ISSN: 2707-4188 Volume 7, No. 1 / Jan-Jul 2026

An Empirical Analysis of E-Banking Services and their Impact on Customer Satisfaction and Loyalty: Evidence from Islamic Banks in Nigeria

Zayyana Abdulkadir Rimi [1], Abubakar Abdulkadir Abuabdin [2], Nura Sadiq [3]

Abstract

This study investigates the influence of electronic banking (e-banking) services on customer satisfaction and loyalty within the Islamic banking sector, with a specific focus on Jaiz Bank and Taj Bank in Nigeria. A cross-sectional survey was conducted with 384 customers, and the data were analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings reveal that e-banking services have a significant and strong positive impact on both customer satisfaction (path coefficient = 0.951) and customer loyalty (path coefficient = 0.965). The model explains a substantial proportion of the variance in satisfaction (R^2 = 0.905) and loyalty (R^2 = 0.931), underscoring the critical role of digital service quality. The study concludes that Islamic banks must prioritize investment in robust, secure, and Shariah-compliant e-banking platforms to enhance customer retention and competitive advantage. Future research should broaden the geographic scope and investigate additional factors, such as regulatory frameworks and specific technology adoption barriers.

Keywords: Electronic Banking, Customer Satisfaction, Customer Loyalty, Islamic Banking.

Introduction

The global banking industry is undergoing a profound transformation driven by digital technological advancement. Electronic banking (e-banking), encompassing services such as internet banking, mobile banking, Automated Teller Machines

[1] Department of Business Informatics, School of Management, Katsina State Institute of Technology & Management. zayyana.abdulkadir@ksitm.edu.ng
[2] Department of Business Administration, Faculty of Management and Social Sciences, Federal University Gusau. abu.ama.mama@gmail.com
[3] Department of Islamic Banking and Finance, School of Management, Katsina State Institute of Technology & Management. nura.sadiq@ksitm.edu.ng

https://doi.org/10.58932/MULD0065

(ATMs), and electronic funds transfers, has redefined the customer-bank relationship (Egala et al., 2021). These platforms offer unprecedented convenience, speed, and efficiency, shifting transactions from physical branches to digital channels and empowering customers to manage their finances with greater autonomy (Chaimaa et al., 2021). In this competitive landscape, the strategic imperative for banks is no longer merely to offer digital services, but to ensure their quality, as this directly influences two critical success metrics: customer satisfaction and loyalty (Li et al., 2021; Pooya et al., 2020).

Customer satisfaction, defined as the perception of performance relative to expectations (Kotler et al., 2019), is significantly enhanced by the self-service convenience and reliability of e-banking systems (Mercurio et al., 2022; Tahtamouni, 2023). This satisfaction is a pivotal antecedent to customer loyalty, a customer's continued patronage and willingness to advocate for the bank (Singh, 2021; Troiville, 2024). In the digital age, where switching between providers is effortless, fostering loyalty through superior service is essential for reducing churn rates and ensuring sustainable profitability (Alayli, 2023; Mulia et al., 2021).

While the relationship between e-banking, satisfaction, and loyalty is well-established in conventional banking literature, its dynamics within the Islamic banking sector remain relatively underexplored. Islamic banking operates on distinct principles derived from Shariah law, prohibiting riba (interest) and financing of haram (forbidden) activities, while emphasizing risk-sharing and ethical investments (Danuri, 2021; Nugroho, 2021). These principles introduce unique compliance challenges and customer expectations that extend into the digital realm. Customers of Islamic banks seek not only operational efficiency but also the assurance that e-banking platforms are fully Shariah-compliant. Therefore, a significant gap exists in understanding how e-banking services specifically impact customer perceptions and behaviors in this faith-based context.

To address this gap, this study focuses on the Nigerian Islamic banking sector, specifically targeting customers of Jaiz Bank and Taj Bank. The research aims to empirically examine the role of e-banking services in shaping customer satisfaction and loyalty. Specifically, the study seeks to:

i. Evaluate the impact of e-banking services on customer satisfaction among Islamic banking customers.
ii. Assess the relationship between e-banking services and customer loyalty in the context of Islamic banking.

The findings of this study will provide valuable insights for Islamic bank managers seeking to optimize their digital service delivery. By clarifying the link between e-banking quality and key customer outcomes, the research contributes to the development of more effective, Shariah-compliant digital banking strategies, ultimately supporting growth and stability in the Islamic financial services industry.

Review of Literature

This section provides a critical synthesis of the literature relevant to the study's variables. It begins by conceptualizing electronic banking and its key dimensions, then reviews the core constructs of customer satisfaction and loyalty. Finally, it presents the integrated theoretical framework that forms the foundation for this research and develops the study's hypotheses.

Electronic Banking: Evolution and Key Dimensions

Electronic banking (e-banking) represents a paradigm shift in financial service delivery, moving from traditional brick-and-mortar operations to digital platforms. It is broadly defined as the provision of banking services and products through electronic channels, such as the internet, mobile devices, ATMs, and electronic funds transfer systems (Oyedokun et al., 2021). The core value proposition of e-banking lies in its ability to offer convenience, speed, and 24/7 accessibility, effectively decoupling routine banking transactions from physical branch visits (Oluwasegun et al., 2021; Sahut, 2021).

The quality of e-banking services is a multi-dimensional construct. Research consistently highlights several critical factors that shape customer perceptions:

Ease of Use and Convenience: The simplicity, intuitiveness, and accessibility of digital platforms are paramount for user adoption and continued usage (Auswamy et al., 2022).

Reliability and Efficiency: The consistent, accurate, and timely performance of e-banking systems is fundamental to building user trust and dependence (Mercurio et al., 2022).

Security: The perception of safety, data protection, and fraud prevention are non-negotiable factors in the digital banking landscape, directly influencing customer confidence (Tahtamouni, 2023).

In the unique context of Islamic banking, these universal dimensions are overlaid with the critical requirement of Shariah compliance. This necessitates that e-banking platforms are not only technically robust but also meticulously designed to adhere to principles prohibiting riba (interest), gharar (excessive uncertainty), and financing of haram (forbidden) activities (Danuri, 2021; Nugroho, 2021). This dual requirement creates a distinct context where the digital experience must simultaneously deliver technological excellence and religious assurance.

Customer Satisfaction and Loyalty in the Digital Age

Customer satisfaction is a central metric for evaluating service success. It is defined as a customer's post-purchase evaluation of a product or service based on a comparison between perceived performance and pre-purchase expectations (Kotler, et al., 2019). In service industries like banking, the SERVQUAL model, with its dimensions of tangibles, reliability, responsiveness, assurance, and empathy, provides a robust framework for measuring service quality and its link to satisfaction (Parasuraman, et al., 1988). In the digital realm, these "tangibles" translate to the user interface and functionality of the app or website, while "reliability" and "assurance" become synonymous with system uptime, transaction accuracy, and cybersecurity.

Empirical evidence strongly supports a positive relationship between e-banking service quality and customer satisfaction. Studies by Ayinaddis et al., (2023) and Halim et al. (2023) confirm that the convenience, self-service efficiency, and perceived control offered by digital channels significantly enhance customers' banking experience, leading to higher satisfaction levels.

Customer loyalty, in turn, is the favorable behavioral outcome of sustained satisfaction. It reflects a customer's continued patronage, resistance to switching, and willingness to become an advocate for the bank (Singh, 2021; Troiville, 2024). In the competitive digital age, where switching costs are minimal, fostering loyalty is crucial for customer retention, cross-selling opportunities, and long-term profitability (Alayli, 2023). The literature firmly posits a direct chain of effect: high-quality e-banking services increase customer satisfaction, which in turn becomes a primary driver of customer loyalty (Mulia et al., 2021; Redda, 2023). This satisfaction-loyalty link is a cornerstone of relationship marketing.

Theoretical Framework and Hypothesis Development

This study is underpinned by an integrated theoretical framework that combines the Technology Acceptance Model (TAM) and the SERVQUAL model to provide a comprehensive explanation of the relationships under investigation.

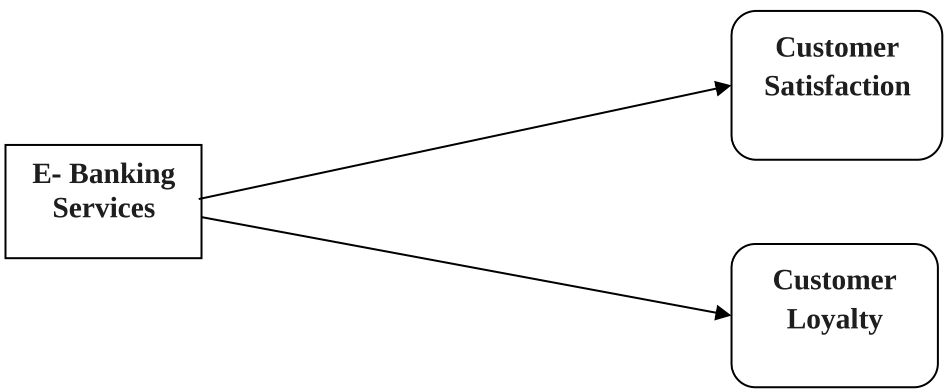
The Technology Acceptance Model (TAM), developed by Davis (1989), is pivotal for understanding user adoption of new technologies. It posits that two key beliefs Perceived Usefulness (the degree to which a person believes using a system would enhance their job performance) and Perceived Ease of Use (the degree to which a person believes using a system would be free from effort) are fundamental determinants of technology acceptance and use (Wilson et al., 2021). In this context, if Islamic banking customers find e-banking platforms useful for managing their finances in a Shariah-compliant manner and easy to navigate, they are more likely to adopt and use them frequently, forming positive perceptions.

However, TAM alone does not fully capture the multi-faceted nature of service quality that leads to satisfaction. Therefore, the SERVQUAL model is incorporated to assess the quality of the e-banking service delivery itself. The five dimensions of SERVQUAL allow for a granular assessment of how the reliability of transactions, the responsiveness of the platform, the assurance of security and Shariah compliance, and the empathy demonstrated through customer support contribute to overall satisfaction.

Synthesized Conceptual Model

The integrated framework, illustrated in Figure 1, proposes that the service quality of e-banking (measured through a SERVQUAL-informed lens) directly influences its perceived usefulness and ease of use (TAM). These combined perceptions then drive Customer Satisfaction. Ultimately, a satisfied customer is more likely to develop Customer Loyalty. This model positions satisfaction as a central variable in the digital banking experience.

Figure 1: *Research Model*



Source: Author

Based on this framework and the preceding literature, the following hypotheses are proposed:

H1: E-banking service quality has a significant positive effect on customer satisfaction in Islamic banking.

H2: E-banking service quality has a significant positive effect on customer loyalty in Islamic banking.

H3: Customer satisfaction has a significant positive effect on customer loyalty in Islamic banking.

Methodology

This study employed a quantitative, cross-sectional survey design to collect data from 384 customers of Jaiz and Taj Banks in Katsina State, Nigeria, determined through Cochran's formula for infinite populations at a 95% confidence level and 5% margin of error, using a convenience sampling approach. The research instrument featured measures adapted from established scales: a six-item scale for electronic banking (EB) services from Beheshtifar and Nezhad (2015), a five-item scale for customer satisfaction (CS) from Redda (2023), and a five-item scale for customer loyalty (CL) from Ayinaddis et al. (2023), all employing a five-point Likert scale. Data analysis was conducted using SmartPLS version 4, utilizing the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique, which involved a two-stage process of first assessing the measurement model for reliability and validity, followed by evaluating the structural model to test the hypothesized relationships through bootstrapping.

Results and discussion

This section presents the empirical findings and provides an integrated discussion that interprets these results in relation to existing literature and the study's theoretical framework.

Measurement Model Assessment

Prior to testing the structural relationships, the reliability and validity of the constructs were examined to ensure the robustness of the measurement model. As shown in Table 1, all constructs demonstrated strong internal consistency, with Cronbach's Alpha and Composite Reliability values exceeding the 0.70 benchmark recommended by Hair et al. (2019). Convergent validity was also established, as each construct's Average Variance Extracted (AVE) surpassed the threshold value of 0.50.

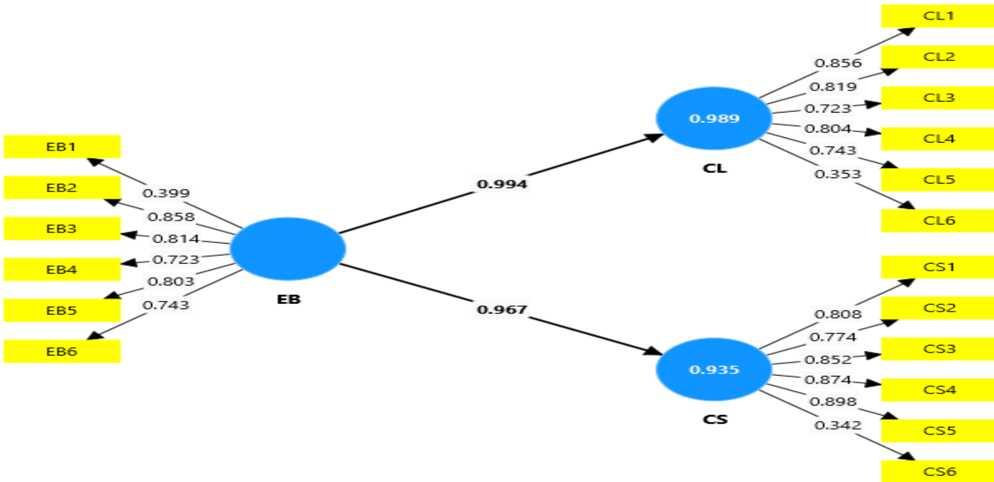
Table 1: *Reliability and Convergent Validity*

Construct	*Items*	*Loadings*	*Cronbach's Alpha*	*Composite Reliability*	*AVE*
E-Banking (EB)	*EB2*	*0.757*	*0.813*	*0.813*	*0.572*
	EB3	*0.788*			
	EB4	*0.712*			
	EB5	*0.764*			
	EB6	*0.758*			
Customer Satisfaction (CS)	*CS1*	*0.800*	*0.899*	*0.902*	*0.714*
	CS2	*0.773*			
	CS3	*0.859*			
	CS4	*0.879*			
	CS5	*0.907*			
Customer Loyalty (CL)	*CL1*	*0.834*	*0.823*	*0.825*	*0.587*
	CL2	*0.784*			
	CL3	*0.715*			
	CL4	*0.767*			
	CL5	*0.725*			

Source: Author

However, the assessment of discriminant validity revealed a potential concern. As presented in Table 2, the Heterotrait-Monotrait (HTMT) ratios among constructs exceeded the conservative threshold of 0.90 (Henseler, et al., 2015). This suggests that respondents may have perceived e-banking quality, satisfaction, and loyalty as closely related, possibly reflecting a "halo effect" where favorable perceptions of one construct influence evaluations of others.

Figure 2: *Measurement Model*



Source: Author

Table 2: *Discriminant Validity (HTMT Matrix)*

	CL	***CS***	***EB***
CL			
CS	*1.101*		
EB	*1.180*	*1.113*	

Source: Author

Note: CL = Customer Loyalty; CS = Customer Satisfaction; EB = E-Banking

Structural Model and Hypothesis Testing

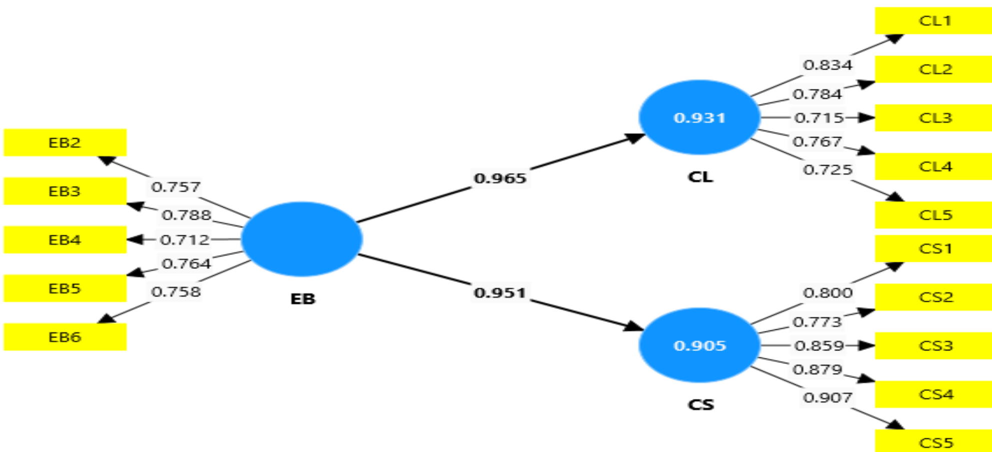
After confirming measurement reliability and validity, the structural model was assessed to test the proposed hypotheses. The explanatory power of the model was notably strong, with e-banking services accounting for 90.5% ($R^2 = 0.905$) of the variance in customer satisfaction and 93.1% ($R^2 = 0.931$) in customer loyalty. Path coefficients and their significance levels, derived from a bootstrapping procedure with 5,000 subsamples, are presented in Table 3 and illustrated in Figure 1.

Table 3: *Hypothesis Testing (Path Coefficients)*

Hypothesis	Path	Path Coefficient (β)	T-Statistic	P-Value	Result
H1	EB → CS	0.951	102.272	0.000	**Supported**
H2	EB → CL	0.965	135.794	0.000	**Supported**

Source: Author

Figure 3: *Structural Model*



Source: Author

Both hypotheses were strongly supported. The paths from e-banking to customer satisfaction ($\beta = 0.951$, $p < 0.001$) and from e-banking to customer loyalty ($\beta = 0.965$, $p < 0.001$) indicate exceptionally strong and statistically significant relationships.

Discussion of Findings

The study aimed to examine how e-banking services influence customer satisfaction and loyalty within the Islamic banking sector. The findings offer compelling empirical support for e-banking as a crucial determinant of both outcomes.

E-Banking's Influence on Customer Satisfaction

The confirmation of H1 (β = 0.951) highlights that the quality of digital platforms is central to customer satisfaction in Islamic banking. This finding aligns with studies by Halim et al. (2023) and Tahtamouni (2023), which emphasize that user-friendly, reliable, and efficient digital services enhance customer experience. Within the Islamic context, the results suggest that banks such as Jaiz and Taj are effectively fulfilling customer expectations by providing trustworthy and Shariah-compliant e-banking platforms. This aligns with the integrated TAM–SERVQUAL framework, indicating that when e-banking is perceived as both useful and easy to use (TAM) and of high service quality (SERVQUAL), it generates strong customer satisfaction.

E-Banking as a Direct Driver of Loyalty

The strong support for H2 (β = 0.965) demonstrates that e-banking directly fosters customer loyalty. This can be explained through the concepts of switching costs and perceived value (Alayli, 2023). A superior, Shariah-compliant digital platform becomes embedded in customers' daily financial routines, making them less inclined to switch providers. Consistent with findings by Mulia et al., (2021), the results reinforce that digital engagement enhances emotional and functional attachment, thereby cultivating loyalty. Thus, in the digital era, the service platform itself emerges as a primary loyalty enabler, not merely an indirect contributor through satisfaction.

Critical Reflection and Limitations

Although the path coefficients and R^2 values are statistically significant, their exceptionally high magnitude warrants careful interpretation. Such strong relationships are uncommon in social science research and, combined with the high HTMT ratios (> 0.90), may indicate a measurement overlap or "halo effect" in respondents' perceptions. This could stem from a convenience sampling approach or a sample population that shares uniformly positive views of their banks' digital transformation. Future studies should refine the measurement scales to better distinguish between constructs and replicate the study in more diverse settings. Nevertheless, the overall conclusion remains clear: e-banking services form a cornerstone of customer-centric strategies in Islamic banking, driving both satisfaction and loyalty in a rapidly digitalizing financial landscape.

Conclusion and Recommendations

This study set out to empirically investigate the role of electronic banking services in shaping customer satisfaction and loyalty within the under-researched context of Islamic banking in Nigeria. The findings provide compelling evidence that e-banking is not merely a supplementary service but a fundamental driver of customer-centric outcomes. The robust path coefficients and high explanatory power of the model demonstrate that the quality, convenience, and reliability of digital platforms have a profound and direct impact on both satisfying customers and securing their long-term loyalty. This affirms the relevance of the integrated TAM and SERVQUAL framework, suggesting that Islamic bank customers highly value digital services that are both technologically adept and aligned with their expectations for seamless, trustworthy service.

Theoretical and Managerial Implications

The study offers several important implications. Theoretically, it strengthens the body of knowledge by successfully applying established technology and service quality models to the unique context of Islamic finance, confirming their validity in a faith-based banking environment. It also highlights the potent direct effect of service quality on loyalty in the digital age, a relationship that merits further theoretical exploration.

From a managerial perspective, the implications are clear and actionable. For Islamic banks like Jaiz and Taj, sustained investment in a robust, secure, and user-friendly e-banking infrastructure is not an option but a strategic imperative. Management should prioritize:

Enhancing Technical Quality: Continuously improving the functionality, speed, and reliability of mobile apps and online platforms to ensure a flawless user experience.

Fortifying Security and Shariah Compliance: Explicitly communicating and embedding advanced security measures and Shariah-compliance certifications within the digital ecosystem to build trust and meet core customer expectations.

Leveraging Digital Feedback: Implementing proactive digital feedback channels to continuously capture customer insights and rapidly iterate on service delivery, thereby closing the loop between satisfaction and service improvement.

Limitations and Avenues for Future Research

Despite its contributions, this study has limitations that pave the way for future research. The use of convenience sampling in a specific geographic region (Katsina) limits the generalizability of the findings. Furthermore, the discriminant validity concerns and exceptionally high R^2 values suggest the need for more nuanced measurement scales in future studies.

Building on these limitations, future research should:

Expand Methodological Rigor: Employ stratified random sampling across multiple regions in Nigeria and other countries to enhance the external validity of the findings.

Investigate Specific Antecedents: Move beyond general e-banking quality to explore the impact of specific factors such as perceived Shariah compliance of digital services, digital trust, and cybersecurity awareness on satisfaction and loyalty.

Adopt Longitudinal and Mixed Methods: Conduct longitudinal studies to understand the evolution of customer perceptions over time and employ qualitative interviews to gain deeper insights into the "why" behind the statistical relationships, particularly regarding the role of faith in digital adoption.

Explore Regulatory and Technological Factors: Examine how regulatory frameworks and the adoption of emerging technologies like blockchain and open banking influence customer behavior in Islamic digital finance.

In conclusion, while the digital transformation of banking is universal, its execution within the principles of Islamic finance presents a unique competitive opportunity. By prioritizing the development of superior e-banking services, Islamic banks can effectively foster the customer satisfaction and loyalty necessary for sustainable growth in an increasingly competitive financial landscape.

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