is essential to building trust in digital financial services. Clear and consistently enforced standards increase customer confidence and encourage migration from cash-based transactions. Continued promotion of system interoperability, exemplified by the Raast instant payment system, is equally important as it allows seamless transactions across banks and fintech platforms.

Regulators and the government can also influence adoption through financial incentives and policy interventions. Measures such as reducing taxes on digital transactions or providing subsidies and tax credits to small merchants adopting digital payment systems can address key cost-related barriers. In addition, national level financial literacy and awareness programs are necessary to educate consumers, particularly in rural and less digitally literate segments, about the use and benefits of digital banking. Collaborative initiatives between SBP, banks, and fintech firms through regulatory sandboxes and pilot programs can further encourage innovation while maintaining system stability and security. Overall, the regulator's role is to balance innovation with protection by fostering a secure, interoperable, and inclusive digital payments ecosystem that supports Pakistan's transition toward a less cash dependent economy.

## **For IT Teams and Technology Partners**

IT teams within banks, along with fintech partners and vendors, play a critical role in translating digital payment strategies into operational reality. A key requirement is ensuring system interoperability and scalability, so that all digital channels mobile apps, internet banking, and ATMs operate on an integrated back-end with seamless data flow. This often requires upgrading core banking systems to support API-based architectures and real-time processing. Adopting modern development approaches such as agile and DevOps enables faster deployment of updates and rapid response to evolving customer needs and security risks. Interoperability must also extend beyond the bank, including integration with national payment systems, utility bill aggregators, and fintech platforms such as mobile money services and Raast which significantly broaden digital payment reach in Pakistan.

Cybersecurity and system reliability are central technological priorities. Banks must deploy multi-layered security frameworks, including encryption, intrusion detection, regular audits, and fraud monitoring, to counter rising cyber threats. Proactive measures such as incident response planning and simulated cyberattack drills help minimize potential damage and preserve customer trust. At the same time, high system availability is essential; frequent outages or transaction failures can push users back toward cash. Reliable infrastructure, supported by cloud solutions and disaster recovery systems, ensures uninterrupted 24/7 service delivery.

## **Key IT and Technology Challenges and Requirements**

- Seamless integration of all digital channels on a unified backend
- Scalable and API-enabled core banking systems
- Rapid deployment through agile and DevOps practices
- Integration with Raast, fintech platforms, and bill payment systems
- Strong cybersecurity frameworks and fraud prevention measures
- High system reliability, uptime, and disaster recovery readiness
- Continuous user experience enhancement and feature innovation
- Use of AI, analytics, and chatbots to improve engagement



**Table 3 Growth of Retail Payment Transactions In Pakistan (FY23-24)**

Fiscal Year	Retail Payments Volume (Billions )	Retail Payments Value (PK Trillions)	Digital Share Retail Payment
FY23	4.7	403	76
FY24	6.4	547	84
FY25	9.1	612	88

**Table 4 SBP Payments Systems (FY25)**

Indicator	Value
Total Retail Payments	2,408(Million)
Retail Payments Value	164(PKR Trillion)
Digital Share	89(%)
Raast Transactions	371(Million)
Raast Value	8.5(PKR Trillion)
Mobile Banking App Users	22.6(Million)
Internet Banking Users	14.1(Million)

**Table 5 Digital Paymet Channels in Pakistan (FY25)**

Channel	Transaction Volume (Billion)
Mobile Banking Applications	6.2
Internet Banking	0.297

**Figure 9 Expansion of Digital Payment Infrastructure in Pakisan**

Indicator	Evidence from SBP Publications
POS Terminals	SBP reports a significant year-on-year increase in POS deployment, indicating wider merchant acceptance of digital payments
Mobile Banking Users	SBP data confirms continuous growth in mobile banking app users, reflecting increased reliance on digital channels
Branchless Banking & Wallets	Rapid expansion in branchless banking and e-money wallets, supporting financial inclusion
Digital Acceptance Points	SBP highlights improved QR-based and merchant digital acceptance infrastructure

## **Chapter 2-Relevant Studies and Theories**

### **2.1 Concept of Digital Banking**

The transition from traditional brick-and-mortar banking to digital banking is commonly referred to as digital banking. Digital banking allows customers to access financial services and perform transactions electronically without the need to physically visit a bank branch (Nesakumar, Arthi et al., 2022). With the increasing use of technology in financial transactions, internet banking has become an essential component of modern banking systems (Aliyu, 2012). Technological advancements have significantly improved bank–customer interactions and reshaped how banking services are delivered.

Traditional banking channels such as ATMs, debit and credit cards, online banking platforms, and mobile banking applications have become integral to financial service delivery. As banking practices vary across countries, consumers are increasingly shifting towards electronic channels due to convenience, accessibility, and security. This shift reflects a global change in consumer behavior from conventional banking methods towards digital banking systems, a trend that has also been widely incorporated into Pakistan’s banking sector over the past few years.

Digital transformation in banking primarily refers to the use of digital technology to enhance business models, improve operational efficiency, and strengthen customer engagement. Digital tools have improved communication between governments, banks, and potential clients, enabling banks to offer seamless services. Online banking allows customers to open, manage, and monitor their bank accounts from any location with an internet connection (Bennett, 2022). This ease of access has attracted consumers across all age groups, contributing to increased usage of digital payment systems.

In Pakistan, security concerns associated with carrying cash and visiting physical bank branches have further accelerated the adoption of digital banking. Reports of robberies near bank premises have created fear among customers, making digital banking a safer alternative. Digital banking reduces such risks by allowing transactions to be conducted from the comfort of consumers’ homes. Banks now offer mobile applications and websites that provide full banking functionality, including fund transfers, bill payments, and complaint registration without requiring physical branch visits.

Additionally, innovative solutions such as QR code payments have enabled consumers to make payments conveniently from any location. Allied Bank Limited has further enhanced digital banking by introducing Pakistan's first digital locker system, allowing customers to access lockers digitally without bank staff supervision. Such initiatives demonstrate how digital payment systems act as a foundation for further innovation, indirectly contributing to the expansion of banks' customer base and overall profitability.

## **2.2 Role of SBP in Digital Transformation**

The State Bank of Pakistan (SBP) has played a central role in facilitating the digital transformation of Pakistan's banking sector. Alongside commercial banks, SBP has introduced various policies and initiatives to accommodate the evolving needs of consumers and promote the adoption of digital financial services. SBP's regulatory support has encouraged banks to modernize their operations and invest in digital infrastructure.

Pakistan's commercial banks have demonstrated growing commitment to digitalization, reflecting expectations of increased efficiency and long-term profitability. However, to ensure effective adoption, SBP's support remains critical. This support may include conducting webinars, providing technical training, and offering forecasting and modelling tools to help banks better understand and monetize digital payment systems. One proposed solution is the establishment of a dedicated SBP-affiliated training institute that conducts regular training sessions for commercial banks, focusing on current trends and future developments in digital payments.

SBP has also taken steps to facilitate consumer adoption of digital payment systems by ensuring responsible pricing policies. According to financial experts, SBP's pricing framework allows banks, fintech firms, Electronic Money Institutions (EMIs), Payment System Operators (PSOs), and Payment Service Providers (PSPs) to continue investing in Pakistan's digital payment ecosystem while maintaining fair competition and strong consumer protection (News, 2025). Such initiatives are essential for fostering trust and ensuring the sustainability of digital financial services.

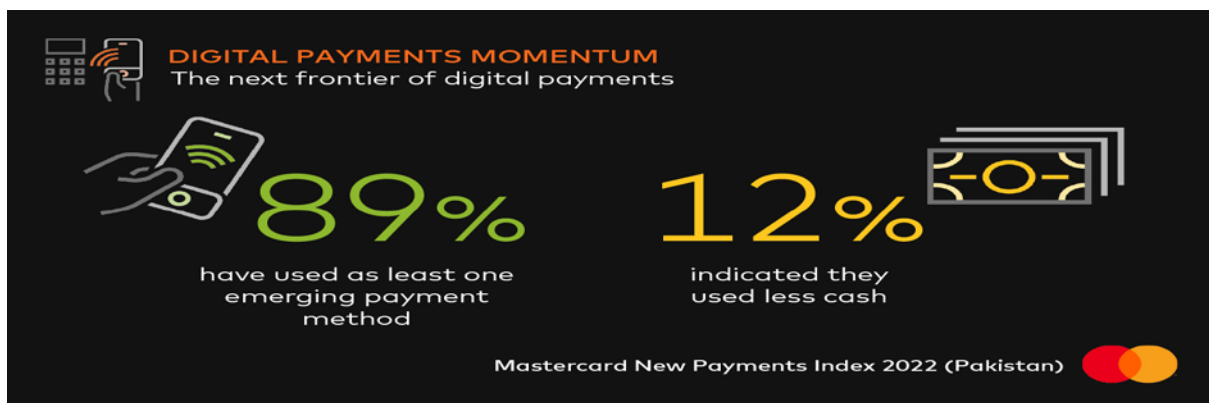
Moreover, SBP has actively supported the shift towards a cashless economy by promoting digital payment portals and encouraging collaboration between banks and non-banking financial institutions. These measures aim to create an enabling regulatory environment that supports innovation, enhances financial inclusion, and strengthens the overall efficiency of the banking sector.

### 2.3 Digital Payment Infrastructure in Pakistan

Despite notable advancements in digital banking infrastructure, Pakistan continues to exhibit relatively low adoption of digital payment transactions compared to other South Asian economies. This gap reflects a structural imbalance between the availability of digital financial services and the actual behavioral adoption by consumers and businesses. While private banks and fintech players have developed technologically capable platforms, the economy remains heavily cash dependent, indicating that infrastructure alone is insufficient to drive a fully digital payments transition.

Over the past decade, Pakistan’s digital payment ecosystem has gradually evolved due to regulatory reforms, fintech innovation, and the entry of non-bank institutions such as electronic money institutions (EMIs), payment system operators (PSOs), and payment service providers (PSPs). These entities have improved access to financial services, particularly for underbanked populations, through mobile wallets and branchless banking solutions. However, widespread reliance on cash persists, especially among small merchants, informal sector participants, and rural households, largely due to low financial literacy, security concerns, and limited incentives for cashless transactions.

**Figure 10 Digital Payments Momentum**

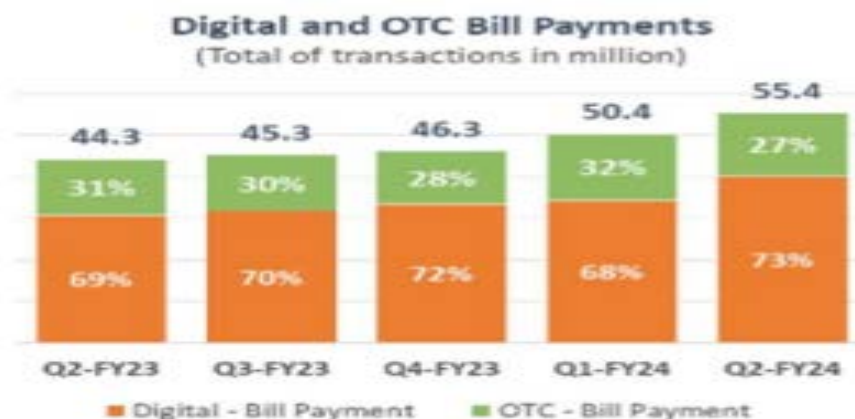


Infrastructural limitations further constrain digital payment adoption. Inconsistent electricity supplies uneven internet penetration, and frequent network disruptions particularly in remote areas reduce system reliability and negatively affect user experience. These challenges not only discourage sustained usage but also limit the ability of banks to generate consistent returns from digital payment investments. Consequently, the profitability of digital payment systems depends not only on banks internal technological capabilities but also on external

factors such as public infrastructure quality, regulatory support, and government-led digital inclusion initiatives. Addressing these challenges requires a coordinated approach involving financial literacy initiatives, improved digital infrastructure, and supportive policy measures. While digital payment systems hold strong long term potential to enhance efficiency, expand customer reach, and diversify revenue streams, their short-term profitability remains constrained by behavioral resistance and infrastructural gaps. This context underscores the need to assess whether digital financial inclusion alone is sufficient or whether complementary regulatory and infrastructural interventions are essential for ensuring the sustainable profitability of Pakistan’s commercial banks.

**Key Point**

- Pakistan has advanced digital banking infrastructure, but digital payment adoption remains low.
- A strong cash-based culture persists despite the availability of digital services.
- Growth in digital payments is supported by banks, fintech firms, and non-bank institutions such as EMIs, PSOs, and PSPs.
- Major barriers include low financial literacy, security concerns, and limited incentives for cashless transactions.
- Infrastructural issues such as poor internet connectivity and unreliable electricity hinder adoption, especially in rural areas.
- The profitability of digital payment systems depends on adoption scale, public infrastructure, and regulatory support, with limited short-term returns but strong long-term potential.



**Figure 11 Digital OTC Bill Payments**

## **2.4 Impact of SBP's Digital Payment Policies on Bank Profitability**

### **Fee-Based Income Compression**

One of the most significant and immediate impacts of the State Bank of Pakistan's (SBP) digital payment policies on commercial banks has been the compression of fee-based income. Traditionally, commercial banks in Pakistan relied heavily on non-interest income generated through transaction fees, including charges on interbank fund transfers, over-the-counter cash services, card-based transactions, and merchant payments. These fee-based revenues served as an important supplement to interest income and played a critical role in maintaining banks' profitability, particularly during periods of fluctuating interest rates.

With the introduction of SBP-backed digital payment initiatives, especially instant and low-cost transfer systems, banks have experienced a notable decline in transaction-related earnings. Digital payment platforms, many of which are either free or offered at minimal cost, have reduced customers' reliance on traditional fee-generating banking channels. As more customers migrate to digital platforms for routine financial transactions, the volume of transactions processed through conventional channels has declined, leading to a direct reduction in non-interest revenue.

This shift has particularly affected banks that historically depended on transactional fees as a major source of income. In the short term, the reduction in fee-based revenue has exerted pressure on profitability margins, forcing banks to reassess their pricing models and revenue strategies. Moreover, the regulatory emphasis on affordability and financial inclusion has limited banks' ability to introduce alternative charges on digital transactions, further intensifying the compression of fee income. As a result, commercial banks face the challenge of sustaining profitability in an environment where traditional revenue streams are steadily eroding due to policy-driven digitalization.

In addition to the immediate decline in transaction-related fees, fee-based income compression has also altered the long-term revenue planning of commercial banks. Historically, fee income provided banks with a relatively stable and predictable revenue stream that was less sensitive to interest rate fluctuations. With SBP encouraging low-cost and interoperable digital payment systems, banks are increasingly constrained in their ability

to design differentiated pricing strategies for payment services. This has reduced pricing flexibility and weakened banks' control over revenue generation in the retail payments segment.

Moreover, the expectation of low or zero transaction costs has reshaped customer behavior. Consumers now perceive digital payments as a basic utility rather than a value-added banking service, making them resistant to any form of transaction charges. This behavioral shift further limits banks' capacity to reintroduce fees without risking customer dissatisfaction or migration to alternative platforms. As a result, banks are forced to compensate for declining fee income by cross-selling other financial products such as consumer financing, credit cards, and investment services.

However, this transition is not immediate and requires substantial investment in customer analytics, marketing, and digital engagement tools. Until such alternative revenue streams mature, the compression of fee-based income continues to weigh heavily on banks' profitability. Consequently, SBP's digital payment policies have compelled banks to move away from traditional transaction-driven revenue models toward more diversified and service-oriented income structures.

## **2.5 Cost and Compliance Implications**

In addition to revenue-side pressures, SBP's digital payment policies have significantly increased cost and compliance requirements for commercial banks. To meet regulatory standards related to real-time payment processing, system uptime, cyber security, and data protection, banks are required to invest heavily in technological infrastructure. Many banks, particularly those operating on legacy core banking systems, must undertake costly system upgrades to ensure compatibility with modern digital payment rails and interoperability requirements.

These capital expenditures are often substantial and place a strain on banks' financial resources, especially in the short to medium term. Smaller banks, with limited economies of scale, are particularly vulnerable to these increased costs, as they lack the financial flexibility enjoyed by larger institutions. Alongside infrastructure investments, banks must also allocate resources toward staff training, system maintenance, and the integration of digital platforms across multiple service channels.

Furthermore, SBP's strong emphasis on consumer protection and service reliability has increased the regulatory and administrative burden on banks. Compliance requirements related to fraud prevention, transaction reversals, dispute resolution timelines, and downtime reporting demand additional operational oversight. Failure to meet these standards can result in financial penalties, reputational damage, and customer dissatisfaction, all of which can negatively affect profitability. While these measures enhance trust and stability within the digital payment ecosystem, they also increase operational complexity and cost, reinforcing the short-term adverse impact on bank profitability.

Beyond infrastructure and compliance costs, SBP's digital payment regulations have also increased indirect operational expenses for commercial banks. Continuous system monitoring, periodic regulatory audits, and mandatory reporting requirements demand additional human resources and specialized expertise. Banks are increasingly required to hire IT professionals, cyber security analysts, and compliance officers to ensure adherence to evolving regulatory standards. These staffing requirements further elevate operating costs and reduce short-term profitability.

Another important cost implication arises from the need to maintain service continuity. SBP's strict guidelines regarding system downtime and transaction failures require banks to invest in backup systems, disaster recovery sites, and redundant network infrastructure. While these measures enhance system resilience and consumer confidence, they significantly increase capital expenditure. For banks operating in a highly competitive environment with thin margins, these additional costs can constrain financial flexibility.

Furthermore, compliance with customer protection regulations, including fraud resolution and dispute handling, often results in reimbursement costs borne by banks. Even when fraud occurs due to customer negligence, banks may still be required to absorb losses to maintain regulatory compliance and reputational integrity. Although these measures strengthen the digital ecosystem in the long run, they contribute to a higher cost base for banks. Therefore, SBP's regulatory framework, while essential for system stability, places sustained financial pressure on banks, particularly during the early stages of digital transformation.

## **2.6 Competitive Pressure from EMIs**

Another critical consequence of SBP's digital payment policies is the heightened competitive pressure faced by commercial banks due to the entry of non-bank financial institutions into the payment ecosystem. By licensing Electronic Money Institutions (EMIs), Payment Service Providers (PSPs), and Payment System Operators (PSOs), SBP has encouraged innovation and competition within the digital payments market. These non-bank entities typically operate with lean cost structures and focus heavily on customer-centric digital solutions, enabling them to offer services at little or no cost.

The growing presence of EMIs and fintech firms has not only intensified competition but has also fundamentally changed customer expectations within the payment ecosystem. These non-bank entities prioritize speed, convenience, and user experience, often offering simplified onboarding processes and intuitive digital interfaces. In contrast, traditional banks operate within stricter regulatory frameworks, which can limit their agility and speed of innovation. This structural difference places banks at a competitive disadvantage in attracting digitally native consumers. Additionally, EMIs benefit from data-driven business models that allow them to rapidly analyze customer behavior and tailor services accordingly. Their ability to leverage transaction data for targeted offerings enhances customer engagement and loyalty. Commercial banks, however, often face regulatory and organizational constraints that slow the effective utilization of customer data. As a result, banks may struggle to match the personalized services offered by fintech competitors. This dynamic reinforces the uneven impact of SBP's digital payment policies and highlights the need for banks to continuously adapt their strategies to remain competitive and profitable.

**Table 6 Comparative Competitive Analysis of Commercial Banks and EMI/PSI/PSO**

<b>Dimension</b>	<b>Commercial Banks (Score)</b>	<b>EMIs / PSPs / PSOs (Score)</b>	<b>Competitive Gap (<math>\Delta</math>)</b>
Regulatory Burden	5	2	+3
Operating Cost Structure	4	2	+2
Pricing Flexibility	2	5	-3
Customer Acquisition Speed	2	5	-3
Profitability Pressure	4	2	+2
Innovation Speed	2	5	-3
User Experience Quality	3	5	-2
Onboarding Simplicity	2	5	-3
Data Analytics Capability	3	5	-2
Market Share Growth Potential	2	5	-3
Ability to Monetize Payments	3	4	-1
Short-Term Loss Absorption	2	5	-3
Competitive Pressure Faced	5	2	+3
Long-Term Strategic Resilience	4	3	+1

## **2.7 THEORETICAL FRAMEWORK**

### **Overview of the Theoretical Framework**

The theoretical framework of this study explains the relationship between digital payment systems and bank profitability in the context of Pakistan's commercial banking sector. It is grounded in the idea that digital transformation influences bank performance through multiple operational, financial, regulatory, and technological channels. While digital payment systems are expected to enhance efficiency and profitability in the long run, their short-term financial impact may be constrained by high investment costs, regulatory pressures, and behavioral resistance.

This study focuses on Allied Bank Limited (ABL) and Bank Alfalah Limited (BAFL) and examines how digital payment adoption supported and regulated by the State Bank of Pakistan (SBP) affects profitability indicators such as Return on Assets (ROA), Return on Equity (ROE), Net Profit, and Cost-to-Income Ratio.

### **Independent Variable**

- Digital Payment Systems
- Digital payment systems represent the primary independent variable in this study and include:
  - Mobile banking applications
  - Internet banking platforms
  - Card-based transactions (debit/credit cards)
  - ATM-based electronic transactions
  - POS and QR-code payments
  - Branchless banking and digital wallets
  - Instant payment systems such as Raast

These systems reflect the level of digital adoption and transaction migration from traditional banking channels to electronic platforms.

## **Dependent Variable**

- Bank Profitability
- Bank profitability is the dependent variable and is measured using standard financial performance indicators:
- Return on Assets (ROA)
- Return on Equity (ROE)
- Net Profit
- Cost-to-Income Ratio

These indicators assess how effectively banks utilize assets, equity, and operational resources in a digitally transforming environment.

## **Mediating Variables**

### **Operational Efficiency and Cost Structure**

The relationship between digital payment systems and profitability is mediated by changes in operational efficiency and cost dynamics. According to the study data

Digital payments reduce transaction handling costs over time by shifting activity away from physical branches.

Automation and digital workflows improve service speed and reduce manual processing.

However, in the short term, high IT investment, cybersecurity expenses, and staff training increase operating costs.

Fee-based income compression caused by SBP's low-cost digital payment policies reduces non-interest income.

These mediating factors explain why profitability improvements are gradual rather than immediate.

## **Moderating Variables**

### Regulatory, Infrastructural, and Competitive Factors

The impact of digital payment systems on bank profitability is influenced by several moderating variables:

#### **1.Regulatory Environment (SBP Policies)**

SBP's promotion of low-cost and instant payment systems compresses fee-based income.

Strict compliance requirements increase operational and regulatory costs.

Consumer protection and cybersecurity regulations raise cost burdens but enhance system trust.

#### **2.Public Infrastructure**

Internet connectivity, electricity reliability, and network stability affect digital usage.

Weak infrastructure, especially in rural areas, limits adoption and transaction volumes.

Infrastructure quality influences the scale at which digital payments become profitable.

#### **3.Customer Behavior**

Strong cash preference and low financial literacy slow digital adoption.

Security and fraud concerns reduce willingness to use digital channels.

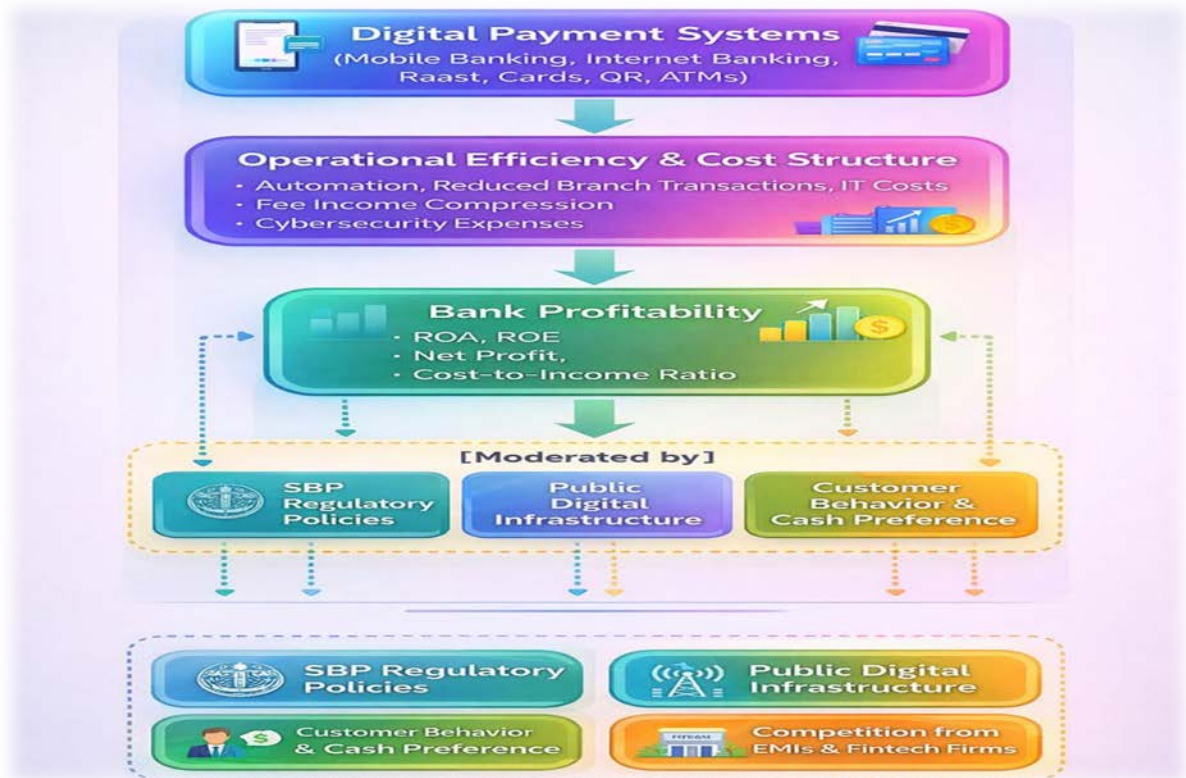
Limited incentives for cashless transactions restrict transaction migration.

#### **4. Competitive Pressure from EMIs and Fintechs**

Entry of EMIs, PSOs, and PSPs intensifies competition.

Non-bank players operate with lower costs and offer free or low-cost services.

Competition reduces banks' market share in retail payments and limits revenue generation.



**Figure 12** Conceptual Flow of the Framework

### Theoretical Justification

This framework is aligned with the efficiency and innovation-driven view of digital banking, which suggests that technology adoption improves bank performance by lowering costs and expanding customer reach. However, consistent with your data, the framework also recognizes short-term profitability pressure due to regulatory constraints, infrastructure gaps, and competitive forces. The framework therefore supports the study’s central argument that digital payment systems generate long-term profitability gains only when supported by scale, infrastructure, regulatory balance, and behavioral change.

### Link to Research Questions

- The theoretical framework directly supports the research questions by:
- Explaining how digital payment growth affects profitability,
- Identifying why profitability gains are delayed,
- Clarifying what factors limit or enhance financial returns, and
- Providing a structured basis for comparing ABL and BAFL.

## **RESEARCH GAP**

Pakistan has witnessed rapid expansion in digital payment infrastructure, supported by the State Bank of Pakistan's regulatory initiatives, fintech integration, and increasing digital transaction volumes. Existing discussions and policy reports largely emphasize the growth of digital payment channels, improvements in financial inclusion, and the technological readiness of banks. However, despite this visible expansion, several critical gaps remain in understanding the financial implications of digital payment systems for commercial banks.

First, while aggregate data shows a sharp rise in digital transaction volumes and digital share of retail payments, there is limited bank level empirical analysis that directly links digital payment adoption to profitability indicators such as return on assets (ROA), return on equity (ROE), net profit, and cost-to-income ratios. Most available studies focus on adoption trends or infrastructure development rather than evaluating whether digital payments translate into measurable financial performance improvements for individual banks.

Second, the short-term versus long term profitability effects of digital payment systems remain underexplored in the Pakistani context. The provided data indicates that banks experienced periods of declining profitability during early stages of digital transformation due to high IT investment, fee-based income compression, and compliance costs. However, existing literature does not sufficiently examine how and when these initial cost pressures transition into efficiency gains and profitability growth.

Third, there is a lack of comparative bank level studies that analyze how different digital strategies influence financial outcomes. Although Allied Bank Limited and Bank Alfalah Limited are both early adopters of digital banking, they differ in scale, digital architecture, and market positioning. Prior research rarely compares such institutions side-by-side to assess how variations in digital investment, customer adoption, and infrastructure expansion affect profitability differently.

Fourth, existing research tends to overlook the moderating role of regulatory, infrastructural, and competitive factors. The data highlights that SBP's low-cost digital payment policies, public infrastructure limitations, strong cash-based consumer behavior, and competition from EMIs and fintech firms significantly influence banks' ability to monetize digital payments. However, these factors are often discussed in isolation rather than being integrated into a unified analytical framework assessing profitability outcomes.

Finally, despite the emphasis on digital financial inclusion, there is insufficient evidence on whether digital inclusion alone is sufficient to ensure sustainable bank profitability. The

persistence of cash dependency, low merchant acceptance, and uneven digital infrastructure suggests that digital adoption does not automatically lead to financial gains. This gap underscores the need for research that evaluates digital payment systems not only as a tool for inclusion but also as a strategic determinant of bank performance.

### **How This Study Addresses the Gap**

This study aims to fill these gaps by

- Conducting a bank-level profitability analysis of digital payment adoption
- Examining both short-term cost pressures and longer-term efficiency gains
- Providing a comparative assessment of Allied Bank Limited and Bank Alfalah Limited
- Incorporating regulatory, infrastructural, behavioral, and competitive factors into the analysis
- Evaluating whether digital payment systems contribute to sustainable profitability rather than adoption growth alone

## **CHAPTER 3-METHODS AND TECHNIQUES (METHODOLOGY)**

### **3.1 Research Design**

This study adopts a quantitative, explanatory, and comparative research design to examine the relationship between the expansion of digital payment systems and the profitability of selected commercial banks in Pakistan. The chosen research design is appropriate because the study aims to measure, analyze, and explain the impact of digital payment adoption using numerical financial data over a defined period.

First, the research is quantitative in nature because it relies on measurable and numerical indicators such as Return on Assets (ROA), Return on Equity (ROE), Capital Adequacy Ratio (CAR), net profit figures, and digital payment usage statistics. These indicators allow for objective analysis and comparison of financial performance across time and between banks.

Second, the study is explanatory, as it seeks to explain the cause-and-effect relationship between digital payment systems and bank profitability. Specifically, the study examines whether growth in digital payment channels is associated with changes in profitability indicators, while controlling for bank stability through the Capital Adequacy Ratio (CAR). This approach enables the study to move beyond descriptive trends and assess the direction and nature of the relationship between digitalization and financial performance.

Third, the research design is comparative, as it compares two major commercial banks Allied Bank Limited (ABL) and Bank Alfalah Limited (BAFL) over the same period. Both banks are analyzed under identical economic and regulatory conditions, allowing meaningful comparison of how differences in digital strategies may influence profitability outcomes.

Additionally, the study employs a time-series and cross-sectional approach. The time-series dimension observes each bank's financial and digital indicators over a five-year period (2019–2023), while the cross-sectional dimension compares the performance of ABL and BAFL across the same years. This combined approach enhances the robustness of the analysis and allows the study to capture both trends over time and differences between banks.

### **3.2 Type of Study (Quantitative / Secondary Data)**

This research is a quantitative study based entirely on secondary data. No primary data collection methods such as surveys, interviews, or questionnaires are used. Secondary data is considered appropriate for this study because the required financial and digital payment indicators are already publicly available, audited, and published by reliable institutions.

The use of secondary data ensures accuracy, credibility, and consistency, as the data is drawn from official and authoritative sources. It also allows the study to analyze actual financial performance rather than perceptions or opinions.

The secondary data sources are categorized as follow

#### **Bank-Level Sources**

- Audited annual reports and financial statements of Allied Bank Limited (ABL) and Bank Alfalah Limited (BAFL).
- These reports provide data on profitability indicators such as ROA, ROE, net profit, and Capital Adequacy Ratio (CAR).
- Financial statements are prepared in accordance with regulatory and accounting standards, ensuring reliability and comparability.

#### **SBP and National Payment System Sources**

Publications and statistical reports issued by the State Bank of Pakistan (SBP).

SBP data includes information on digital payment usage such as mobile banking transactions, internet banking users, e-banking transaction volumes, and the growth of instant payment systems like Raast.

For example, SBP reports indicate that in FY2019, e-banking channels processed 869.8 million transactions valued at Rs 58.8 trillion, demonstrating that digital payments were already significant before the COVID-19 period.

These sources collectively provide a comprehensive dataset to analyze both digital payment expansion and bank profitability over time.

### **3.3 Population and Sample (ABL & BAFL)**

The population of this study consists of all scheduled commercial banks operating in Pakistan. These banks are regulated by the State Bank of Pakistan and actively participate in the country's payment and financial system.

From this population, a sample of two banks is selected using purposive sampling:

1. Allied Bank Limited (ABL)
2. Bank Alfalah Limited (BAFL)

Purposive sampling is used because the study requires banks that meet specific criteria relevant to the research objectives. The selection of ABL and BAFL is justified on the following grounds:

- Both banks are large, well-established commercial banks with nationwide branch networks.
- Both institutions have demonstrated significant investment in digital banking and payment systems during the study period (2019–2023), including mobile banking applications, internet banking platforms, QR payments, and Raast integration.
- Both banks publish consistent, detailed, and publicly available financial reports, allowing reliable comparison across years.
- Profitability indicators and stability measures such as ROA, ROE, net profit, and CAR are available for both banks for the same period, ensuring data compatibility.

The purposive selection of these two banks allows for a focused and meaningful comparison of digital payment adoption and profitability outcomes within Pakistan's commercial banking sector.

### **3.4 Study Period (2019–2023)**

The study covers a five-year period from 2019 to 2023, which is strategically selected to capture key phases in the evolution of digital payments and banking profitability in Pakistan.

This period is significant for the following reasons:

2019 represents a pre-COVID baseline, when digital payment systems were already established but had not yet experienced extraordinary acceleration.

2020–2021 capture the COVID-19 period, during which lockdowns, mobility restrictions, and health concerns significantly accelerated the adoption of digital payment channels such as mobile and internet banking.

2022–2023 represent the post COVID normalization and expansion phase, characterized by sustained growth in digital transactions, wider Raast adoption, and stabilization of bank profitability.

According to SBP payment system indicators, digital banking users and transaction volumes were already growing in 2019 and expanded rapidly during and after the pandemic. This makes the selected period ideal for analyzing both short-term pressures and longer-term profitability effects of digital payment systems.

By focusing on this five-year window, the study is able to observe how digital payment expansion interacts with profitability under varying economic conditions, making the findings more comprehensive and policy relevant.

**Table 7 Variables and Measurement**

<b>Variable Type</b>	<b>Variable</b>	<b>Symbol</b>	<b>How its Measured (Annual)</b>	<b>Unit</b>	<b>Expcted effect</b>
Dependent	Profitability ROA	ROA	Net Income ÷ Shareholders' Equity	%	–
Dependent	Profitability ROE	ROE	Net Income ÷ Shareholders' Equity	%	–
Independent	Digital payments	DIG	Bank-level digital usage (users/transaction value), + SBP digital- payment trend indicators	Index/PKR/%	+ /mixed
Control	Capital Adequacy	CAR	(Tier 1 + Tier 2) ÷ Risk- weighted assets	%	Stabilized

### 3.5.1 Dependent Variable: Profitability (ROA, ROE)

#### Definitions

Profitability is measured using the two most common banking performance ratios

#### Return on Assets (ROA)

Return on Assets (ROA) is a kind of return on investment (ROI) metric that evaluates the profitability of a business to its total assets. This ratio shows how well a bank is performing by comparing its net income to the capital it has invested in assets. The higher the return on assets, the more efficient and productive bank management is in utilizing its economic resources. Return on assets signifies the amount of money that has been earned per dollar of assets. This ratio provides an idea of how the firm is earning the overall return on investment. This assists in evaluating and assessing the efficiency of an investment. This is also one way of relating the profit of a company to the capital invested by it. According to the author (Gibson 1982). The higher value indicates that the assets are being used effectively and, in this way, the profit is increasing. The return on asset is useful in measuring the company's profitability better as it shows that through this ratio it can be analyzed that the management is effectively using its assets to earn income. The bank investing in electronic banking and the performance of the bank is increasing showing that the Return on assets has an impact on electronic banking and the performance of the bank.

$$\text{ReturnonAsset (ROA)} = \frac{\text{NetIncome}}{\text{Total Assets}}$$

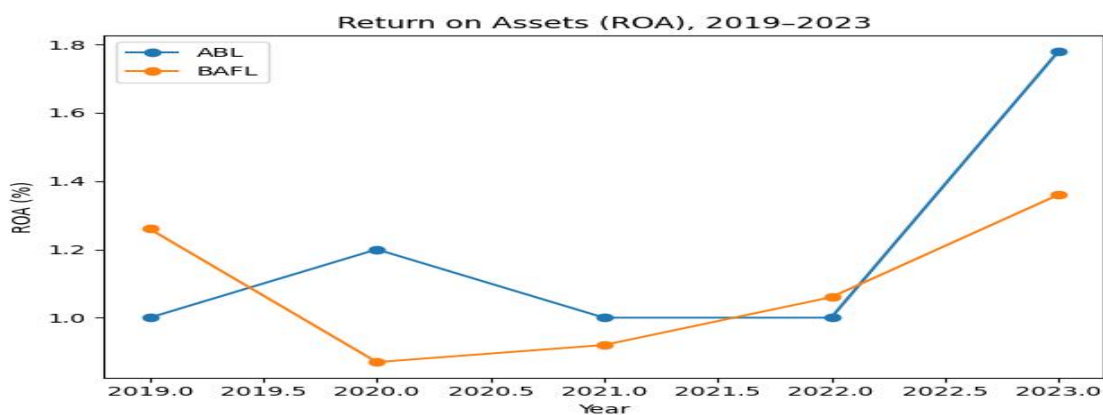


Figure 13 Return on Assets (ROA) 2019-2023

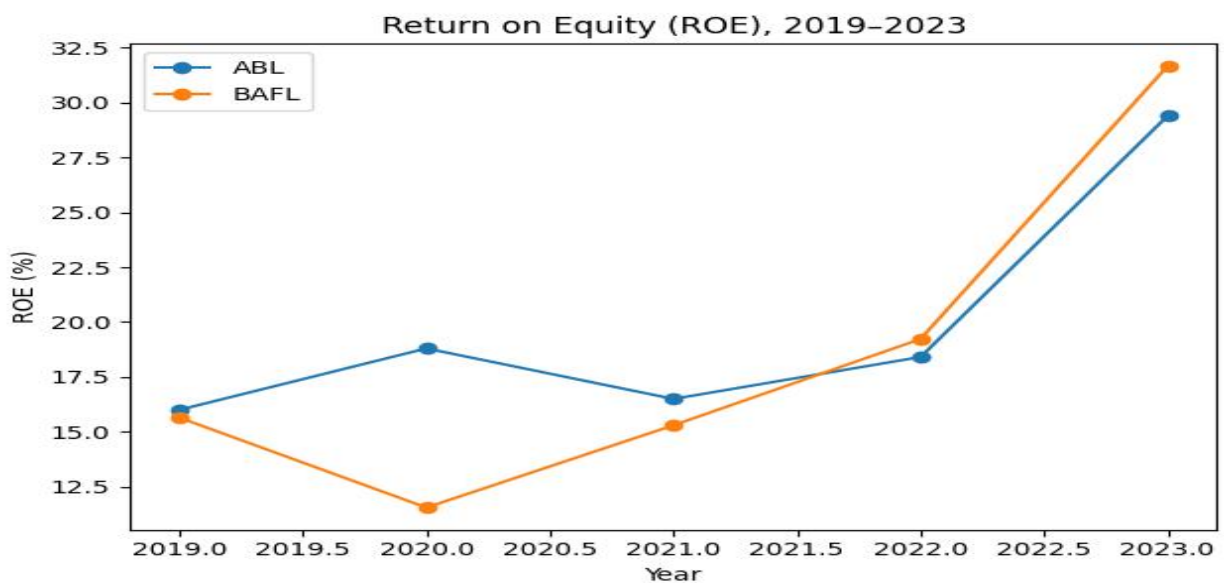
## Return on Equity (ROE)

In analyzing the bank investment return ROE is used. This can be calculated by dividing the bank's net income by the shareholder's wealth. This ratio gives us an insight into how the bank management can finance itself from the equity to grow its business. When ROE is sustainable and increasing over time this indicates that a bank is efficient at generating shareholder value since it understands how to reinvest its earnings effectively and strategically. On the other hand, a decrease in ROE may indicate that management is not allocating funds effectively to unproductive assets. The high return on equity often shows that a firm has an acceptance of strong investment opportunities and effective management and vice versa. The Return on equity overall gives an idea of the return on investment which is earned by common stockholders. It also refers to the efficiency of the company in generating revenues on the investment it received from its stockholders.

**Return on Equity (ROE) =  $\frac{\text{Net Income}}{\text{Shareholder Wealth}}$**

**Shareholder Wealth**

These are applied consistently for both banks, year-by-year from 2019 to 2023



**Figure 14 Return on Equity (ROE) 2019-2023**

**Table 8 Bank Profitability & Stability Ratios (2019–2023)**

Table 3.2: Bank Profitability & Stability Ratios (2019–2023)						
Year	ABL ROA (%)	ABL ROE (%)	ABL CAR (%)	BAFL ROA (%)	BAFL ROE (%)	BAFL CAR (%)
2019	1.00	16.00	22.00	1.26	15.65	16.90
2020	1.20	18.80	25.20	0.87	11.55	16.53
2021	1.00	16.50	22.32	0.92	15.30	14.40
2022	1.00	18.41	19.74	1.06	19.23	13.83
2023	1.78	29.40	26.21	1.36	31.67	16.74

**Table 9 Raw Inputs Used to Compute ROA (PKR Millions) ABL and BAFL**

Bank	Year	Net Income (PKR Mn)	Total Assets (PKR Mn)
ABL	2019	14,112	1,481,121
ABL	2020	18,029	1,590,458
ABL	2021	17,313	2,010,157
ABL	2022	21,194	2,250,972
ABL	2023	40,683	2,329,316
BAFL	2019	12,696	1,065,311
BAFL	2020	10,475	1,384,874
BAFL	2021	14,217	1,734,321
BAFL	2022	18,206	2,253,197
BAFL	2023	36,456	3,345,917

**Table 10 SBP Digital Payments Baseline (FY2019)**

Table 3.4: SBP Digital Payments Baseline (FY2019)		
SBP Indicator (FY2019)	Figure	Unit / Notes
Total transactions processed	1337.6	Million transactions (all payment instruments)
Total value processed	602.8	Rs trillion
E-banking share of total transactions	65.0	Percent (%)
Internet banking users	3.3	Million users
Internet banking transactions	39.7	Million transactions
Internet banking value	1722.2	Rs billion
Mobile app banking users	5.6	Million users
Mobile app banking transactions	41.1	Million transactions
Mobile app banking value	866.8	Rs billion

### **3.5.2 Independent Variable: Digital Payments Proxy (Digital growth indicators)**

#### **Conceptual definition**

Digital payments is not a single number, so this study measures it using observable proxies that reflect digital adoption and usage intensity in each bank's digital channels mobile,internet,branchless,agent-based digital activity.

#### **Operational definition (how it is measured in this study)**

The independent variable is measured using a Digital Payments Proxy (DIG) built from bank-level digital indicators available for 2019–2023

#### **Bank-level indicators used (ABL)**

From ABL's digital growth table, two strong proxies are used:

1. Digital user base myABL Users captures adoption/penetration of the bank's digital platform.
2. Digital activity intensity myABL Transactions PKR Mn captures how much value is being processed via digital channels.

These indicators are available year-by-year (2019–2023).

#### **Bank-level indicators used (BAFL)**

From BAFL's digital growth table, the main proxy used is:

- 1.Digital Banking Value (PKR) captures the total yearly value processed through the bank's digital banking ecosystem.

This is also available year-by-year (2019–2023).

### Supporting national context (SBP)

To ensure the study is grounded in Pakistan’s official payment-system trends, SBP’s reports are used to support the national rise in e-banking and digital channels. For example, SBP reports that in FY19, Pakistan’s payment channels processed 1,337.6 million transactions (Rs 602.8 trillion) and e-banking channels processed 869.8 million transactions (Rs 58.8 trillion) (showing the significance of e-banking as a national channel).

**Table 11 Digital Payments Proxy Indicators (2019–2023)**

Table 3.5: Digital Payments Proxy Indicators (2019–2023)			
Year	ABL myABL Users	ABL myABL Transactions (PKR Mn)	BAFL Digital Banking Value (PKR)
2019	426,000+	125,555	3 Billion
2020	640,000+	221,864	778 Billion
2021	945,000+	435,402	1.3 Trillion
2022	1,288,521	874,757	2.17 Trillion
2023	1,665,585	1,502,307	4.0 Trillion

This keeps comparisons trend-focused (not unit-focused). You can compute separate indices for:

- ABL Users Index
- ABL Transactions Index
- BAFL Digital Value Index

### 3.5.3 Control Variable: CAR

#### Definition

CAR is included as a control because profitability can change due to risk strategy and capital strength, not only digital expansion. The ratio is defined as

$$\text{CAR} = \frac{\text{Tier1} + \text{Tier2}}{\text{Total Assets}}$$

## **DATA COLLECTION**

The act of acquiring and interpreting data of specific variables in an established system, for evaluation findings and responding to relevant inquiries is called data collecting/gathering. To ensure maintenance of research integrity, quality control and well-informed business choices, while gathering accurate data is necessary. The studies must establish the data types, data sources, and methodologies during the process of data gathering. 2

An analyst must provide answers to these three questions before they may start gathering data

- What is the objective or aim of this study?
- What types of data do they want to collect?
- What techniques and procedures will be applied to gather, preserve, and handle the data?

Through the incorporation of prior research studies into our data gathering procedures, we may expand on our understanding and utilize prior discoveries to shape new research inquiries and conjectures. This consistency helps to build upon the theoretical foundation of our research and advances the body of knowledge in the area. In the end, by using a quantitative methodology and carefully gathering data from many secondary sources, this research project hopes to produce insightful findings and significantly advance both the academic discussion and real world applications in the field

### **3.6 Data Sources (Annual Reports and SBP Publications)**

This study relies exclusively on secondary data obtained from authoritative and publicly available sources. The use of audited and regulatory data ensures accuracy, reliability, and consistency, which is essential for quantitative financial analysis. The data sources are broadly classified into bank-level sources and national payment-system sources.

#### **A) Bank-Level Data Sources (Allied Bank Limited & Bank Alfalah Limited)**

Bank-level financial data are extracted from the audited annual reports and published financial statements of Allied Bank Limited (ABL) and Bank Alfalah Limited (BAFL) for the period 2019–2023. These reports are prepared in accordance with applicable accounting standards and regulatory requirements, ensuring the credibility of the data used.

The following variables are obtained from the annual reports of both banks:

- Net Income (Profit After Tax)
- Total Assets
- Shareholders' Equity (Shareholders' Wealth)

These variables are used to compute key profitability ratios:

- Return on Assets (ROA), calculated as Net Income divided by Total Assets.
- Return on Equity (ROE), calculated as Net Income divided by Shareholders' Equity.

Year wise data for Net Income and Total Assets for both ABL and BAFL are presented in the respective sample tables in the analysis chapter, providing transparency in ratio computation and enabling replication.

In addition, data related to bank stability and risk management are collected, including:

- Tier 1 Capital
- Tier 2 Capital
- Risk-Weighted Assets (RWA)

These components are used to calculate the Capital Adequacy Ratio (CAR) using the standard regulatory

#### **formula**

$(\text{Tier 1} + \text{Tier 2 Capital}) \div \text{Risk-Weighted Assets}$ .

For both banks, CAR-related figures are extracted from capital adequacy disclosures included in their annual reports. These disclosures are typically audited and reported under State Bank of Pakistan (SBP) guidelines, ensuring consistency across institutions and years.

#### **B) SBP Sources (National Payment-System Context)**

To contextualize bank-level findings within Pakistan's broader digital payments environment, data from the State Bank of Pakistan (SBP) are used. SBP publications, including Payment

Systems Reviews and statistical bulletins, provide national-level insights into digital transaction growth, channel usage, and payment system evolution.

### **SBP reports for FY2019 indicate that**

- A total of 1,337.6 million transactions valued at Rs 602.8 trillion were processed through various payment channels.
- E-banking channels accounted for approximately 65% of total transaction volume.
- E-banking channels alone processed 869.8 million transactions valued at Rs 58.8 trillion.

These figures demonstrate that digital payments had already reached a significant scale prior to the COVID-19 pandemic. The inclusion of SBP data supports the selection of 2019–2023 as a suitable period for examining the profitability effects of digital payment expansion, as it captures both pre-pandemic maturity and post-pandemic acceleration.

SBP data are used only for aggregate national context and not as direct bank-level variables, ensuring that the analysis remains focused on ABL and BAFL while remaining grounded in the broader regulatory and economic environment.

### **3.7 Data Analysis Technique**

The study employs descriptive quantitative data analysis techniques to evaluate the relationship between digital payment growth and bank profitability. Given the limited sample size and the focus on in-depth bank-level comparison, advanced econometric modeling is not applied. Instead, the study relies on ratio analysis, trend analysis, and comparative analysis, which are appropriate for financial performance evaluation.

#### **Step-by-Step Analytical Procedure**

##### **Step 1: Compilation of Bank-Level Dataset (2019–2023)**

A structured dataset is compiled for both ABL and BAFL covering the five-year study period. This dataset includes

- Profitability ratios (ROA, ROE).
- Stability ratio (CAR).
- Supporting financial inputs such as net income, total assets, and equity.

These figures are presented in summarized ratio tables and supporting computation tables to ensure clarity and transparency.

## **Step 2: Compilation of Digital Payment Proxy (DIG) Series**

Since digital payments cannot be captured by a single numerical value, a proxy variable (DIG) is constructed using observable digital activity indicators. These include:

- For Allied Bank Limited: number of myABL users and value of digital transactions processed through the myABL platform.
- For Bank Alfalah Limited: total value of digital banking transactions reported in annual disclosures.

These indicators reflect the growth and intensity of digital banking usage at the bank level over time.

## **Step 3: Computation and Confirmation of Ratios**

Standard financial formulas are applied consistently across both banks:

- $ROA = \text{Net Income} \div \text{Total Assets}$
- $ROE = \text{Net Income} \div \text{Shareholders' Equity}$
- $CAR = (\text{Tier 1} + \text{Tier 2 Capital}) \div \text{Risk-Weighted Assets}$

Where ratios are already reported in annual reports, calculations are cross-checked to ensure accuracy and consistency.

## **Step 4: Comparative Interpretation of Digital Growth and Profitability**

For each bank, year-by-year changes in the digital proxy (DIG) are compared with changes in ROA and ROE to identify directional relationships. A comparative analysis is then conducted between ABL and BAFL to assess whether the bank exhibiting stronger digital growth also demonstrates stronger improvements in profitability indicators.

### **3.7.1 Ratio Analysis (ROA, ROE, CAR)**

Ratio analysis is used to evaluate annual profitability and financial stability for each bank:

- Return on Assets (ROA) measures how efficiently a bank uses its assets to generate profits.
- Return on Equity (ROE) measures the return earned on shareholders' investment.
- Capital Adequacy Ratio (CAR) assesses a bank's ability to absorb potential losses and maintain financial stability.

The ratio tables for ABL and BAFL provide complete annual values for the period 2019–2023, enabling clear assessment of performance trends and inter-bank comparison.

### **3.7.2 Trend and Comparative Analysis (2019–2023)**

Trend analysis is applied to observe changes in profitability, stability, and digital activity over time. By plotting or reviewing values year-by-year, the study identifies:

- Periods of decline or disruption, particularly during 2020–2021 due to COVID-19.
- Recovery and growth phases in 2022–2023, coinciding with accelerated digital adoption.

Comparative analysis is conducted by examining ABL and BAFL side-by-side over the same period. This allows the study to determine whether differences in digital payment growth correspond to differences in profitability outcomes.

The approach aligns with horizontal (year-to-year) analysis, which is commonly used in financial statement analysis to interpret increases and decreases across time.

### **3.8 Ethical Considerations**

This research involves minimal ethical risk because it relies entirely on secondary data obtained from public and audited sources. No primary data collection methods such as surveys or interviews are used, and no personal or customer-level information is involved.

Key ethical considerations include

- Use of publicly available and audited financial reports.
- No involvement of human subjects, eliminating the need for informed consent.
- Transparent presentation of formulas, calculations, and data sources.
- Use of SBP data strictly for aggregated national context, without reference to individual customers or confidential records.

## **CHAPTER 4-PROJECT OUTCOMES / RESULTS**

### **4.1 Digital Payment and Digital Banking Growth (ABL vs BAFL)**

This section presents the empirical outcomes of the study by examining the growth of digital payment and digital banking channels in Pakistan and comparing the digital expansion of Allied Bank Limited (ABL) and Bank Alfalah Limited (BAFL) over the study period 2019–2023. The analysis is structured to first establish the industry-level digitalization trend using SBP data, followed by bank-level digital growth evidence, and finally an interpretation linking digital expansion to profitability outcomes.

### **4.2 SBP (Industry-Level) Evidence of Digital Growth 2019–2023 )**

To ensure consistency with national-level realities, the findings of this study are grounded in State Bank of Pakistan (SBP) payment system data, which confirms a sustained and accelerating shift toward digital payments during the study period.

SBP payment system reviews indicate that digital channels had already achieved significant scale by 2019, with mobile and internet banking forming a growing share of retail transactions. This trend intensified during 2020–2021, when COVID-19-related restrictions accelerated digital adoption due to reduced physical branch access and heightened health concerns.

**For FY2022–FY2023, SBP explicitly reported strong growth in**

- Mobile banking applications
- Internet banking transactions
- Real-time and electronic payment infrastructure

**SBP’s FY2024 press release further reinforces this pattern by showing**

- An increase in retail payment volume from 4.7 billion to 6.4 billion transactions
- A rise in digital payment share from 76% to 84%.

These figures confirm a clear structural shift away from cash-based transactions toward digital payment methods across the banking system. The continuity of this trend beyond the

COVID period demonstrates that digital adoption is no longer temporary but has become embedded in consumer and business behavior.

### **Link to This Study**

This industry-level evidence provides strong contextual support for the bank-level findings of this study. Since both Allied Bank and Bank Alfalah operate within the same regulatory and payment ecosystem, the observed growth in their digital banking platforms is consistent with SBP's documented national trends. Importantly, the period 2022–2023, which shows the strongest digital growth at the national level, also corresponds with improving profitability indicators for both banks after the pandemic-related dip.

### **4.3 Digital Banking Growth Allied Bank Limited (ABL)**

Allied Bank Limited demonstrates a clear and structured digital transformation trajectory over the study period. While ABL entered the period with established internet banking services, its digital expansion accelerated significantly after 2020, reflecting both strategic investment and changing customer behavior.

Between 2019 and 2021, ABL focused on strengthening its digital infrastructure and expanding customer touchpoints. A major milestone was the launch of WhatsApp Banking in 2021, which allowed customers to access basic banking services through a widely used communication platform. This initiative significantly lowered the entry barrier for digital banking adoption, particularly for less tech-savvy customers.

From 2022 onward, ABL adopted a more aggressive digital positioning strategy. The bank established a Virtual Space / Metaverse presence to enhance digital branding and customer engagement, signaling a shift toward innovation-led market positioning. In 2023, the launch of Allied Pay further strengthened the bank's digital ecosystem by facilitating seamless merchant and customer payments, improving transaction convenience and acceptance.

#### **By the end of the study period**

- myABL users reached approximately 1.7 million, indicating strong customer migration toward digital channels.
- Digital transaction activity increased more than tenfold compared to earlier years.

- Average digital transaction volumes reached approximately PKR 1,502,307 million, highlighting a substantial rise in transaction value.
- Digital transactions accounted for roughly 80% of total transactions, compared to only 20% conducted through physical counters.

### **Interpretation**

The digital growth observed at Allied Bank suggests several important outcomes. First, the increasing share of digital transactions indicates reduced dependency on physical branches and over-the-counter services, which can lower operational costs in the long run. Second, expanded digital access improves customer convenience and service speed, enhancing customer retention and engagement. Third, higher digital transaction volumes increase transaction velocity, allowing the bank to handle more activity with the same or lower marginal cost.

These factors collectively support the sustainability of ABL's profitability growth, particularly in the post-COVID period, as efficiency gains begin to outweigh the initial investment costs associated with digital transformation.

#### **4.4 Digital Banking Growth Bank Alfalah Limited (BAFL)**

Bank Alfalah Limited exhibits a more numerically intensive and transaction driven digital growth pattern compared to Allied Bank over the period 2019–2023. While both banks expanded digital services, BAFL's growth is characterized by rapid scaling of transaction value, customer onboarding, and digital acceptance infrastructure.

In 2019, Bank Alfalah already maintained a functioning digital banking platform; however, digital usage remained relatively moderate and largely supplementary to branch-based services. During 2020–2021, digital adoption accelerated sharply as customers increasingly relied on mobile and internet banking during pandemic-related disruptions. This period marked a transition from optional digital usage to necessity-driven adoption.

From 2022 onward, Bank Alfalah entered a high-growth phase of digital banking expansion. The bank significantly enhanced its Alfa mobile banking ecosystem, enabling a wide range of services including fund transfers, bill payments, digital commerce, and Raast-based instant payments. A key distinguishing feature of BAFL's digital strategy is the emphasis on digital account opening, with a large proportion of new accounts opened through digital channels without physical documentation.

### **By 2023, Bank Alfalah reported**

- Strong growth in digital transaction values, reaching several trillion rupees annually.
- A majority share of customer transactions being conducted through digital channels rather than branches.
- Expansion of QR-based and merchant digital acceptance, supporting retail and e-commerce payments.
- Rapid growth in customer base, supported by digital onboarding and lifestyle-focused digital services.

### **Interpretation**

Bank Alfalah's digital growth reflects a strategy centered on scale and transaction monetization. The sharp increase in digital transaction volumes indicates that BAFL has successfully embedded digital banking into customers' daily financial activities. This level of integration allows the bank to generate operational efficiencies, expand fee-based opportunities beyond traditional counters, and strengthen customer loyalty through ecosystem-based services.

Compared to Allied Bank, BAFL's digital expansion appears more aggressive in terms of transaction value and customer acquisition. This difference helps explain why Bank Alfalah exhibits stronger post-COVID profitability growth, particularly in ROE, during 2022–2023.

### **Overall Result Insight (Linking Digital Growth to Profitability)**

The combined evidence from SBP, Allied Bank, and Bank Alfalah clearly indicates that digital payment expansion accelerated significantly after 2020 and matured during 2022–2023. Both banks experienced initial cost pressure during early digital investment phases, followed by improved profitability once digital adoption reached scale.

### **Theseresults support the central argument of this study:**

Digital payment systems do not generate immediate profitability gains, but they contribute positively to bank performance once sufficient adoption, transaction volume, and operational efficiency are achieved.

Indicator	2019	2020	2021	2022	2023
No. of Customers	3.2M	4.1M	4.8M	5.8M	6.8M
No. of Branches	698	730	790	894	1,024
ATMs + CDMs	770 + 35	818 + 223	934 + 227	1,029 + 345	1,132 + 389
OR Agents	5,000	10,000	10,000	20,000	27,000
Digital Banking Value	PKR 3B	PKR 778B	PKR 1.3T	PKR 2.17T	PKR 4.0T

**Table 12 Digital Growth Bank Alfalah (2019-2023)**

#### **. 4.5 Continued Digital Expansion Bank Alfalah Limited (BAFL)**

In addition to transaction growth, Bank Alfalah reports a substantial expansion in the scope and scale of its digital offerings during the study period. By 2023, the bank had introduced more than 130 digital products and services, covering a wide range of customer needs including payments, digital account opening, lifestyle services, merchant solutions, and real-time fund transfers.

A key outcome of this expansion is the rapid growth of the bank's dedicated digital business segment. Bank Alfalah reports that its digital division expanded by approximately 84%, reflecting both increased customer adoption and higher transaction intensity. As a result, the total value of digital transactions processed by the bank reached approximately PKR 4 trillion in 2023, representing a significant increase compared to earlier years.

This level of digital activity indicates that Bank Alfalah has moved beyond basic digital enablement toward a platform-based digital banking model, where customers actively rely on digital channels for a wide range of financial transactions. The growth in digital transaction value also suggests that digital channels are increasingly being used for high value and frequent transactions, rather than only for small, convenience based payments.

From a performance perspective, this expansion strengthens Bank Alfalah's ability to

- Improve operational efficiency by shifting transactions away from physical branches,
- Enhance fee-based income through digital services, and
- Achieve economies of scale as digital transaction volumes grow faster than operating costs.

## **4.6 Comparative Digital Discussion**

### Allied Bank Limited vs Bank Alfalah Limited

A comparative assessment of Allied Bank Limited and Bank Alfalah Limited reveals that both banks experienced strong digital growth, but the nature and strategic focus of this growth differ.

Bank Alfalah demonstrates larger scale expansion in terms of:

- Total digital transaction value, reaching approximately PKR 4 trillion by 2023, and
- Breadth of digital services, with 130+ digital products and solutions offered to customers.

This indicates that BAFL's digital strategy emphasizes volume, scale, and ecosystem expansion, allowing the bank to integrate digital services deeply into customers' daily financial activities. The large transaction values suggest that BAFL has successfully positioned digital banking as a primary channel for both retail and commercial payments.

In contrast, Allied Bank Limited shows stronger adoption intensity and behavioral change among its existing customer base. With approximately 1.7 million myABL users and an 80:20 digital-to-counter transaction ratio, ABL's results indicate a significant channel shift effect, where customers are actively replacing branch-based transactions with digital alternatives. This pattern reflects deeper usage per customer rather than sheer transaction scale.

Both banks operate within the same SBP-regulated payment environment, where national digital payment volumes and usage have been expanding rapidly. SBP's system-wide growth in digital payments provides a supportive external environment that amplifies bank-level digital initiatives. Consequently, the observed digital expansion at ABL and BAFL is not isolated but aligned with broader structural changes in Pakistan's financial system.

### **Overall Comparative Insight**

The comparative evidence suggests that

- Bank Alfalah's digital growth is scale-driven, focusing on transaction value, product breadth, and rapid customer onboarding.

- Allied Bank’s digital growth is adoption-driven, emphasizing usage depth, customer migration to digital channels, and operational efficiency.

Despite these differences, both approaches contribute positively to long-term profitability by reducing reliance on physical infrastructure, improving service delivery, and enhancing customer engagement. The findings reinforce the study’s central conclusion that digital payment expansion supports bank performance when digital adoption reaches sufficient scale and intensity.

**Table 13 Profitability Analysis Allied Bank (2019-2023)**

Metric	2019	2020	2021	2022	2023
Net Income	14,112	18,029	17,313	21,194	40,683
Total Assets	1,481,121	1,590,458	2,010,157	2,250,972	2,329,316

**Interpretation:**

ROA reflects how efficiently ABL converts assets into profit. Net income rises overall, with a dip in 2021 and a sharp improvement by 2023, consistent with recovery and stronger earnings momentum

**Table 14 ROE Inputs Allied Bank (PKR Millions)**

Metric	2019	2020	2021	2022	2023
Net Income	14,112	18,029	17,313	21,194	40,683
Shareholders' Wealth	89,542	96,132	105,213.5	115,122	138,377

**Interpretation:**

ROE rises strongly in 2023 because profits rose faster than equity, implying enhanced shareholder returns and stronger earnings efficiency.

**Table 15 CAR Component Allied Bank**

Metric	2019	2020	2021	2022	2023
Tier 1 Capital	80,480,270	93,659,434	97,235,663	106,760,942	136,415,747
Tier 2 Capital	22,351,157	27,703,024	20,152,261	7,092,854	44,340,488
Risk Weighted Assets	474,092,440	481,664,734	526,027,817	576,832,300	689,598,987

**Interpretation:**

ABL maintains strong capital protection, with CAR fluctuating but reaching 26.21% in 2023, indicating a solid buffer against risk exposure.

**Table 16 Profitability Analysis Ratio Analysis Allied Bank (%Values)**

Ratio	2019	2020	2021	2022	2023
ROA	1.00	1.20	1.00	1.00	1.78
ROE	16.00	18.80	16.50	18.41	29.40
CAR	22.00	25.20	22.32	19.74	26.21

**Table 17 Profitability Analysis ROA Trend And Interpretation Bank Alfalah (2019-2023)**

Metric	2019	2020	2021	2022	2023
Net Income	12,696	10,475	14,217	18,206	36,456
Total Assets	1,065,311	1,384,874	1,734,321	2,253,197	3,345,917

**Interpretation:**

BAFL shows a COVID-related dip in 2020, then consistent recovery and a major jump in 2023 (profit + asset expansion). The document attributes 2020 decline mainly to higher provisioning/write-offs, while 2023 improvement is linked to reduced interest expense and reduced provisioning

**Table 18 ROA Trend And Interpretation Bank Alfalah**

Metric	2019	2020	2021	2022	2023
Net Income	12,696	10,475	14,217	18,206	36,456
Shareholders' Wealth	88,028	91,017	100,003	100,015	137,923

**Interpretation**

ROE rises sharply in 2023 because profits increased significantly relative to equity base, showing improved shareholder return outcomes.

**Table 19 CAR Trend & Interpretation (BAFL) CAR Components Bank Alfalah**

Metric	2019	2020	2021	2022	2023
Tier 1 Capital	74,636,064	78,806,850	84,941,879	97,802,584	125,851,515
Tier 2 Capital	20,026,784	23,252,207	24,985,562	23,442,613	35,171,385
Risk Weighted Assets	554,835,945	623,526,025	767,403,796	885,715,872	979,175,334

**Interpretation**

CAR falls through 2021–2022 (reflecting increased risk-weighted exposure and/or capital pressure), then improves in 2023 (16.74%).

**Table 20 Profitability Ratios Summary (BAFL) Analysis – Bank Alfalah (% values)**

Ratio	2019	2020	2021	2022	2023
ROA	1.26	0.87	0.92	1.06	1.36
ROE	15.65	11.55	15.30	19.23	31.67
CAR	16.90	16.53	14.40	13.83	16.74

**4.4 Comparative Discussion (Allied Bank Limited vs Bank Alfalah Limited)**

This section presents a comparative discussion of Allied Bank Limited (ABL) and Bank Alfalah Limited (BAFL) by jointly evaluating their profitability performance, capital strength, and digital expansion outcomes during the study period. The comparison highlights how different digital strategies translate into distinct financial outcomes under the same regulatory and economic environment.

In terms of shareholder profitability, Bank Alfalah recorded a Return on Equity (ROE) of 31.67% in 2023, slightly higher than Allied Bank's 29.40%. This indicates that BAFL delivered a marginally higher return to its shareholders, reflecting stronger earnings relative to equity during the post-COVID recovery phase.

However, when profitability is assessed from an asset-efficiency perspective, Allied Bank outperformed Bank Alfalah. In 2023, ABL reported a Return on Assets (ROA) of 1.78%, compared to 1.36% for BAFL. This suggests that ABL was more effective in utilizing its asset base to generate profits, which may reflect tighter cost control and higher operational efficiency.

A notable contrast emerges in terms of financial stability and solvency. Allied Bank's Capital Adequacy Ratio (CAR) reached 26.21% in 2023, which is significantly higher than Bank Alfalah's 16.74%. This indicates that ABL maintains a stronger capital buffer and greater resilience against financial risk, while BAFL operates with a comparatively leaner capital structure.

### **Digital Growth and Profitability Link**

The relationship between digital growth and profitability becomes clearer when digital indicators are examined alongside financial performance.

Bank Alfalah rapid increase in digital transaction value, reaching approximately PKR 4.0 trillion by 2023, coincides with a period of accelerating profitability, particularly between 2022 and 2023. This suggests that BAFL's large-scale digital expansion and product diversification translated into higher transaction volumes, improved revenue generation, and stronger returns to shareholders.

In contrast, Allied Bank digital strategy emphasizes usage intensity rather than transaction scale. The bank's 80:20 digital-to-counter transaction ratio indicates a successful shift of

customers from physical branches to digital channels. This behavioral change supports an efficiency-driven performance model, which aligns with ABL's improvement in ROA and ROE by 2023.

Importantly, both banks benefited from a supportive national digital payment environment, as confirmed by SBP data. The rapid expansion of digital payment infrastructure and user adoption across Pakistan reinforced bank level digital initiatives, ensuring that profitability improvements were not isolated firm specific events but part of a broader systemic transformation.

#### **4.5 Summary of Findings**

The overall findings of the study can be summarized as follows:

First, both Allied Bank Limited and Bank Alfalah Limited exhibit a clear “COVID-19 dip followed by recovery” pattern in profitability. The recovery becomes most evident during 2022–2023, when digital adoption stabilizes and begins to generate operational and financial benefits.

Second, Bank Alfalah demonstrates larger-scale digital expansion, with rapid growth in digital customers, merchant acceptance, and transaction values, culminating in digital banking activity of approximately PKR 4.0 trillion in 2023. This scale-driven approach supports higher shareholder returns, particularly reflected in ROE.

Third, Allied Bank shows strong digital usage intensity, with approximately 1.7 million myABL users and a dominant digital-to-counter transaction ratio of 80:20. This indicates a successful channel shift, where customers increasingly rely on digital platforms for routine banking activities.

Fourth, Allied Bank maintains stronger financial stability, as reflected by a significantly higher Capital Adequacy Ratio (26.21%) compared to Bank Alfalah (16.74%) in 2023. This highlights ABL's conservative capital strategy and higher solvency strength.

Finally, SBP evidence confirms that Pakistan's banking sector is undergoing a system-wide digital transformation, driven by regulatory support and changing consumer behavior. This

national shift reinforces the study's conclusion that digital payment growth at ABL and BAFL is part of a broader, SBP-led ecosystem transition rather than an isolated institutional development.

## **Chapter5- Project Benefits**

### **5.1 Benefits for Commercial Banks**

FinTech adoption and digital transformation have become critical drivers of efficiency, profitability, and long-term competitiveness for commercial banks in Pakistan. Empirical studies on Pakistan's banking sector consistently indicate that digitalization has *maximized operational efficiency* by reducing manual processes, lowering transaction costs, and improving service delivery. Digital channels are widely regarded as *cost-saving and efficiency-enhancing*, particularly in an environment where traditional branch banking is expensive and resource-intensive.

Evidence from the State Bank of Pakistan (SBP) strongly supports this trend. During 2023, electronic payment channels recorded remarkable growth, with mobile and internet banking transaction volumes increasing by 57%, while point-of-sale (POS) transactions rose by 45%. This rapid expansion reflects a structural shift in customer behavior toward digital banking platforms. For banks such as Allied Bank Limited (ABL) and Bank Alfalah (BAFL), this shift presents a significant opportunity to reduce reliance on branch-based cash transactions, which typically involve higher operational costs related to staffing, infrastructure, and cash handling.

In practice, both banks have already benefited from rising digital adoption. Allied Bank has reported that the number of mobile banking users and transaction volumes more than doubled between 2019 and 2023, highlighting growing customer trust in its digital platforms.

Similarly, Bank Alfalah's strong digital performance has been recognized at the industry level, as it was awarded "*Best Digital Banking*" for two consecutive years. These developments demonstrate how digital banking enables banks to streamline internal processes, improve turnaround time, and deliver services through low-cost digital channels.

Moreover, increased digital usage allows banks to cross-sell products such as consumer loans, credit cards, insurance, and investment services directly through mobile applications. This not only enhances non-interest income but also improves profitability indicators such as Return on Assets (ROA) and Return on Equity (ROE). Overall, fintech-driven digitalization strengthens banks' financial performance while positioning them to remain competitive in an increasingly technology-driven banking landscape.

## **5.2 Benefits for Customers and Financial Inclusion**

FinTech and digital banking also offer substantial benefits to customers, particularly in terms of convenience, accessibility, and financial inclusion. Digital channels provide 24/7 access to banking services, enabling customers to conduct transactions, pay bills, transfer funds, and manage accounts without visiting physical branches. According to SBP, e-banking solutions deliver efficient and instant payment services which significantly enhance customer satisfaction and attract new users.

Pakistan has witnessed rapid growth in digital banking access over recent years. By mid-2023, the number of registered mobile banking users reached 16.1 million, while internet banking users totaled 9.6 million, reflecting strong year-on-year growth. This expansion demonstrates increasing public confidence in digital financial services. In addition, branchless banking initiatives and e-wallet services have played a pivotal role in onboarding previously unbanked individuals. Since their launch, approximately 2 million new e-wallets have been created, enabling millions of Pakistanis to enter the formal financial system.

A key advantage of fintech-enabled banking is the reduction in transaction costs for customers. Digital payments eliminate the need for travel, paperwork, and long waiting times at branches. This is particularly beneficial for rural, low-income, and geographically remote populations, who can now access financial services using basic mobile phones.

As highlighted in existing research, digital platforms have expanded financial inclusion by offering accessible ways of managing financial affairs from a distance. In summary, fintech has transformed banking in Pakistan into a more user-friendly, inclusive, and cost-effective system, benefiting both existing customers and newly banked individuals.

### **5.3 Benefits for Regulators and the Economy**

Beyond banks and customers, fintech also delivers significant benefits for regulators and the broader economy. The State Bank of Pakistan emphasizes that digital payments enhance transparency, traceability, and formalization of economic activity. Unlike cash transactions, digital payments generate a permanent electronic audit trail, which strengthens regulatory oversight and reduces the scope for undocumented economic activity.

A prominent example is Raast, Pakistan's instant payment system launched by SBP. Raast recorded 155 million transactions in FY2023, reflecting rapid adoption across individuals, businesses, and government entities. The platform is widely praised for enabling faster and low-cost settlements, while also fostering a transparent digital record of transactions. This transparency enhances access to formal financial services and supports regulatory objectives related to anti-money laundering (AML) and counter-terrorist financing (CTF).

According to SBP data, digital channels accounted for 78% of retail payment transactions in FY2023, a figure that increased further to 88% by FY2025. This indicates that the majority of retail transactions in Pakistan are now conducted through regulated and traceable digital platforms. As a result, the economy's dependence on cash is gradually declining, improving monetary policy transmission and increasing the effectiveness of financial regulation.

At the macroeconomic level, fintech-enabled payment systems reduce transaction costs, improve efficiency, and encourage greater participation in formal economic activities. Efficient digital payments support business growth, stimulate commerce, and contribute to overall economic development. Thus, fintech not only strengthens the financial system but also supports Pakistan's broader economic and regulatory objectives.

### **5.4 Practical Recommendations for Allied Bank and Bank Alfalah**

To fully capitalize on the benefits of fintech and digital finance, Allied Bank Limited (ABL) and Bank Alfalah (BAFL) should adopt focused and forward-looking digital strategies.

### **Enhancement of Mobile and Online Platforms**

Both banks should continue investing in feature-rich, user-friendly mobile and internet banking applications. For instance, ABL's *L* app had over 1.66 million users by 2023, reflecting a 29% annual increase. Further enhancements such as integrated bill payments, instant digital loan applications, biometric authentication, and personalized dashboards—can accelerate adoption. Similarly, Bank Alfalah should encourage its 6.8 million customers (2023) to migrate routine transactions from branches to digital platforms.

### **Promotion of Digital Payment Adoption**

The banks should actively promote electronic payment methods, including debit and credit cards, QR-based payments, POS transactions, and Raast transfers. Given SBP's supportive policies, such as zero-fee account-to-account transfers via Raast, banks can introduce incentives like cashback offers, discounts, and loyalty programs to increase digital usage. Expanding merchant acquisition and POS networks will also help capture a larger share of retail transactions.

### **Strengthening Cybersecurity and Customer Trust:**

As digital usage grows, cybersecurity becomes increasingly critical. Both banks should invest in advanced fraud-prevention systems, multi-factor authentication, biometric verification, and real-time transaction alerts. Additionally, customer awareness campaigns focusing on digital security practices can help build trust, which is essential for sustained adoption and financial inclusion.

### **Leveraging Data Analytics:**

Digital transactions generate valuable data that can be used for strategic decision-making. ABL and BAFL should utilize data analytics to better understand customer behavior, improve credit assessment, and design tailored financial products, such as micro-loans and customized savings plans for underserved segments.

### **Collaboration with FinTech Partners:**

Finally, strategic partnerships with fintech firms, e-wallet providers, payment gateway operators, and government initiatives can enhance service offerings without significant in-house development costs. Collaborations in areas such as *Buy Now Pay Later (BNPL)* services and payment gateway integrations can further strengthen the banks' digital ecosystems while aligning with SBP's fintech facilitation framework.

## **Concluding Remark**

By effectively implementing these strategies, Allied Bank and Bank Alfalah can further enhance operational efficiency, expand financial inclusion, and improve profitability.

Continued investment in digital banking and alignment with national initiatives like Raast are likely to strengthen their ROA and ROE performance while enhancing long-term competitiveness in Pakistan's evolving banking sector.

## **CHAPTER 6 – LIMITATIONS AND CONCLUSION**

### **6.1 Conclusion**

This study set out to analyze the impact of digital payment systems and FinTech adoption on the profitability of commercial banks in Pakistan, with a focused examination of Allied Bank Limited (ABL) and Bank Alfalah Limited (BAFL) over the period 2019 to 2023. By combining bank-level profitability ratios with national digital payment statistics published by the State Bank of Pakistan (SBP), the study provides meaningful insights into how digital transformation has influenced banking performance in recent years.

The findings indicate a clear improvement in profitability for both banks by the end of the study period. In 2023, Allied Bank recorded a Return on Assets (ROA) of 1.78% and a Return on Equity (ROE) of 29.40%, reflecting stronger efficiency in utilizing both assets and shareholders' equity to generate profits. Bank Alfalah also demonstrated solid performance, reporting an ROA of 1.36% and an even higher ROE of 31.67%, suggesting superior returns for equity holders. This outcome is consistent with Bank Alfalah's strong emphasis on digital banking innovation, customer-centric mobile services, and expansion of electronic payment solutions.

When examining absolute profitability, both banks achieved their strongest results in 2023. Allied Bank earned net income of PKR 40,683 million, while Bank Alfalah reported PKR 36,456 million. These figures indicate that the banks were able to convert growing digital activity into tangible financial gains. The rising use of mobile banking, internet banking, cards, and instant payment systems has allowed banks to handle larger transaction volumes at relatively lower operational costs while also increasing fee-based income.

At the national level, SBP data strongly supports the bank-level results. During FY2023, Pakistan recorded 4.7 billion retail payment transactions with a total value of PKR 403 trillion, of which approximately 76 percent were processed through digital channels. This confirms a significant shift in payment behavior from cash-based transactions toward electronic platforms. Such an environment is favorable for commercial banks, as digital payments enable economies of scale, faster processing, improved transparency, and lower cost per transaction.

Overall, the evidence suggests that increased adoption of digital payment systems is positively associated with improved profitability in ABL and BAFL by 2023.

### **This relationship appears to operate through three main channels**

first, higher transaction volumes handled through low-cost digital platforms second, wider customer outreach and stronger engagement through digital access; and third, expansion of non-interest income linked to payment services and digital products.

However, it is important to note that fintech adoption is not the sole factor influencing profitability. The study period includes significant external shocks, particularly the COVID-19 pandemic, which negatively affected banking performance during 2020 and 2021. The strong recovery observed in 2022 and 2023 reflects not only digital momentum but also broader economic stabilization. Therefore, digital payments should be viewed as a key supporting driver of profitability rather than the only determinant.

## **6.2 Limitations of the Study**

Despite providing valuable insights, the study is subject to several limitations that should be acknowledged:

### **Limited bank coverage**

The analysis is based on only two private commercial banks, ABL and BAFL. While both are major players in Pakistan's banking sector, the findings cannot be fully generalized to all banks, particularly state-owned banks, Islamic banks, or microfinance institutions.

### **Restricted time horizon (2019–2023)**

The five-year period is sufficient for observing short-term trends, but digital transformation is a long-term process. Some benefits of fintech investment may take longer to materialize and are therefore not fully captured within this timeframe.

### **Impact of external economic shocks**

The study period includes the COVID-19 crisis, which had a substantial impact on banking operations and profitability. These macroeconomic disturbances may have influenced financial performance independently of digital banking initiatives.

### **Limitations in measuring fintech intensity**

The analysis relies on publicly available information such as SBP payment statistics, annual reports, and profitability ratios. Detailed bank-level data on digital usage such as active mobile users, channel-wise transaction shares, digital fee income, and cost efficiency are not consistently disclosed, limiting the ability to measure fintech impact with precision.

### **Reliance on secondary data**

Although secondary data from SBP and bank annual reports is reliable, it restricts the ability to directly analyze customer behavior, operational efficiencies, and internal cost structures related to digital banking.

## **6.3 Future Research Directions**

Future studies can extend and strengthen the findings of this research in several ways

### **Larger and more diverse sample**

Including a broader sample of 10 to 20 banks, along with Islamic and microfinance banks, would allow for stronger generalization and reduce institution-specific bias.

### **Econometric analysis**

Applying panel data techniques such as fixed-effects or random-effects models would enable researchers to statistically test the relationship between digital payment indicators and

profitability while controlling for macroeconomic variables like inflation, interest rates, GDP growth, and bank size.

### **Higher-frequency data analysis**

Utilizing quarterly SBP payment system data could provide more timely insights into how changes in digital payment usage affect bank profitability.

### **Customer-focused research**

Surveys or interviews with bank customers could offer valuable perspectives on adoption behavior, trust, service quality, and perceived security, strengthening conclusions related to financial inclusion and customer-driven profitability.

### **Final Remark**

In conclusion, this study adds meaningful empirical support to the growing body of research indicating that digital payment systems and fintech adoption have become important contributors to the profitability and operational efficiency of commercial banks in Pakistan. The evidence from Allied Bank Limited and Bank Alfalah Limited demonstrates that banks which actively expand digital payment channels are better positioned to improve financial performance by reducing transaction costs, increasing service efficiency, and generating additional non-interest income through electronic transactions.

As digital adoption continues to accelerate across Pakistan driven by widespread mobile usage, regulatory support from the State Bank of Pakistan, and changing customer preferences commercial banks face both opportunities and strategic responsibilities. Investments in fintech infrastructure, such as mobile and internet banking platforms, instant payment systems, and data-driven services, enable banks to handle higher transaction volumes at lower marginal costs while enhancing customer convenience and engagement. At the same time, building customer trust through strong cybersecurity measures, transparent processes, and reliable digital services remains essential for sustaining long term adoption.

Looking ahead, banks that consistently prioritize digital innovation, align their strategies with national payment initiatives, and respond to evolving customer needs are likely to achieve more stable and sustainable profitability. In contrast, institutions that delay digital transformation risk higher operating costs and reduced competitiveness in an increasingly

technology-driven financial environment. Overall, the findings of this study suggest that fintech is no longer a supplementary tool but a core strategic component of modern banking, with significant implications for the future growth, resilience, and efficiency of Pakistan's commercial banking sector.

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