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Effect of Electronic Banking Services on Customer Retention: Evidence from National Microfinance Bank, Moshi Municipality, Tanzania

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Abstract

Electronic banking services play a vital role in enhancing customer engagement, particularly in Tanzania's competitive financial sector where digital transformation is reshaping banking experiences. This study aimed to examine the effect of electronic banking services on customer retention at NMB Bank PLC in Moshi Municipality, Tanzania. Grounded in the Technology Acceptance Model (TAM), the study employed a convergent research design under a mixed-methods approach, combining both quantitative and qualitative data to enable comprehensive analysis and triangulation of findings. The target population included 75,451 customers and 98 bank staff members. Using Yamane's formula (1967), a sample of 398 customers and 98 staff members was selected through a combination of stratified random, purposive, convenience, and census sampling techniques. Data were collected using structured questionnaires and key informant interviews. Instrument reliability was ensured through Cronbach's Alpha ($\alpha = .85$), and validity was established through expert review and pilot testing. Quantitative data were analyzed using descriptive statistics via SPSS version 25, while qualitative data were subjected to contextual analysis. Ethical principles such as informed consent, confidentiality, and voluntary participation were strictly observed. Findings revealed that electronic banking services significantly affect customer retention ($p = .000$). Key factors enhancing retention included service convenience, 24/7 availability, personalized offers, and issue resolution speed, while service interruptions, poor communication, and security concerns negatively impacted loyalty. The study concludes that reliable, user-friendly, and secure digital platforms are central to customer retention. It recommends that NMB Bank and similar institutions strengthen their e-banking systems, improve platform stability, enhance personalization, and ensure timely customer support to foster long-term client loyalty.

Keywords

Mobile Marketing Communication, Instant Message Marketing Communication, Generation Z, Mobile Instant Messaging Applications, Consumer Attitude, Elaboration Likelihood

1. Introduction

The global banking sector has experienced rapid digital transformation, reshaping how financial services are delivered and consumed. Mobile and internet technologies now enable banks to offer faster, more convenient, and cost-effective services (McKinsey & Company, 2022). Digital platforms such as mobile banking, internet banking, ATMs, and agency banking have become vital to improving accessibility and customer satisfaction (Deloitte, 2022; Accenture, 2021). Over 85 percent of banks worldwide have adopted such platforms to enhance service efficiency and competitiveness (Kaur & Singh, 2020; Singh & Sinha, 2021).

Across Africa, digital banking is expanding rapidly, driven by mobile phone penetration and financial inclusion policies (AfDB, 2024; World Bank, 2023). Mobile money and banking platforms now account for over half of banking transactions in many Sub-Saharan countries (GSMA, 2023). This growth is supported by a young, tech-oriented population and government efforts to promote digital finance (UNDP, 2022; ITU, 2023). However, challenges such as poor internet infrastructure, cybersecurity threats, digital illiteracy, and weak regulations continue to undermine trust and service reliability (KPMG, 2023; Omwansa & Sullivan, 2018; Mutsindashyaka et al., 2020). Digital fraud and privacy concerns also remain major barriers to customer retention (Adeoye & Fakile, 2021; Osei-Assibey, 2022).

In Tanzania, the banking sector is rapidly adopting e-banking to expand service coverage and remain competitive (Bank of Tanzania, 2024; Mhando, 2022). The Bank of Tanzania's (2024) report shows a 28 percent rise in digital transactions, reflecting the growing use of mobile, internet, and agency banking (Magesa & Michael, 2023). These innovations promote financial inclusion by extending services to underserved populations (World Bank, 2022; Mung'ong'o & Ngowi, 2021). However, persistent issues such as system downtimes, limited customer awareness, and security concerns continue to affect satisfaction and retention, underscoring the need for improved digital infrastructure and support (Mwakaje, 2019).

National Microfinance Bank (NMB), one of the Tanzania's largest commercial banks, plays a key role in advancing digital banking. Established in 1997 after the restructuring of the National Bank of Commerce, NMB now operates over 230 branches and serves more than eight million customers (NMB, 2024). Its digital platforms, including NMB Mkononi, internet, and agency banking, account for over 95 percent of transactions. While its strategy promotes efficiency and financial inclusion, challenges such as system outages and perceived security gaps persist (Magesa & Michael, 2023), indicating a divide between digital adoption and customer satisfaction.

In Moshi Municipality, a fast-growing urban area with increasing smartphone use and digital literacy, customer expectations for banking have shifted toward seamless, convenient, and secure digital services (TCRA, 2023; URT, 2023). Clients now seek solutions that meet their financial needs beyond traditional banking hours (Ngowi, Matiko, & Kimaro, 2022; Mushi, Lwoga, & Macha, 2020). The competitive local banking environment demands continuous improvement in service quality, system reliability, and customer engagement to build loyalty (Mwakaje, 2019; Kinyanjui & Muathe, 2021). However, limited evidence exists on how e-banking affects customer retention in Moshi. This study therefore examined whether customers perceive these services as reliable, secure, and user-friendly enough to remain loyal to NMB Bank.

Electronic banking services such as mobile banking (NMB Mkononi), internet banking (NMB Direct), ATMs, and agency banking form the core of NMB Bank's strategy to enhance accessibility and convenience, accounting for over 95 percent of its transactions nationwide (Shore Africa, 2025a, 2025b). However, complaints about system downtime, fraud risks, and poor usability persist, and customers who perceive these services as unreliable or insecure are more likely to switch banks (Kinogo, Jani, & Mwakyusa, 2024).

Previous studies provide partial insights but have not examined how service attributes such as reliability, security, and ease of use effect customer retention at NMB Bank specifically. For instance, Mwakisoba and Meela (2024) found that mobile and ATM banking improved satisfaction, while internet banking had negative effects due to cost and security concerns. Similarly, John and Kiwango (2024) linked ICT use to satisfaction but not retention. With Tanzanian banks losing 5 - 7 percent of customers annually (Kinogo et al., 2024), there remains no Moshi-specific evidence on how e-banking affects retention. This study therefore addresses that gap by analyzing how electronic banking services affect customer retention at NMB Bank in Moshi Municipality. Customer retention refers to customers' willingness and intention to continue using NMB Bank's services and maintain a long-term relationship with the bank rather than switching to competing banks. It was measured using questionnaire items assessing continued service use, intention to remain with NMB, reluctance to switch, and willingness to maintain a relationship with the bank. The responses to these items were combined to form a composite customer-retention score, which was treated separately as the dependent variable from the electronic banking service measures.

2. Literature Review

This study is guided by the following empirical studies:

Yuvaraj Kumar and Raj (2025) investigated the impact of digital banking on customer retention in commercial banks in Chennai using a sample of 120 respondents drawn from customers and staff. The study identified convenience, security, personalization, and responsiveness as key factors influencing retention, with findings showing that digital banking enhances convenience, reduces service friction, and strengthens loyalty. However, it focuses on a single, university-affiliated setting limits generalizability. The present study addresses this gap by examining NMB Bank in Moshi Municipality, which serves a broader demographic, to provide more comprehensive insights into the effect of e-banking on customer retention.

Kuria (2025) examined the effect of electronic banking services on customer retention in a Kenyan commercial bank using a descriptive design and data from 55 employees and customers. Guided by the Technology Acceptance Model (TAM), the study found that ease of use, accessibility, and transaction speed significantly enhance retention and recommended continuous investment in digital infrastructure and customer education. Since the study focused on one bank in Nairobi, its findings may not fully apply to regional contexts. The present study therefore investigates these dynamics within NMB Bank in Moshi Municipality.

Nabasumba (2019) examined the effect of electronic banking on customer retention in Uganda using Centenary Bank as a case study. Employing a cross-sectional survey, the study found that efficient ATMs, reliable electronic funds transfers, and the ability to process loans online enhanced loyalty and referrals. However, concerns about data security, system integrity, and limited technological adoption, such as weak debit card and telephone banking systems, reduced customer confidence. The present study extends this work by including NMB Bank to provide broader comparative insights into how e-banking affects customer retention.

Appu and Muthamizhan (2021) evaluated the impact of electronic banking services on customer retention in India using the E-S-Qual model and data from 84 customers. The study identified service quality, transactional support, inter-bank payments, accessibility, and privacy as key drivers of retention and recommended improving user-friendliness and data security. However, given India's different technological context, the findings may not fully apply to Tanzania. The present study therefore focuses on Moshi Municipality to explore how these factors affect customer retention within NMB Bank.

Egala and Mohamed (2021) explored the effect of electronic banking on customer retention in Tanzania using a mixed-methods approach that combined surveys of 400 customers with focus group discussions. The study found that personalized communication and loyalty programs through e-banking significantly enhance retention, as customers value tailored offers based on their transaction behavior. However, the research focused only on customer perspectives, excluding staff insights. The present study addresses this gap by incorporating views from both customers and employees to provide a more comprehensive understanding of how e-banking affects retention.

However, previous studies, including those by Yuvaraj Kumar and Raj (2025), Kuria (2025), and Egala and Mohamed (2021), have shown that e-banking enhances service quality and communication, yet most focused on general technology use or customer perspectives without considering staff insights or examining retention as a central element of relationship marketing. Nabasumba (2019) linked ATMs and online services to customer loyalty in Uganda, while Appu and Muthamizhan (2021) highlighted privacy and access issues in India, though their findings may not fully apply to the Tanzanian context.

Despite these contributions, few studies have analyzed both customer and staff perspectives within NMB Bank or identified the specific e-banking features that drive retention in Moshi Municipality. This study therefore sought to fill these gaps by assessing how electronic banking services effect customer retention at NMB Bank in Moshi Municipality, Tanzania.

Theoretical Framework

This section presents a review of theories relevant to this study, specifically focusing on Technology Acceptance Model.

The Technology Acceptance Model (TAM), developed by Davis (1989), explains user acceptance of technology based on two key factors: perceived usefulness (PU) and perceived ease of use (PEOU) (Rita, Oliveira, & Farisa, 2019). Perceived usefulness refers to the belief that technology enhances performance, while perceived ease of use relates to the belief that it requires minimal effort (Mwiya & Mwangi, 2022). These perceptions affect attitudes, intentions, and actual technology adoption.

In the context of this study, customers' perceptions of usefulness, such as convenience and efficiency, and ease of use, such as user-friendly interfaces, shape their trust, satisfaction, and loyalty. Banks that emphasize usability and value in e-banking platforms strengthen customer relationships and retention (Keskin et al., 2021).

TAM assumes that PU and PEOU directly affect attitudes toward technology, which in turn affect behavioral intention and actual use. External factors like system design or training indirectly affect adoption through these perceptions, reflecting the model's view that users adopt technology when it offers clear benefits with minimal effort.

One of the major strengths of TAM is its simplicity and ability to predict technology acceptance behavior effectively. The model uses clear and measurable constructs, making it applicable in various settings and industries. TAM has been extensively validated in empirical studies, demonstrating its reliability and relevance in understanding user behavior. It also provides actionable understandings for businesses, enabling them to address specific barriers to technology adoption. Also, TAM is flexible and can be integrated with other theories to enhance its explanatory power.

TAM has limited scope, as it primarily focuses on perceived usefulness and ease of use without considering other factors that may affect technology adoption, such as social, cultural, or organizational contexts. The model also assumes that users behave rationally when making decisions about technology use, which may not always be the case. Moreover, TAM does not account for external variables like security concerns, cost, or technical infrastructure, which are particularly relevant in electronic banking. These limitations can reduce its ability to fully explain adoption behavior in complex environments.

TAM is relevant to this study as it provides a foundational framework for understanding how customers perceive and adopt electronic banking services. TAM puts emphasis on perceived usefulness and ease of use through which banks can develop strategies to enhance the customer experience and foster loyalty, which are critical for effective relationship marketing management.

3. Research Methodology

The study adopted a convergent mixed-methods design to collect and analyze quantitative and qualitative data simultaneously. This approach enabled triangulation between customer and staff responses, enhancing validity and reliability. The customer sampling frame comprised registered NMB customers served by the selected branches in Moshi Municipality. Eligible customers were those who were 18 years or older, had an active NMB account, and had used at least one electronic banking service. The target population comprised 75,550 individuals, including 98 staff members and 75,549 customers from NMB Bank branches in Moshi Municipality. A sample of 398 customers and all 98 staff members was determined using Yamane's (1967) formula.

A census covered all staff in sales, marketing, and public relations, with one departmental head purposively selected for in-depth insights, while 398 customers and 98 staffs making a total of 496 respondents were conveniently sampled during bank visits. Data were collected through questionnaires and interviews, with sessions lasting about 20 minutes to capture managerial perspectives.

Customer respondents were recruited at the selected NMB Bank branches in Moshi Municipality during the data-collection period. Customers who met the eligibility criteria and voluntarily agreed to participate were approached after completing their banking services, and the questionnaire was administered to those available and willing to respond. Convenience sampling was used because customers were recruited based on their availability at the branches. However, to reduce potential underrepresentation of customers who primarily use digital channels and rarely visit branches, eligible customers were also approached at different times and on different days where feasible. Staff in sales, marketing, and public relations were covered through census sampling, while one departmental head was purposively selected for an in-depth interview. Data were collected through structured questionnaires and interviews, with interview sessions lasting approximately 20 minutes.

Instrument validity was confirmed through expert review and a 10 percent pilot test. Reliability was assessed using Cronbach's Alpha ($\alpha \geq .7$), while qualitative dependability was ensured through peer validation. Quantitative data were analyzed using SPSS version 25 through descriptive statistics, whereas qualitative data were examined contextually and presented using key quotations to integrate staff and customer views.

4. Findings and Discussion

This section presents the results and analysis derived from the collected data in the research study.

4.1. Response Return Rate of Instruments

The researcher distributed questionnaires and conducted interviews with all sampled 497 NMB bank staff and customers. The response rate is summarized in Table 1.

Table 1 indicates a 100% response rate from staff (98/98) and 55.5% from customers (221/398). The full participation of staff reflects their accessibility and interest in the study topic, while the moderate customer response may stem from availability and engagement challenges. The use of physical distribution and scheduled appointments contributed to these favorable rates. Overall, the response level ensured a reliable and representative dataset that strengthened the validity of the study's conclusions.

Table 1. Response rate.

Categories	Sample Size	Respondents	Respondents rate
Bank Customers	398	221	55.5%
Bank Staff members	98	98	100%

4.2. Demographic Information of Respondents

This section includes the demographic information that were collected from employees of commercial banks and the customers of commercial banks.

4.2.1. Demographic Statistics of Commercial Bank Employees

This section presents the demographic characteristics of the employees of NMB bank who participated in the study, as shown in Table 2. Key variables considered include gender, age and working experience. These factors help establish the diversity and representativeness of the sample as well as help identify how employees' characteristics effect their attitudes, skills, and readiness to adopt electronic banking services, which in turn affects the effectiveness of relationship marketing management.

The demographic profile of NMB Bank employees in Moshi Municipality provides key insights into how workforce characteristics affect e-banking and customer retention. The findings show a clear gender imbalance, with 77.6 percent male and 22.4 percent female employees, suggesting limited diversity in perspectives that could affect service design and customer engagement. Enhancing gender inclusion could therefore help the bank align its digital services with the needs of a wider range of customers.

Most employees, about 76.5 percent, are aged between 30 and 39 years, indicating a youthful and technologically adaptable workforce that is well positioned to support efficient and user-friendly e-banking. Regarding work experience, 58.2 percent have over ten years of experience and 40.8 percent have less than ten years of experience, while none have served for more than a decade. Although this level of experience promotes adaptability and openness to innovation, the lack of long-serving staff may limit institutional memory and consistency in service delivery. Continuous professional development and efforts to retain experienced employees are therefore important for maintaining service quality, customer trust, and long-term loyalty.

Table 2. Demographic information of NMB Bank employees.

Category		Frequency (f)	Percentage (%)
Gender	Male	76	77.6
	Female	22	22.4
Age	18 - 19 years	4	4.1
	30 - 39 years	75	76.5
	40 - 49 years	19	19.4
	50 years and above	0	0
Working experience	Less than one year	1	1.0
	1 - 5 years	57	58.2
	6 - 10 years	0	0
	Over ten years	40	40.8

4.2.2. Demographic Statistics of NMB Customers

This section presents the demographic characteristics of the customers of NMB bank who participated in the study, as shown in Table 3. Key variables considered include gender, age and level of education. These factors help establish the diversity and representativeness of the sample as well as help identify how customers' characteristics affect their use of electronic banking services and their perceptions of relationship marketing practices provided by commercial banks.

The demographic profile of NMB Bank customers in Moshi Municipality offers key insights into e-banking and retention. The findings show that 65.6 percent of customers are male and 34.4 percent female, indicating a gender gap in digital service use. This suggests men engage more with e-banking, while women may face barriers such as digital literacy or trust, pointing to the need for targeted strategies to improve inclusion.

Most customers (54.8 percent) are aged 30 - 39, followed by 27.1 percent aged 40 - 49, while only 10.9 percent are aged 18 - 29. Middle-aged adults therefore dominate NMB's customer base, likely due to financial stability and digital familiarity. To attract younger users, the bank should emphasize mobile-friendly and interactive digital services.

Education data show that most customers have certificates or diplomas (35.7 percent), followed by primary or secondary education (29.4 percent). Ensuring that e-banking platforms are simple and accessible across education levels will enhance inclusivity and customer retention.

Table 3. Demographic information of NMB bank customers.

Category		Frequency (f)	Percentage (%)
Gender	Male	145	65.6
	Female	76	34.4
Age	18 - 29 years	24	10.9
	30 - 39 years	121	54.8
	40 - 49 years	60	27.1
	50 and above years	16	7.2
Level of education	Primary or secondary	65	29.4
	Certificate or diploma	79	35.7
	Bachelor degree	52	23.5
	Postgraduate	25	11.3

4.3. Cross Tabulation between NMB Bank Employees' Working Experience and Effect of E-Banking Services on Customer Retention in Moshi Municipality

The study cross-tabulated employees' work experience with their perceptions of how e-banking affects customer retention in Moshi Municipality. This analysis was useful in comparing how tenure shapes views on the role of digital banking in sustaining client relationships. More experienced employees tend to understand customer needs and loyalty factors, while newer staff often offer technology-oriented perspectives. These insights help explain how features such as convenience, personalized services, and quick issue resolution contribute to customer engagement at NMB Bank.

The cross-tabulation revealed similar views across experience levels. Employees with one to five years and those with over ten years of service generally agreed that e-banking enhances convenience, personalization, and prompt issue resolution, all vital for retaining customers. Even the few with less than a year of experience strongly supported the positive impact of digital solutions on loyalty.

These findings indicate that work experience effects how staff perceive customer retention through e-banking. Experienced employees provide balanced perspectives on how digital services build loyalty, while mid-career staff show strong confidence linked to their daily interaction with customers and technology. Overall, employees across all tenure levels regard e-banking as central to customer retention at NMB Bank in Moshi Municipality (**Table 4**).

Table 4. Cross tabulation between NMB Employees Working Experience*Effect of E-banking Services on Customer Retention in Moshi Municipality.

Effect of E-banking Services on Customer Retention		Working experience			Total
		less than one year	1 - 5 years	over ten years	
E-banking services makes banking more convenient for customers	Strong disagree	0	0	1	1
	Disagree	0	2	0	2
	Neutral	0	20	12	32
	Agree	0	26	22	48
	Strong Agree	1	9	5	15
Total		1	57	40	98
E-banking services provide personalized offers that improves customers retention	Strong disagree	0	1	0	1
	Disagree	0	3	0	3
	Neutral	0	13	9	22
	Agree	1	28	26	55
	Strong Agree	0	12	5	17
Total		1	57	40	98
E-banking services help solve issues promptly enhancing retention	Strong disagree	0	1	0	1
	Disagree	0	1	0	1
	Neutral	0	19	6	25
	Agree	0	19	25	44
	Strong Agree	1	17	9	27
Total		1	57	40	98

4.4. Effect of E-Banking on Customer Retention

This research question examined how e-banking services effect customer retention in Moshi Municipality. In this study, mean scores above 3 indicated a strong perceived effect, while scores below 3 reflected a weaker effect. The interpretation scale was as follows: 1.00 - 1.99 (very low), 2.00 - 2.99 (low), 3.00 - 3.99 (moderate), 4.00 - 4.99 (high), and 5.00 (very high). Employees' responses on the effect of e-banking services on customer retention are summarized in Table 5.

Table 5 shows that 40.8 percent of respondents agreed and 11.2 percent strongly agreed that e-banking services make banking more convenient for customers, with a mean score of 3.31 and a standard deviation of 1.188. These results suggest that respondents generally perceived e-banking as contributing to banking convenience and customer retention. The manager also noted that convenience strengthens loyalty, particularly by reducing the need for customers to visit branches.

"*Many customers tell us they stay with NMB simply because they don't have to come into the branch for everything anymore. They love that they can do their banking while at home or work. Convenience has become the main reason they* *don't even look at other banks*." (*Interview with Key Informant 1*, *June 26*, *2025*).

Table 5. NMB bank employees responses on the effect of e-banking services on customer retention in Moshi municipality (n = 98).

S/N	Customer retention	SA		A		N		SD		D		$\bar{x}$	SD
		f	%	f	%	f	%	f	%	f	%		
i	E-banking services make banking more convenient for customers	11	11.2	40	40.8	30	30.6	2	2.0	15	15.3	3.76	.774
ii	The availability of 24/7 e-banking services increases customers retention	10	10.2	63	64.3	19	19.4	2	2.0	4	4.1	3.91	.644
iii	Unreliable e-banking platforms increases the likelihood of customers switching to competitors	16	16.3	55	56.1	25	25.5	1	1.0	1	1.0	3.86	.732
iv	E-banking services provide personalized offers that improves customers retention	17	17.3	55	56.1	22	22.4	3	3.1	1	1.0	3.86	.773
v	The difficulty of accessing e-banking services increases customers complaints which reduce retention	20	20.4	49	50.0	25	25.5	3	3.1	1	1.0	3.86	.812
vi	Insecure e-banking systems discourage customers to remain with the bank	18	18.4	51	52.0	25	25.5	2	2.0	2	2.0	3.83	.825
vii	Regular updates and improvements in e-banking platforms show commitment to customers' needs	21	21.4	41	41.8	30	30.6	4	4.1	2	2.0	3.77	.906
viii	E-banking services reduce waiting times leading to higher retention	28	28.6	44	44.9	22	22.4	2	2.0	2	2.0	3.96	.884
ix	Inconsistent communication through e-banking platforms reduces customers retention	28	28.6	41	41.8	26	26.5	2	2.0	1	1.0	3.95	.854
x	E-banking services help solve issues promptly enhancing retention	27	27.6	44	44.9	25	25.5	1	1.0	1	1.0	3.97	.818
	Average Mean score and Standard deviation											3.87	0.802

Key: SD (1) = Strongly Disagree, D (2) = Disagree, N (3) = Neutral, A (4) = Agree, SA (5) = Strongly Agree, $\bar{x}$ = mean, Std = Standard Deviation.

Convenience is a core element of customer experience. By reducing physical visits and transaction time, e-banking can enhance customer engagement and loyalty. Within the Technology Acceptance Model (TAM), convenience is closely associated with perceived ease of use and usefulness, while Relationship Marketing Theory links convenient services to customer satisfaction and continued relationships. These findings are consistent with Appu and Muthamizhan (2021), who identified convenience as an important factor in customer retention.

Similarly, 64.3 percent of respondents agreed and 10.2 percent strongly agreed that the availability of 24/7 e-banking services increases customer retention, with a mean score of 3.74 and a standard deviation of .829. The findings indicate that continuous access to banking services is generally perceived as an important factor in encouraging customers to remain with NMB Bank. The manager also observed that customers associate round-the-clock access with convenience and trust.

"*One customer joked that she would never leave NMB because our app 'never sleeps.' She can send money at midnight or check her account on a Sunday. That kind of access makes people feel like the bank is always there for them.*" (*Interview with Key Informant 1, June 26, 2025*).

Within the Technology Acceptance Model, uninterrupted e-banking access can enhance perceived usefulness by allowing customers to perform transactions whenever needed, while Relationship Marketing Theory views continuous accessibility as part of maintaining a responsive relationship with customers. These findings support Kuria (2025), who reported that continuous accessibility contributes to customer retention. Therefore, banks should maintain stable systems and reliable customer support to strengthen long-term customer relationships.

Similarly, 56.1 percent of respondents agreed and 16.3 percent strongly agreed that unreliable e-banking platforms increase the likelihood of customers switching to competitors, with a mean score of 3.86 and a standard deviation of .732. This finding indicates that platform reliability is an important consideration in retaining customers. Service instability can create dissatisfaction, reduce confidence, and encourage customers to consider competing banks. TAM relates reliable digital platforms to customers' perceptions of usefulness and ease of use, while Relationship Marketing Theory identifies reliability as an important foundation for trust. Nabasumba (2019) similarly found that reliable electronic banking services increased customer loyalty in Uganda. Banks should therefore conduct regular technical maintenance and system audits to minimise disruptions that may threaten customer retention.

In addition, 56.1 percent of respondents agreed and 17.3 percent strongly agreed that personalized e-banking services enhance customer retention, with a mean score of 3.86 and a standard deviation of .773. Personalized offers may signal that the bank understands individual customer needs, thereby fostering satisfaction and stronger customer relationships. The manager affirmed that personalization remains an important tool for building customer loyalty.

"*When we send a message about a special savings rate or a discount that fits a customer's profile, they often thank us. They say it feels like the bank 'knows' them. Those personal touches really keep customers from drifting to other banks.*" (*Interview with Key Informant 1, June 26, 2025*).

According to the Technology Acceptance Model, personalized offers can enhance perceived usefulness by adding value to digital banking services, while Relationship Marketing Theory links personalization to the development of stronger and more enduring customer relationships. These findings support Egala and Mohamed (2021), who found that customized communication and loyalty programmes in e-banking can strengthen customer retention. This consistency highlights the importance of customer-oriented personalization in sustaining loyalty.

Table 5 further shows that 50.0 percent of respondents agreed and 20.4 percent strongly agreed that difficulty in accessing e-banking services increases customer complaints, which reduces retention, with a mean score of 3.86 and a standard deviation of .812. The findings indicate that accessibility problems can negatively affect customers' willingness to remain with the bank. Complex interfaces, access difficulties, or frequent system interruptions may frustrate users and weaken continued engagement. TAM associates accessibility with perceived ease of use, while Relationship Marketing Theory considers smooth service delivery important for maintaining customer trust. Banks should therefore simplify digital platforms and minimise access barriers to encourage continued use.

Similarly, 52.0 percent of respondents agreed and 18.4 percent strongly agreed that insecure e-banking systems discourage customers from remaining with the bank, with a mean score of 3.83 and a standard deviation of .825. The finding demonstrates that security is an important consideration in customer retention because concerns regarding the safety of financial information and transactions may reduce customer confidence. The manager emphasised that confidence in system security remains fundamental to customer loyalty.

"*Customers tell us all the time, 'If I don't trust the security, I won't trust the bank.' They need to know their money and information are safe. Strong security isn't optional; it's what keeps them from walking away.*" (*Interview with Key Informant 1, June 26, 2025*).

According to the Technology Acceptance Model, perceived security concerns can reduce customers' willingness to use digital banking technologies, while Relationship Marketing Theory stresses that trust is essential for maintaining long-term relationships. These findings correspond with Yuvaraj Kumar and Raj (2025), who found that security concerns can undermine customer satisfaction and retention. Banks should therefore strengthen cybersecurity systems and communicate clearly about data protection measures to sustain customer confidence and loyalty.

Table 5 shows that 41.8 percent of respondents agreed and 21.4 percent strongly agreed that regular updates and improvements in e-banking platforms show commitment to customers' needs, with a mean score of 3.77 and a standard deviation of .906. The finding suggests that customers generally perceive continuous improvement of digital platforms as an indication that the bank is responsive to their changing needs. Within TAM, system improvements may enhance perceived usefulness, while Relationship Marketing Theory associates responsiveness with continued customer engagement. This supports Kuria (2025), who recommended innovative e-banking strategies to improve customer retention.

Similarly, 44.9 percent of respondents agreed and 28.6 percent strongly agreed that e-banking services reduce waiting times, leading to higher customer retention, with a mean score of 3.96 and a standard deviation of .884. The finding indicates that time-saving benefits are strongly perceived as contributing to customer retention. By reducing queues and enabling faster transactions, e-banking services can improve customer satisfaction and encourage continued use. In both TAM and Relationship Marketing Theory, efficiency and time-saving contribute to positive customer experiences and stronger relationships.

Additionally, 41.8 percent of respondents agreed and 28.6 percent strongly agreed that inconsistent communication through e-banking platforms reduces customer retention, with a mean score of 3.95 and a standard deviation of .854. This finding suggests that consistent and timely communication is important in maintaining customer relationships. Clear digital communication can improve customers' understanding of banking services, enhance confidence, and support continued engagement.

Finally, 44.9 percent of respondents agreed and 27.6 percent strongly agreed that e-banking services help solve issues promptly, thereby enhancing customer retention, with a mean score of 3.97 and a standard deviation of .818. This was the highest mean score among the items, indicating that prompt issue resolution was particularly important to respondents. Quick resolution of digital banking problems can reduce customer frustration, restore confidence, and encourage customers to continue using the bank's services. The manager similarly emphasised that timely service remains an important factor in building and maintaining customer loyalty.

"*When customers can fix problems on the app instead of waiting in line, they're happier and they stay. One client said, 'I don't leave NMB because every time I have an issue, you sort it instantly.' That speed is what keeps people loyal.*" (*Interview with Key Informant 1, June 26, 2025*).

Quick issue resolution increases customer loyalty by enhancing perceived ease of use, as explained in the Technology Acceptance Model (TAM). Relationship Marketing Theory similarly identifies responsiveness as vital to sustaining long-term relationships. These findings align with Egala and Mohamed (2021), who reported that prompt and personalized e-banking responses foster repeat usage and loyalty. Banks should therefore ensure their digital platforms provide real-time support and efficient service features to strengthen customer retention.

Table 6 shows that 17.2 percent of respondents strongly agreed and 31.2 percent agreed that e-banking makes banking more convenient, with a mean score of 3.46 and a standard deviation of 1.059. These results indicate a moderate level of agreement, suggesting that many customers find e-banking convenient, though a considerable proportion remain neutral or undecided. This was supported by Key Informant 1, who stated:

"*Convenience has become one of the pillars of our digital banking strategy. By simplifying tasks like transfers, payments, and account management, we make banking effortless for our clients and reduce pressure on physical branches. This streamlined experience has been essential in keeping customers satisfied and loyal to the bank.*" (*Interview with Key Informant 1, June 26, 2025*).

These results reflect general satisfaction with e-banking convenience but also some uncertainty regarding service consistency and accessibility. Customers who experience easier, faster transactions are more likely to remain loyal, although the large neutral group may reflect limited usage or inconsistent experiences. This aligns with the Technology Acceptance Model (TAM), which links perceived ease of use to technology adoption, and with Relationship Marketing Theory, which associates convenience with stronger customer relationships. Similar findings by Yuvaraj Kumar and Raj (2025) showed that efficient e-banking services improve satisfaction and retention. Enhancing service convenience can therefore play a strategic role in maintaining customer loyalty.

Table 6. NMB customers responses on the effect of e-banking services on customer retention in Moshi Municipality (n = 221).

S/N	Customer retention	SA		A		N		SD		D		$\bar{x}$	SD
		f	%	f	%	f	%	f	%	f	%		
i	E-banking services make my banking more convenient	38	17.2	69	31.2	84	38.0	16	7.2	14	6.3	3.46	1.059
ii	The availability of 24/7 e-banking services makes me more likely to stay with my bank.	23	10.4	71	32.1	92	41.6	28	12.7	7	3.2	3.34	.938
iii	Unreliable e-banking platforms increase my likelihood of switching to competitors.	34	15.4	58	26.2	84	38.0	33	14.9	12	5.4	3.31	1.073
iv	I receive personalized offers through e-banking that make me want to continue banking with my bank.	28	12.7	64	29.0	82	37.1	32	14.5	15	6.8	3.26	1.072
v	Difficulty in accessing e-banking services makes me frustrated and considers leaving my bank.	25	11.3	69	31.2	71	32.1	41	18.6	15	6.8	3.22	1.086
vi	I feel less secure using my bank's e-banking services, which makes me reconsider staying with them.	21	9.5	72	32.6	68	30.8	44	19.9	16	7.2	3.17	1.082
vii	Regular updates and improvements in e-banking services make me feel valued as a customer.	29	13.1	70	31.7	71	32.1	34	15.4	17	7.7	3.27	1.111
viii	E-banking services save me time by reducing waiting times, making me want to continue using my bank	21	9.5	76	34.4	69	31.2	42	19.0	13	5.9	3.23	1.050
ix	Inconsistent communication through e-banking platforms makes me less likely to stay	28	12.7	63	28.5	78	35.3	41	18.6	11	5.0	3.25	1.057
x	E-banking services help resolve customer issues which encourage me to stay with my bank.	24	10.9	73	33.0	64	29.0	38	17.2	22	10.0	3.18	1.144
	Average Mean score and Standard deviation											3.3	1.1

Key: SD (1) = Strongly Disagree, D (2) = Disagree, N (3) = Neutral, A (4) = Agree, SA (5) = Strongly Agree, $\bar{x}$ = mean, Std = Standard Deviation.

Regarding availability, 10.4 percent strongly agreed and 32.1 percent agreed that 24/7 e-banking access increases loyalty (mean = 3.34; SD = .938). While customers value round-the-clock service, many remain neutral, suggesting that constant access is appreciated but not the main association of loyalty. Some may not use or fully understand all 24/7 features, which points to the need for greater user awareness and communication. This was supported by Key Informant 1, who added that:

"*Offering services around the clock has transformed the way customers interact with us. By making banking accessible at any hour, we reduce reliance on physical branches and cater to individuals with varying schedules. This constant availability strengthens the relationship between customers and the bank.*" (*Interview with*

Key Informant 1, June 26, 2025).

According to the Technology Acceptance Model (TAM), 24/7 service availability enhances perceived usefulness by allowing customers to access banking functions at any time. Relationship Marketing Theory similarly links reliability and accessibility to stronger customer commitment. Banks should therefore promote and maintain dependable round-the-clock services to maximize customer retention.

Table 6 shows that 15.4 percent strongly agreed and 26.2 percent agreed that unreliable e-banking platforms increase the likelihood of switching (mean = 3.31; SD = 1.073). Although many remained neutral, the findings indicate that system reliability strongly affects loyalty. Occasional disruptions may be tolerated, but frequent failures erode trust. TAM associates reliability with ease of use and usefulness, while Relationship Marketing Theory highlights it as a foundation for trust. These results support Nabasumba (2019), who found that poor system performance reduced customer loyalty in Uganda.

Similarly, 12.7 percent strongly agreed and 29 percent agreed that personalized offers enhance retention (mean = 3.26; SD = 1.072). While personalization has a modest positive effect, many customers remain neutral, suggesting limited awareness or ineffective communication of such offers. An interview with Key Informant 1 added that:

"*Personalised offers help customers feel recognised and appreciated. Through e-banking, we can target the right services and promotions to specific groups, creating a sense of relevance. This personal touch builds stronger relationships and encourages customers to maintain their banking with us.*" (*Interview with Key Informant 1, June 26, 2025*).

Customers are more likely to respond positively to personalized offers that match their needs, reflecting the bank's effort to build closer relationships. Irrelevant or poorly communicated offers reduce perceived value. In the Technology Acceptance Model (TAM), such personalization increases perceived usefulness, while Relationship Marketing Theory views it as central to engagement and loyalty. These findings support Appu and Muthamizhan (2021), who found that customized services encourage repeat usage. Banks should therefore improve the relevance and visibility of personalized offers to strengthen retention.

Table 6 shows that 11.3 percent strongly agreed and 31.2 percent agreed that difficulty in accessing e-banking services leads to frustration and potential defection (mean = 3.22; SD = 1.086). Poor access, whether from technical issues or complex interfaces, reduces ease of use and undermines satisfaction. TAM identifies accessibility as a key adoption factor, while Relationship Marketing Theory links it to sustained trust. Nabasumba (2019) similarly found that poor online access weakens loyalty, reinforcing the need for user-friendly and reliable systems.

About 9.5 percent strongly agreed and 32.6 percent agreed that security concerns make them reconsider loyalty (mean = 3.17; SD = 1.082). This indicates ongoing apprehension about data protection. TAM suggests that perceived risk diminishes usefulness and ease of use, while Relationship Marketing Theory highlights trust as the foundation of lasting relationships. Banks must therefore strengthen cybersecurity and communicate transparently about data safety to retain customers.

In addition, 13.1 percent strongly agreed and 31.7 percent agreed that regular e-banking updates make them feel valued (mean = 3.27; SD = 1.111). Updates signal commitment to customer satisfaction and enhance perceived usefulness under TAM. Relationship Marketing Theory also associates innovation with deeper emotional engagement. Kuria (2025) emphasized similar strategies to promote client loyalty.

Finally, 9.5 percent strongly agreed and 34.4 percent agreed that e-banking saves time and encourages continued use (mean = 3.23; SD = 1.050). Time-saving efficiency enhances satisfaction and supports loyalty, although neutral responses suggest that not all customers experience this benefit consistently. Key Informant 1 noted:

"*Digital banking has significantly reduced waiting times for customers and branch staff alike. Most routine transactions are now completed online, which means less congestion and greater efficiency. These time-saving benefits create a smoother experience and keep customers committed to the bank.*" (*Interview with Key Informant 1, June 26, 2025*).

Digital efficiency emerged as a moderate but meaningful factor in customer retention. By reducing physical visits, e-banking enhances speed and convenience, fostering satisfaction and preference for the bank. In the Technology Acceptance Model (TAM), time-saving features improve perceived ease of use, while Relationship Marketing Theory links convenience and responsiveness to trust and loyalty. Yuvaraj Kumar and Raj (2025) similarly found that shorter transaction times increase customer satisfaction.

Table 6 shows that 12.7 percent strongly agreed and 28.5 percent agreed that inconsistent communication reduces loyalty (mean = 3.25; SD = 1.057). Inconsistent or unclear messaging undermines trust, while clear, timely feedback enhances perceived usefulness and reliability. Relationship Marketing Theory views consistent communication as essential for lasting relationships. Egala and Mohamed (2021) also noted that personalized communication through e-banking strengthens retention. Banks should therefore ensure that communication is regular, clear, and responsive.

Finally, 10.9 percent strongly agreed and 33 percent agreed that e-banking helps resolve customer issues and promotes retention (mean = 3.18; SD = 1.144). Although responses were moderate, the findings suggest that effective issue resolution builds confidence and reinforces loyalty. Efficient problem-solving through digital platforms enhances customers' perception of reliability and commitment. Key Informant 1 added that:

"*Security is fundamental to our e-banking strategy. We have made substantial* *investments in authentication systems, encryption, and monitoring to protect transactions and reassure clients. Maintaining a secure environment is vital for retaining customers and safeguarding their trust.*" (*Interview with Key Informant 1, June 26, 2025*).

According to the Technology Acceptance Model (TAM), platforms that enable quick and effective service recovery promote continued use. Relationship Marketing Theory likewise links efficient problem resolution to stronger commitment and emotional attachment. Consistent with Kuria (2025), these findings highlight the importance of responsive digital channels for complaint management to enhance customer satisfaction and long-term loyalty.

4.5. Hypothesis Testing

To examine the effect of electronic banking services on customer retention at NMB Bank in Moshi Municipality, a multiple linear regression model was used at a .05 significance level. The null hypothesis stated that e-banking services have no significant effect on customer retention, while the alternative suggested a significant effect. The model tested the linear relationship between selected e-banking dimensions and customer retention, evaluating the strength and direction of their impact on customers' continued engagement with the bank.

4.5.1. Normality Test

To evaluate whether the residuals from the regression model met the assumption of normal distribution, a normality test was performed in the context of assessing the effect of electronic banking services on customer retention at NMB Bank in Moshi Municipality. The normality of residuals is an essential assumption in parametric regression analysis, as it supports the validity of hypothesis testing and the reliability of confidence interval estimation. **Table 7** presents the results of both the Kolmogorov-Smirnov (K-S) and Shapiro-Wilk (S-W) tests used to assess normality.

The results in **Table 7** show that the Kolmogorov-Smirnov test produced a statistic of .060 with a significance value (p = .054), while the Shapiro-Wilk test yielded a statistic of .989 with a significance value (p = .079). Since both significance values are greater than the conventional threshold of .05, the null hypothesis of normality cannot be rejected. This implies that the residuals are normally distributed, thereby satisfying the regression assumption of normality.

Table 7. Tests of normality.

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual	.060	221	.054	.989	221	.079

4.5.2. Model Summary

To further assess the explanatory power of the regression model predicting customer retention based on the reliability of e-banking platforms and 24/7 availability of e-banking services, a model summary was examined. The model summary provides information on the strength of the relationship between the predictors and customer retention, as well as the proportion of variance in customer retention explained by the model. Table 8 presents the model summary results.

Table 8. Model summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.893	.797	.730	414.27423

Table 8 shows that the regression model produced a strong positive relationship between the selected e-banking service predictors and customer retention, with R = .893. The R Square (R^2) of .797 indicates that reliability of e-banking platforms and 24/7 availability of e-banking services jointly explain 79.7% of the variation in customer retention among NMB Bank customers in Moshi Municipality. The remaining 20.3% of the variation is explained by other factors not included in the model. The Adjusted R Square of .730 indicates that, after adjusting for the number of predictors included in the model, the predictors account for 73.0% of the variation in customer retention. The standard error of the estimate was 414.27423, indicating the average prediction error of the model.

4.5.3. Multicollinearity Test

To further assess the suitability of the regression model predicting customer retention based on the reliability of e-banking platforms and 24/7 availability of e-banking services, a multicollinearity test was conducted. The test assesses whether the independent variables are highly correlated, which could affect the stability and interpretation of the regression coefficients. Table 9 presents the multicollinearity results.

Table 9. Multicollinearity test.

Predictor	Tolerance	VIF
24/7 availability of e-banking services	.862	1.160
Reliability of e-banking platforms	.862	1.160

Table 9 shows that the tolerance values for both 24/7 availability of e-banking services and reliability of e-banking platforms were .862, while the corresponding VIF values were 1.160. Since the tolerance values were above .10 and the VIF values were below 10, the results indicate that there was no serious multicollinearity between the predictors. Therefore, the independent variables were sufficiently distinct and appropriate for inclusion in the regression model predicting customer retention.

4.5.4. Linearity Test

To further assess whether the regression model appropriately represents the relationship between the predictors and customer retention, a linearity test was conducted. The linearity test determines whether the relationship between each independent variable and the dependent variable can reasonably be represented using a linear function. Table 10 presents the linearity assessment results.

Table 10. Linearity test.

Predictor	Observed Relationship	Decision
24/7 availability of e-banking services	Approximately linear	Satisfied
Reliability of e-banking platforms	Approximately linear	Satisfied

Table 10 shows that the relationships between 24/7 availability of e-banking services and customer retention and between reliability of e-banking platforms and customer retention were approximately linear. This indicates that increases or decreases in the predictors were associated with corresponding changes in customer retention in a manner that could reasonably be represented by a linear regression model. Therefore, the assumption of linearity was satisfied.

4.5.5. Homoscedasticity Test

To further assess the suitability of the regression model, a homoscedasticity test was conducted. The test determines whether the variance of the residuals remains approximately constant across different levels of the predicted values. Table 11 presents the homoscedasticity assessment results.

Table 11. Homoscedasticity test.

Diagnostic Assessment	Observed Pattern	Decision
Standardized residuals against predicted values	Randomly dispersed around zero	Satisfied

Table 11 shows that the standardized residuals were randomly dispersed around the zero line without a systematic or funnel-shaped pattern. This indicates that the variability of the residuals remained reasonably constant across the predicted values of customer retention. Therefore, the assumption of homoscedasticity was satisfied, supporting the appropriateness of the regression model.

4.5.6. Independence of Errors Test

To further assess the appropriateness of the regression model, an independence of errors test was conducted using the Durbin-Watson statistic. The test determines whether the residuals from the regression model are independent of one another, with a value close to 2.00 generally indicating independence of errors. Table 12 presents the independence of errors results.

Table 12. Independence of errors test.

Diagnostic Statistic	Value	Decision
Durbin-Watson	1.85	Satisfied

Table 12 shows that the Durbin-Watson statistic was 1.85, which is close to the expected value of 2.00. This indicates that there was no serious autocorrelation among the residuals and that the errors were sufficiently independent. Therefore, the assumption of independence of errors was satisfied, supporting the suitability of the regression model for examining the influence of reliability of e-banking platforms and 24/7 availability of e-banking services on customer retention.

4.5.7. ANOVA

To further assess the statistical significance of the regression model predicting customer retention based on the reliability of e-banking platforms and the availability of 24/7 e-banking services, an Analysis of Variance (ANOVA) test was conducted. The ANOVA test determines whether the regression model as a whole provides a significantly better fit to the data compared to a model with no predictors. Table 13 presents the ANOVA results for the regression model.

Table 13. ANOVA.

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	112.939	2	56.469	195.532	.000[b]
1	Residual	62.958	218	.289		
	Total	175.897	220			

a. Dependent Variable: Customer Retention; b. Predictors: (Constant), Reliability of e-banking platforms, 24/7 availability of e-banking services.

Table 13 shows that the predictors, namely reliability and 24/7 availability of e-banking services, significantly explain the variance in customer retention ($F = 195.532$, $p < .001$). The model demonstrates strong explanatory power and confirms that these e-banking factors have a meaningful effect on retention among NMB Bank customers in Moshi Municipality. The null hypothesis is therefore rejected, indicating that electronic banking services significantly affect customer retention.

4.5.8. Regression Coefficients

A regression coefficients analysis was conducted to assess the individual effects of 24/7 service availability and platform reliability on customer retention at NMB Bank in Moshi Municipality. This analysis examined the direction, strength, and statistical significance of each predictor, as summarized in Table 13, which presents the coefficients, t-values, and significance levels used to evaluate their predictive power.

Reliability and 24/7 availability were selected as the principal predictors in the regression model because they represent fundamental functional characteristics of electronic banking services that directly determine whether customers can depend on and continuously access digital banking facilities. Reliability concerns the consistent and accurate execution of banking transactions, whereas 24/7 availability refers to continuous access to banking services beyond conventional banking hours.

Previous studies have identified reliability as an important predictor of e-banking loyalty and retention-related outcomes, while system availability has also been recognised as an important dimension of e-banking service quality (Shankar & Jebarajakirthy, 2019; Ayinaddis et al., 2023). In the Tanzanian banking context, Nzowa et al. (2022) further found that service reliability significantly influenced customer switching behaviour among commercial bank customers, providing contextual support for its relevance to customer retention. The other measured attributes, including convenience, security, personalization, communication, updates, waiting time, access difficulty, and issue resolution, were retained as broader indicators of customers' perceptions of e-banking service quality but were not specified as separate predictors in the reported regression model.

Table 14. Coefficients.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.849	.137		6.196	.000
1 24/7 availability of e-banking services	.156	.055	.164	2.839	.005
Reliability of e-banking platforms	.564	.048	.677	11.732	.000

Dependent Variable: Customer Retention.

Table 14 shows that both 24/7 service availability and platform reliability have a significant positive effect on customer retention at NMB Bank. Reliability has the stronger impact ($\beta = .677$, $p < .001$), indicating that consistent system performance increases loyalty, while 24/7 availability also contributes positively ($\beta = .164$, $p < .01$). The constant term ($B = .849$, $p < .001$) suggests a positive baseline level of retention. These results confirm that reliability and continuous service access are key determinants of customer retention, leading to the rejection of the null hypothesis.

5. Discussion

The study hypothesized that 24/7 availability of e-banking services and reliability of e-banking platforms have a significant positive effect on customer retention at NMB Bank in Moshi Municipality. The regression findings confirmed both hypotheses by demonstrating that the two dimensions significantly predict customer retention. Specifically, the reliability of e-banking platforms recorded the strongest positive effect on customer retention ($\beta = .677$, $p < .001$), while 24/7 availability of e-banking services also had a significant positive effect ($\beta = .164$, $p = .005$). The findings validate that customers are more likely to remain loyal to the bank when digital banking services are consistently reliable and continuously available. Reliable platforms minimize service interruptions, increase customers' confidence, and encourage repeated use of digital banking services, while uninterrupted service availability enables customers to conduct transactions conveniently regardless of time or location. Consequently, customers who consistently experience dependable and accessible e-banking services develop stronger trust and commitment toward the bank, ultimately improving customer retention. These findings further suggest that investment in reliable digital infrastructure and continuous service availability provides banks with a competitive advantage in retaining customers.

The descriptive findings further support the regression results by revealing that employees perceived regular platform updates, reduced waiting time, consistent communication, and prompt issue resolution as important contributors to customer retention. The majority of respondents agreed that continuous platform improvements enhance customer loyalty because they reflect the bank's commitment to improving customer experience. Similarly, respondents agreed that faster digital services reduce waiting time and eliminate unnecessary visits to banking halls, thereby increasing customer satisfaction. Furthermore, employees acknowledged that consistent communication strengthens customer relationships by keeping customers informed about banking services, while prompt issue resolution enhances customers' confidence in digital banking. These findings indicate that customer retention depends not only on the availability and reliability of digital platforms but also on the quality of customer support and service responsiveness provided through e-banking channels.

The qualitative findings reinforce these quantitative results by demonstrating that security, responsiveness, and efficient customer support remain fundamental components of successful e-banking services. The key informant explained that NMB Bank has invested heavily in authentication systems, encryption technologies, and transaction monitoring to protect customer transactions and strengthen trust in digital banking services. The informant further emphasized that customers appreciate receiving immediate assistance through digital platforms without physically visiting banking branches, making them more likely to continue banking with NMB. These qualitative findings demonstrate that reliable and secure e-banking systems coupled with timely customer support significantly contribute to sustaining long-term customer relationships and improving customer retention. Hence, the study found that customer retention is not achieved solely through the availability of e-banking services, but through a combination of reliable digital platforms, strong security measures, continuous platform improvements, efficient communication, and prompt customer support, all of which increase customer confidence, satisfaction, trust, and long-term loyalty. This confirms that platform reliability, continuous service availability, effective communication, and timely service recovery are critical determinants of customer retention at NMB Bank in Moshi Municipality.

The findings support the Technology Acceptance Model (TAM), which explains that customers are more likely to continue using technologies that are perceived as useful, reliable, and easy to use. Reliable platforms, regular system improvements, and prompt problem resolution increase both perceived usefulness and perceived ease of use, thereby encouraging continuous adoption of e-banking services. Likewise, the findings support Relationship Marketing Theory, which emphasizes that trust, commitment, effective communication, and responsiveness are essential ingredients for maintaining long-term customer relationships. When customers consistently receive secure, reliable, and responsive digital banking services, their confidence in the bank increases, resulting in stronger customer loyalty and long-term retention.

6. Conclusion and Recommendations

The study concludes that e-banking services significantly affect customer retention in Moshi Municipality (p = .000) through key factors such as convenience, accessibility, and speed. Quick issue resolution and the ability to self-manage transactions enhance customer satisfaction and loyalty, while 24/7 access strengthens confidence in the bank's commitment to service. Time-saving features, including reduced queues and faster transactions, further encourage continued engagement.

System reliability emerged as a crucial driver of trust and retention, as frequent disruptions weaken customer confidence and increase switching behavior. In addition, personalized offers and clear, timely communication enhance customers' sense of value, reinforcing long-term relationships with the bank.

Commercial banks should strengthen the reliability of e-banking platforms by investing in robust digital infrastructure to reduce downtime and build customer trust. They should also use data analytics to deliver personalized services and communication that enhance loyalty. Customers are encouraged to familiarize themselves with e-banking tools to maximize convenience and security by safeguarding personal data and reporting suspicious activity. Policymakers should promote equitable access to e-banking in both urban and rural areas by improving infrastructure and enforcing legal frameworks that protect consumers from cyber fraud and misuse of personal information.

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Author Contributions

Ester Shekifunta contributed to the conceptualization of the study, development of the research objectives, and design of the methodology. Amembah Amos contributed to data collection, data analysis, and interpretation of the findings. Ladis Komba contributed to literature review, discussion of findings, and preparation and revision of the final manuscript. Collectively, the three authors contributed to examining the effect of electronic banking services on customer retention at NMB Bank in Moshi Municipality, Tanzania.

Conflicts of Interest

The authors declare no conflicts of interest.

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