

Impact of Perceived Cybersecurity on Customer Satisfaction in E-Banking: Comparative Insights from Public and Private Sector Banks

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Abstract

E-banking has transformed customer interactions with financial institutions, making cybersecurity perception a critical determinant of satisfaction and trust. The paper has investigated the impact of perceived cybersecurity on customer satisfaction in e-banking, with comparative insights from public and private sector banks. The data has been collected from 200 respondents equally divided by gender by means of structured scale that integrates dimensions of cybersecurity and customer satisfaction. Descriptive statistics revealed high ratings for ease of use and perceived security, while grievance redressal and responsiveness scored lower. Inferential analysis confirmed a strong positive correlation between perceived cybersecurity and customer satisfaction, with private banks outperforming public banks on both measures. The findings highlighted that while technological convenience and security drive satisfaction, service responsiveness and grievance handling remain critical areas for improvement. This research contributes to management and commerce literature by demonstrating that cybersecurity perception is not only a technical safeguard but also a strategic driver of customer loyalty in digital banking.

Keywords: Perceived Cybersecurity, Customer Satisfaction, E-Banking Services, Public Sector Banks, Private Sector Banks

I. INTRODUCTION

The rapid growth of digital banking has transformed the way customers interact with financial institutions, making convenience, speed, and security central to their experiences. Among these factors, perceived cybersecurity has emerged as a critical determinant of trust and satisfaction, as customers increasingly rely on online platforms for sensitive financial transactions. In the competitive landscape of public and private sector banks, differences in technological infrastructure, service responsiveness, and grievance redressal mechanisms shape how customers evaluate their digital experiences. This study investigates the impact of perceived cybersecurity on customer satisfaction in e-banking, comparing insights across public and private banks. By examining dimensions such as ease of use, perceived benefits, grievance handling, social influence, and prior cybercrime experiences alongside satisfaction factors like reliability, responsiveness, trust, and overall confidence, the research aims to highlight how cybersecurity perceptions influence

customer loyalty and satisfaction, and how sectoral differences inform strategic improvements in digital banking services.

11. STATEMENT OF THE PROBLEM

E-banking has become essential for customers, offering convenience and speed, but concerns about cybersecurity strongly influence trust and satisfaction. Public and private sector banks differ in their digital practices, which may shape customer perceptions of security and service quality. Yet, limited research compares these sectors directly, especially in regional contexts like Kurukshetra and Karnal. This study addresses that gap by examining how perceived cybersecurity affects customer satisfaction and whether differences exist between public and private banks.

111. LITERATURE GAP

Although prior research has established links between cybersecurity, trust, and customer satisfaction in digital banking, but still several gaps remain:

- In many studies banks are treated as a single category, with limited comparative analysis between public and private sector banks, despite their differences in technology adoption and customer service practices.
- Research in India often focuses on metropolitan areas, leaving semi-urban regions such as Kurukshetra and Karnal underrepresented in cybersecurity and satisfaction studies.
- Existing studies emphasize either technical evaluations of security systems or general service quality, but few examine customer perceptions of cybersecurity as a driver of satisfaction.
- Many studies employ complex structural models, while basic relational tests (correlation, t-tests) remain underutilized for clear, comparative insights.

IV. SIGNIFICANCE OF THE STUDY

This present research holds importance for multiple stakeholders in the digital banking ecosystem.

- It provides evidence on how customers' perceptions of cybersecurity directly influence satisfaction. Public sector banks can identify areas where digital trust needs strengthening, while private banks can validate whether their advanced security measures translate into higher satisfaction.
- The findings highlight the role of perceived safety in shaping satisfaction, empowering customers to demand more secure and transparent digital services.
- Insights from this study can guide regulatory bodies in framing policies that balance innovation with robust cybersecurity standards, ensuring customer confidence in e-banking.
- The results can help banks design targeted strategies to enhance trust, improve grievance redressal mechanisms, and strengthen customer loyalty in the digital era.

V. OBJECTIVES OF THE STUDY

1. To examine the relationship between perceived cybersecurity and customer satisfaction in e-banking services.
2. To compare customer perceptions of cybersecurity between public and private sector banks.
3. To compare customer satisfaction levels between public and private sector banks.
4. To assess whether differences in perceived cybersecurity are associated with differences in customer satisfaction.

VI. HYPOTHESES

1. **H0₁:** There is no significant relationship between perceived cybersecurity and customer satisfaction in e-banking services.
2. **H0₂:** There is no significant difference in perceived cybersecurity between customers of public and private sector banks.
3. **H0₃:** There is no significant difference in customer satisfaction levels between customers of public and private sector banks.
4. **H0₄:** Differences in perceived cybersecurity are not significantly associated with differences in customer satisfaction.

VII. SCOPE OF THE STUDY

The scope of this study is limited to examining the relationship between perceived cybersecurity and customer satisfaction in e-banking services, with a specific focus on comparing public sector banks and private sector banks. The research is geographically confined to selected regions, such as Kurukshetra and Karnal, and data is collected from customers actively using e-banking services through structured questionnaires. The scope focused solely on customer perceptions and their impact on satisfaction within the defined context.

VIII. LIMITATIONS OF THE STUDY

The study is limited to the regions of Kurukshetra and Karnal, so the results may not apply to other places or countries. It is based on customer opinions collected through questionnaires, which can sometimes be influenced by personal bias. The analysis used only correlation and t-tests, which showed the relationships and differences between groups. The study looked only at public and private banks, leaving out other types like cooperative or foreign banks that might provide different perspectives. Finally, the research focused on how customers *perceive* cybersecurity, not on technical checks of the systems themselves.

IX. REVIEW OF LITERATURE

Ologun et al. (2025) examined cybersecurity and customer satisfaction in digital banking using the Information Systems Success Model. Their study in Nigeria revealed that information quality and service quality significantly enhance satisfaction, while weak system quality undermines trust. This highlights the importance of robust cybersecurity measures in shaping customer perceptions.

Singh and Sayeed (2024) explored the impact of security concerns on e-banking adoption and reported that trust mediates the relationship between perceived risk and customer acceptance. This suggests that customers' satisfaction is closely tied to their confidence in the bank's ability to protect personal and financial data.

Singh and Kaur (2023) investigated Indian e-banking customers and found that cyberfraud awareness and trust strongly influence usage intention and satisfaction. Their findings emphasize that perceived cybersecurity is not only a technical safeguard but also a psychological factor that determines customer loyalty.

Sivathanu (2019) studied the adoption of digital payment systems in India during the demonetization era. The research highlighted that perceived ease of use, convenience, and security strongly influenced customer satisfaction and loyalty. This study is particularly relevant as it demonstrates how customers' trust in secure systems drives satisfaction in rapidly evolving financial environments.

Alalwan, Dwivedi, and Rana (2017) investigated factors influencing mobile banking adoption in Jordan, extending the UTAUT2 model with trust. Their findings revealed that perceived security and trust significantly shape customer satisfaction and continued usage, reinforcing the idea that cybersecurity perception is central to digital banking success.

X. RESEARCH METHODOLOGY

RESEARCH DESIGN

1. Research Approach

The research adopted a quantitative approach, using structured questionnaires to collect data from e-banking customers.

2. Population and Sampling

The population consisted of all customers who actively use e-banking services in both public and private sector banks within the selected regions (such as Kurukshetra and Karnal). The final sample consisted of 200 respondents, equally divided between 100 male and 100 female participants.

3. Tools

- Digital Payment Trust & Cybersecurity Perception Scale (DPTS)
- Developers: Aya Aljaradat & Sandeep K. Shukla Year: 2025

4. Variables

Independent Variable (IV)

- Perceived Cybersecurity

Dependent Variable (DV)

- Customer Satisfaction

Grouping Variable (Comparative Factor)

- Bank Type: Public Sector Bank vs. Private Sector Bank.

5. Data Analysis Plan

- **Descriptive Statistics:** Mean, Median, Standard Deviation.
- **Inferential Statistics:** Independent samples t-tests and Pearson Correlation was performed to test the stated hypotheses and examine differences across demographic groups.

XI. RESULTS

DESCRIPTIVE STATISTICS:

Table 1: Descriptive Statistics (Section A – Perceived Cybersecurity)

Dimension	Items	Mean	SD
Ease of Use	1-2	3.90	0.62
Perceived Benefits	3-4	3.95	0.58
Grievance Redressal	5-6	3.70	0.65
Social Influence	7-8	3.85	0.60
Prior Cybercrime Exp.	9-10	3.60	0.68
Overall PCS Score	10-11	3.80	0.63

Interpretation: The descriptive statistics reveal that respondents generally perceive e-banking systems as secure and user-friendly. The highest mean scores were observed for *Perceived Benefits* ($M = 3.95$) and *Ease of Use* ($M = 3.90$), indicating that customers strongly agree that digital payment systems save time,

are convenient, and simple to operate. *Social Influence* also scored moderately high ($M = 3.85$), suggesting that peer encouragement plays a role in adoption. However, *Grievance Redressal* ($M = 3.70$) and *Prior Cybercrime Experience* ($M = 3.60$) received lower ratings, highlighting that customers remain cautious due to past fraud incidents and feel that complaint resolution mechanisms could be improved. Overall, the composite score ($M = 3.80$) suggests a positive but not flawless perception of cybersecurity in e-banking.

Table 2: Descriptive Statistics (Section B – Customer Satisfaction)

Dimensions	Items	Mean	SD
Reliability	11-12	3.85	0.61
Responsiveness	13-14	3.75	0.64
Perceived Security	15-16	3.95	0.57
Ease of Use	17-18	4.00	0.55
Trust & Assurance	19-20	3.90	0.59
Overall Satisfaction	21-22	3.92	0.58
Overall CS Score	11-22	3.90	0.59

Interpretation: Customer satisfaction scores are consistently high across dimensions, with *Ease of Use* ($M = 4.00$) and *Perceived Security* ($M = 3.95$) emerging as the strongest contributors. This indicates that customers find mobile apps easy to navigate and feel confident about the safety of their transactions. *Trust & Assurance* ($M = 3.90$) and *Reliability* ($M = 3.85$) also show strong agreement, reflecting confidence in banks' dependability and error-free digital services. The lowest dimension, *Responsiveness* ($M = 3.75$), suggests that customers perceive delays in customer support and updates. The overall satisfaction score ($M = 3.92$) confirms that customers are broadly satisfied with e-banking services, but responsiveness remains a critical area for improvement.

INFERENTIAL STATISTICS:

1. H_{01} : There is no significant relationship between perceived cybersecurity and customer satisfaction in e-banking services.

Table 3: Correlation between PCS and CS (H_{01})

Variable	Customer Satisfaction
Perceived Cybersecurity	$r = 0.62, p < 0.001$

Interpretation: The correlation analysis shows a strong positive relationship ($r = 0.62, p < 0.001$) between perceived cybersecurity and customer satisfaction. This means that as customers' confidence in cybersecurity measures increases, their satisfaction with e-banking services also rises. The strength of the correlation indicates that cybersecurity perception is not just a peripheral factor but a central determinant of satisfaction. Thus, **H_{01} is rejected**, confirming that perceived cybersecurity significantly influences customer satisfaction.

2. H_{02} : There is no significant difference in perceived cybersecurity between customers of public and private sector banks.

Table 4: Independent Samples t-test for PCS (H_{02})

Bank Type	Mean PCS	SD	t (198)	P
Public Sector	3.70	0.65	-3.45	0.001

Private Sector	4.00	0.58		
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Interpretation: The independent samples t-test reveals a significant difference in perceived cybersecurity between public and private sector banks ($t(198) = -3.45$, $p = 0.001$). Private bank customers reported higher mean scores ($M = 4.00$) compared to public bank customers ($M = 3.70$). This suggests that private banks are perceived as more effective in implementing security measures, possibly due to advanced technology adoption, faster grievance handling, or stronger fraud prevention systems. **H₀₂ is rejected**, confirming that bank type influences cybersecurity perception.

3. H₀₃: There is no significant difference in customer satisfaction levels between customers of public and private sector banks.

Table 5: Independent Samples t-test for CS (H₀₃)

Bank Type	Mean CS	SD	T (198)	P
Public Sector	3.80	0.60	-2.95	0.004
Private Sector	4.05	0.55		

Interpretation: The results show a significant difference in customer satisfaction between public and private sector banks $t(198) = -2.95$, $p = 0.004$). Private bank customers reported higher satisfaction ($M = 4.05$) compared to public bank customers ($M = 3.80$). This indicates that private banks not only deliver stronger perceptions of security but also provide smoother, more reliable, and user-friendly digital services. **H₀₃ is rejected**, confirming that satisfaction levels vary significantly by bank type, with private banks outperforming public banks.

4. H₀₄: Differences in perceived cybersecurity are not significantly associated with differences in customer satisfaction.

Table 6: Correlation across Groups (H₀₄)

Bank Type	R (PCS-CS)	P
Public Sector	0.58	<0.001
Private Sector	0.65	<0.001

Interpretation: Correlation analysis across groups shows that perceived cybersecurity is positively associated with customer satisfaction in both public ($r = 0.58$, $p < 0.001$) and private banks ($r = 0.65$, $p < 0.001$). Although the relationship is slightly stronger in private banks, both correlations are statistically significant. This demonstrates that regardless of sector, customers' satisfaction is closely tied to their perception of cybersecurity. **H₀₄ is rejected**, confirming that differences in cybersecurity perception are consistently linked to differences in satisfaction across both groups.

XII. DISCUSSION

The study demonstrates that perceived cybersecurity plays a pivotal role in shaping customer satisfaction in e-banking, with private sector banks consistently outperforming public banks on both measures. Customers reported high satisfaction with ease of use and perceived security, but lower scores for responsiveness and grievance redressal highlight service gaps. Correlation results confirmed that stronger perceptions of cybersecurity are directly linked to higher satisfaction across both sectors, underscoring the universal importance of trust and safety in digital transactions. Overall, the findings suggest that while

technological convenience drives satisfaction, banks especially public ones must strengthen support systems and grievance handling to build greater confidence and loyalty among customers.

XIII. CONCLUSION

This study establishes that perceived cybersecurity is a significant determinant of customer satisfaction in e-banking services. The findings show that private sector banks outperform public sector banks in both cybersecurity perception and satisfaction, reflecting their stronger technological infrastructure and customer-centric practices. Across both sectors, the consistent positive correlation between cybersecurity and satisfaction highlights the universal importance of trust, safety, and ease of use in digital transactions. While customers value convenience and security, weaker scores in grievance redressal and responsiveness indicate areas requiring urgent improvement, particularly in public banks. Overall, the study underscores that enhancing cybersecurity measures and service responsiveness is essential for banks to build customer confidence, strengthen satisfaction, and ensure long-term loyalty in the digital era.

XIV. REFERENCES

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