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Perceived Ease of Use and Attitude toward Use as Determinants of Electronic Banking Adoption among Taj Bank Customers in Katsina State, Nigeria

[1]Usman Danjuma Maiwada; [2]Dr. Binta Usman Dalhatu; [3]Ibrahim Abu Yaro; [4]Umar Sani Na Bujawa & [5]Yusuf Usman

[1,2,3]Business Administration & Management,
Katsina State Institute of Technology and Management (KSITM), Katsina, Nigeria
[1]Email: usmandanjumamaiwada@gmail.com; udanjuma@ksitm.edu.ng, +2348064121596.
[2]Email: bintsodangi@gmail.com, +2347065000132.
[3]Email: ibrahimabuyaro@gmail.com, +2348064901035.

[4]Registry, Katsina State Institute of Technology and Management (KSITM), Katsina, Nigeria
Email: usaninabujawa@gmail.com, +2348030980542.

[5]Academic Planning,
Katsina State Institute of Technology and Management (KSITM), Katsina, Nigeria
Email: yufusman09@gmail.com, +2348032603559.

ABSTRACT
Electronic banking has become an essential channel for delivering efficient financial services, yet its adoption among customers of non-interest banks in Nigeria remains relatively low. This study examined the influence of Perceived Ease of Use and Attitude Toward Use on Electronic Banking Adoption among Taj Bank customers in Katsina State, Nigeria. The study was anchored on the Technology Acceptance Model (TAM). A positivist research philosophy, deductive approach, and cross-sectional survey design were adopted. Data were collected through a structured questionnaire from 422 selected respondents, of which 405 questionnaires were returned and 395 valid responses were retained after data screening. The sample was determined using Cochran's (1977) formula and selected through a multistage sampling technique. Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS 4. The measurement model demonstrated satisfactory reliability and validity, with factor loadings exceeding 0.70, Cronbach's alpha values ranging from 0.846 to 0.893, Composite Reliability (rho_A) values ranging from 0.846 to 0.893, and Average Variance Extracted (AVE) values between 0.651 and 0.684. The structural model revealed that Perceived Ease of Use had a positive and significant effect on Electronic Banking Adoption ($\beta = 0.508$, $t = 9.424$, $p < 0.001$), while Attitude Toward Use also exerted a positive and significant effect ($\beta = 0.395$, $t = 7.393$, $p < 0.001$). The model explained 77.5% of the variance in Electronic Banking Adoption ($R^2 = 0.775$) and demonstrated strong predictive relevance ($Q^2 = 0.525$). The study concludes that improving the usability of electronic banking platforms and fostering positive customer attitudes are critical for enhancing electronic banking adoption. It recommends that Taj Bank continuously improve the user-friendliness of its digital banking platforms while strengthening customer awareness and digital literacy programmes to promote wider adoption.

Keywords: Attitude toward use, electronic banking adoption, perceived ease of use, PLS-SEM, Taj Bank, Technology Acceptance Model.

1.0 INTRODUCTION

The banking sector has experienced profound transformation over the past two decades as advances in information and communication technology have reshaped the delivery of financial services. In Nigeria, banking operations have gradually evolved from the traditional branch-based system, where customers were required to visit banking halls to conduct transactions, to technology driven platforms that provide convenient and real time access to financial services (Dalhatu, 2016). Electronic banking has emerged as a key component of this transformation, enabling customers to perform transactions through mobile banking, internet banking, Automated Teller Machines (ATMs), card services, and Unstructured Supplementary Service Data (USSD) platforms (Etim et al., 2023). Beyond improving service efficiency, these innovations have enhanced customer convenience, expanded financial inclusion, and strengthened the competitiveness of financial institutions.

Despite these developments, the success of electronic banking depends not only on the availability of digital infrastructure but also on customers' willingness to adopt and continuously use the technology. Although Nigerian banks have invested substantially in digital banking platforms, adoption remains uneven across customer groups and geographical locations. Many customers still rely on conventional banking channels because they perceive electronic banking systems as complex, insecure, or difficult to use (Wu & Ho, 2022). This situation suggests that technological advancement alone is insufficient to guarantee successful digital banking adoption. Understanding the behavioural factors that shape customers' acceptance of electronic banking therefore remains an important research and managerial concern.

The Technology Acceptance Model (TAM) has provided one of the most influential explanations for technology adoption by identifying perceived ease of use and perceived usefulness as key determinants of users' acceptance of information systems (Isiaku & Adalier, 2024; Luo et al., 2024). While perceived ease of use reflects the extent to which a technology is considered effortless to use, attitude toward use captures users' overall evaluation of adopting the technology. Empirical evidence consistently indicates that customers are more likely to adopt electronic banking when they perceive digital platforms as easy to operate and develop favourable attitudes towards their use (Awoniyi, 2022; El Emary et al., 2025; Murad, 2025). These behavioural factors remain central to understanding why some customers readily embrace electronic banking whereas others continue to depend on traditional banking services.

The issue is particularly relevant within Nigeria's non interest banking industry. Taj Bank has expanded its digital banking services as part of its strategy to improve customer experience and promote financial inclusion. However, variations in customers' technological familiarity and behavioural perceptions continue to influence the adoption of these services, especially in Katsina State. Although previous studies have examined electronic banking adoption extensively, evidence relating to customers of non interest banks remains limited. Most existing studies have focused on conventional commercial banks or broader digital banking environments, with little attention given to the combined influence of perceived ease of use and attitude toward use within the context of non interest banking in Northern Nigeria (Awoniyi, 2022; Isiaku & Adalier, 2024; Wu & Ho, 2022). This study therefore examines perceived ease of use and attitude toward use as determinants of electronic banking adoption among Taj Bank customers in Katsina State, Nigeria.

2.0 LITERATURE REVIEW

This section reviews the relevant conceptual and empirical literature on electronic banking adoption, perceived ease of use, and attitude toward use, and develops the hypotheses underpinning the study.

2.1 Electronic Banking Adoption (EBA)

Electronic banking adoption (EBA) refers to the actual use of digital banking platforms by customers to perform financial transactions through channels such as mobile banking, internet banking, Automated Teller Machines (ATMs), and USSD services. Within the Technology Acceptance Model (TAM), actual use is regarded as the ultimate outcome of users' beliefs and behavioural evaluations toward a technology

(Davis, 1989). Customers are more likely to adopt electronic banking when they perceive the services as useful, easy to use, and beneficial to their banking activities (FakhrHosseini et al., 2024; Su et al., 2025). However, although users may express favourable intentions, actual adoption may still be influenced by contextual factors such as digital literacy, trust, infrastructure, and access to technology, particularly in developing economies (Essel, 2025; Palamidovska-Sterjadovska et al., 2025).

Empirical evidence suggests that electronic banking adoption is shaped by customers' perceptions and experiences with digital banking services. Addula (2024) and Khoza (2024) argued that banks can increase adoption by promoting the convenience, speed, security, and reliability of electronic banking platforms, thereby strengthening customers' positive perceptions. Similarly, Inder et al. (2022) and Shen et al. (2026) observed that customers are more likely to adopt electronic banking when they gain confidence through positive user experiences. Nevertheless, the effectiveness of these strategies differs across banking environments because customers' adoption behaviour is influenced by socio-economic conditions, technological readiness, and previous experience with digital banking. Furthermore, most empirical studies have focused on conventional banking institutions, with limited evidence from non-interest banks in Nigeria. Consequently, this study conceptualises electronic banking adoption as the dependent variable and examines how perceived ease of use and attitude toward use influence its adoption among Taj Bank customers in Katsina State, Nigeria.

2.2 Concept of Perceived Ease of Use (PEOU) and Electronic Banking Adoption

Perceived ease of use (PEOU) refers to the extent to which an individual believes that using a technology requires little effort. According to the Technology Acceptance Model (TAM), it is one of the key determinants of technology adoption because users are more likely to accept systems they perceive as simple and easy to operate (Kimiagari & Baei, 2022; Abbas et al., 2024). In electronic banking, customers are more willing to adopt digital banking services when banking applications are easy to learn, navigate, and use (Hedau, 2025). However, while some studies report a direct effect of PEOU on technology adoption, others argue that its influence is indirect through factors such as perceived usefulness and attitude toward use (Saprikis et al., 2022; Ari & Rodi, 2026). These varying findings suggest that the effect of PEOU may differ across contexts, particularly in developing economies where digital literacy and technological experience vary considerably (Druică et al., 2026; Ullah et al., 2022).

Empirical evidence generally supports the positive role of PEOU in electronic banking adoption. Wardana et al. (2022), Kurnia and Tandijaya (2023), and Rizkyla et al. (2024) found that customers are more likely to adopt electronic banking when digital platforms are perceived as easy to use. Conversely, Paramita and Hidayat (2023) reported that PEOU influences adoption indirectly through perceived usefulness, while Alfani et al. (2023) found that electronic trust fully mediates this relationship. These mixed findings indicate that although PEOU is an important antecedent of electronic banking adoption, its influence may depend on other behavioural factors. Furthermore, most previous studies were conducted in conventional banking settings outside Northern Nigeria, leaving limited evidence on customers of non-interest banks. This gap provides the basis for examining the relationship between perceived ease of use and electronic banking adoption among Taj Bank customers in Katsina State.

H01: Perceived ease of use has no significant positive effect on electronic banking adoption among Taj Bank customers in Katsina State, Nigeria.

2.3 Attitude toward Use and Electronic Banking Adoption

Attitude toward use (ATU) refers to an individual's overall positive or negative evaluation of using a particular technology. Within the Technology Acceptance Model (TAM), attitude is regarded as an important behavioural factor that influences technology adoption because users with favourable attitudes are more likely to accept and use a system (Ajzen, 1991; Fatokun, 2023). In the context of electronic banking, customers who view digital banking services positively are more willing to adopt and continue using them. Although scholars generally agree that attitude influences technology adoption, there is no consensus regarding the strength of its effect. While some studies report a direct influence of attitude on adoption, others argue that its effect depends on cognitive factors such as perceived usefulness and

perceived ease of use (Marikyan et al., 2023; Turvey & Pachler, 2026). These varying findings suggest that the influence of attitude may differ across technological and socio-economic environments.

Empirical evidence generally supports the positive role of attitude in electronic banking adoption. Mohamad et al. (2023), Liao et al. (2024), Todua and Gogitidze (2024), and Kejela and Porath (2022) found that customers with favourable attitudes are more likely to adopt and continuously use electronic banking services. Similarly, Wiprayoga et al. (2023) reported that attitude significantly enhances users' behavioural intention to use digital technologies. However, Indriyarti et al. (2023) observed that among younger and technologically experienced users, attitude is shaped more by factors such as self-efficacy and technology awareness than by traditional ease-of-use considerations. These mixed findings indicate that although attitude remains an important antecedent of electronic banking adoption, its influence may vary across user groups and banking environments. Furthermore, most previous studies were conducted outside Nigeria and focused on conventional banking institutions, leaving limited empirical evidence on customers of non-interest banks. This gap provides the basis for examining the influence of attitude toward use on electronic banking adoption among Taj Bank customers in Katsina State.

H02: Attitude toward use has no significant positive effect on electronic banking adoption among Taj Bank customers in Katsina State, Nigeria.

2.6 Theoretical and Conceptual Framework

This study is anchored on the Technology Acceptance Model (TAM) developed by Davis (1989), which explains that technology adoption is primarily determined by users' perceptions of a system's ease of use and usefulness. The model posits that when users perceive a technology as easy to operate, they are more likely to recognise its usefulness and develop favourable attitudes towards its use, thereby increasing the likelihood of adoption. In the context of electronic banking, TAM provides a suitable theoretical foundation for explaining how perceived ease of use and attitude towards use influence customers' adoption of electronic banking services. The theory suggests that customers who perceive Taj Bank's electronic banking platforms as simple, convenient, and beneficial are more likely to adopt and continue using them (Davis, 1989; Venkatesh & Davis, 2000).

Guided by TAM, the conceptual framework proposes that perceived ease of use and attitude towards use are the independent variables, while electronic banking adoption is the dependent variable. The framework assumes that customers who perceive electronic banking platforms as easy to use and develop positive attitudes towards them are more likely to adopt electronic banking services. Accordingly, this study examines the direct influence of perceived ease of use and attitude towards use on electronic banking adoption among Taj Bank customers in Katsina State, Nigeria. Figure 2.1 presents the conceptual framework of the study.

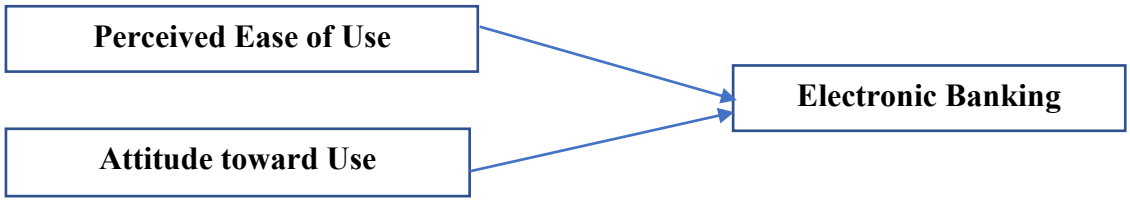

Figure 1: Conceptual Framework

3.0 METHODOLOGY

This study adopted a positivist research philosophy, a deductive approach, and a cross-sectional survey design. Data were collected from customers across six selected Local Government Areas using a structured questionnaire. Since the population was considered infinite, Cochran's (1977) formula was used to determine a sample size of 422 respondents, who were selected through a multistage sampling

technique. The questionnaire employed a five-point Likert scale and was validated through expert review and a pilot study. Data were analysed using SmartPLS version 4.0.1, where descriptive statistics summarised the respondents' characteristics, while PLS-SEM was used to evaluate the measurement and structural models. Reliability and validity were established using factor loadings, Cronbach's alpha, Composite Reliability, Average Variance Extracted (AVE), the Fornell-Larcker criterion, and the HTMT ratio. The proposed hypotheses, including the mediating effect of perceived usefulness, were tested using the bootstrapping procedure with 5,000 resamples at the 5% level of significance.

4.0 RESULTS AND DISCUSSION OF FINDINGS

This section presents the results of the data analysis and discusses the findings in relation to the study objectives, hypotheses, the Technology Acceptance Model (TAM), and relevant empirical literature.

4.1 Descriptive Statistics

A total of 422 questionnaires were distributed, of which 417 were returned, representing a response rate of 99%. Following data screening, 12 questionnaires with incomplete responses were discarded, leaving 405 usable questionnaires (97%). Subsequent screening identified 10 multivariate outliers using the Mahalanobis distance criterion, resulting in a final sample of 395 respondents for analysis. The dataset contained very few missing values, with all missing responses below the recommended 5% threshold, and these were treated using regression imputation. Factor analysis further confirmed the suitability of the data, with a KMO value of 0.986 and a significant Bartlett's Test of Sphericity (χ^2 = 6,636.176, $p < 0.001$). Six components with eigenvalues greater than one explained 72.35% of the total variance, indicating a satisfactory factor structure. The descriptive statistics showed mean scores ranging from 3.85 to 3.87 with moderate standard deviations (0.71–0.75), while skewness (−0.46 to −0.38) and kurtosis (−0.47 to −0.24) values fell within acceptable limits, confirming that the data were suitable for subsequent PLS-SEM analysis (Hair et al., 2025; Tabachnick & Fidell, 2025).

4.2 Assessment of Measurement Model

Before testing the hypothesised relationships, the measurement model was evaluated to confirm the reliability and validity of the study constructs. Following the recommendations of Hair et al. (2025), the assessment focused on indicator reliability, internal consistency reliability, convergent validity, and discriminant validity to ensure that the measurement scales were suitable for structural model analysis.

Constructs' Reliability and Convergent validity

Table 1 presents the results of the assessment of indicator reliability, internal consistency reliability and convergent validity. All indicator loadings ranged from 0.788 to 0.840, exceeding the recommended threshold of 0.70, which confirms satisfactory indicator reliability. Similarly, the Cronbach's alpha values ranged from 0.846 to 0.893, while composite reliability (rho_a) values ranged from 0.846 to 0.893, indicating adequate internal consistency of the measurement scales. Furthermore, the average variance extracted (AVE) values ranged from 0.651 to 0.684, exceeding the minimum recommended value of 0.50, thereby establishing convergent validity. Overall, these results demonstrate that the measurement model possesses satisfactory reliability and convergent validity and is suitable for subsequent structural model assessment (Hair et al., 2025). Figure 1 illustrates the measurement model after the assessment process, showing that the constructs satisfied the required reliability and validity criteria for subsequent structural model analysis.

Table 1:

Factor Loadings, Reliability and Convergent Validity

Construct	Items	Factor Loading	Cronbach's Alpha	Composite Reliability (rho_a)	AVE
Attitude Toward Use (ATU)	ATU1	0.825	0.869	0.870	0.656
	ATU2	0.814			
	ATU3	0.822			

	ATU4	0.788			
	ATU5	0.800			
Electronic Banking Adoption (EBA)	EBA1	0.823	0.846	0.846	0.684
	EBA2	0.840			
	EBA3	0.817			
	EBA4	0.827			
Perceived Ease of Use (PEOU)	PEOU1	0.817	0.893	0.893	0.651
	PEOU2	0.793			
	PEOU3	0.812			
	PEOU4	0.811			
	PEOU5	0.788			
	PEOU6	0.817			

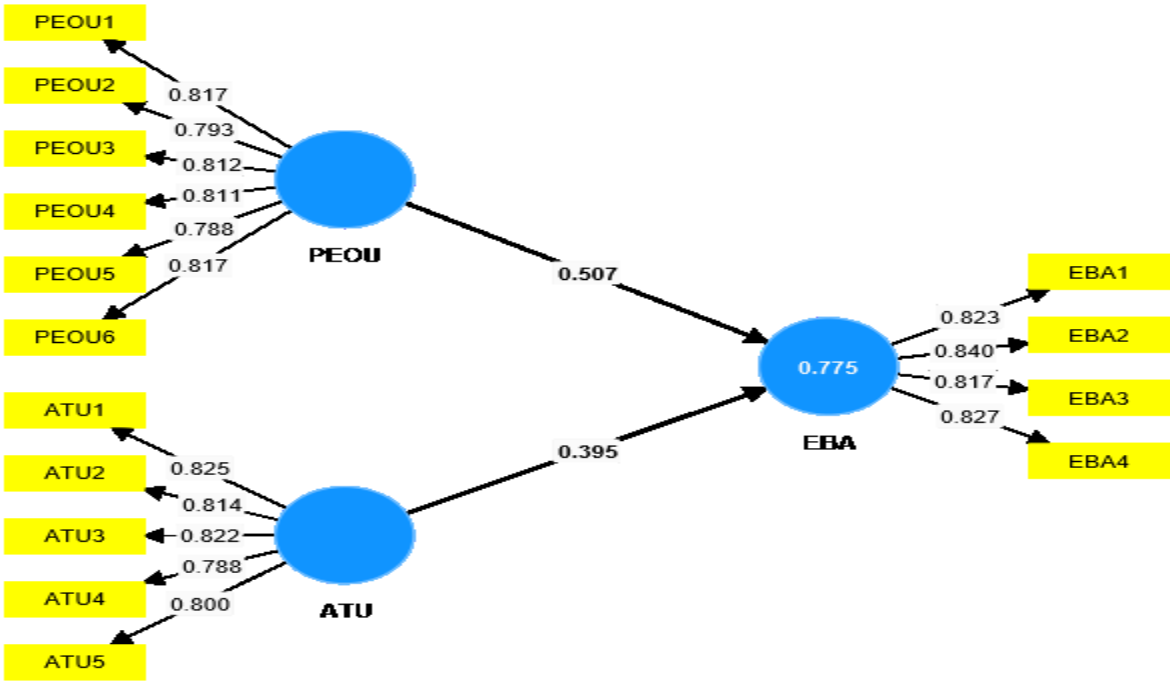

Figure 1: Measurement Model

Discriminant Validity

Table 2 presents the Fornell-Larcker criterion used to assess discriminant validity. The square root of the AVE for each construct exceeded its corresponding inter-construct correlations, with values of 0.810 for Attitude Toward Use (ATU), 0.827 for Electronic Banking Adoption (EBA), and 0.807 for Perceived Ease of Use (PEOU). This indicates that each construct shares more variance with its own indicators than with other constructs in the model, thereby confirming adequate discriminant validity. These findings demonstrate that the study constructs are empirically distinct and suitable for structural model assessment (Fornell & Larcker, 1981; Hair et al., 2025).

Table 2: *Fornell-Larcker criterion*

Constructs	ATU	EBA	PEOU
ATU	0.810		
EBA	0.852	0.827	
PEOU	0.800	0.763	0.807

4.3 Assessment of Structural Model

After establishing the reliability and validity of the measurement model, the structural model was assessed to examine the hypothesised relationships among the study constructs. This was achieved by evaluating the path coefficients and their statistical significance using the bootstrapping procedure.

As presented in Table 3 and Figure 2, Attitude Toward Use exerted a positive and statistically significant effect on Electronic Banking Adoption ($\beta = 0.395$, $t = 7.393$, $p < 0.001$), leading to the rejection of H02. This finding indicates that customers with favourable attitudes towards Taj Bank's electronic banking services are more likely to adopt and use the available digital banking platforms. The result supports the Technology Acceptance Model (Davis, 1989), which posits that positive behavioural evaluations enhance technology adoption. The finding is consistent with Mohamad et al. (2023), Liao et al. (2024), Todua and Gogitidze (2024), Kejela and Porath (2022), and Wiprayoga et al. (2023), who found that favourable attitudes significantly promote customers' adoption of electronic banking services. Similarly, Perceived Ease of Use had a positive and statistically significant effect on Electronic Banking Adoption ($\beta = 0.508$, $t = 9.424$, $p < 0.001$), resulting in the rejection of H01. This finding suggests that customers are more likely to adopt electronic banking when they perceive the platforms as simple, convenient, and easy to operate. The result also supports the Technology Acceptance Model and agrees with the findings of Wardana et al. (2022), Kurnia and Tandijaya (2023), Rizkyla et al. (2024), Kimiagari and Baei (2022), and Abbas et al. (2024), who reported that perceived ease of use is a significant determinant of electronic banking adoption. Figure 2 presents the structural model and the hypothesised relationships among the study constructs.

Table 3:

Path coefficients

Hypotheses	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
ATU -> EBA	0.395	0.053	7.393	0.000
PEOU -> EBA	0.508	0.054	9.424	0.000

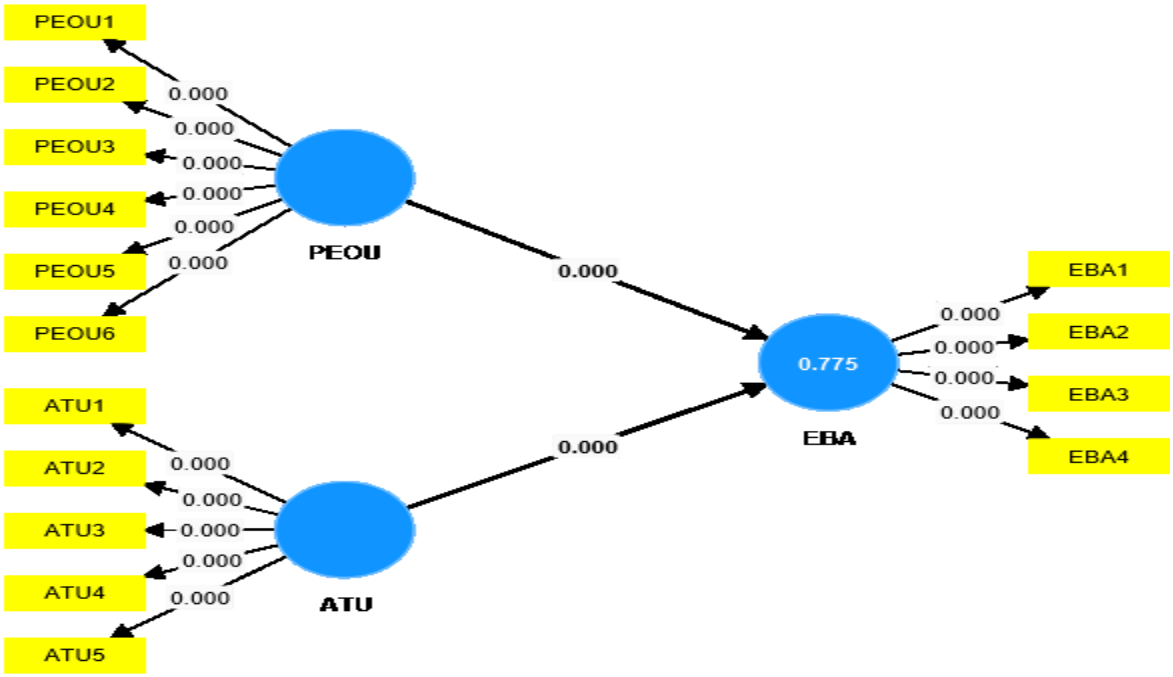

Figure 2: Structural Model

Table 4 presents the bias corrected confidence intervals obtained through the bootstrapping procedure to further verify the robustness of the hypothesised relationships. According to Hair et al. (2025), a relationship is considered statistically significant when the corresponding confidence interval does not include zero. The results show that the confidence interval for the relationship between Attitude Toward Use and Electronic Banking Adoption (0.291–0.502) is entirely positive, confirming the significance and stability of the estimated effect. Similarly, the confidence interval for Perceived Ease of Use and Electronic Banking Adoption (0.398–0.609) also excludes zero, providing additional support for the significance of the relationship. These findings are consistent with the path coefficient results and confirm that both ATU and PEOU are significant determinants of Electronic Banking Adoption among Taj Bank customers in the state.

Table 4: *Confidence intervals bias corrected*

Hypotheses	Sample mean (M)	Bias	2.5%	97.5%
ATU -> EBA	0.395	0.000	0.291	0.502
PEOU -> EBA	0.508	0.000	0.398	0.609

Beyond hypothesis testing, the quality of the structural model was assessed using collinearity (VIF), effect size (f^2), coefficient of determination (R^2), and predictive relevance (Q^2), following the recommendations of Hair et al. (2025). Table 5 presents the results of the structural model quality assessment. The variance inflation factor (VIF) values of 2.284 for both relationships are well below the recommended threshold of 5.0, indicating the absence of multicollinearity among the predictor constructs (Hair et al., 2025). The effect size results show that Attitude Toward Use had a small effect on Electronic Banking Adoption ($f^2 = 0.132$), whereas Perceived Ease of Use exerted a medium effect ($f^2 = 0.217$), suggesting that perceived ease of use contributes more strongly to electronic banking adoption. Furthermore, the model explained 77.5% of the variance in Electronic Banking Adoption ($R^2 = 0.775$; Adjusted $R^2 = 0.774$), indicating substantial explanatory power. The blindfolding results also produced a Q^2 value of 0.525 for Electronic Banking Adoption, which is greater than zero, confirming that the model possesses strong predictive relevance (Hair et al., 2025).

Table 5: *Quality Criterion for Structural Model*

Assessment	Relationship/Construct	Value
Collinearity (VIF)	ATU → EBA	2.284
	PEOU → EBA	2.284
Effect Size (f^2)	ATU → EBA	0.132
	PEOU → EBA	0.217
Coefficient of Determination (R^2)	Electronic Banking Adoption (EBA)	0.775
Adjusted R^2	Electronic Banking Adoption (EBA)	0.774
Predictive Relevance (Q^2) (Blindfolding)	Attitude Toward Use (ATU)	0.000
	Perceived Ease of Use (PEOU)	0.000
	Electronic Banking Adoption (EBA)	0.525

5.0 Theoretical and Practical Implications

The findings of this study provide important theoretical and practical implications for understanding electronic banking adoption among customers of non-interest banks. Theoretically, the significant positive effects of Perceived Ease of Use and Attitude Toward Use on Electronic Banking Adoption provide empirical support for the Technology Acceptance Model (TAM) developed by Davis (1989), confirming that customers are more likely to adopt electronic banking services when they perceive the platforms as easy to use and develop favourable attitudes towards them. The findings further reinforce the behavioural assumptions of the Theory of Planned Behaviour (Ajzen, 1991), which emphasises that positive attitudes significantly influence behavioural outcomes. The study therefore extends the applicability of these theories within the context of non-interest banking in Nigeria, where empirical evidence remains limited.

From a practical perspective, the findings suggest that Taj Bank should continuously improve the simplicity, accessibility and user-friendliness of its electronic banking platforms to encourage greater customer adoption. The Bank should also implement customer education programmes, digital literacy campaigns and awareness initiatives that promote positive perceptions of electronic banking services. In addition, policymakers, financial regulators and bank management should invest in digital infrastructure, customer support services and user-centred technological innovations that enhance customers' confidence and overall experience with electronic banking platforms.

6.0 CONCLUSION

This study examined the influence of Perceived Ease of Use and Attitude Toward Use on Electronic Banking Adoption among Taj Bank customers in Katsina State, Nigeria. The findings revealed that both Perceived Ease of Use and Attitude Toward Use exert positive and statistically significant effects on Electronic Banking Adoption, indicating that customers are more willing to adopt electronic banking services when they perceive them as easy to operate and develop favourable attitudes towards their use. The study therefore concludes that improving system usability alongside fostering positive customer attitudes is essential for increasing the adoption of electronic banking services within non-interest banking institutions in Nigeria.

7.0 RECOMMENDATIONS

Based on the objectives and empirical findings of this study, the following recommendations are made:

i. Taj Bank should continuously improve the simplicity, accessibility and user-friendliness of its electronic banking platforms to enhance customers' perceived ease of use and encourage greater adoption.

ii. Taj Bank should strengthen customer awareness, orientation and digital literacy programmes that promote positive attitudes towards electronic banking services.
iii. Bank management should provide regular technical support, user guidance and responsive customer service to improve customers' confidence and overall experience with electronic banking platforms.
iv. The Central Bank of Nigeria and other financial regulators should support digital banking through policies that promote secure, reliable and customer-friendly electronic banking infrastructure, particularly within non-interest banking institutions.

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