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Electronic Banking and Cyber-Fraud: Implications on Commercial Banks in Nigeria

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ABSTRACT

The study evaluates the impact of the relationship between Electronic Banking and Cyberfraud. It has electronic fund transfer, telephone banking and automated teller machine as components of E-banking and also the dependent variables against cybercrime (dependent variable). Survey design was used for this study, data was obtained from primary source, that is questionnaire and secondary source which includes texts books and journals. In the study simple percentages was used to analyze the data from the respondents while Pearson product moment correlation method was adopted to test the assumptions. The study found that Electronic Fund Transfer increases the possibility of Cybercrime. Secondly, Electronic Fund Transfer contributes greatly to the total level of Cybercrime while, Telephone Banking Facilitates Cybercrime. However, Cybercrime increased with the introduction of Telephone Banking with consequent reduction in the number of ATMs users. This study recommends that public awareness on cybercrime should be carried out, installation of security cameras around ATMs and proper law enforcement are needed to combat the issue of cybercrime in our financial institutions.

Keywords: E- banking, Cyber-fraud, commercial banks, Nigeria.

INTRODUCTION

E-banking was adopted by banks so as to improve their service delivery, decongest queues in the banking hall, enable customers withdraw cash anytime, track personal banking transaction, request for online statement, and international payment and remittance or even transfer deposit to a third party account [1, 2]. This efforts by banks to satisfy their customers is been frustrated by online criminals, this criminal comes in different forms and uses different methods in perpetuating crime, this crimes as captured by these work incudes phishing, cyber terrorism, card skimming, electronic spam mails, cyber stalking, cash trapping, fake copy-cat websites etc [3].

There are few innovations that have changed the dynamics of banking as much as the e-banking revolution. Throughout the world, banks are reorganizing their business strategies to take advantage of new business opportunities offered by e-banking [4, 5]. Electronic banking is believed to have started in the early 1980's, it has since then been growing in an unprecedented dimension in line with the growth formation and communication technology (ITC) development. E-banking has enabled banks to overcome borders, adopt strategic outlook and bring in possibilities. According to Nitsure (2003) [6], information communication technology has reduced the cost of processing and facilitating the transmission of information leading to drastic changes in the banking business. It is worthing that e-banking system, as a result of the many new business opportunities offered e-banking. Although no official definition of e-banking has been established, it generally implies a service that allows customers to use some form of computer access account-specific information and possibly conduct transaction from a location like home or workplace [7, 8].

Additionally, e-banking has obvious advantages to the customer in terms convenience where customers conduct routine banking transaction, from the confort and security of any location from which they wish to transact. The emerging concept of e-banking has drawn the attention of the business fraternity as well as of scholars and researchers to the effects of such dynamics on the banking industry. For instance, Liao and Wong (2008) [9] in their study of the determinants of customer interactions with internet enabled e-banking found that factors such as perceived usefulness, ease of use, security, convenience and responsiveness to service request to be a strong measure of the variation in customers interactions. Based on this finding, they suggested that stringent control is critical to e-banking operations. Such arguments do not only managerial have implication for enhancing internet banking operations and developing viable electronic banking services but also form the basis upon which this study is based [10, 11].

E-banking technology created a revolution by extending banking hours and beyond national boundaries Balachandran and Balachandher, (2000) [7]. In Nigeria several studies on e-banking have been done. Chiemeké, Ewwiekpaefe and Clete (2006) [10], for instance, conducted a pragmatic study on adoption of e-banking where major hindering factors to internet banking adoption such as insecurity and inadequate operational facilities, including telecommunication facilities and electricity supply, were identified. Crime and corruption represent a major concern for business executive not only in Nigeria but also in other parts of Africa [5]. In Nigeria, for instance the most serious impediments to economic activities and business are crime and corruption which averages 75% and 71% respectively. Theft and fraud are the second most popular crime after burglary. By definition, Cybercrime may be referred to as any form of misconduct in cyber space. It is simply defined as the criminal use of the internet.

Cyber-crime is believed to have started in the 1960's in the form of HACKING; this was followed by privacy violation, telephone tapping, trespassing and distribution of illegal materials in the 1970's, the 1980's witnessed the introduction of viruses, the fast pace of development of ICT from the 1990's till today added the list of criminal exploits in cyber space, [3]. Today the internet is used for espionage and as a medium to commit terrorism and transnational crimes. With e-banking gaining ground in Nigeria and other part of sub Saharan Africa, customers and online buyers are facing a great risk of unknowingly passing on their information to fraudsters, "Hackers" information of those who have made purchase through websites and then make fake cards which they use with less detection. Absence of a law specifically dealing with cyber-crime in Nigeria for a very long time now has been giving thieves a loophole to operate freely [5]. But as the new cyber-crime act was promulgated in October 2015 the case of cyber-crime will be different now, as the cybercrime act has a guideline on how cyber criminals will be prosecuted and the punishment for each level of crime is clearly stated in the Act.

This study examined the types of cyber-crime, its challenges and economic impact on the Nigerian Deposit Money Bank and also its general effect on Electronic banking.

EMPIRICAL LITERATURE AND CONCEPTUAL FRAMEWORK

[11], in their study on the impact of Electronic Banking on Human Resources Performance in the Nigerian Banking Industry, using data from 35 respondents randomly selected from 5 branches of first bank Ltd. revealed that the introduction of electronic banking in the Nigerian Banking Sector has helped tremendously in improving the productivity of bank personnel, leading to efficiency and effectiveness in service delivery. The study also found that the implementation of electronic banking system has boosted customer-relationship and customers' satisfaction [12].

Ekwueme, Egbunike and Amara (2012) [12], studied an empirical assessment of the operational efficiency of electronic banking in Nigeria using correlation technique, and reported that e-banking introduction in Nigeria had aid the operations of Nigerian banks through banks' employees' productivity and general performance. Dogarawa (2005) [11], carried out a study on the impact of e-banking on customer satisfaction using a sample size of 60 each drawn from first bank of Nigeria Ltd, Guaranty trust bank Pic. and Zenith bank Pic. The findings revealed that electronic banking offer bank customers' services at a much lower cost and empowers them with unprecedented freedom in choosing vendors for their financial service need.

Similarly, Maiyaki and Mokhtar (2010) [14] using a survey of 417 bank customers in 33 organizations in Kano state of Nigeria, examined effects of electronic banking facilities, employment sector and age-group on customers' choice of banks in Nigeria, and found that availability of electronic banking facilities such as ATM, online operation and telephone banking do not have significant influence in customer's decision to choose banks. This according to them could perhaps be explained by the fact that presently, almost all the players in the Nigerian banking sector do have electronic facilities.

Agboola (2001) [5], conducted a study on the impact of computer automation on banking services in Lagos, Nigeria. The findings revealed that the introduction of electronic banking has brought about various innovations that now dictate the pace for banking activities. This according to him has far reaching effects on both the customer and personnel requirements. [13], carried out a study on the effects of information technology on the growth of banking industry in Nigeria. The result from the analysis of questionnaire administered on customers of five maj or banks in Nigeria showed that information technology (IT) has contributed immensely to the growth of banking industry in Nigeria [15].

Similarly, Adewale and Afolabi (2013) conducted a study on the effects of information and communications technology (ICT) on the growth of Nigerian Banking industry using five quoted banks. The result revealed that electronic banking has improved customer satisfaction [16].

Also, [17] using a sample of 135 respondents, investigated the effects of e-banking on growth of customer base in Kenyan banks. The results revealed that e-banking has enhanced the growth of customer base for banking institutions in Kenya. Additionally, [17] studied the effects of electronic banking on growth of deposit money banks in Nigeria, using multiple regression technique. The study revealed that positive relationships exist between mobile banking and total deposits, and between internet banking and total asset, while on the other hand, there is no significant relationship between internet banking and total deposits, and between mobile banking and total asset.

[18], studied electronic banking products and performance of Nigerian deposit money banks. The study used secondary data of six (6) banks between 2006- 2011, and found that the adoption of electronic banking products (e-mobile and ATM) has strongly and significantly impacted on the performance of Nigerian banks on one hand, while on the other hand, the result showed that e-direct and SMS alert has not significantly impacted on the performance of the banks.

[6], investigated electronic banking and bank performance in Nigeria, using secondary data for four banks that have retained their brand names and remain quoted in the Nigeria stock exchange since 1997. The results revealed that e-banking has positively and significantly impacted on the return on equity (ROE) of Nigerian banks, but has not significantly improved the return on assets (ROA) of Nigerian banks.

In addition, [7] examined the effect of using electronic banking on profitability of banks using both descriptive and inferential statistics. The findings show that electronic banking has improved the performance of banks measured by bank incomes. [10], carried out a study on the relationship between electronic banking and financial performance among commercial banks in Kenya. Using return on assets as proxy for financial performance and investment in e-banking, number of ATMs and number of debit cards issued to customers as surrogate for e-banking, the results reveal that positive relationship exists between e-banking and bank performance.

[11], assessed the impact of internet banking on bank performance and risk in Indian, using multiple regression technique. The results reveal that there is no significant association between internet banking and profitability on one hand, and on the other hand, there is a significant negative association between internet banking and risk profile of banks in Indian. From the foregoing, it can be seen that none of above empirical studies address the issues of relation between electronic banking and liquidity, this is the gap that this study intends to fill.

METHODOLOGY

This study used the survey research design which involves the use of questionnaire as the main instrument. Correlation analysis was also used to analyse the relationship between Electronic banking and cyber-fraud.

Primary and secondary sources of data collection were adopted at different levels in this research work. Data in this category were collected mainly through visits, personal participation and distribution of questionnaires to First Bank Nigeria Plc staff and customers. Secondary data were also collected from reviewed and relevant literatures

The population of the study consists of staff and customer of First Bank Plc, Abakaliki Branch. Based on this, a population of hundred (100) was targeted. A sample was obtained to analyse the relationship between E-banking and cyber-crime from the staff and customers of the bank under study based on this the population of one hundred (100) was targeted. Thus, from the targeted population, the sample size was determined using the taro yameni formular to arrive at fifty (50). The questionnaires were administered to the respondents by the researcher, was filled by the respondents and collected immediately to avoid instrument mortality.

In analyzing the data collected for the purpose of carrying out this research, the Pearson product moment correlation (PPMC) statistic and simple percentages was used.

DATA PRESENTATION AND ANALYSIS

This is aimed at analyzing the data collected through questionnaire with a view to seeking answers to the question raised. The use of simple percentage was adopted to analyze in details, data collected in order to understand the relevance of the question asked to the significances of answers given.

Table 1: Response Rate

RESPONDENTS	NO. ISSUED	NO. RETURNED	% OF RETURNED
Staff and customers	50	42	84
Total	50	42	84%

Field survey, 2014

From the table above 50 questionnaires were distributed out of which 42 were filled and returned, that form 84% of the questionnaire to be used for analysis.

Table 2: Electronic Fund Transfer (EFT) increase the Possibility of Cybercrime

RESPONSE	FREQUENCY	PERCENTAGE
Strongly agree	20	48
Agree	15	36
Undecided	4	9
Disagree	3	7
Strongly disagree	-	-
Total	42	100%

Field survey, 2014

The above table indicates that 48% strongly agree that Electronic Fund Transfer increases the possibility of Cybercrime in Abakaliki, 36% of the respondent agree in the same vain, also 9% of the respondents are undecided with the statement while 7% disagree that Electronic Fund Transfer increase the possibility of Cybercrime in First Bank Nigeria Plc Abakaliki.

Table 3: Cybercrime on Electronic Fund Transfer (EFT) contributes greatly to the total level of Cybercrime in First Bank Nigeria Plc Abakaliki

RESPONSE	FREQUENCY	PERCENTAGE
Strongly agree	15	36
Agree	10	24
Undecided	5	12
Disagree	8	19
Strongly disagree	4	9
Total	42	100%

Field survey, 2014

The table reveals that 36% strongly agree that cybercrime relating to Electronic Fund Transfer (ETF) contribute greatly to the total level of cybercrime in First Bank Nig Pic Abakaliki, 24% agree, 12% are undecided about the statement also 19% disagree while 9% strongly disagree that cybercrime relating to Electronic Fund Transfer contribute greatly to the level of cybercrime in First Bank Nigeria Pic Abakaliki.

Table 4: Cybercrime committed through Electronic Fund Transfer (ETF) are not easily detected.

RESPONSE	FREQUENCY	PERCENTAGE
Strongly agree	33	79
Agree	9	21
Undecided	-	1
Disagree	-	-
Strongly disagree	-	-
Total	42	100%

Field survey, 2014

The table reveals that 79% strongly agree and 21 agree that cybercrime committed through Electronic Fund Transfer (EFT) are not easily detected in First Bank Nigeria Pic Abakaliki.

Table 5: Telephone banking facilitate cybercrime

RESPONSE	FREQUENCY	PERCENTAGE
Strongly agree	18	43
Agree	12	29
Undecided	10	24
Disagree	2	4
Strongly disagree	.. -	-
Total	42	100%

Field survey, 2014

The above indicates that 43% and 29% strongly agree and agree respectively, that telephone banking facilitate cybercrime while 24% are undecided and 4% disagree with the statement.

Table 6: Cybercrime increased with the introduction of Telephone Banking

RESPONSE	FREQUENCY	PERCENTAGE
Strongly agree	20	48
Agree	10	24
Undecided	8	19
Disagree	4	9
Strongly disagree	-	-
Total	42	100%

Field survey, 2014

This table shows that 48% strongly agree that cybercrime increased with the introduction of telephone banking, 24% agree, also 19% are undecided with the statement while 9% disagree that cybercrime increased with the introduction of Telephone Banking.

Table 7: Cybercrime reduces the number of Automated Teller Machine (ATM) users in Abakaliki.

RESPONSE	FREQUENCY	PERCENTAGE
Strongly agree	4	10
Agree	5	12
Undecided	-	-
Disagree	21	50
Strongly disagree	12	29
Total	42	100%

Field survey, 2014

From the table above 10% agree that cybercrime reduces the number of Automated Teller Machine (ATM) users in Abakaliki, 12% agree 50% disagree while 29% agree 50% disagree while 29% strongly disagree that cybercrime reduces the number of Automated Teller Machine (ATM) users in Abakaliki.

Table 8: Cybercrime makes the use of Automated Teller Machine insecure in Abakaliki.

RESPONSE	FREQUENCY	PERCENTAGE
Strongly agree	28	67
Agree	14	33
Undecided	.	-
Disagree	-	-
Strongly disagree	-	-
Total	42	100%

Field survey, 2014

This table shows that 67% of the respondents strongly agree that cybercrime make the use of Automated Teller Machine (ATM) insecure in Abakaliki and 33% also agree in the same vain.

Table 9: Cybercrime makes the use of Automated Teller Machine insecure in Abakaliki.

RESPONSE	FREQUENCY	PERCENTAGE
Strongly agree	28	67
Agree	14	33
Undecided	.	-
Disagree	-	-
Strongly disagree	-	-
Total	42	100%

Field survey, 2014

This table shows that 67% of the respondents strongly agree that cybercrime make the use of Automated Teller Machine (ATM) insecure in Abakaliki and 33% also agree in the same vein.

Table 10: The frequency of Automated Teller Machine usage has been affected by cybercrime in Abakaliki.

RESPONSE	FREQUENCY	PERCENTAGE
Strongly agree	14	33
Agree	21	50
Undecided	-	-
Disagree	7	17
Strongly disagree	-	-
Total	42	100%

Field survey, 2014

The above table reveals that 33% and 50% of the respondents strongly agree and agree that the frequency of Automated Teller Machine (ATM) usage has been affect by cybercrime while 17% disagree with the statement.

Hypothesis One

There is no significant relationship between Electronic Fund Transfer and Cybercrime in Abakaliki.

Using table 2, 3, and 4;

Option	Points (x)	Responses (Y)	XY	X ²	Y ²
SA	5	68	340	25	4624
A	4	34	136	16	1156
U	3	9	27	9	81
D	2	11	22	4	121
SD	1	4	4	1	16
I	15	126	529	55	5998

Using Pearson product moment correlation method

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{n\sum x^2 - (\sum x)^2 \cdot n\sum y^2 - (\sum y)^2}}$$

$$r = \frac{5(529) - (15 \times 126)}{\sqrt{2(55 - (15)^2) - 5(5998 - (126)^2)}}$$

$$r = \frac{755}{840} \quad r = 0.89 = (89\%)$$

With the value of r as 0.89 (89%) which it is positive, it means that there is a significant relationship between Electronic Fund Transfer (EFT) and Cybercrime in Abakaliki and implies that we will fail to accept the null hypothesis.

Hypothesis Two

Cybercrime has no significant Impact on Telephone Banking in Abakaliki.

Using table 5 and 6

Option	Points (x)	Responses (Y)	XY	X ²	Y ²
SA	5	38	190	25	1444
A	4	22	88	16	484
U	3	18	54	9	324
D	2	6	12	4	36
SD	1	-	-	-	1
I	15	84	344	55	2306

Applying the Pearson product moment correlation method

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{n\sum x^2 - (\sum x)^2 \cdot n\sum y^2 - (\sum y)^2}}$$

$$r = \frac{5(344) - (15) \times (84)}{\sqrt{2(55 - (15)^2) - 5(5 \times 2306) - (84)^2}}$$

$$r = \frac{460}{\sqrt{223,700}}$$

$$r = \frac{460}{473} \qquad r = 97\%$$

The result of r = 0.97 (97%) is positive and it shows that cybercrime has a significant impact on Telephone Banking in Abakaliki. Therefore we fail to accept the null hypothesis.

Hypothesis Three

Cybercrime has no significant effect on Automated Teller Machine (ATM) users in Abakaliki.

Using table 8, 9 and 10

Option	Points (x)	Responses (Y)	XY	X ²	"Y ² "
SA	5	46	230	25	2116
A	4	40	160	16	1600
U	3	-	-	9	-
D	2	28	56	4	784
SD	1	12	12	1	144
I	15	126	458	55	4644

Using Pearson product moment correlation method,

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{n\sum x^2 - (\sum x)^2 \cdot n\sum y^2 - (\sum y)^2}}$$

$$r = \frac{5(458) - (15) \times (126)}{\sqrt{2(55 - (15)^2) - 5(4644) - (126)^2}}$$

$$r = \frac{400}{606} \qquad r = 0.66 \qquad r = (66\%)$$

r calculated of 0.66 (66%) which is high and close to 1, this implies that we will fail to accept the null hypothesis and conclude that cybercrime has a significant effect on Automated Teller Machine (ATM) users in Abakaliki.

CONCLUSION AND RECOMMENDATIONS

The Nigerian banking sector has used modern technologies to improve operational competence to enable them remain competitive in the global financial industry. In banking services industry Electronic Banking is a new era which explores the new horizons of success and development to enhance businesses operation. But unluckily, the evidence from this study shows that, this innovation comes with certain degree of exposure to cybercrime and information security breaches which create negative perception toward the bank.

Nigeria needs proper law enforcement and countermeasures with combine effort from industry players, government and the banks as well as cyber security experts to address these societal problems. In order to create and rebuild the trust of customer in bank and in the use of Electronic Banking Services there should be proactive cyber and information

frame work which should include all employees. There should be public awareness campaign aimed at educating customer about cybercriminals and their modes operandi.

However, Internet service providers operating in the country should also be mandated to report suspicious traffic going through their networks.

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