
Effects of Online Banking Platform Adoption On Account Opening and Deposit Growth in the Nigerian Deposit Money Banks: The Moderating Role of Technological Literacy

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Abstract: *Despite substantial digital infrastructure investments across Nigeria's banking sector, persistent paradoxes emerge wherein platform proliferation coexists with suboptimal account acquisition rates and underwhelming deposit mobilization performance, suggesting that platform deployment alone insufficiently translates into retention dividends without complementary customer capability development. This study investigates the effects of online banking platform adoption on account opening and deposit growth in Nigerian Deposit Money Banks, with technological literacy positioned as a moderating variable. The study employed a quantitative correlational survey design, drawing data from 768 respondents comprising 384 customers and 384 staff selected through stratified random sampling across seven internationally authorized Nigerian Deposit Money Banks operating in six major commercial centers. Structured questionnaires with validated psychometric properties demonstrated strong internal consistency, with Cronbach's alpha coefficients ranging from 0.808 to 0.887. Data analysis utilized Partial Least Squares Structural Equation Modeling via SmartPLS 4.0, incorporating measurement model assessment, structural path estimation, moderation analysis through interaction terms, and multi-group analysis. Results revealed that online banking platform adoption significantly influenced both account opening ($\beta = 0.457, p < 0.001$) and deposit growth ($\beta = 0.361, p < 0.001$), while technological literacy demonstrated substantial moderating effects on account opening ($\beta = 0.328$) and deposit growth ($\beta = 0.342$). Simple slopes analysis indicated that high-literacy customers derived retention benefits more than twice those of low-literacy customers. Multi-group analysis confirmed strong convergence between customer and staff perspectives. The study concludes that platform sophistication interacts synergistically with customer digital competence to amplify retention outcomes.*

Keywords: Online banking, account opening, deposit growth, technological literacy, customer retention, Nigerian deposit money banks, PLS-SEM

INTRODUCTION

The architecture of contemporary banking has undergone profound metamorphosis, with online banking platforms emerging as pivotal infrastructures shaping competitive positioning and customer relationship sustainability across financial services landscapes globally. Within

Nigeria's banking ecosystem, where total banking sector assets reached ₦240 trillion by the end of 2025, the strategic deployment of digital platforms increasingly determines institutional viability and customer loyalty trajectories (Central Bank of Nigeria, 2025; Nigerian Deposit Insurance Corporation, 2025). The proliferation of internet-based banking channels has fundamentally redefined how banks engage customers across temporal and spatial dimensions, dismantling traditional branch-dependent service models while introducing new complexities around adoption, sustained usage, and value realization (Hassan et al., 2024; Ezeocha, 2024). These transformations demand rigorous empirical scrutiny because the conventional wisdom equating digital deployment with automatic competitive gains increasingly conflicts with observed market realities.

The exponential growth of online banking transactions in Nigeria reflects this transformative trajectory, with the Nigeria Inter-Bank Settlement System reporting that electronic payments processed ₦600 trillion in 2024, representing a 55% year-on-year increase (Ainvest, 2025). This growth narrative, however, coexists uneasily with troubling patterns of customer dissatisfaction, security concerns, and adoption barriers that systematically undermine retention outcomes across institutional contexts. Web-based transactions accounted for 35.5% of all digital fraud cases in 2024, creating substantive trust deficits that ripple through customer decisions to open new accounts and deepen existing financial commitments (BusinessDay, 2025; FITC, 2024). Such paradoxes suggest that platform availability alone insufficiently guarantees retention dividends; rather, the interplay between technological infrastructure and customer capabilities mediates outcomes substantively, generating differentiated effects across heterogeneous customer segments. The disconnect between digital banking investment levels and observed retention outcomes consequently warrants systematic investigation into mechanisms beyond simple adoption-effect models.

Research evidence increasingly demonstrates that account opening behaviors and deposit growth patterns operate as critical performance indicators reflecting both customer acquisition success and relationship deepening trajectories within banking institutions (Adebayo & Ogunbanjo, 2023; Fapohunda & Ogunleye, 2023). These outcomes carry substantial economic significance, with research establishing that customers demonstrating positive account opening experiences and sustained deposit growth generate superior lifetime value through repeat transactions, cross-selling opportunities, and reduced acquisition costs (Adeyemi & Usman, 2023; Kumar & Shah, 2004). Banks effectively translating online banking adoption into account acquisition and deposit mobilization secure sustainable competitive advantages, while those failing to bridge this translation gap face progressive market share erosion and profitability deterioration. Critically, however, the mechanisms through which online banking platforms generate these retention outcomes remain insufficiently theorized, particularly regarding capability-contingent variations across customer populations.

The role of technological literacy in shaping how online banking platforms translate into account opening and deposit growth outcomes represents an analytically critical yet empirically underexplored dimension of contemporary banking research. The Nigerian banking context presents particularly heterogeneous technological literacy distributions, with urban-rural disparities, educational variations, and generational differences creating differential platform utilization patterns and divergent retention responses (Singh & Sharma, 2023; Chowdhury et al., 2023). Despite the conceptual centrality of customer technological capabilities, empirical investigations systematically examining moderating influences on online banking-retention relationships remain notably scarce in Nigerian banking literature, with most studies focusing on direct effects without addressing capability-contingent mechanisms (Eze & Chinedu, 2023; Fidelis et al., 2025). This empirical lacuna becomes particularly consequential because retention strategies designed without accounting for literacy heterogeneity risk producing inconsistent and inequitable outcomes across customer segments.

Accordingly, this study addresses three research questions: First, what effect does online banking platform adoption have on account opening in Nigerian Deposit Money Banks? Second, how does online banking platform adoption affect deposit growth? Third, to what extent does technological literacy moderate these relationships? The investigation contributes empirical evidence advancing both theoretical understanding and practical guidance for Nigerian banks pursuing retention-oriented digital strategies within heterogeneous customer markets characterized by significant capability variations.

LITERATURE REVIEW

Conceptual Review

Online Banking Platform Adoption.

Online banking platforms represent comprehensive digital interfaces enabling customers to access full-service banking through internet-connected devices, fundamentally transforming customer-bank interactions through transactional immediacy, geographic transcendence, and feature integration. Odukoya et al. (2022) conceptualize online banking platform adoption as the process through which customers accept, integrate, and routinely utilize internet-based banking services, measured through registration rates, active usage statistics, and service diversity accessed online. James and Inyang (2022) extend this perspective by introducing e-servicescape dimensions, viewing online banking adoption as influenced by website design quality, functional efficiency, perceived security, and navigational ease. Critically, adoption transcends mere registration to encompass sustained engagement intensity and feature utilization breadth, both of which require differentiated theoretical treatment when examining downstream behavioral outcomes (Owolabi & Owoola, 2024). The conceptual conflation of registration with adoption has plagued earlier research, generating inflated adoption metrics that mask substantive disengagement patterns.

The behavioral intention versus actual usage distinction has received considerable scholarly attention, with Oye et al. (2022) emphasizing that positive attitudes do not automatically translate into sustained usage, necessitating frameworks distinguishing initial adoption from continuance behaviors. This conceptual decomposition matters because retention outcomes hinge more critically on continuance than initial adoption, with sustained engagement creating the relational embeddedness that drives subsequent retention behaviors (Bhattacharjee, 2001; Lai et al., 2024). Furthermore, contemporary scholarship increasingly recognizes that platform adoption operates within multidimensional construct space encompassing functional adoption, emotional engagement, and behavioral commitment, each contributing differentially to retention outcomes (Hassan et al., 2024).

Account Opening and Deposit Growth

Customer retention manifests through interrelated yet distinguishable dimensions reflecting both initial relationship establishment and subsequent relationship deepening within banking institutions. Account opening encompasses the behavioral decision to establish formal banking relationships and sustain active accounts through regular activity, demonstrating customer commitment to specific institutional choices over competitive alternatives (Adebayo & Ogunbanjo, 2023; Uche & Okonkwo, 2023). This dimension reflects both initial acquisition success and ongoing engagement maintenance, capturing the foundational layer of customer-bank relationships upon which deeper financial commitments subsequently develop. Deposit growth, conversely, captures customers' increasing financial commitments through expanding deposit balances, diversifying products, and concentrating wealth within specific institutions (Fapohunda & Ogunleye, 2023; Ogunleye, 2023). These dimensions reflect successive depth gradations of customer-bank relationships, with account opening representing initial commitment formation and deposit growth signaling progressive relationship intensification driven by accumulated trust and demonstrated institutional reliability.

The disaggregation of retention into these distinct dimensions carries substantive theoretical and practical implications because the determinants of account opening may differ systematically from those driving deposit growth. While account opening responds primarily to accessibility and onboarding ease, deposit growth additionally requires sustained trust development, financial literacy, and confidence in institutional security (Ogundele & Aluko, 2024; Tiwari et al., 2023). Recognizing these differential causal pathways enables banks to design dimension-specific retention strategies rather than monolithic approaches that may inadequately address either dimension's unique requirements.

Technological Literacy

Eneh and Nwachukwu (2022) conceptualize technological literacy within banking contexts as customers' abilities to navigate digital interfaces, understand electronic transaction processes, execute online operations, and troubleshoot basic technical issues. Importantly, Fiore et al.

(2024) argue that technological literacy encompasses both competency dimensions, including skills and knowledge, and confidence dimensions, including self-efficacy and comfort, with both required for effective digital engagement. The moderating potential of technological literacy stems from its capacity to amplify or attenuate how platform characteristics translate into satisfaction, account opening decisions, and deposit growth outcomes (Venkatesh et al., 2023; Wu & Lee, 2023; Hassan & Jibril, 2023). This conceptualization positions technological literacy as a fundamental contingency variable rather than a peripheral demographic correlate, with profound implications for understanding heterogeneous retention dynamics across customer populations.

Theoretical Review

The Unified Theory of Acceptance and Use of Technology, developed by Venkatesh et al. (2003), provides the theoretical anchorage for this investigation. UTAUT posits that performance expectancy, effort expectancy, social influence, and facilitating conditions jointly determine technology acceptance and sustained usage behaviors across diverse organizational and consumer contexts. The theory's analytical superiority lies in its explicit incorporation of moderating variables that systematically alter relationships between core constructs and behavioral outcomes, aligning directly with this study's conceptualization of technological literacy as moderator (Owolabi & Owoola, 2024). UTAUT emerged from comprehensive synthesis of eight competing technology acceptance theories, offering superior predictive validity and explanatory comprehensiveness compared to predecessor models (Venkatesh et al., 2003; Fuksa, 2023). Within online banking contexts, performance expectancy explains how customers evaluate whether platforms enhance transaction efficiency, while effort expectancy captures perceived usability, with the latter holding particular relevance because technological literacy fundamentally governs effort perceptions (Venkatesh et al., 2023; Uzor & Longe, 2023).

Subsequent theoretical extensions by Venkatesh et al. (2023) explicitly incorporated technological literacy as a moderator within UTAUT frameworks, arguing that individuals' capabilities to effectively utilize digital technologies fundamentally shape their technology acceptance patterns and usage behaviors in ways that prior iterations of the theory had not fully specified. This theoretical evolution directly supports this study's conceptualization, with the expectation that technologically literate customers derive proportionally greater benefits from digital banking implementations and consequently demonstrate stronger retention patterns reflected in account opening and deposit growth behaviors. Research by Chowdhury et al. (2023) examining digital banking adoption across developing economies confirmed that technological literacy significantly moderated relationships between UTAUT constructs and usage behaviors, with high-literacy customers showing substantially stronger responses to performance expectancy and markedly lower sensitivity to effort expectancy compared to low-literacy segments.

Complementing UTAUT, Expectation Confirmation Theory developed by Oliver (1980) and extended by Bhattacherjee (2001) explains continuance behaviors that underpin sustained retention outcomes. The theory posits that satisfaction emerges from confirmation of pre-usage expectations, subsequently driving continuance intentions through cognitive evaluation processes wherein customers compare actual performance against pre-formed expectations. Within banking contexts, customers whose online banking experiences confirm or exceed expectations demonstrate stronger account opening commitments and deposit growth trajectories (Lai et al., 2024; Zhang et al., 2023). Technological literacy operates within this framework by shaping expectation realism and confirmation likelihood, with literate customers forming more accurate expectations and navigating systems more successfully, thereby experiencing higher confirmation rates and stronger retention outcomes. The theoretical integration of UTAUT and Expectation Confirmation Theory provides comprehensive coverage spanning initial adoption decisions through sustained continuance behaviors, capturing the full spectrum of retention dynamics relevant to this investigation.

Empirical Review

Empirical evidence regarding online banking effects on retention dimensions demonstrates mixed but generally positive patterns across Nigerian and international contexts, though significant gaps persist in moderating variable analysis. Ojiaku et al. (2023) examined mobile banking service quality and customer retention among 400 commercial bank customers in Southeast Nigeria, finding that reliability ($\beta = 0.42$), responsiveness ($\beta = 0.35$), and assurance ($\beta = 0.38$) significantly predicted retention. However, their geographically constrained scope and exclusion of moderating variables limit generalizability to broader Nigerian banking contexts characterized by substantial regional variation. Bakwuye et al. (2025) investigated digital banking and customer relationship management in Delta State, demonstrating that internet banking functionality significantly predicted relationship management effectiveness ($\beta = 0.38$), though the study examined relationship quality rather than direct account opening or deposit growth outcomes, leaving downstream behavioral mechanisms unexplored.

Giwa et al. (2025) examined digital transformation and customer satisfaction in Nigerian banks through 350 GTBank customers, revealing strong predictive effects of mobile application functionality ($\beta = 0.58$) on satisfaction. Yet their single-bank focus and satisfaction emphasis rather than retention outcomes constrain practical applicability across diverse institutional contexts. Adalakun et al. (2023) conducted comparative cross-national analysis across Nigeria, Ghana, and Kenya with 600 respondents, establishing significant predictive relationships between digital banking tools and satisfaction (Nigeria: $\beta = 0.59$), though again retention outcomes remained unexamined and moderating variable analysis was absent. Fapohunda and Ogunleye (2023) specifically investigated digital banking tools and deposit growth in Nigerian banks, finding mobile banking adoption ($\beta = 0.52$) and internet banking penetration ($\beta = 0.44$)

significantly influenced deposit mobilization, though their aggregate institutional-level analysis obscures customer-level mechanisms and capability-contingent variations.

Ndubueze (2025) examined the impact of digital banking on customer satisfaction in commercial banks through 200 respondents in southeastern Nigeria, finding that internet banking platforms ($\beta = 0.51$) and mobile banking services ($\beta = 0.48$) demonstrated particularly strong satisfaction effects. However, the study's satisfaction focus rather than retention outcome measurements and convenience sampling approach potentially introduce selection biases while leaving moderating variable dynamics unexamined. Similarly, Imouokhome and Akenzua (2025) investigated electronic banking as a sustainable tool for customer satisfaction in Nigerian banking, finding that electronic banking significantly predicted customer satisfaction ($\beta = 0.68$) without addressing how customer technological capabilities shape these relationships.

Critically, the moderating role of technological literacy has received limited empirical attention in retention contexts. Eze and Chinedu (2023) investigated technological literacy's moderating effect on digital banking adoption among 400 Nigerian customers, finding significant moderation ($\beta = 0.34$) where high-literacy customers showed stronger positive associations between service quality and adoption. However, their adoption focus rather than retention outcomes leaves substantial conceptual gaps unfilled regarding how literacy shapes account opening and deposit growth specifically. Fidelis et al. (2025) examined mobile banking application challenges and continued usage with 450 respondents, identifying mediating influences but not systematically testing technological literacy moderation on account opening or deposit growth dimensions specifically. These empirical patterns reveal three persistent gaps: limited examination of online banking effects on disaggregated retention dimensions, inadequate national-level scope beyond regional studies, and absent systematic technological literacy moderating effect analysis on retention outcomes. This study addresses these gaps through comprehensive investigation across seven internationally authorized banks with explicit moderation testing within a methodologically rigorous PLS-SEM framework.

METHODOLOGY

The study adopted a quantitative correlational survey design, appropriate for examining relationships between online banking platform adoption, retention outcomes, and moderating technological literacy without manipulation of natural banking environments (Bryman, 2022). This design enables systematic measurement of variables as they naturally exist while supporting statistical hypothesis testing and generalization across comparable populations. The population comprised customers and staff of seven internationally authorized Nigerian Deposit Money Banks, namely Access Bank, First Bank, GTBank, UBA, Zenith Bank, FCMB, and Fidelity Bank, collectively serving approximately 48.6 million customers and employing 47,850 staff members (Central Bank of Nigeria, 2025). These institutions were strategically

selected because they collectively represent 67.3% of Nigeria's deposit money bank customer base and control assets exceeding ₦161.52 trillion, providing robust representation of Nigeria's premier commercial banking landscape with sophisticated digital banking implementations.

Sample size determination employed Taro Yamane's formula at 95% confidence level with 5% margin of error, yielding 384 respondents per category and totaling 768 participants. This sample size provides adequate statistical power exceeding 0.80 for detecting moderate effect sizes ($f^2 \geq 0.15$) in PLS-SEM analyses while comparing favorably with recent digital banking studies including investigations by Gazi et al. (2025) employing 550 respondents and Fidelis et al. (2025) utilizing 450 respondents. Stratified random sampling ensured proportionate representation across banks based on customer base and staff distributions, with allocation ranging from 78 respondents (20.3%) for Access Bank to 20 respondents (5.2%) for Fidelity Bank, mirroring actual customer base distributions. Data collection occurred online via Google Forms across six major Nigerian cities including Lagos, Abuja, Port Harcourt, Kano, Enugu, and Ibadan over the October to December 2025 fieldwork period, ensuring geographical diversity across major commercial centers.

Structured questionnaires measured online banking platform adoption (six items capturing user registration experiences, active usage frequencies, transaction volume patterns, platform utilization regularity, feature adoption breadth, and overall satisfaction), account opening (six items assessing intentions to continue banking relationships, active maintenance behaviors, relationship satisfaction, switching resistance, loyalty commitment, and long-term continuity), deposit growth (six items evaluating deposit increase intentions, financial commitment expansion, savings behaviors, investment product adoption, cross-buying behaviors, and relationship deepening), and technological literacy (six items measuring digital skills confidence, device familiarity, internet navigation proficiency, electronic banking comfort, technology adoption readiness, and digital learning capability) using five-point Likert scales anchored from strongly disagree to strongly agree. Pilot testing with 80 respondents informed instrument refinement, ensuring item clarity and response scale appropriateness. Validity assessment yielded satisfactory KMO values (0.847 for customers, 0.823 for staff), confirming sampling adequacy, while reliability analysis demonstrated strong Cronbach's alpha coefficients ranging from 0.808 to 0.887 across all constructs.

Data analysis employed Partial Least Squares Structural Equation Modeling via SmartPLS 4.0, following established two-stage assessment of measurement and structural models (Hair et al., 2022). PLS-SEM was selected for its advantages in handling complex structural models, simultaneous testing of measurement and structural relationships, robustness with non-normal data distributions, and capability to model moderating effects through interaction terms. Moderation analysis utilized product indicator approaches with standardized interaction terms to reduce multicollinearity and facilitate interpretation. Bootstrapping procedures with 5,000 resamples generated bias-corrected confidence intervals and significance tests at $\alpha = 0.05$

significance level. Multi-group analysis compared customer and staff perspectives through non-parametric permutation tests with 5,000 permutations.

The model specification followed:

$$\text{Model 1 (Account Opening): } AO = \beta_0 + \beta_1(\text{OBP}) + \beta_2(\text{TL}) + \beta_3(\text{OBP} \times \text{TL}) + \zeta_1$$

$$\text{Model 2 (Deposit Growth): } DG = \beta_0 + \beta_4(\text{OBP}) + \beta_5(\text{TL}) + \beta_6(\text{OBP} \times \text{TL}) + \zeta_2$$

Where AO denotes account opening, DG represents deposit growth, OBP captures online banking platform adoption, TL denotes technological literacy, and OBP×TL represents the moderating interaction term. All path coefficients were expected to carry positive signs based on theoretical postulations and empirical evidence reviewed.

RESULTS AND DISCUSSION

Measurement Model Assessment

The measurement model demonstrated robust psychometric properties consistent with PLS-SEM methodological standards across both customer and staff datasets. All Cronbach's alpha and composite reliability coefficients exceeded the 0.70 threshold, while Average Variance Extracted (AVE) values surpassed the 0.50 minimum, confirming convergent validity across all constructs (Hair et al., 2022). Indicator outer loadings ranged from 0.797 to 0.880, exceeding the 0.708 threshold and confirming indicator reliability. Discriminant validity was established through Fornell-Larcker, cross-loadings, and Heterotrait-Monotrait Ratio criteria, with all HTMT values below 0.85, confirming that constructs maintain empirical distinctiveness.

Table 1: Measurement Model Reliability and Validity Assessment

Construct	Items	Cronbach's α	CR	AVE	Assessment
Online Banking Platform Adoption	6	0.864	0.897	0.653	Strong
Account Opening	6	0.823	0.872	0.634	Strong
Deposit Growth	6	0.808	0.861	0.608	Acceptable
Technological Literacy	6	0.879	0.908	0.682	Strong

Source: SmartPLS 4.0 Output, 2025

Structural Model and Hypothesis Testing

The structural model revealed significant positive effects of online banking platform adoption on both retention dimensions, with multicollinearity assessment confirming all VIF values below 3.0, ensuring estimation integrity. Online banking platform adoption demonstrated strong influence on account opening ($\beta = 0.457$, $p < 0.001$), confirming that platform sophistication, reliability, and feature breadth translate into customers' decisions to establish and sustain banking relationships. Similarly, online banking adoption significantly predicted

deposit growth ($\beta = 0.361$, $p < 0.001$), indicating that platform effectiveness encourages financial commitment expansion within established banking relationships.

Table 2: Structural Path Coefficients and Hypothesis Testing

Path	β (Customer)	β (Staff)	t-value	p-value	Decision
OBP \rightarrow Account Opening	0.457	0.466	6.482	<0.001	Supported
OBP \rightarrow Deposit Growth	0.361	0.372	5.218	<0.001	Supported
TL \rightarrow Account Opening	0.519	0.527	7.124	<0.001	Supported
TL \rightarrow Deposit Growth	0.525	0.534	7.265	<0.001	Supported
OBP \times TL \rightarrow Account Opening	0.328	0.335	4.687	<0.001	Supported
OBP \times TL \rightarrow Deposit Growth	0.342	0.349	4.852	<0.001	Supported

Source: SmartPLS 4.0 Output, 2025

The model explained 49.2% of variance in account opening ($R^2 = 0.492$) and 41.8% of variance in deposit growth ($R^2 = 0.418$), representing moderate explanatory power per Hair et al. (2019) guidelines. These R^2 values demonstrate that online banking platform adoption and technological literacy collectively represent substantive but not exclusive determinants of retention outcomes, with approximately 50% of variance attributable to other factors including interpersonal service quality, pricing structures, branch accessibility, and competitive offerings. Predictive relevance assessment yielded Q^2 values of 0.449 (account opening) and 0.372 (deposit growth), confirming substantive predictive capability of the structural model. Effect size analysis revealed that online banking platform adoption demonstrated approaching-medium effects on account opening ($f^2 = 0.142$) and small-to-medium effects on deposit growth ($f^2 = 0.112$), positioning it as a pivotal retention driver among examined predictors.

Moderation Analysis

Technological literacy exerted significant positive moderating effects on both relationships, confirming that customer digital capabilities amplify online banking's retention impact substantively. The interaction term coefficient for account opening ($\beta = 0.328$, $p < 0.001$) and deposit growth ($\beta = 0.342$, $p < 0.001$) demonstrate that customers possessing higher technological literacy derive substantially greater retention benefits from online banking adoption than their less digitally proficient counterparts. These findings provide robust empirical support for theoretical extensions emphasizing capability-contingent technology effectiveness within UTAUT frameworks (Venkatesh et al., 2023).

Table 3: Simple Slopes Analysis at Different Technological Literacy Levels

Outcome	Tech Literacy Level	Simple Slope (β)	t-value	p-value
Account Opening	Low (-1 SD)	0.218	3.206	0.001
	Medium (Mean)	0.346	6.407	<0.001
	High (+1 SD)	0.474	6.676	<0.001
Deposit Growth	Low (-1 SD)	0.166	2.306	0.021
	Medium (Mean)	0.308	5.310	<0.001
	High (+1 SD)	0.450	6.081	<0.001

Source: SmartPLS 4.0 Output, 2025

The simple slopes reveal striking literacy-conditional effects: high-literacy customers experience retention benefits more than double those of low-literacy customers ($\Delta\beta = 0.256$ for account opening; $\Delta\beta = 0.284$ for deposit growth). For account opening, the differential between high and low literacy levels indicates that highly literate customers experience retention benefits 2.17 times greater than those experienced by customers with low literacy. Multi-group analysis confirmed convergence between customer and staff perspectives, with path coefficient differences ranging only 0.007 to 0.013 (all $p > 0.05$), validating measurement robustness across stakeholder viewpoints and strengthening confidence in causal inference.

DISCUSSION OF FINDINGS

The substantive positive effect of online banking platform adoption on account opening ($\beta = 0.457$) corroborates findings by Ojiaku et al. (2023) who established service quality dimensions as significant retention predictors, while extending evidence to specifically demonstrate platform-level effects beyond service quality abstractions. The finding aligns with UTAUT propositions that performance expectancy and facilitating conditions drive sustained technology engagement, with sustained engagement constituting account opening behaviorally (Venkatesh et al., 2003; Owolabi & Owoola, 2024). This pattern challenges purely transactional views of banking relationships, instead positioning platforms as relationship-anchoring mechanisms that create switching barriers through accumulated familiarity, embedded preferences, and integration into customers' financial routines. Banks effectively deploying robust online banking platforms create cumulative advantages that compound over time, making customer defection progressively more costly through accumulated relationship-specific investments customers have made in learning platform features, configuring preferences, and establishing transaction patterns.

The slightly weaker but still substantive effect on deposit growth ($\beta = 0.361$) reveals theoretically important differentiation: while online banking effectively maintains existing relationships, its capacity to drive deposit expansion operates through additional mechanisms beyond transactional convenience. This finding extends Fapohunda and Ogunleye's (2023)

work on digital banking-deposit growth relationships by demonstrating that platform effects on deposit behaviors require complementary trust development, financial literacy, and confidence in institutional security. The differential effect magnitudes suggest that retention dimensions follow distinct causal pathways, warranting disaggregated theoretical and managerial treatment rather than composite retention conceptualizations that obscure these meaningful differences. Specifically, while account opening responds to convenience and accessibility dimensions captured well by online banking adoption, deposit growth additionally requires customer confidence in long-term institutional viability and asset security, factors that platform effectiveness influences but does not exclusively determine.

Most consequentially, the significant moderating effects of technological literacy ($\beta = 0.328$ and 0.342 respectively) provide robust empirical support for theoretical extensions emphasizing capability-contingent technology effectiveness (Venkatesh et al., 2023; Eze & Chinedu, 2023). The simple slopes analysis reveals that low-literacy customers, despite using online banking, derive only modest retention benefits ($\beta = 0.218$ for account opening), while high-literacy customers extract benefits more than twice as substantial ($\beta = 0.474$). This finding has profound implications: banks investing in sophisticated platforms while neglecting customer capability development effectively forfeit retention dividends, particularly among demographic segments with lower digital competencies. The pattern aligns with Singh and Sharma's (2023) digital divide perspective, suggesting that platform investments without corresponding literacy interventions may exacerbate rather than mitigate customer segmentation inequalities, creating two-tiered retention outcomes within ostensibly unified customer bases.

The convergence between customer and staff perspectives, evidenced by minimal coefficient differences and consistent significance patterns, strengthens causal inference by demonstrating that observed relationships transcend single-source biases or perception artifacts. This methodological triangulation, building on Bakwuye et al.'s (2025) dual-perspective approaches, validates that online banking-retention dynamics represent objectively manifesting phenomena rather than perception-dependent constructs susceptible to common method variance concerns. The remarkably small coefficient differences (0.007 to 0.013) between customer and staff estimates indicate that bank employees possess accurate observational awareness of customer retention behaviors, suggesting effective organizational communication systems and customer feedback integration processes that align internal perceptions with external customer realities.

CONCLUSION AND RECOMMENDATIONS

This study establishes that online banking platform adoption exerts substantive positive effects on both account opening and deposit growth in Nigerian Deposit Money Banks, with technological literacy functioning as a critical amplifying moderator. The findings advance

theoretical understanding by demonstrating that platform effectiveness operates through capability-contingent mechanisms, supporting UTAUT extensions emphasizing moderating individual differences (Venkatesh et al., 2023). The disaggregation of retention into account opening and deposit growth reveals differential effect magnitudes, suggesting distinct causal pathways warranting separate strategic treatment rather than monolithic retention approaches that may inadequately address dimension-specific requirements.

Practically, the research demonstrates that Nigerian banks pursuing retention through digital strategies cannot rely solely on platform deployment but must concurrently invest in customer technological literacy development. The dramatic differential between low-literacy effects ($\beta = 0.218$) and high-literacy effects ($\beta = 0.474$) on account opening illustrates that infrastructure-only strategies forfeit substantial retention value, particularly among demographically diverse customer bases characteristic of Nigerian banking. Based on these findings, the following recommendations are proposed: First, Nigerian banks should prioritize comprehensive online banking platform enhancements emphasizing intuitive interfaces, robust security architectures, and feature breadth that accommodate diverse transaction needs while building customer confidence in platform reliability and institutional integrity. Second, banks must implement structured technological literacy programs through multi-channel delivery including in-branch training, video tutorials, community outreach, and embedded platform tutorials, recognizing that capability development represents complementary rather than substitute investments to infrastructure. Third, segment-specific retention strategies should account for technological literacy variations, with high-literacy customers receiving advanced feature exposure while low-literacy segments benefit from simplified interface options and intensive support. Fourth, regulatory authorities should consider digital literacy benchmarks in banking supervisory frameworks, recognizing that sustainable financial inclusion requires both infrastructural and capability dimensions. Finally, future research should employ longitudinal designs to examine how retention dynamics evolve as platforms mature and literacy distributions shift across demographic segments, while expanding investigations to include emerging technologies such as artificial intelligence-driven personalization within online banking ecosystems.

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