

# **Impact of Automation on the Performance of Deposit Money Banks' (DMBs) in Nigeria: Evidence from Port Harcourt in Rivers State**

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## **ABSTRACT**

*This study examines the impact of automation on the performance of Deposit Money Banks (DMBs) in Nigeria. Data on automated payment systems, interconnectivity and automated delivery channels were collected from five DMBs (120 and 80 bank customers and staff respectively) selected out of the 25 banks that survived N25b recapitalization deadline of December 31, 2005. Kendall coefficient of concordance at 95 percent confidence level indicating an alpha ( $\alpha$ ) risk of 0.05 percent was used to determine the degree of agreement. Results indicate that automated payment systems, interconnectivity and automated delivery channels could contribute to banks' performances. The Paper recommends that banks should improve on their automated delivery systems to catch up with changes in technology, educate and encourage their customers to use these facilities. Again, the government should enforce the BOFIA (1993) to foster legal environment to govern E-commerce in general and electronic banking in particular to address problems of online privacy and security.*

**Keywords:** *Automation, Interconnectivity, and delivery channels*

## **INTRODUCTION**

The banking industry of the 21st century operates in a complex and competitive environment characterized by ever-changing economic and financial environment with information and communication technology (ICT) at the center of this change. Only banks that overhaul the whole of their payment and delivery systems, and apply ICT to their operations are likely to survive and prosper in the new millennium (Agboola, 2006 and Woherem, 2000). Automation is a by-product of the innovation and the banking industry is expected to link with the development in ICT to survive. However, the quest for survival, global relevance, maintenance of existing market share and sustainable growth seems to have made exploitation of the advantages of ICT devices. The use of automated devices is a *sin-qua-non* to a healthy banking

industry. Little wonder in recent times, the increasing adoption of ICT in banking is gradually turning banks into virtual organizations with network of specialists sharing information and customers distributed globally. The advantages of information technology such as electronic banking, electronic commerce, electronic mail and internet are built on the telecommunication technology. Telecommunication is an integral part of financial services, commodities market, media, transportation and travel/tourism industry, and provides vital links among manufacturers, wholesalers and retailers (Akinboyo, 2008).

In Nigeria, the adoption of automation by Deposit Money Banks (DMBs) might have played significant roles in the transformation of their operations and improved intermediation. However, there seems to be some differences in performance among Nigerian DMBs even when they have all meet with the required minimum capital base. These differences in performance of the DMBs could be tied to diverse reasons. In this regard, Oyewo (2001) posits that inadequate infrastructure, privacy of transactions, systems/service failure and insecurity of deposits among others as the major problems associated with the use of the internet. On the whole, e-banking in spite of its short comings has great potentials to contribute specifically to banks performance thereby enhancing economic growth.

The use of ICT is not without problems especially in the third world economies including Nigeria. These numerous difficulties have prompted diverse studies on the response of Nigerian banks to ICT adoption. Thus there is need to study the overall impact of automation on performance of banks given the increasing huge investment in ICT by banks. Like Agbaola (2008) aptly notes, despite the widespread acceptance of e-banking in Nigeria, there are numerous challenges that restrain consumers from maximum utilization and thus satisfaction. Ovia (2005) attributes the challenges to the country's technological infrastructure and institutional capacity. These are challenges encountered in their adoption ranging from human impairment, operational faults to technical hitches.

Banks are not strictly about money; they are about information processing and control centers that adjust, coordinate and channel the shifting of claims on society's pool of resources. In order to perform these functions, DMBs therefore adjust to economic and technological changes. Automation in banking covers payment cards (Industry credit cards, Check cards, Charge cards, Debit cards, Cash cards and others), electronic purses (International cards, Smart cards), electronic fund transfer (Western Union Money Transfer, Moneygram and so on), Automated Teller machines (ATMs), home banking service through personal computer via internet and telephone and more. Electronic networking of branches through the use of Very Small Aperture Terminal (VSAT) has further enhanced efficiency of DMBs as customers can now obtain a myriad of services from any branch of their bank without physically visiting the branch where their accounts are domiciled. Also, electronic payments with E-cash are further innovation in banking

automation. E-cash providers accommodate a range of convenient electronic payment mechanisms thereby making it easy for all prospective buyers to purchase goods or services on the internet. The inter-exchange ability of E-cash currencies and the facilitation of offline verification of electronic currency is yet another innovation by banks and their technological partners. From the foregoing, automation in banks could lead to accelerated processing and transmission of information, easy marketing of banking products, enhanced customer's access and awareness, wider networking, regional and global link on a very high scale. These developments have changed the product range, product development, service channel, banking services and its packaging with significant efficiency. Thus, financial services have become virtually dependent on ICT development (Sagbara, 2005).

According to Weller (1998), all these changes strengthen banks by making them faster, smarter, broader and global. This is *in tandem* with Laudan D. and Laudan J. (1991) who contend that managers cannot ignore information systems because they play a crucial role in contemporary organization. Adetayo, Sanni and Ilori (1999) and Boyett (1995) also maintain that in order to succeed or even survive in present dynamic business world, companies must take not only traditional actions such as lowering of costs, but must also keep pace with every changing capabilities of ICT. Harold and Jeff (1995) in Agboola (2001) and Woherem (2000) aptly note that only banks that overhaul their payment systems and operations by applying ICT devices are likely to survive and prosper in the new millennium.

One important implication of the openness in most economics today is the issue of growing trend in the use of electronic funds transfer, locally and internationally. As noted by Agboola (2006) money is now being transferred at the press of a button. In agreement with this assertion, Ovia (2000) posits that the new technologies have created unparalleled wired economy and that the transfer of money from point "A" to point "B" has resulted in turning the actual money into bits and bytes through satellite transponders, fiber optic cables or regular telephone. Furthermore, automation has reduced the influence of cash on financial transactions. This is in line with the view of David (1982) that there has been a very modest move away from cash. Frazer (1985) in Sagbara (2005) adds that the advantage of cash diminishes as the value of transactions increase.

Agboola (2003) also noted that there is a positive impact of automation, (IT) on banks' revenue. This corroborates the findings of Laudan D. and Laudan J. (1991) in a study of the cash flow of 500 companies which linked their success to information system. They conclude that information technology directly affects how managers decide, plan and what products or services are produced. This is clearly demonstrated by Nigerian banks in the move from traditional passbooks savings and normal chequeable accounts to automated products. Following the consolidation programme in the Nigerian banking sector, all the banks have deployed one channel or the other in their operations amongst which is the Automated Teller Machine

(ATM). The ATM market has witnessed rapid growth in number, size and array of functions in the past five years. Apart from improved note counters deployment, banks have started deploying proto-type machines such as Cheque book dispenser, Cheque deposit machine. These facilities have significantly improved bank office Cheque and document processing functions, thus positively impacting on service delivery to customers. Although banking automation has changed the Nigerian banking landscape, yet it does not mean that it is without constraints.

Accordingly, some of the basic constraints associated with banking automation in Nigeria include lack of basic infrastructure, computer ownership and acquisition, low ICT literacy level, lack of evidential proof of E-banking transactions and high cost of acquiring technology. It is obvious therefore that the Nigerian society still lacks well spelt out ICT policies, laws and E-commerce regulations which are applicable to global banking. In our view, these constitute a great challenge to Nigeria's banking industry. More specifically, it calls for proactive measures to redress this monster called "electronic frauds" in Nigeria's banking sub-sector. This probably might minimize the increasing level of electronic frauds in Nigeria banks. Arising from the foregoing, the main objective of this study is to empirically examine the impact of automation on Nigeria's Deposit Money Banks (DMBs) performance. In order to achieve this objective, the following research questions arose:

- (i) Is there any agreement in the perception of respondents on automated payment systems and banks' performance?
- (ii) Is there any agreement in the perception of respondents on interconnectivity and banks performance?
- (iii) Is there any agreement on the perception of respondents on automated delivery channels and banks' performance?

To ascertain the degree of agreement among the respondents the following hypotheses were tested:

Ho<sub>1</sub>: There is no agreement in the perception of respondents on automated payment systems and banks' performance.

Ho<sub>2</sub>: There is no agreement in the perception of respondents on interconnectivity and banks performance.

Ho<sub>3</sub>: There is no agreement on the perception of respondents on automated delivery channels and banks' performance.

## **METHOD**

This study adopts a survey design approach by studying a representative sample of five (5) DMBs and the results generalized. These five DMBs are all situated in Port Harcourt, Rivers State. Both primary and secondary data were collected for this study. In order to determine the actual effect of automation on DMBs, both customers

and Staff of these banks in Port Harcourt were interviewed between 2011 and 2012. Copies of structured interview questions were distributed to elicit information from the respondents at the time of the study (December 2011 – October, 2012). The population of the study is twenty-five 25 DMBs that survived the N25b recapitalization deadline of 31<sup>st</sup> December, 2005. In order to have a detail analysis the sample size is restricted to five DMBs that survived the consolidation exercise in their own name and are particularly very visible due to very large branch network.

The five banks are First Bank of Nigeria Plc. United Bank for Africa Plc., Access Bank Plc., Eco Bank Nigeria Ltd and Guaranty Trust Bank Plc. The sample is composed of two hundred respondents out of which are 120 bank customers while 80 are bank staff. The data generated from the survey (questionnaires), method was organized and analyzed using Kendall's coefficient of concordance (KCC). The KCC measures the degree of agreement of various respondents (Banks' customers and Staff). Kendall's coefficient of concordance is given by the expression:

$$W = \frac{S}{\frac{1}{12} K^2 (N^3 - N)}$$

Where: W = Kendall's' coefficient of concordance

$$S = \sum (R_j - R_j)^2$$

K= Number of persons Judging the proposed model

N= Number of models (Questions) being Judged

R<sub>j</sub>= The sum of the Ranks for each model

The congruity of scores among the banks as perceived by their customers and staff is tested by Chi-Square Statistics. The computed Chi-Square is compared with the critical value to ascertain whether the test is statistically significant or not and the degree of dependence or independence of the variables. Above all, automation which is the adoption of ICT in banking operations is measured by automated payment systems, interconnectivity and automated delivery channels; and performance which are the efficient and the effective service delivery. More specifically, customers' satisfaction is measured by respondent's perceptions of the effectiveness of automated payment systems, interconnectivity and automated delivering channels. Data analysis was executed based on the responses obtained from the two sets of questionnaire administered on tables. In testing the hypotheses, responses were ranked and the value of Kendall's' coefficient of concordance (W), calculated. In testing the significant of W, the sample distribution (S) approximates the chi-square distribution ( $\chi^2$ ) with N-1 degree of freedom since the sample is large. that  $S = K(N-1)W$  with N-1 degree of freedom (d.f). The Decision Rule is that, accept null hypotheses if Cal is less than table otherwise reject.

## RESULTS AND DISCUSSION

From the results of the analysis as summarized on table 2, there is no agreement in the perception of respondents (Customers and Staff) on automation and banks' performance since the calculated values of  $W$  are less than the critical values while testing for the significance of the values of  $W$  in all cases. Therefore, all the null hypotheses are accepted. The results indicate that there is no agreement among respondents in their perception of automated payment systems, interconnectivity, automated delivery channels and bank's performance which is contrary to general claims on automation. For instance, Weller (1998), Agboola (2001), Laudan D. and Laudan J. (1991), Adetayo, Sanni and Ilori (1999), Agboola (2008), Ovia (2000) and Oyewo (1999) and Harold and Jeff (1995) unanimously agreed that automation have a positive effect on banks performance This departure from general claims perhaps might be due to basic constraints associated with Lack of basic infrastructure such as power (electricity), satellite and wireless line among others; high cost of computer ownership and acquisition, high illiteracy level and low ICT education among Nigerians; Insecurity of electronic transactions due to lack of legal backing to e-banking and e-commerce in general which has contributed to the high electronic fraud in the banking sector, and Technological deficiency which imposes very high cost of acquisition and maintenance on the banks.

**Table 1:** Responses to Research Questions

Response Items	Customers Responses N=120				Staff response N=80			
	A	%	D	%	A	%	D	%
Automation facilitates accurate records and aid proper forecasting	72	60	48	40	40	50	40	50
Automation enhances improved revenue and profitability	45	38	75	63	35	44	45	56
Automation induces innovative products thus ensure market segmentation and penetration	55	46	65	54	45	56	35	44
Automation hastens funds transfer and make international market accessible	55	46	65	54	50	63	30	38
Automation makes communication easy, enhances turnaround time thus cost effective	58	48	62	52	50	63	30	38
Automation enhances prompt and fair attention	65	54	55	46	45	56	35	44
Automation facilitates convenient business hours and unrestricted access to customers account	60	50	60	50	50	63	30	38
Automation enhances customers liquidity and reduces risk associated with cash movement	65	54	55	46	45	56	35	44
Automation enhances fast and exceptional service delivery	58	48	60	50	40	50	40	50
Automation reduces cost of information and enhances separated interpersonal relationship	55	46	65	54	48	60	32	40

*Note:* A= Strongly Agree/Agree, D= Disagree/Strongly Disagree

*Source:* Field survey (2012)

**Table 2:** Perceptions of the Respondents Regarding Automated Payment Systems and DMBs Performance

Hypotheses	Respondents	Agg. Point (R <sub>j</sub> )	W	$\chi^2$	Ca	Others
H <sub>01</sub>	Staff	841	392.8	0.01	2.4	7.82
	Customers	1179	1110.6	0.015	5.4	7.82
H <sub>02</sub>	Staff	660	50	0.004	0.64	5.99
	Customers	921	14	0.005	0.12	5.99
H <sub>03</sub>	Staff	613	392.68	0.031	4.96	5.99
	Customers	912	56	0.002	0.48	5.99

N=4,  
K=80  
N=4,  
K=120  
N=3,  
K=80  
N=3,  
K=120  
N=3,  
K=80  
N=3,  
K=120

*Source:* Field survey (2012)

### CONCLUSION

This study examines the impact of automation on Deposit Money Banks (DMBs) performance in Nigeria. It also explores the extent to which automated payment systems, interconnectivity and delivery channels influence banks' performance. Using the order of various sums of ranks (R<sub>j</sub>) as criterion for determining whether automated payment systems, interconnectivity and automated delivery channels have helped the banks to perform better in terms of importance based on respondents perception, it was observed that there is no agreement among the respondents on the possible positive impacts of the three variables on performance of DMBs. This finding perhaps might be largely due to high cost associated with ICT for now in Nigeria, inadequate infrastructure, epileptic power supply systems/service failures and more. Ideally, high level of automation in banks decreases the load on the bank office in accounting while interconnectivity does allow customers to have easy access to carry out all banking transactions in any branch of their banks.

Arising from the foregoing, the study submits that automated payment systems will enhance DMBs performance, a high level of interconnectivity will enhance the performance of DMBs in Nigeria. Furthermore, automated delivery channels will improve banks' performance in Nigeria. Based on these findings, the study recommends that DMBs should keep improving on their automated delivery systems not minding the high cost in order to catch up with current technological trend and provide customers with adequate information on their transactions. To eradicate incessant service failures, banks especially the old time big banks should collaborate with relevant technology institutions and install their personal satellite in Nigeria. Again, the government should review the BOFIA (1993) various amended to provide an enabling legal environment (legislations) governing electronic commerce in general and internet banking in particular. These steps amongst other could address the problems of system downtime and online insecurity usually experienced in recent times.

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