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## ROLE OF ELECTRONIC BANKING SERVICES ON CUSTOMER SATISFACTION AND LOYALTY AMONG ISLAMIC BANK CUSTOMERS

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### Abstract

*This study examines the influence of e-banking services on customer satisfaction levels and customer loyalty with special reference to Jaiz and Taj Banks. Online banking and mobile banking as well as the use of Automated Teller Machines and other means of electronic funds transfer provide a lot of convenience and effectiveness in the money management given the modern technology age. Further, the study examines effects of these services on customer satisfaction and subsequent loyalty within Islamic banking sector. An explorative study approach with a cross-sectional survey design was conducted on 384 participants and used PLS-SEM analysis technique. Results show that e-banking services significantly boost customer satisfaction (path coefficient: Loyalty was also found to have a strong relationship with the use of the digital platforms with a path coefficient of 0.951 and the value that was realized indicating the benefits of using the Sharia-compliant platforms. The study suggests that the Islamic banks should integrate a robust e-banking service delivery system because of the following recommendation-. Subsequently, future research should expand the geographic coverage, use a more representative sampling technique, and identify other antecedents that include technology and regulation to enrich knowledge of customer interaction in Islamic banking given uncertainties in today's financial environment.*

**Keywords:** Electronic Banking, Customer Satisfaction, Customer Loyalty, Islamic Banking, Islamic Bank customer.

### 1. Introduction

E-banking is a technological product that allows customers maintain their relationship with banks as well as make transactions electronically through the use of internet banking, mobile banking, ATM banking, or even Electronic cash transfer. These services

have been made more efficient by the use of the Smartphones and the internet in their operation as key business tools to offer convenience and speed in customer care services (Egala et al., 2021). The banks are putting higher stakes on technology to

improve their digital banking solutions that address the contemporary market demands. Some of the elements that influence the success of banking companies include customer satisfaction and loyalty, which are gotten from service quality, reliability, convenience and security of the transactions (Li et al., 2021).

Services under the ambit of digital banking facilities enhance customer satisfaction since users can access services at their own convenience and also deal with frequent transactions strictly without having to visit physical buildings of the banks frequently. The studies also reveal that satisfied e-banking customers have a tendency of being loyal to their banks which supports the quest of e-banking banks for high quality services as a competitive strategy (Ayinaddis, Taye, & Yirsaw, 2023; Dhairiyasheel & Sambhaji, 2023; Ronny, Nurhadi, & Ilfitriah, 2020).

According to Mulia, Usman and Parwanto (2021), customer loyalty which is defined as a situation where a customer is willing to continue conducting business with a particular banking institution and is willing to recommend the institution to others is influenced by customer satisfaction. This is because switching cost in the digital age has become very low and the options are as good as the touch of the button away. A high level of customer loyalty results to higher levels of retention and lower churn rates and/or the customers are more likely to use other banking products and services (Alayli, 2023; Mathew, 2016). Hence, this study aims at establishing the correlation between e-banking services, customers' satisfaction and loyalty so that banks can be in a position to enhance on the factors to ensure sustainable growth and profitability. Although the literature has demonstrated the advantages of e-banking services, much attention has not been given to the effects of these service on customer satisfaction and loyalty in Islamic banking industry. Islamic institutional banking is based on Sharia law which has different conventions for instance, the avoidance of riba which translates to interest of any form, haram activities and other speculative activities (Danuri, 2021; Nugroho, 2021). These principles extends policy compliance challenges witnessed in the provision of e-banking services. Therefore, this research seeks to fill this gap by analyzing the effects of the e-banking services on customer satisfaction and loyalty in Islamic banks. Specifically, it seeks to:

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

## 2. Literature Review

### i. Conceptual Review

#### a. Electronic Banking Services

E-banking can therefore be determined as delivering a variety of services in the sphere of financing by means of electronic devices including internet, mobile facilities, electronic cash dispensers and electronic transfer of funds. In their research, Oyedokun, Babatunde and Adeolu-Akande (2021) define e-banking to mean the consumption of banking services and products delivered through electronic media. Chaimaa, Najib, and Rachid (2021) build on this by stating that e-banking means any banking operation accessible through the Internet, telephone or portable devices. Depending on the vision of its providers, the main scope of e-

banking services relies on the possibilities to perform transactions, to check balance and other operations as swiftly as possible without the necessity to attend branches (Oluwasegun, John, & Segun, 2021; Sahut, 2021; Sekhar, 2020).

### b. Bank Customer Satisfaction

Some of the elements that affect customers' satisfaction include service delivery, dependability, and sensitivity. Kotler, Brady, Goodman & Hansen (2019) define customer satisfaction as the pleasure or dissatisfaction felt by a customer when comparing perceived performance of a product to his/her expectations. As for banking, Lovelock and Wirtz (2011) defined satisfaction as the extent of conformity of services offered by a bank to the customers' expectations. The five-dimensional work of Parasuraman et al. , (1988) known as SERVQUAL model is a measure of service quality that factors service quality in terms of tangibles, reliability, responsiveness, assurance and empathy to ascertain customers' overall satisfaction (Shi & Shang, 2020).

Services of electronic banking have the potential of influencing the customers' perception through convenience, time and round the clock availability. A positive outcome is that customers find it easy to gain access to accounts and transact thereby minimizing their physical traffic to the banking halls thus improving their banking experience (Mercurio et al. , 2022; Tahtamouni, 2023). Self-service convenience and ease of use in e-banking significantly impact on customer satisfaction according to findings by Auswamy, Yee, and Kuppusamy (2022) as well as Ayinaddis et al. (2023). Thus, the following hypothesis is proposed:

H1: There is a significant positive relationship between electronic banking services and customer satisfaction.

### c. Bank Customer Loyalty

It means that banking services are the tendency of customers to patronize the services offered by specific banks and recommend others to do the same. According to Troiville (2024) customer loyalty refers to the level of association between the attitude of a person and his tendency of taking repeated purchases. Singh (2021) also defines loyalty as dedicated emotional attitudes to repurchase or use the preferred good or service in some point in the future. From the perspective of banks, customer acquisition and maintenance is extremely critical, as it results into higher product penetration, fewer churn rates and more profitability.

This paper focuses on the prevalent literature on linkage between e-banking services and customer loyalty. Halim et al., (2023) identified that the benefits such as convenience and efficiency of e-banking services increases customer loyalty. It also support Redda (2023) who noted that customers who are fully satisfied with their e-banking services are likely to be loyal to their banks. This relationship suggests that to increase customers' loyalty banks that dedicate resources into improving e-banking structures they provide can do so by offering even better online experiences. Based on this, the following hypothesis is proposed:

H2: There is a significant positive association between the implementation of electronic banking services and customer loyalty.

### ii. Theoretical Framework

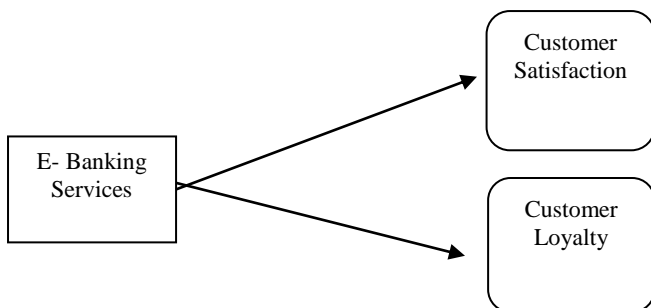
The main theory, which forms the basis for this research regards the disposition between electronic banking services, customer

satisfaction, and loyalty, is the Technology Acceptance Model (TAM). First used by Fred Davis in 1989, TAM categorizes perceived usefulness and perceived ease of use as important determinants of technology acceptance (Wilson, Keni & Tan, 2021). It is important in analyzing attitudes of the Islamic banking customers regarding the e-banking services and its effect on customers' satisfaction and loyalty level (Kimiagari & Baei, 2022; Angusamy et al., 2022). To measure customer satisfaction, the SERVQUAL model developed by Parasuraman, Zeithaml, and Berry (1988) is employed, focusing on five dimensions: These are elements such as tangible, reliability, responsiveness, assurance and empathy. It is necessary to apply SERVQUAL in the context of considering the quality of the e-banking services and their impact on the customers' satisfaction. This research is therefore useful in improving on e-banking experiences and promoting customer loyalty especially in the Islamic banking sector by using the combined model of TAM and SERVQUAL.

**iii. Research Framework**

This research considers only the electronic banking services in light of Islamic banking environment and how these services matter for customer satisfaction and patronage. Independent variables in the model are related to the ease of access to, quality of, and security in, e-banking services while the dependent variables include the level of satisfaction and the level of loyalty. Hence, given that the business model and particularly the customer demographics are different in Islamic banking, this framework seeks to understand how dynamics that influence digital banking offerings can be brought in line with shariah compliant principles. There is a proposition in the current study that posits that improved e-banking services will enhance customer satisfaction thus improving customers' loyalty.

**Figure 1**



**3. Research Methodology**

This research uses survey approach for data gathering on the effect of using electronic banking services in improving satisfaction and customer loyalty among customers of Katsina based Islamic banks, especially Jaiz and Taj Banks. Since the population of the e-banking users is increasing continually, it can be regarded as an infinite population, and hence the convenience sampling technique was used to identify the respondents (Mneimneh et al., 2021). For an infinite population, Cochran's formula was used and from this, we got 384 respondents at 95% confidence level and 5% margin of error. The variables were measured using constructs which was adopted from Beheshtifar and Nezhad (2015), while customer satisfaction was got from Redda (2023) and customer loyalty from Ayinaddis et al. (2023). Smart PLS version 4 was used to analyze the data collected through PLS-SEM, an ideal technique for analyzing relationships between various factors while dealing with complex models (Hair et al., 2021b). This technique facilitated hypothesis testing and evaluation of aspects of customers' satisfaction and perceived loyalty in regard with the e-banking services quality, convenience and security.

**4. Results and Discussion**

In order to test the hypotheses PLS-SEM, a component-based technique similar to the ordinary least squares regression was used. PLS-SEM comprises two models: measurement model which shows the connections between measurement variables and constructs and the structural model which deals with the inter relation of constructs. Analyzing the advantages of PLS-SEM, it is necessary to indicate its insensitivity to the sample size, non-parametricity, and possibility to work with both the reflective and the formative indicators, which makes the tool appropriate for using in this research (Hair et al., 2017). More so, PLS-SEM is more appropriate for non-normal distribution of data (Hair et al., 2017; Knief & Forstmeier, 2021; Cain, Zhang, & Yuan, 2017).

**i. Measurement Model Assessment**

In the context of PLS-SEM, there are two important steps to ensure the goodness of fit of measurement model, and tests to verify the reliability and validity of the constructs. The first step is to check the reliability of the measures which have been used for defining the constructs to confirm that the data is reliable. The second stage aims at testing the reliability of the constructs measured to ensure that they are valid in assessing the concepts of interest. These steps are important when achieving measurement precision and reliability in PLS-SEM research (Hair, Sarstedt & Ringle, 2021), which is critical when analyzing the research findings.

**a. Validity and Reliability**

**Table 1: Loading Internal Consistency and AVE**

Items	Loadings	Cronbach's Alpha	Composite Reliability (rho_a)	Average Variance Extracted (AVE)
CL1	0.834	0.823	0.825	0.587
CL2	0.784			
CL3	0.715			
CL4	0.767			
CL5	0.725			
CS1	0.800	0.899	0.902	0.714

CS2	0.773			
CS3	0.859			
CS4	0.879			
CS5	0.907			
EB2	0.757	0.813	0.813	0.572
EB3	0.788			
EB4	0.712			
EB5	0.764			
EB6	0.758			

As shown in the above study, the values are used to assess the reliability and validity of the measurement model. When it comes to items for Customer Loyalty (CL) outcome measure, thus values of Cronbach's alpha estimates falls between 0. 823 to 0. 899; the obtained alpha coefficients have acceptable to good internal consistency. To get total reliability each items have been checked out and the overall reliability coefficient for the CL is 0. 843, which is within acceptable limit of 0. 7 for composite reliability as suggested by Henseler et al. (2015). The average variance extracted (AVE) for CL items is reviewed ranging from 0. 587 to 0. 714, where in fact the expected criterion had been zero. In general, it achieved a Cronbach's alpha of 0. 92 and satisfactory convergent validity of 5 (Hair et al., 2021).

The values of Cronbach's alpha of items for estimating Customer Satisfaction (CS) are also quite high. 899 to 0. Filtered average variance extracted (AVE) values above 0.81 and incremental reliability values more than 0.907 and composite reliability values more than 0. 7, thus indicating internal reliability of the scale. The AVE values for CS items are as follows 0. 714 to 0. , 813 which is greater than the acceptable value of 0.7 for convergent validity. About Cronbach's alpha: For Electronic Banking Services (EB) items, the Cronbach's alpha values vary from 0. 813 to 0. 823, whilst all of the composite reliability values are greater than 0. 7, which means that the index is highly reliable and possess internal consistency. These values of AVE range between 0 for the EB items while those for the LC items range between 0. 572 and 0. 613 and this while not being at the indicated optimal level ranges from.61 to.68, which is satisfactory convergent validity. Therefore, it can be ascertained that the measurement models have a high level of reliability and validity, which supports the overall reliability of the study's conclusions.

Figure 2 and Figure 3 show the measurement model before and after deletion respectively.

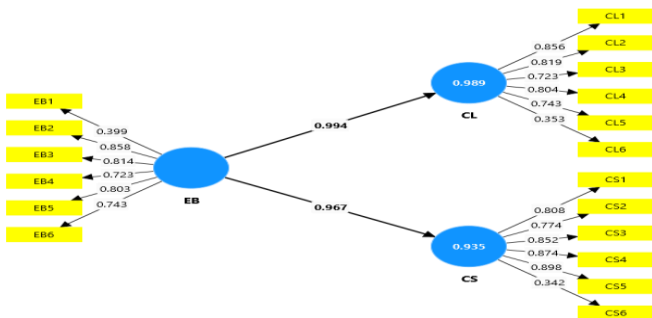


Figure 2

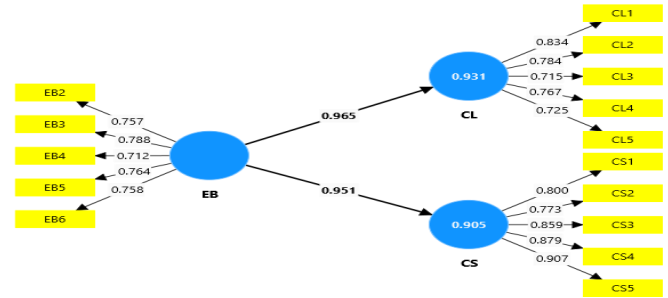


Figure 3

**b. Discriminant validity**

**Table 2:** Heterotrait-monotrait ratio (HTMT) – Matrix

	CL	CS	EB
CL			
CS	1.101		
EB	1.180	1.113	

**Table 3:** Fornell-Larcker criterion

	CL	CS	EB
CL	0.766		
CS	0.948	0.845	
EB	0.965	0.951	0.756

Consequently, the validation of discriminant validity proves satisfactory for the exogenous as well as for the endogenous constructs. All HTMT values exceed the threshold limit of 0 which is justified by the fact that they are comparative estimates between two constructs. Instead, results show a value of 85 (Henseler, Ringle & Sarstedt, 2015) proving that the constructs such as CL and CS (HTMT = 1. 101), and CL and EB (HTMT = 1. 180) are actually different from each other. Also, the Fornell-Larcker criterion was fulfilled, because the estimates of the AVE for each construct were greater than the coefficients reflecting the relationships between the latter constructs. This gives a strong support for the discriminant validity with the customer loyalty customer satisfaction and the electronic banking services.

**ii. Structural Model**

In the case of the structural model, PLS algorithm has enabled computation of the R<sup>2</sup> values and in addition the Bootstrapping

analysis to examine the coefficient of relationships between the exogenous and endogenous constructs. Regarding the practical relevance of the constructs, this approach also provided the effect size ( $f^2$ ). PLS algorithm was used due to its flexibilities of handling the complex model specification as well as delivering the precise path coefficients and the  $R^2$  values; Hair et al., 2021. The bootstrapping process which does not impose a condition of normality of the residuals provided accurate confidence intervals of the path coefficients (Marko Sarstedt et al., 2021). The decision about the applicability of the measurement model in estimating relationships between constructs always has to be made in view of effect size ( $f^2$ ), which gives statistical evidence of the practical impact of the constructs with an acceptable degree of confidence (Chin, 1998).

**Table 5:** Coefficient of Determination  $R^2$

Endogenous Latent Variable	R – Squared Value
Bank Customer Loyalty	0.931

**Table 6:** Path coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
EB -> CL	0.965	0.965	0.007	135.794	0.000
EB -> CS	0.951	0.951	0.009	102.272	0.000

**Table 7:** Confidence Intervals

	Original sample (O)	Sample mean (M)	2.5%	97.5%
EB -> CL	0.965	0.965	0.949	0.976
EB -> CS	0.951	0.951	0.931	0.967

Analyzing the results presented in Tables 6 and 7 it is easy to note that EB services have a positive effect on CL and CS. The values of path coefficients are significant and higher, namely of EB -> CL equal to 0.965 and CS at 0.951 and EB -> CS at 0.951, demonstrating strong relationships. These coefficients have significant values as T-statistics results of these coefficients are 135.794 and 102.272. To be specific, the number of SNVs per gene ranged from 1 to 272, and P-values of 0.000, thereby assuring the validity of the findings of this study. The confidence intervals for EB -> CL (0.949 to 0.976) and EB -> CS (0.931 to 0.967) provide evidence as to the stability of these effects. The results confirm the research hypothesis that EB services increase both CL and CS directly in the Islamic bank context. The empirical evidence, with high path coefficients, and statistically significant outcomes  $Mc$ . The studies are in conformity with the Technology Acceptance Model (TAM) and the SERVQUAL hypothesis based on the rolling of improved services in e-banking and its effects on behaviour and perception of the customers on the Bank within the constraints of the Islamic banking system of the country.

Similarly, these findings point to the fact that Islamic banks must continue increasing their investment and enhancing the quality of their electronic banking services to increase customers' loyalty and satisfaction. This is in agreement with the available literature, for example Abdullah and Hassan (2022) who find the effect of digital banking on customer retention and satisfaction in the IFS in the current period. Thus, the Islamic banks should aim at offering convenient, Islamic, secure, and efficient electronic banking services because of the current competition and the continuing

Bank Customer Satisfaction	0.905
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The results in Table 5 show the R-squared values for the exogenous latent variable, Electronic Banking Services, with respect to the two endogenous variables: It also confirms other variables such as Customers' Loyalty = 0.931 and Customers' Satisfaction = 0.905. These values suggest that Electronic Banking Services contribute 93%. They explained 1% of the variance in Bank Customers' Loyalty and 90% of the variance in Customers' Satisfaction. This implies that the developed model could adequately explain the level of influence exerted by Electronic Banking Services toward customer loyalty and satisfaction level (Hair et al., 2021). Further, to supplement the above finding, the R-squared is of value 0. The validity of the models in terms of satisfying the assumptions and correctly specified relationship amongst the constructs is affirmed by 817 (Henseler, 2017).

growth and changing needs of customers. This strategic emphasis will of course be in accordance to the Islamic banking value and would cater to a growing need for efficient and effective banking as a result of advancing technological input in the society.

## 5. Conclusion and Recommendations

This research paper finds that EB services have a substantial and positive impact on CL and CS in the studied Islamic banks. The path coefficients and high R-squared values bear witness to the impact EB services exert on the customers' perceptions and their behavior patterns. These results support the TAM as well as the SERVQUAL theory that postulate the significance of the high level of technology and quality service delivery in the context of IB. The present research also validates that the EB services have great importance for the customer satisfaction and loyalty implementation which are in parallel with the research done on the effects of the digital banking. Similarly, the study recommends that Islamic banks should pay more concern to the development of their electronic banking services. Efforts should be made to make the services easier, to guarantee that their services are Shariah compliant, to enhance security of services offered and to make the services more efficient. Furthermore, feedback channels with more customer involvement and acceptance of feedback can help the banks deliver what the customers are looking for and create long-term relationships with its customers in the changing environment of digital financial services.

Finally, the study provides useful information as to the extent that EB services affect customers' satisfaction and their loyalty in Islamic banks. Though the study was conducted in a single

geographical area; adopting the convenience sampling method, future studies should extend the study to other regions of the globe and use more precise sampling methods for the purpose of increasing the external validity of the study. Moreover, there should be longitudinal studies, investigating the impact of EB services in the long term; there could be elaborative usefulness and advantage investigation of customer experiences and perceptions by using qualitative tools.

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