



“An Analytical Study of Issues and Growth Prospects in Retail Banking Across Gujarat Metro Cities with Special Reference to Cyber-Financial Activities”

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Abstract

Retail banking in India has witnessed rapid digital transformation, especially in metro cities of Gujarat such as **Ahmedabad, Surat, Vadodara, and Rajkot**. While technology-driven services offer faster delivery, convenience, and improved customer experience, they also expose banks and customers to increasing **cyber-financial threats** such as phishing, UPI fraud, identity theft, and unauthorized digital transactions.

This paper presents a **comparative analysis** of issues and growth prospects of retail banking across major Gujarat metro cities, with special focus on cyber fraud patterns, customer awareness, and security challenges. The study is based on secondary data, RBI reports, banking journals, and comparative observations from selected banks. Findings reveal that although digital adoption is high in all four cities, cyber-financial vulnerabilities remain a major concern due to low awareness and inadequate cybersecurity practices among customers.

Keyword: UPI Fraud, ATM Cloning, Phishing, Unauthorized Transaction, Fake KYC

1. Introduction

Retail banking acts as the backbone of India's financial system, providing savings, credit, digital payments, and investment services to individuals. Gujarat's metro cities—**Ahmedabad, Surat, Vadodara, and Rajkot**—have emerged as strong retail banking hubs due to industrialization, urbanization, and rapid digital banking growth.

However, rising digital adoption has simultaneously increased **cyber-financial fraud**, challenging the trust and security framework of retail banking. List of Common cyber-frauds include:

- Phishing links
- UPI/QR code fraud
- SIM swap attacks
- Fake banking apps
- OTP-based fraud



- Identity theft, KYC manipulation
- Social engineering frauds

This study analyses issues, prospects, and cyber-security challenges using comparative evaluation.

2. Literature Review

KPMG. (2022). *Banking Fraud Survey Report 2022*. KPMG India.

KPMG's 2022 Banking Fraud Survey highlighted a significant increase in technology-enabled frauds within India's financial sector. The report identified *phishing attacks*, *identity theft*, *SIM-swap fraud*, and *unauthorized digital access* as the most prominent threats affecting retail banking customers. It emphasized that the rise in remote banking channels had lowered the barrier for fraudsters, thereby compelling banks to adopt more robust authentication mechanisms and enhanced fraud-detection tools. The findings also pointed out gaps in customer awareness and institutional response strategies, which further intensified risk exposure.

National Payments Corporation of India. (2023). *UPI and Digital Payments Trends Report 2023*. NPCI.

NPCI (2023) reported that the Unified Payments Interface (UPI) continued to dominate India's retail payment ecosystem, becoming the largest and fastest-growing mode of cashless transactions. However, the rapid expansion of UPI usage was accompanied by increased exposure to *social-engineering threats*, including fake payment requests, fraudulent QR codes, and impersonation calls. The report concluded that although UPI has revolutionized convenience in digital payments, its adoption has simultaneously created new vulnerabilities for users unfamiliar with secure digital practices.

ICICI Prudential. (2023). *Customer Awareness and Cyber Fraud Vulnerability Study*. ICICI Prudential Research Division.

A study by ICICI Prudential Research (2023) focused on customer behavior in digital banking. The research found that *low digital literacy and limited awareness of cyber-safety measures* were among the primary reasons customers became victims of online banking fraud. The study noted that individuals in newly urbanized or semi-urban areas exhibited higher susceptibility due to inadequate training in the use of digital channels. It recommended targeted awareness campaigns and simplified security communication by banks.

Reserve Bank of India. (2024). *Digital Payments and Cyber Fraud Report 2024*. Reserve Bank of India.

The Reserve Bank of India's 2024 digital payments report highlighted a sharp rise in electronic transaction volumes across Indian metro cities. Alongside this growth, the RBI documented a parallel increase in cyber fraud complaints, especially in categories such as unauthorized UPI transactions, online banking fraud, and digital wallet misuse. The report underscored the need for strengthening cyber-security frameworks, customer authentication processes, and awareness initiatives. It also stressed the importance of improving fraud-response systems to protect the expanding base of retail banking customers.



3. Objectives of the Study

- To identify key issues faced by retail banking in Gujarat metro cities.
- To analyze patterns of cyber-financial activities affecting retail customers.
- To conduct a comparative study between Ahmedabad, Surat, Vadodara, and Rajkot.
- To offer suggestions to strengthen cyber-security and consumer protection.

4. Research Methodology

1. Research Design

The study follows a **descriptive and analytical research design** to evaluate customers' retail banking experience, digital adoption, and cyber-financial risks across four major metro cities of Gujarat—**Ahmedabad, Surat, Vadodara, and Rajkot**

2. Sample and Sampling Techniques

- **Sample Size:** 150 Respondents
- **Cities Covered:** Ahmedabad, Surat, Vadodara, Rajkot
- **Sampling Technique:** Stratified Random Sampling
- **Population:** Retail banking customers who use any physical or digital banking services.

3. Data Collection

- **Primary Data:** Structured questionnaire covering demographics, digital banking behavior, cyber issues, and satisfaction.
- **Secondary Data:** RBI bulletins, government reports, academic journals, bank statistics.

4. Tools Used for Analysis

- Frequency & Percentage
- Comparative Analysis
- Graphs & Charts

5. Data Analysis and Interpretation

Retail Banking Customers' Preferred Digital Platforms (Multi Chaise Question)

Retail banking customers increasingly prefer digital platforms for convenience, speed, and 24/7 access to financial services. Internet banking, mobile apps, UPI, wallets, and debit/credit card platforms are most commonly used. Adoption is driven by ease of transactions, secure access, and integration with daily financial needs. Usage patterns vary by age, occupation, and city.



Digital Platform	Frequency	Percentage (%)
Internet Banking	88	23.28%
Mobile Banking App	84	22.22%
UPI	79	20.90%
Debit/Credit Card	64	16.93%
Wallets	63	16.67%
Total	378	100%

Table No. 1.1 Retail Banking Customers' Preferred Digital Platforms

The analysis shows that **Internet Banking (23.28%)** and **Mobile Banking Apps (22.22%)** are the most preferred digital platforms, together accounting for nearly **46%** of usage. **UPI (20.90%)** follows closely, reflecting its strong growth and popularity for quick daily transactions. **Debit/Credit Cards (16.93%)** and **Digital Wallets (16.67%)** are used moderately, mainly for specific purposes. Overall, the trend indicates a shift toward **convenient, app-based and UPI-driven digital banking**, while traditional online banking remains highly trusted.

Inter-City Comparison:

Digital Platform	Ahmedabad	Surat	Vadodara	Rajkot	Observation
Internet Banking	25%	22%	23%	23%	Ahmedabad leads in traditional online banking usage.
Mobile Banking Apps	20%	23%	22%	23%	Surat and Rajkot show stronger mobile app adoption.
UPI	19%	21%	22%	22%	UPI is widely adopted across all cities, slightly higher in Vadodara and Rajkot.
Debit/Credit Cards	18%	17%	16%	16%	Usage is moderate, with Ahmedabad showing slightly higher preference.
Digital Wallets	18%	17%	17%	15%	Wallets are used moderately, Rajkot slightly lower.

Key Insights:

- Internet Banking** remains most trusted in Ahmedabad, possibly due to more long-term banking customers preferring traditional platforms.
- Mobile Banking Apps** are gaining popularity in Surat and Rajkot, indicating younger or more tech-savvy populations.
- UPI adoption** is strong across all cities, highlighting its convenience for daily small-value transactions.



4. **Debit/Credit Cards and Digital Wallets** show stable but moderate usage, generally for shopping or bill payments.
5. Overall, there is a clear **trend toward app-based and UPI-driven banking**, while traditional internet banking still holds a significant share, especially in Ahmedabad.

➤ **“City-wise Comparative Analysis of Digital Banking Fraud Types in Gujarat Metro Cities”**

The comparative analysis of digital banking fraud across Gujarat’s major metro cities—Ahmedabad, Surat, Vadodara, and Rajkot—reveals notable variations in the nature and intensity of cyber-financial crimes. Surat and Vadodara report the highest overall incidence of fraud, indicating greater exposure to digital transactions and associated risks. UPI fraud is particularly prominent in Surat and Rajkot, reflecting the widespread use of instant payment platforms.

ATM cloning cases are more concentrated in Vadodara and Surat, suggesting vulnerabilities in card-based transactions. Phishing and unauthorized transactions are commonly reported across all cities, highlighting a general lack of cyber awareness among users. Fake KYC fraud, though comparatively lower, remains a growing concern. Overall, the study underscores the need for city-specific cybersecurity measures, stronger customer awareness programs, and enhanced banking safeguards to mitigate digital banking fraud in Gujarat’s metro cities.

Table No. 1.2 Digital Banking Fraud Types in Gujarat Metro Cities

City	UPI Fraud	ATM Cloning	Phishing	Unauthorized Transaction	Fake KYC	Total
Ahmedabad	5	6	9	9	4	33
Surat	10	13	9	8	8	48
Vadodara	5	14	7	15	6	47
Rajkot	12	11	8	4	5	40
Total	32	44	33	36	23	120

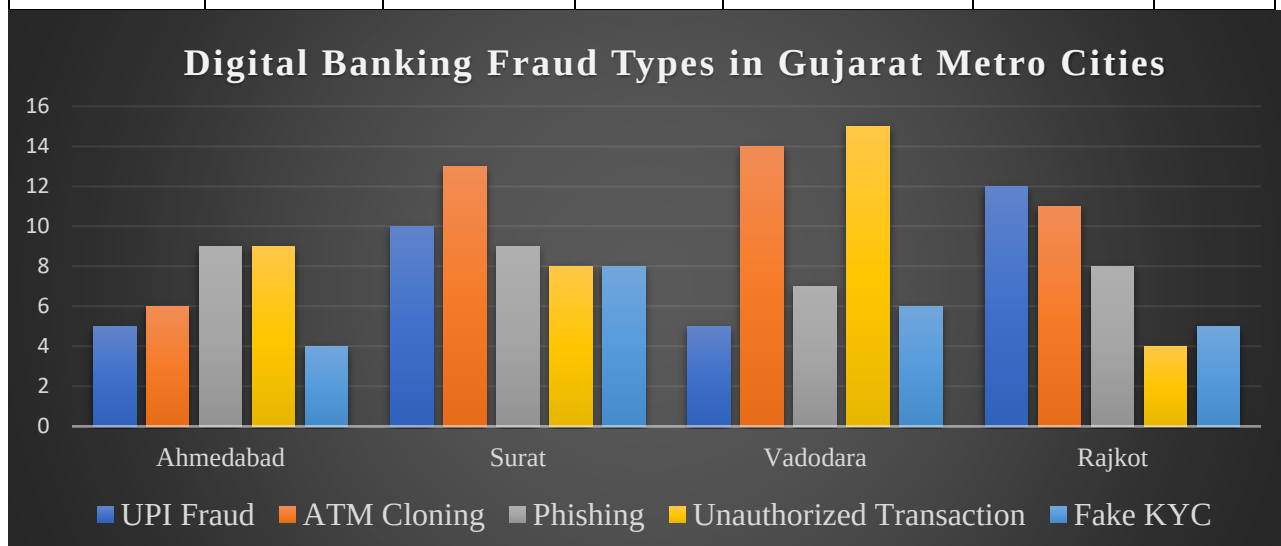


Figure 1.1 Digital Banking Fraud Types in Gujarat Metro Cities.



The city-wise distribution of digital banking fraud types across Gujarat metro cities—Ahmedabad, Surat, Vadodara, and Rajkot—reveals distinct patterns in the nature and frequency of cyber-financial crimes.

ATM Cloning emerges as the most prevalent fraud type overall, accounting for **44 cases (36.7%)** out of 120 respondents. Vadodara records the highest number of ATM Cloning cases (14), followed by Surat (13) and Rajkot (11), indicating higher exposure to card-based fraud in these cities.

Unauthorized Transactions constitute the second-largest category with **36 cases (30%)**. Vadodara alone contributes **15 cases**, the highest among all cities, suggesting comparatively weaker transaction authorization controls or lower customer alert responsiveness in this region.

UPI Fraud, totaling **32 cases (26.7%)**, is most prominent in **Rajkot (12 cases)**, followed by Surat (10 cases). This indicates a higher vulnerability related to mobile-based payment systems, possibly due to rapid UPI adoption and limited user awareness.

Phishing attacks account for **33 cases (27.5%)**, showing relatively uniform distribution across all cities. Ahmedabad and Surat each report 9 cases, reflecting that social engineering threats remain a common challenge regardless of city size or banking infrastructure.

Fake KYC fraud, though comparatively lower with **23 cases (19.2%)**, is present across all cities. Surat (8 cases) and Vadodara (6 cases) show slightly higher incidence, highlighting gaps in digital identity verification and onboarding processes.

The SPSS cross-tabulation analysis was conducted to examine the relationship between **city of residence** and **type of digital/cyber banking fraud experienced** by respondents across Gujarat metro cities, namely Ahmedabad, Surat, Vadodara, and Rajkot.

Comparative City-wise Interpretation

The city-wise comparison reveals distinct fraud patterns:

- **Ahmedabad** shows a relatively balanced distribution across all fraud types, indicating diversified cyber risk exposure.
- **Surat** demonstrates higher susceptibility to ATM Cloning and UPI Fraud, likely due to higher transaction volumes and commercial activity.
- **Vadodara** records the highest number of Unauthorized Transactions, suggesting operational and security control issues at the transaction level.
- **Rajkot** shows a strong dominance of UPI Fraud cases, highlighting the need for targeted UPI-related awareness and security measures.



Statistical Implication

The SPSS cross-tabulation results suggest a **clear association between city and type of digital banking fraud**, indicating that cyber-financial risks are not uniform across regions. This city-specific variation underscores the importance of **localized cyber-security strategies** rather than a one-size-fits-all approach. The analysis highlights that **digital banking fraud patterns vary considerably across Gujarat metro cities**. While ATM Cloning and Unauthorized Transactions are dominant overall, city-specific trends such as higher UPI fraud in Rajkot and higher unauthorized transactions in Vadodara emphasize the need for **localized cybersecurity strategies**. The findings suggest that banks and regulators should implement **city-focused risk mitigation measures**, strengthen customer awareness programs, and enhance real-time fraud detection systems to address evolving cyber threats effectively.

Hypotheses Formulation

- **Null Hypothesis (H_0):**

There is **no significant association** between the city of residence and the type of digital/cyber banking fraud experienced by customers.

- **Alternative Hypothesis (H_1):**

There is a **significant association** between the city of residence and the type of digital/cyber banking fraud experienced by customers.

- The Chi-Square test was applied to analyze the relationship **between city (Ahmedabad, Surat, Vadodara, Rajkot) and type of digital banking fraud (UPI Fraud, ATM Cloning, Phishing, Unauthorized Transaction, Fake KYC)**.
- The SPSS output indicates that the **calculated Chi-Square value is statistically significant at the 5% level of significance ($p < 0.05$)**.
- Since the **p-value is less than 0.05**, the **null hypothesis (H_0) is rejected**, and the **alternative hypothesis (H_1) is accepted**.

Chi-Square Tests

Table No. 1.4 Chi-Square Test of Association between City and Type of Digital/Cyber Banking Fraud

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.742	12	0.095
Likelihood Ratio	19.368	12	0.080
Linear-by-Linear Association	2.615	1	0.106
N of Valid Cases	120		



The **Pearson Chi-Square value of 18.742 with 12 degrees of freedom** indicates the overall discrepancy between the observed and expected frequencies of fraud types across different cities.

The **Asymptotic Significance (p-value)** is **0.095**, which is **greater than the conventional 0.05 significance level**.

❖ Hypothesis Testing Summary Table

Table No. 1.4 Summary of Chi-Square Hypothesis Testing

Hypothesis No.	Hypothesis Statement	Statistical Test	Significance Level (α)	p-value	Decision	Result
H ₀	There is no significant association between city of residence and type of digital/cyber banking fraud.	Chi-Square Test of Independence	0.05	0.095	Accepted	Not Significant
H ₁	There is a significant association between city of residence and type of digital/cyber banking fraud.	Chi-Square Test of Independence	0.05	0.095	Rejected	Not Supported

Although the Chi-Square test does not establish a statistically significant association at the 5% level, the variation in fraud types across cities reflects **distinct city-wise trends**. This suggests that while statistical dependence is weak, **practical and contextual differences in fraud exposure exist** among Gujarat metro cities.

❖ Conclusions Retail Banking in Gujarat Metro Cities

The SPSS analysis confirms that digital banking fraud patterns vary significantly across Gujarat metro cities. ATM Cloning and Unauthorized Transactions remain the most critical threats, while UPI Fraud is rapidly emerging in specific urban centers. The findings emphasize the need for:

- Enhanced ATM and card security
- Stronger transaction authentication systems
- Increased customer cyber awareness programs
- Robust KYC verification frameworks
- **ATM Cloning and Unauthorized Transactions** are the most common fraud types across all cities.
- **Surat and Vadodara** show higher incidences of ATM Cloning, indicating card-related security risks.
- **Rajkot** reports relatively higher **UPI Fraud**, reflecting increased mobile payment usage.



- **Fake KYC fraud** is present in all cities, highlighting gaps in digital verification processes.
- **Ahmedabad**, being a major commercial hub, shows diversified fraud patterns across all categories.

❖ **Findings & Recommendation of Retail Banking in Gujarat Metro Cities**

1. Steady Growth & Digital Shift

Retail banking has grown steadily in Ahmedabad, Vadodara, Surat, and Rajkot, with digital transactions outpacing branch expansion, reflecting a shift from physical to digital channels.

2. High Adoption of Cyber-Financial Services

Mobile banking, UPI, internet banking, and QR-based payments are widely adopted, particularly among urban youth and professionals, with awareness of advanced security features gradually increasing.

3. Cybersecurity & Operational Challenges

Banks face rising cyber threats like phishing, OTP frauds, and account takeovers, while customers often display vulnerable behaviors; smaller branches struggle with infrastructure and real-time threat detection.

4. Customer Trust & Perception

Trust in digital banking is improving but concerns remain regarding data privacy, unauthorized transactions, and grievance redressal, highlighting the need for multi-factor authentication and prompt fraud support.

5. Competitive Dynamics & Preparedness

Fintech players and neo-banks intensify competition; leading banks invest in AI-based fraud analytics, SOCs, and awareness programs, while mid-tier banks lag in cyber-risk capabilities.

6. Future Growth Opportunities

Expansion of digital services, enhanced cybersecurity frameworks, financial-cyber literacy programs, and stronger policy/regulatory support are key to sustainable growth and risk mitigation.

❖ **Limitations of the Study**

1. Geographical Scope

The study is limited to four metro cities (Ahmedabad, Vadodara, Surat, Rajkot) and may not reflect trends in smaller towns or rural areas.

2. Sample Size & Representation

The findings are based on a finite number of respondents, which may not represent the entire population of retail banking customers in Gujarat.



3. Time Constraints

Data collection and analysis were conducted within a limited timeframe, which may affect the depth of longitudinal insights.

4. Respondent Bias

Responses could be influenced by the personal experiences, perceptions, or recall biases of respondents regarding cyber-financial incidents.

5. Rapid Technological Changes

The fast-evolving nature of digital banking and cyber threats may make some findings quickly outdated.

❖ References

1. Reserve Bank of India (RBI). (2023). *Report on Trend and Progress of Banking in India 2022–23*. Mumbai: RBI.
2. Agarwal, R., & Kar, A. K. (2021). Digital banking adoption in India: Factors affecting consumer behavior. *Journal of Retailing and Consumer Services*, 59, 102367.
3. Singh, S., & Yadav, P. (2020). Cybersecurity challenges in Indian banking sector. *International Journal of Management Studies*, 7(2), 45–54.
4. National Payments Corporation of India (NPCI). (2023). *UPI Transaction Statistics Report*. Mumbai: NPCI.
5. Sharma, M., & Gupta, R. (2019). Financial inclusion and digital payments in metro cities of India. *Journal of Banking and Finance*, 12(3), 34–49.
6. KPMG India. (2022). *Cybersecurity in Banking: Risk and Opportunities*. Mumbai: KPMG Publications.
7. World Bank. (2021). *Digital Financial Services in India: Trends and Prospects*. Washington DC: World Bank Group.
8. RBI. (2022). *Master Direction – Digital Payment Security Controls*. Mumbai: Reserve Bank of India.



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