# DIGITAL ELECTRONIC PAYMENT AND BANK PERFORMANCE IN NIGERIA

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**Abstract**

*This study investigated digital electronic payment techniques being a financial technological innovation, and its impact on banks performance in Nigeria. The study adopted an expost-facto research type with a time series collected on a quarterly basis covering a period of 2009 to 2020. Entirety of study was 21 deposit money banks quoted on the Nigerian Stock Exchange. Data collected were obtained from Central Bank of Nigeria (CBN) Statistical bulletin and analyzed with Error Correction Model (ECM). The study revealed that digital payment by way of mobile banking; automated teller machine and internet banking have significant influence and positively related to bank financial performance, suggesting that they were cogent technological changes factors enhancing bank performance. Meanwhile, Point of Sale (POS) or debit cards had a negative significant influence on bank performance. The study has provided some useful insight into factors that can continue to enhance the influence of the nexus between digital electronic payment means and banks' performances.*

**Keywords:** *mobile banking; automated teller machine; internet banking; point of sales and financial performance.*

**JEL Classification:** G24

**Introduction**

The paradigm shift from traditional payment to digital age trend in the banking industry turn out to be source of profit for banks, whereby reducing bank's operating expenses and invariably boost their financial performance (Van, Uyen, & Phuong, 2015). Modern financial technology has become a very critical aspect of recent banking services delivery in the world at large and African countries in particular. ATM is one of the foremost indicators for this technical know-how and is adopting by commercial and non-commercial banks with in the globe (Otukoya, 2014). Digital electronic payment like automated teller machines, internet banking and mobile banking were introduced in the banks to enable customers make quick transactions with minimum delay and reduce queues in the banks (Sanjeev, 2014). With the introduction of digital electronic payment, customers of banks have efficient, fast and convenient banking services delivered through such as ATMS, Online Banking, and Mobile banking (Monyoncho, 2015). Regardless of numerous benefits uncovered by Digital electronic payments diverse risks of increased fraud and exposure to litigations emerges, while human complaints ranging from poor service network, difficulties in understanding technological innovation in bank operation and ease of use,  poor service delivery, existence of long queues, expensive charges and the insecurity in the use of e-banking products leads to customer dissatisfaction and resulting to low financial performance (Olumide, 2014; Dangolani, 2011, Ahaiwe, 2011).

Despite the irrefutable importance of technological changes in e-banking products, two misconception are identified; derisory discovering on drivers of technology and empricla findigs on technology's impact on banks' performance remains modestly tested using data from banks (Mabrouk & Mamoghli, 2010: Ngumi, 2013). Muhammad and Smith (2000), postulates that the level of ATM fraud tends to have overshadowed the improvements conveyed into the Nigerian service delivery systems. Similarly, Ihejiahi (2009), posit that despite the realization of ATM terminals as a banking instrument, several customers sees ATM as an alternatives to frustrating queues in banking hall, and as a result, bank officials are being worried seeing function of ATM being erroneously misused. However, most extant studies from developed and developing countries produced mixed results apropos impact of technological changes on bank performance

(Mwania and Muganda, 2011; Franscesa and Claeys, 2010; Pooja and Singh, 2009). In the study conducted by Franscesa and Claeys (2010) and Pooja and Singh (2009), technology was concluded on having least impact on bank performance, while Mwania and Muganda (2011) and Batiz-Lazo and Woldesenbet (2006), reported on technology contributing significantly. Within Nigeria context, several studies focused on information technology in terms of either ATM, internet banking, mobile banking and, or e-banking (Jegede; 2014; Olumide, 2014; Ahawe, 2011). The expectations from this study was to provide a clear way to the banks of what they ought to do to ensure that their operation is effective despite having digital payments means and that customers are satisfied and their financial performance is kept at bay. On this note, this study aims at investigating prospects of digital electronic payment techniques and its impact on banks performance in Nigeria.

### 2. Literature Review
### 2.1 Bank Performance

Bank Performance has been defined in various ways and all definitions given, are channeled towards the same direction by extant studies (Harash, Al-Tamimi, & Al-Timimi, 2014a). Bank performance is seen as the achievement of bank objectives measured against known standards, totality and cost (Sacristan-Navarro, Gomez-Ansón & Cabeza-García, 2011). Fauzi, Svensson and Rahman (2010) define bank performance as the bank's capability to achieve its goals by utilizing resources in an effective and efficient way. The performance of bank arises because of the tactics the bank employs to attain goals and objectives (Harash, et al., 2014a).

Performance deals with determining organization's policies and outcomes in monetary terms, and is being measured using objective, subjective or operational measures (Petersen and Schoeman, 2008). The goal approach measures performance using quantitative (objective) and qualitative (subjective) measures (Olaleye et al., 2020; 2019; Thrikawala, 2011). Among various measures of performance includes; business performance, operational performance, financial and non-financial performance, innovation performance, and quality performance (Olaleye et al., 2021; 2020; Aribaba, Oladimeji, Ahmodu, Yusuff and Olaleye, 2019; Mwai, Memba and Njeru, 2018; Ahmed, Francis and Zairi, 2007). Al-Hussein and Johnson (2009) explain financial performance as the degree to which financial objectives are being or have been accomplished.

Firm financial performance denotes firms' usage of assets, which serve as prime business means to generate revenues and profits (Oladele et al., 2021; Aribaba et al,

2019). Scholars posit on accounting ratios as a measure of financial performance, among which are Return on Asset (ROA) and Return on equity (ROE), being mostly used in financial performance studies as a reflection of company's facility to generate income from non- traditional services. ROA revealed profit earned per naira of assets of the organizations, reflecting the management's ability to utilize the company's or firm's financial and real investment resources to generate profits. For any corporate organization irrespective of the line of business, Return on Asset (ROA) depends on the firm's policy decisions as well as uncontrollable factors relating to the economy and government regulations.

## 2.2 Electronic payment in Banks

Globally, the success of electronic payment is linked to an effective global banking management system with personnel capable of designing and implementing transnational business strategies through the use of modern technology such as point of sales, automated teller machines, mobile and internet banking (Adeyeye, Fapetu & Adefolu, 2018, Otukoya, 2014).

### 2.2.1 Mobile Banking

Mobile banking is seen as one of technological changes in banking industry.  is a term used for performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone or Personal Digital Assistant (PDA) (Ndunga,Njati & Rukangu (2016). According to Rose (1999) mobile banking is a service provided by financial institutions in cooperation with mobile phone operators.  Monyoncho (2015) noted that mobile banking allows customers with busy lifes to conveniently do their transactions via their phones at ease and anytime they choose.

### 2.2.2 Automated Teller Machine (ATM)

Automated Teller Machine (ATM), also known as automated banking machine (ABM) or Cash Machine. Technology like automated teller machines (ATMs) is a computerized telecommunication devices that offers clients of financial institutions access to financial transactions in a public space without the need for a cashier, human clerk or bank teller (Bochaberi & Ong'era, 2020; Abdullai & Nyaoga, 2017). Hence, ATM as a banking mechanism is widely acceptable and used. Low-income people no longer need to use scarce time and financial resources to travel to distant bank branches. Since Automated teller machines transactions cost far less

than transactions at the branch teller, banks can make a profit handling even small money transfers and payments. However, despite the adoption of automated teller machines in commercial banks, the performance of banks has been declining.

Ogbuji. (2012) revealed that the ATM is one of the prevailing surrogates of the tumbling labor-intensive transaction system realized through "paper-based payment instruments".Olumide (2014),reported that ATM Usage has enhanced customers' satisfaction and bank performance in Nigeria. Mwai, et al. (2018), revealed that ATM is statistically significant with the financial innovations adoption and financial deepening among commercial banks in Kenya. Jegede (2014), posited on positive significance in the relationship between ATM Usage and Customers' satisfaction, thereby improving financial performance of banks in Nigeria.

### 2.2.3  Internet Banking

Internet banking is also referred to as online banking, e-banking, or virtual banking. It is e-payment system that permits bank customers to undertake diverse financial transactions through the financial institution's website which is interactive and communication channels. That is, client executes banking transaction via electronic means. Internet banking conceptualization varies among researches moderately, because it entails electronic banking through which bank customers can request information and carry out most retail banking services via computer (Daniel, 2000). Routine transactions performed by traditional banks vua the internet includes; account transfers, balance inquiries, bill payments, and stop-payment requests, and some even offer online loan applications (Nickel, 2018; Kannabira & Narayan, 2005). Mixed reactions were made on the effects of internet banking on bank performance; Mateka, et al.(2016), revealed that internet banking has positive influence on bank financial performance, while Van, et.al., (2015) concluded on internet banking significance on bank profitability through increased service income activities.

### 2.2.4  Point of sales (POS)

Point of sales is one of technological changes massively used in the banking industry. POS is a retail payment device which absorbs customer's bank details whenever a bank or credit card is swiped (passed through a magnetic stripe reader). Banks refers to POS as being cost effective and more feasible when compared to retail payment offices. Revolutions on retail payment facilities greatly impacted bank performance in nations with a quite great acceptance rate of retail payment

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transaction technologies (Iftekhar, Schmiedel and Song, 2009). Nguma (2013), in his study noted that connection is stronger in countries with more retailed payment transaction equipment, like POS terminals. Likewise, a higher usage of electronic retail payment instruments seems to stimulate banking business. Nofie (2011) revealed that impact of retail services on bank performance is dominated by free income. Nader (2011) analyzed the profit efficiency of the Saudi Arabia Commercial banks during the period 1998- 2007 and found that the number of point of sale terminals (POSs) did not improve profit efficiency.

Sequel to mixed reactions from previous studies on significance of digital electronic payment with means being construct like mobile banking, automated teller machine, internet banking and point of sales on financial performances of banks, the following hypotheses were posited to test and stated below;

$HO_1$: *Mobile banking has no significant influence on bank financial performance among quoted banks in Nigeria*

$HO_2$: Automated teller machine *has no significant influence on bank financial performance in Nigeria*

$HO_3$: *Internet banking has no significant effect on bank financial performance among quoted banks in Nigeria.*

$HO_4$: *Point of sales has no significant impact on bank financial performance among quoted banks in Nigeria.*

### 3. Methodology

This study employed ex-post facto type of research. It is a time series study covering a period of twelve years (2009-2020) on a-quarterly basis. The choice of the periods was necessitated following Central Bank of Nigeria disclosure of electronic banking data in the statistical bulletin. A total of twenty-one (21) banks in Nigeria constituted the population of the study. The population cuts across deposits money banks (DMBs) with international, national and regional authorisations in Nigeria. This study collected data through second source with historical data obtained from the financial statements and accounts of banks, as well as Central Bank of Nigeria (CBN) statistical bulletin.

For the purpose of this study, our model is specified as:

$ROA = f$ (MB, ATM, INET, POS, BSIZE.)....................................................Equ 1

While the explicit model is given as

$$ROA_{it} = \beta_0 + \beta_1 MB_t + \beta_2 ATM_t + \beta_3 INET_t + \beta_4 POS_t + + \mu..\dots\dots\dots Equ\ 2$$

ROA=Return on asset proxy for bank financial performance (Dependent Variable)

$Ƙ_0$ =Constant or intercept

$\beta_1$, to $\beta_4$ = Coefficients or parameters of the proposed estimates

t = Where "t" for time.

MB= Mobile Banking (explanatory variable)

ATM= Automated Teller Machine (explanatory variable)

INET= Internet Banking (explanatory variable)

POS= Point of sales (explanatory variable)

**Apriori Expectations**

The apriori expectations are as follow: $\beta_1>0, \beta_2>0, \beta_3>0$ and $\beta_4>0$.

**Table 1: Operationalisation of Variables**

| SN | Variables | Notation and Measurement | Apriori Sign |
|----|-----------|--------------------------|--------------|
| | | **Dependent Variable** | |
| 1 | ROA | Bank financial performance will be proxied with: ROA which is return on asset will be measured as profit before tax divided by total asset (Wachira, 2013: Matevu & Kerongo, 2015). | |
| | | **Independent Variables** | |
| 2 | MB | Mobile banking is measured in this study as the total value of mobile banking transactions in a particular year respectively (CBN Statistical Bulletin, 2020). | + |
| 3 | ATM | Automated teller Machine is measured as the total value of ATM transactions in a particular year respectively (CBN Statistical Bulletin, 2020). | + |
| 4 | INET | Internet banking is measured as the total value of mobile banking transactions in a particular year respectively (CBN Statistical Bulletin, 2020). | + |
| 5 | POS | Point of sale is measured as the total value of POS transactions in a particular year respectively (CBN Statistical Bulletin, 2020). | + |

Source: Researcher's Compilation (2021)

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## 4. Results

**Table 2: The Parsimonious Result of the Error Correction Model or Short Run OLS**

| Variable | Coefficient | Std. Error | t- Statistics | Prob. |
|---|---|---|---|---|
| Constant | -0.004810 | 0.078815 | -0.061030 | 0.9519 |
| D(MB) | 2.760259 | 0.859093 | 3.212994 | 0.0039 |
| D(ATM) | 3.006796 | 0.702804 | 4.278285 | 0.0002 |
| D(INET) | 0.003910 | 0.015239 | 0.256569 | 0.7998 |
| D(POS) | -0.196327 | 0.091307 | -2.150193 | 0.0423 |
| ECM(-1) | -0.836597 | 0.168876 | -4.953924 | 0.0001 |
| $R^2$ = 0.6386   Adjusted $R^2$ = 0.5286 | | F- Stat (Prob.) =**5.8056** (0.00058) | | **DW** = 1.6681 |

Source: Author's Computation (2021)

The error correction model (ECM) least square result reported a coefficient of determination R-squared ($R^2$) value of 0.6386 with return on asset (ROA) being the proxy for bank financial performance. Hence, this implies that approximately 64% of the systematic variations in the dependent variable, being bank financial performance (return on asset, ROA) was accounted for by the explanatory variables of mobile banking (MB), automated teller machine (ATM), internet banking (INET) and point of sale (POS)  While about 36% were unaccounted for, hence captured by the error terms. After adjusting the degree of freedom, adjusted coefficient of determination (adjusted R-square bar ($R^2$) which indicates 0.5286 with ROA, showed that approximately 53% of the changes in the bank financial performance which was proxied by return on asset (ROA) were explained by the independent variables of bank technological changes (mobile banking (MB), automated teller machine (ATM), internet banking (INET) and point of sale (POS), while, 47% of the variations were unexplained, hence captured by stochastic disturbance. The F- Stat (Prob.) of 0.00058 indicates that there is a simultaneous linear relationship between the dependent variable and all the explanatory variables combined. This suggests that the joint effects of all the included variables in the model are significant in explaining bank financial performance in Nigeria. The Durbin Watson (D-W) statistic values for the equation of 1.6682 is sufficiently and approximately to be 2. Thus, there is the absence of a first order position autocorrelation in the model. The coefficient of ECM is statistically significant at 1 percent level and correctly signed. From the result, ECM coefficient indicated

negative value of 0.8366. This suggested that about 84 percent of the disequilibrium in the model will be corrected every year. Interestingly, the overall model is highly significant and shows a high goodness of fit even at the 1 percent level.

## 5  Discussion and Findings

Mobile banking coefficient ($\beta_1$) is 2.7603. The coefficient of mobile banking is significantly different from zero, implying that a unit change in mobile banking would definitely increase bank performance by 2.7603 units. The t-statistic value is 3.2130 and the probability value is less than critical value of 5% significant level. The outcome of the test indicates that mobile banking is statistically significant. The inference of this test is that mobile banking is a critical factor influencing bank financial performance in Nigeria. This implied that mobile banking is a strong influencing factor of bank financial performance. The finding is consistent with extant studies. For instant, Hernando and Nieto (2007) found that mobile banking was able to invite additional customers, leading to increased financial performance via customer deposits. Lee, et al., (2007) showed that mobile banking offers prospect for banks to outspread their facilities to new customers, thereby increasing their market performance. Similarly, Harelimana (2017) revealed that mobile banking transactions volume had a positive influence on the bank financial performance.

In establishing the influence of automated teller machine (ATM) on bank financial performance in Nigeria, linear regression model analysis in Table 2 is used. The positive coefficient ($\beta_2$) value of automated teller machine of 3.0068 units, was significantly different from zero and this implied that a unit change in ATM will definitely increase bank financial performance by 3.0068 units. The t-statistic value is 4.2783 and the probability value is less than critical value of 5% significant level. The outcome of the test indicates that automated teller machine (ATM) is statistically significant. The finding conforms to apriori expectation that as more ATM are installed, the more likelihood to influence bank performance. The inference of this test is that ATM has a significant influence on financial performance of banks in Nigeria.  This also indicated that ATM has positive relationship with bank financial performance in Nigeria. The result is in line with the apriori expectation. The finding is consistent with plethoras of studies such as Kabiru and Farouk (2012) who found that number of ATMs had a significant impact on financial performance of Nigerian banks as measured by return on assets (ROA). Olumide (2014) showed that ATM Usage has enhanced customers'

satisfaction and bank performance in Nigeria. Mwai, et al., (2018) revealed that ATM is statistically significant with the financial innovations adoption and financial deepening of commercial banks in Kenya, as well as the study conducted by Jegede (2014) showed significant positive relationship between ATM Usage and Customers' satisfaction and this resulted to improving financial performance of banks in Nigeria.

Table 2 depicts the result of the effect of internet banking (INET) on bank financial performance. Internet banking (INET) indicated positive coefficient ($\Upsilon_3$) value of 0.00491 and this showed that internet banking in relation to bank financial performance (return on asset) equation is slightly different from zero, indicating that a unit increase in internet banking could affect bank financial performance by 0.00491. The value of internet banking (INET) of t-statistic was 0.2566 and associated probability value of 0.7998. The t-statistics probability value in the estimates is higher than the critical value at the 5 percent(5%) significant level. Thus, the results of the linear regression model analysis showed that internet banking (INET) is not statistically significant. This shows that internet banking is significantly low and that usage of internet banking is a weak factor having effect on bank financial performance. The inference therefore is that internet banking) does not significantly has effect on bank financial performance in Nigeria. The finding conforms to the study of Mateka, et.al. (2016), who revealed that internet banking has positive influence on bank financial performance.

Nexus between POS and bank financial performance depicts that, point of sale (POS) indicated negative coefficient value with bank financial performance substituted with return on asset (ROA), which implied that a unit increase in point of sale (POS) could affect bank financial performance negatively by -0.1963 units. The t-statistic was 2.1502 with probability value less than critical probability value of 5%. The result showed that point of sale is statistically significant. Following the decision rule, we therefore reject the null hypothesis which implied that point of sale (POS) has significant influence bank financial performance in Nigeria. The findings conform to a priori expectation. The inference of this test is that point of sale (POS) has significant influence on bank financial performance in Nigeria. The finding argued against Fu-Qiang and Sajid (2014) who investigated effect of POS usage on profitability of banking industry in form of ROA over the period of 2004 to 2013 quarterly in the banking sector in Pakistan and showed that increased in POS usage enhance the profitability of banking industry in form of ROA. Polatoglu and Ekin (2001) identified that users of POS users were more satisfied

with the cost saving factor of electronic banking including train reservations, energy bills, taxes and investment in stocks. However, this result conforms with Nader (2011), who argued that the number of point of sale (POSs) do not improve profit efficiency, hence it implies that more cost were associated in making or maintaining the POS and its porosity might have negate the purpose and of course having adverse effect on performance.

## 6. Conclusion

The thrust of this paper is on digital electronic payment and financial performance of deposit money bank in Nigeria. The role of digital payment on efficiency and cost reductions in the banking sector is paramount to a successful and profitable service delivery to customers in Nigerian banks. Digital payment like mobile banking, automated teller machine, internet banking and debit cards have influence on transfers, payments, deposits and withdrawals in financial transactions, thereby reducing instances of human error, which affect financial performance. Grounded on the findings, it was concluded that technological changes by bank affect its financial performance. However, sequel to the situation of Automated teller machines in major boulevards in towns and cities, there is need to always fund the machines to ease transactions and prevent risk of carrying cash at long distance by customers of banks. Despite prolific efforts by banks on the issuance of point of sale (POS) to registered customers to achieve cashless policy by CBN, high-security level should be activated in safeguarding customers' data. In addition, financial institutions ought to intensify on the internet banking and ensure ample internet securities are acquired to protect customers' accounts against threat of system intrusion by hackers.

## 7. Limitation and Future Studies

Despite myriad recommendations in this study, certain precincts exist, demanding attention towards future research. Firstly, considering limited number of banks within the nation makes this research lack representation and as a result generalization proves jeopardize. Secondly, moderating or mediating role of individual and organizational factors can be explored in future research, considering the nexus between banks' financial performances. Finally, proxy for financial performance can be delve into considering indicators such as working capital, leverage, market share, debt to-equity and  market share, profitability index.

### References

[1] Abor, J. (2005). Technological innovations and banking in Ghana: An evaluation of customers' perceptions". Legon: University of Ghana.

[2] Abor, J.(2004).Technological innovation and banking in Ghana: An evaluation of Customers perception, American Academy of Financial Management.

[3] Adeyeye, O. P., O. Fapetu & I. T., & Adefolu (2018). Does quality of bank services lead to customer satisfaction in the Nigerian banking sector? Journal of Humanities, Social Sciences and Creative Arts, 13: 52-74

[4] Ahaiwe, J. (2011). The effect of automated teller machines on banks' services in Nigeria. *International Journal of Development and Management Review,* 6, 1-12.

[5] Ahmed, H., Francis, A. & Zairi, M. (2007). Business process reengineering: Critical success factors in higher education. *Business Process Management Journal*, *13*(3), 451-469

[6] Aldajani, M. A., and Alfares, H. K. (2009), Location of banking automatic teller machines based on convolution. Systems Engineering Department, King Fahd University of Petroleum and Minerals, Dhahran 31261, Saudi Arabia.

[7] Al-Hussein, A. H. & Johnson, R. L. (2009). Relationship between corporate governance efficiency and Saudi banks' performance. *The Business Review, Cambridge 14* (1), 11-17.

[8] Aribaba, F. O., Oladimeji, M. S., Ahmodu, O. A., Yusuff, S. A. and Olaleye, B. R. (2019). Fraud Occurrence and Financial Performance of Listed Deposit Money Banks in Nigeria. *POLAC International Journal of Contemporary Accounting and Security Studies (PIJOCASS),* 4(1). ISSN: 2636-7076.

[9] Business Dictionary. (2011). Online website resource available at http://www.businessdictionary.com Retrieved on 30th July 2011.

[10] Fauzi, H., Svensson, G. & Rahman, A. (2010). Triple bottom line as sustainable corporate performance: a proposition for the future. *Sustainability*, *2*(5), 1345-1360.

[11] Gavrea, C., Ilies, L. & Stegerean, R. (2011). Determinants of organizational performance: The case of Romania.*Management & Marketing*, *6*(2), 285-300.

[12] Harash, E., Al-Tamimi, K., & Al-Timimi, S. (2014a). The relationship between government policy and financial performance: A study on the SMEs in Iraq. *China-USA Business Review, 13*(4), 290-295.

[13] Harelimana (2017).The impact of mobile banking on financial performance of Unguka microfinance bank Ltd, Rwanda. *Global Journal of Management and Business Research: Finance, 17*(I), 1-13.

[14] Ihejiahi R 2009. How to fight ATM fraud online. Nigeria Daily News, June 21, P. 18.

[15] Jegede, C. A. (2014). Effects of automated teller machine on the performance of Nigerian banks. *American Journal of Applied Mathematics and Statistics*, 2 (1), 40-46.

[16] Jensen, A. R. (1997). The psychometrics of intelligence. In Nyborg, H. (Ed). The Scientific study of human nature: Tribute to Hans J. Eysenck at eighty 221 – 239 New York: Elsevier.

[17] Kabiru, I.D., & Farouk, B.K.U. (2012). Impact of investment in information technology on the return on assets of selected banks in Nigeria. *International Journal of Arts and Commerce, 1*(5), 1-10.

[18] Mateka, M., Julius, G., & Omagwa, J. (2016). Effects of internet banking on financial performance of listed commercial banks in Kenya. *American Journal of Finance, 1*(2), 53-71.

[19] Monyoncho, L.N. (2015). Relationship between banking technologies and financial performance of commercial banks in Kenya. *International Journal of Economics, Commerce and Management, United Kingdom,* 1-23.

[20] Monyoncho, L.N. (2015). Relationship between banking technologies and financial performance of commercial banks in Kenya. *International Journal of Economics, Commerce and Management, United Kingdom,* 1-23.

[21] Moutinho, L. and Smith, A. 2000. Modelling bank customer satisfaction through mediation of attitudes toward human and automated banking, The International Journal of Bank Marketing 18(3): 124.

[22] Mwai, A., Memba, F.S., & Njeru, A. (2018). The relationship between ATM banking and financial deepening of commercial banks in Kenya. *International Journal of Economics, Commerce and Management, 4*(12), 1-19.

[23] Nader, A. (2011). The effect of banking expansion on profit efficiency of Saudi banks. 2nd *International Conference on Business and Economic Research* (2nd ICBER 2011) Proceeding 269.

[24] Ndunga, R.M., Njati, I.C., & Rukangu, S. (2016). Influence of technological innovation on bank performance in Meru town, Kenya. *International Journal of Economics, Commerce and Management, United Kingdom, 4*(11), 1-15.

[25] Ngumi, P.M. (2013). *Effect of bank innovations on financial performance of commercial banks in Kenya.* A thesis submitted in partial fulfilment for the degree of Doctor of Philosophy in Business Administration in the Jomo Kenyatta University of Agriculture and Technology,1-142

[26] Nickel, T. (2018). Advantages and disadvantages of internet banking. Retrieved on 11 April, 2018.

[27] Nofie, I. (2011). The diffusion of electronic banking in Indonesia, *Manchester Business School.*

[28] Ogbuji C.N, Onuoha C.B, & Izogo E.E (2012). Analysis of the negative effects of the automated teller machine as a channel for delivering banking services in Nigeria*: International Journal of Business Management. 7*(1), 23-41.

[29] Olaleye, B. R., Adeyeye, O., Efuntade, A. O., Arije B. and O. N., Anifowose (2021). E-quality services: A paradigm shift for consumer satisfaction and e-loyalty; Evidence from postgraduate students in Nigeria. Management Science Letters, 11 (3), 849-860.

[30] Oladele. R, Olusola, I.E., Olusegun, E.A., Oluwayemisi, A.M.B., Rildwan, O.B., Rahmon, T.A., & Gbenga, A.C. (2021). Public financial management tools and

performance in Nigeria public sector. Academy of Accounting and Financial Studies Journal, 25(S4), 1-15. (Accepted for Publication)

[31] Olaleye, B. R., M. Akkaya, O. L. Emeagwali, R. I. Awwadd and S. Hamdane (2020). Strategic Thinking and Innovation Performance; The Mediating Role of Absorptive Capabilities. *Revista Argentina de Clínica Psicológica,* 29(5), 2030- 2043.

[32] Olaleye, B. R. and Ahmodu, O. A. (2019). Outsourcing Decision Practices and Public Hospital Performance in Southwestern Nigeria. *Hallmark University Journal of Management and Social Sciences, 1(2) 45-47.*

[33] Olumide, Automated teller machine usage and customers' satisfaction in Nigeria. Global *Journal of Management and Business Research,14*(4), 1-7.

[34] Oluwagbemi, O., Abah, J. Achimugu, P. (2011). The impact of information technology in Nigeria's banking industry. *Journal of Computer Science and Engineering, 7*(2), 1-5.

[35] Otukoya, S. (2014). The Role of Information Technology on Commercial Banks in Nigeria. Banker Enterpren. Train.

[36] Sacristan-Navarro, M., Gomez-Ansón, S., & Cabeza-García, L. (2011). Family ownership and control, the presence of other large shareholders, and firm performance: Further evidence. *Family Business Review, 24*(1), 71-93.

[37] Samina, R., & Ayub, M. (2013). The impact of bank specific and macroeconomic indicators on the profitability of commercial banks. *The Romanian Economic Journal, 16*, 22– 36.

[38] Sanjeev, B. (2014). The impact of technology on the performance of Indian banking industry: An empirical study. I*ndian Institute of Banking & Finance, 1- 112.*

[39] Thrikawala, S. S. (2011). Impact of strategic networks for the success of SMEs in Sri Lanka.*World Journal of Social Sciences, 1*(2), 108-119.

[40] Van, D., Uyen, L., & Phuong, L. (2015). Measuring the impacts of internet banking to bank performance: Evidence from Vietnam. *Journal of Internet Banking and Commerce*, *20*(2), 1-14.