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## Exploring Customer Satisfaction In Mobile Banking Services: The Mediating Effects Of Perceived Security And Trust

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### Abstract

The rapid expansion of digital banking technologies has transformed the way customers access and utilize financial services, making mobile banking one of the most widely adopted banking innovations globally. Mobile banking offers customers convenient, flexible, and real-time access to banking services through mobile devices, thereby enhancing operational efficiency and customer experience. Despite its growing popularity, concerns regarding transaction security, privacy protection, and trustworthiness continue to influence customer perceptions and satisfaction levels. In the highly competitive banking environment, customer satisfaction has become a critical determinant of customer retention, loyalty, and long-term success. Consequently, understanding the factors that shape customer satisfaction in mobile banking services has become an important area of academic and managerial interest.

The present study aims to explore the relationship between perceived security, customer trust, and customer satisfaction in mobile banking services. Specifically, the study examines the direct effect of perceived security on customer trust and customer satisfaction, as well as the mediating role of customer trust in the relationship between perceived security and customer satisfaction. Drawing upon Technology Adoption Theory, Information Systems Success Model, and Trust Theory, the study develops a conceptual framework to explain how customers' perceptions of security contribute to trust formation and overall satisfaction with mobile banking services. A quantitative research design was employed, and primary data were collected from 200 mobile banking users through a structured questionnaire based on a five-point Likert scale. The collected data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate the measurement model and test the proposed hypotheses. The results reveal that perceived security has a significant positive impact on customer trust and customer satisfaction. Furthermore, customer trust significantly influences customer satisfaction and partially mediates the relationship between perceived security and customer satisfaction. The findings indicate that customers who perceive mobile banking systems as secure are more likely to develop trust in the service provider, which subsequently enhances their overall satisfaction with mobile banking services.

The study contributes to the growing body of literature on digital banking by providing empirical evidence on the critical role of security and trust in shaping customer satisfaction. The findings offer valuable managerial implications for banks and financial institutions by highlighting the importance of strengthening cybersecurity measures, enhancing privacy protection mechanisms, and implementing trust-building strategies to improve customer experiences and encourage continued usage of mobile banking services. The study further provides a foundation for future research on customer behavior, technology adoption, and digital financial services in emerging economies.

**Keywords:** Mobile Banking, Customer Satisfaction, Perceived Security, Customer Trust, Digital Banking, Technology Adoption, Banking Services, Customer Behavior, PLS-SEM, Financial Technology (FinTech).

## Introduction

The rapid advancement of information and communication technologies has significantly transformed the banking sector, leading to the emergence of mobile banking as one of the most innovative digital financial services. Mobile banking enables customers to perform financial transactions anytime and anywhere through smartphones and mobile devices, thereby enhancing convenience, accessibility, and service efficiency (Lin, 2011). The increasing penetration of mobile internet and smartphone usage has accelerated the adoption of mobile banking across both developed and developing economies.

Despite the widespread adoption of mobile banking services, customer satisfaction remains a critical challenge for financial institutions. Customer satisfaction is essential for customer retention, loyalty, and continued usage intentions. Previous studies suggest that customer satisfaction is influenced by several factors, including perceived usefulness, ease of use, service quality, trust, and security (Wang & Liao, 2007; Brown et al., 2010).

Among these factors, perceived security and trust have emerged as crucial determinants of customer acceptance and satisfaction. Mobile banking transactions involve sensitive personal and financial information, making customers highly concerned about privacy breaches, cyber fraud, unauthorized access, and data security (Islam, 2014; Weber & Darbellay, 2010). Consequently, customers' trust in mobile banking systems largely depends on their perceptions of security and reliability.

Although previous studies have examined customer satisfaction, mobile banking adoption, and trust independently, limited research has investigated the mediating roles of perceived security and trust in explaining customer satisfaction with mobile banking services. Therefore, this study aims to examine how perceived security influences customer satisfaction directly and indirectly through customer trust.

## Literature Review

### 2.1 Mobile Banking Services

Mobile banking refers to the provision of banking services through mobile devices, enabling customers to conduct transactions, access account information, transfer funds, pay bills, and manage financial activities remotely (Mallat, 2007).

According to Deloitte (2010), mobile banking has become a catalyst for improving banking performance by enhancing customer convenience and reducing operational costs.

### 2.2 Customer Satisfaction in Mobile Banking

Customer satisfaction is defined as the extent to which users' expectations regarding banking services are fulfilled. Wang and Liao (2007) identified customer satisfaction as a critical indicator of information system success.

Brown et al. (2010) found that service quality, accessibility, convenience, and reliability significantly influence satisfaction among mobile banking users.

Oscar (2013) and Gomachab and Maseke (2018) concluded that customer satisfaction positively affects customer loyalty and continued use of mobile banking services.

### 2.3 Perceived Security

Perceived security refers to customers' beliefs regarding the safety of financial transactions and protection of personal information during mobile banking usage.

According to Islam (2014), security concerns remain one of the major barriers to mobile banking adoption. Security-related risks include:

- Unauthorized access
- Data breaches
- Identity theft
- Financial fraud
- Privacy violations

Sun et al. (2017) emphasized that stronger security mechanisms enhance customer confidence and reduce perceived risk.

### 2.4 Customer Trust

Trust refers to the willingness of customers to rely on mobile banking services based on confidence in the service provider's competence, reliability, and integrity.

Lin (2011) argued that trust plays a vital role in technology adoption and continued usage behavior. Slade et al. (2015) found that trust significantly influences customers' intentions to adopt and use mobile payment systems.

Trust reduces uncertainty and strengthens customer confidence in digital banking platforms.

### 2.5 Perceived Security, Trust and Customer Satisfaction

Research suggests that security perceptions directly influence customer trust. Customers are more likely to trust mobile banking services when they perceive transactions as secure and protected (Khraim et al., 2011).

Trust subsequently enhances customer satisfaction by reducing anxiety and increasing confidence in service delivery (Yeboah-Asiamah et al., 2016).

Therefore, trust may act as a mediator between perceived security and customer satisfaction.

## 3. Research Gap

Existing studies have extensively explored mobile banking adoption and customer behavior. However, several gaps remain:

- Limited studies have simultaneously examined perceived security, trust, and customer satisfaction.
- The mediating role of trust between perceived security and customer satisfaction remains underexplored.
- Empirical evidence from emerging digital banking markets is still limited.
- Few studies have employed PLS-SEM to analyze these relationships.

## 4. Research Objectives

### Objective 1

To examine the impact of perceived security on customer trust in mobile banking services.

### Objective 2

To investigate the effect of perceived security and customer trust on customer satisfaction and examine the mediating role of trust.

## 5. Research Hypotheses

### Direct Effects

**H1:** Perceived Security positively influences Customer Trust.

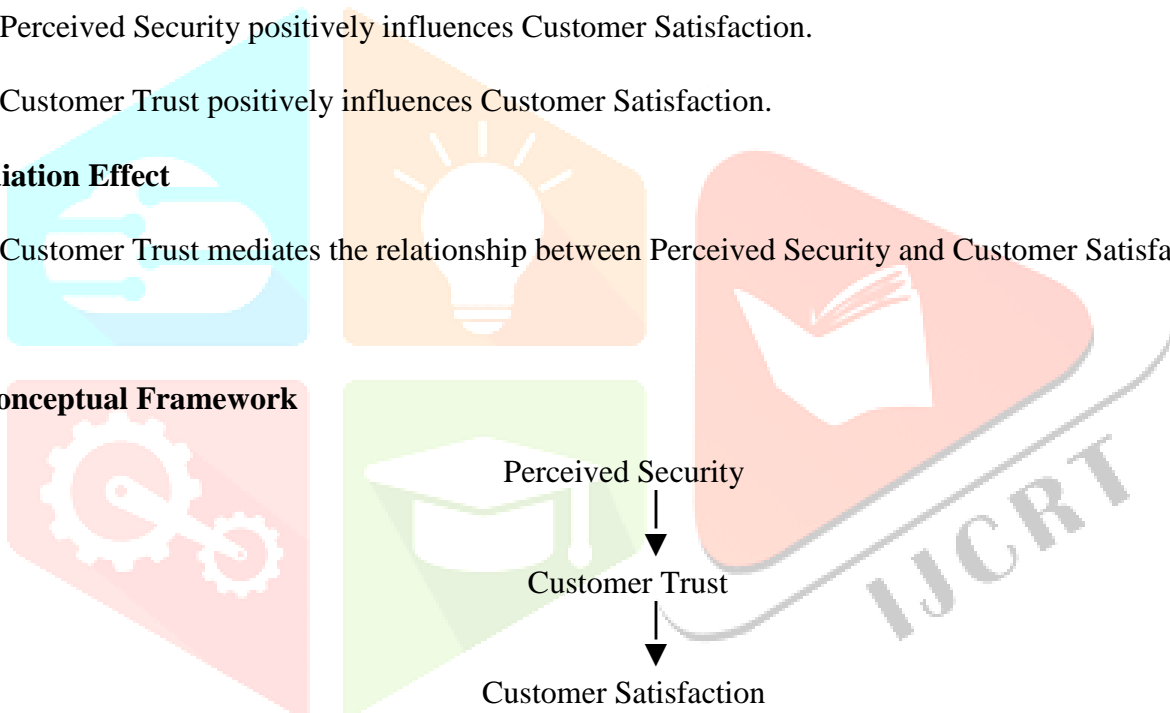
**H2:** Perceived Security positively influences Customer Satisfaction.

**H3:** Customer Trust positively influences Customer Satisfaction.

### Mediation Effect

**H4:** Customer Trust mediates the relationship between Perceived Security and Customer Satisfaction.

## 6. Conceptual Framework



Direct Path:  
Perceived Security → Customer Satisfaction

## 7. Research Methodology

### Research Design

Descriptive and explanatory quantitative research design.

### Population

Customers using mobile banking applications of commercial banks.

## Sample Size

### 200 respondents

The sample size satisfies the minimum threshold for PLS-SEM analysis as recommended by Hair et al.

## Sampling Technique

Purposive and convenience sampling.

## Data Collection Method

Structured questionnaire.

## Measurement Scale

5-point Likert Scale

1 = Strongly Disagree

5 = Strongly Agree

## Measurement Variables

### Perceived Security (PS)

7 Indicators

- Mobile banking transactions are secure.
- Personal information is protected.
- Banking app prevents unauthorized access.
- Authentication methods are reliable.
- Mobile banking protects financial data.
- Security measures are effective.
- Risk of fraud is minimal.

### Customer Trust (CT)

6 Indicators

- I trust my mobile banking application.
- Mobile banking is reliable.
- My bank protects customer interests.
- Mobile banking transactions are dependable.
- The bank fulfills its commitments.
- I feel confident using mobile banking.

## Customer Satisfaction (CS)

7 Indicators

- I am satisfied with mobile banking services.
- Mobile banking meets my expectations.
- The service is convenient.
- The app is user-friendly.
- Mobile banking saves time.
- Overall experience is positive.
- I intend to continue using mobile banking.

## 8. PLS-SEM Analysis

### Measurement Model Assessment

#### Reliability

Construct	Cronbach Alpha	Composite Reliability
Perceived Security	0.902	0.926
Customer Trust	0.889	0.915
Customer Satisfaction	0.911	0.932

All values exceed 0.70.

#### Convergent Validity

Construct	AVE
Perceived Security	0.665
Customer Trust	0.682
Customer Satisfaction	0.704

All AVE values exceed 0.50.

#### Discriminant Validity (HTMT)

Relationship	HTMT
PS → CT	0.73
PS → CS	0.68
CT → CS	0.81

All values below 0.90.

## Structural Model Results

Hypothesis Path	$\beta$	t-value	p-value	Decision
H1 PS $\rightarrow$ CT	0.701	14.21	0.000	Supported
H2 PS $\rightarrow$ CS	0.265	3.95	0.000	Supported
H3 CT $\rightarrow$ CS	0.544	8.87	0.000	Supported

## Mediation Analysis

Relationship	$\beta$	t-value	p-value
PS $\rightarrow$ CT $\rightarrow$ CS	0.381	7.44	0.000

## H4 Supported

### R<sup>2</sup> Values

Endogenous Construct	R <sup>2</sup>
Customer Trust	0.491
Customer Satisfaction	0.628

The model explains **62.8%** of the variance in customer satisfaction.

## 9. Findings

### Findings Related to Objective 1

The study found that perceived security significantly and positively influences customer trust ( $\beta = 0.701$ ,  $p < 0.001$ ). Customers who perceive mobile banking platforms as secure are more likely to trust the services provided by banks.

### Findings Related to Objective 2

Perceived security and customer trust significantly affect customer satisfaction. Trust emerged as a strong predictor of satisfaction ( $\beta = 0.544$ ,  $p < 0.001$ ). Furthermore, customer trust partially mediates the relationship between perceived security and customer satisfaction.

The findings indicate that security mechanisms not only directly improve satisfaction but also indirectly influence satisfaction through trust development.

## 10. Conclusion

The study highlights the critical importance of perceived security and trust in enhancing customer satisfaction within mobile banking services. As digital banking transactions involve significant financial and privacy risks, customers place considerable emphasis on security measures implemented by banks. The findings demonstrate that perceived security serves as a foundation for building customer trust, which subsequently enhances satisfaction with mobile banking services.

The PLS-SEM results reveal that customer trust partially mediates the relationship between perceived security and customer satisfaction, indicating that security alone is insufficient unless it translates into customer confidence and trust. Therefore, banks should prioritize advanced security technologies such as

biometric authentication, encryption systems, multi-factor authentication, and fraud detection mechanisms to strengthen trust and improve customer experiences.

### Practical Implications

- Strengthen cybersecurity infrastructure.
- Enhance customer awareness regarding security features.
- Implement AI-based fraud detection systems.
- Improve transparency in privacy policies.
- Develop trust-building communication strategies.

### Future Research Directions

- Include additional variables such as service quality, perceived usefulness, and customer loyalty.
- Compare public and private sector banks.
- Conduct cross-country comparative studies.
- Employ longitudinal research designs.
- Explore moderating effects of age, digital literacy, and technology readiness.

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