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Automated Teller Machine (ATM) Frauds in Nigeria: The Way Out

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ABSTRACT The problem of Automated Teller Machine (ATM) frauds is global in nature and its consequences on bank patronage should be of concern to the stakeholders in banks. This paper investigates the dimensions of ATM frauds in Nigeria and proffer solutions that will mitigate the ATM frauds in the Nigerian banking system. The paper employs both primary and secondary data to investigate the ATM frauds in Nigerian banks. The chi-square statistical technique was used to analyze the data and test the hypothesis raised. The paper concludes that both bank customers and bankers have a joint role to play in stopping the perpetrators of ATM frauds in the banks. Card jamming, shoulder surfing and Stolen ATM cards constitute 65.2% of ATM frauds in Nigeria.

INTRODUCTION

The Computer Crime Research Centre (2009) opined that the traditional and ancient society was devoid of any monetary instruments and that the entire exchange of goods and merchandise was managed by the 'barter system'. The use of monetary instruments as a unit of exchange replaced the barter system and money as the sole purchasing power. The modern contemporary era has replaced these traditional monetary instruments from a paper and metal based currency to 'plastic money' in the form of credit cards, debit cards etc.

The evolution of these various 'plastic money' has resulted in the increasing use of ATM all over the world. The use of ATM is not only safe but is also convenient. This advantage of safety and convenience has unfortunately been lessened by the frauds that are perpetrated by 'plastic money'.

The ease of settlement of bills such as electricity, school fees, phone bills, insurance premium, traveling bills and even petrol bills has made the use of plastic money more important in the Nigerian Banking system. The convenience and safety that credit cards carry with their use has been instrumental in increasing both credit card volumes and usage in Nigeria. Table 1 reveals the ATM growth in Nigeria.

The growth of ATMs in Nigerian banks rose from 83% in 2006 to 289% in 2007. Almost all banks introduced the ATM in their bank premises in 2007. The increase in number of customers using ATM has also increased the propensity to fraudulent practices by the ATMs fraud perpetrators. Banks have gone on ATM deployment frenzy; some have adopted the strategy of installing two ATMs per branch. Banks with large customer base continue to lead the pack in number of transactions carried out. However the number of transaction per ATM remains a significant measure of the efficiency of these ATMs. Such transaction volumes can also be used to measure the kind of returns banks are getting from the regular patronage of their ATMs.

Table 1: ATM growth in Nigeria

Year	*No. of ATMs*	*Growth rates*
2005	425	6.3%
2006	776	83%
2007	3,017	289%
2008	5,894	95%

Source: Inter-switch Reports 2008

Objectives

The major objectives of this paper are: (a) to examine the various ATM frauds in Nigeria and (b) to provide solution that will mitigate the fraud in the banking industry.

Literature Review

Ogunsemore (1992) defined ATM as a cash dispenser which is designed to enable customers enjoy banking service without coming into contact with Bank Tellers (Cashiers).

The ATM, therefore, performs the traditional functions of bank cashiers and other counter staff. It is electronically operated and as such response to a request by a customer is done instantly.

Ihejiahi (2009) expressed concern about the lack of cooperation among banks in the fight to stem the incidence of ATM related frauds now plaguing the industry. He expressed that the silence among banks on ATM frauds makes it difficult for banks to share vital information that will help curb the menace.

Hanson (1970) disclosed in his book 'Service Banking' that Automated Teller Machine was just introduced in the United Kingdom in 1967 and ever since, Japan and France have used the machine for a multiplicity of purpose.

In Nigeria, the first bank to introduce ATM was the Moribund Societe Generale (SGBN) in 1990. The trade name for SGBN's ATM was "Cash Point 24". One of the first generation banks then, First Bank Plc came on stream with their own ATM in December 1991, a year behind SGBN. They also gave a trade name "FIRST CASH" to their ATM. While that of SGBN was the drive-in-system, that of the First Bank ATM was through-the-wall.

Access to ATM is through the use of Personal Identification Number (PIN) and a plastic card that contains magnetic strips with which the customer is identified. Banks usually hand over the PIN to the customer personally and the customer is usually instructed not to disclose the number to a third party. ATM card is about the size of a normal credit card and apart from the need to ensure its safety, its surface strips could be mutilated which may make the machine to reject it even though the PIN number is entered correctly.

Ogunsemore (1992) advised that the ATM in the advanced countries has been programmed to perform a variety of functions, the commonest being savings / withdrawal, provision of balances of accounts and request for each balances. Other functions which the machines are capable of performing include:

(i) Printing of statements
(ii) Transfer of funds
(iii) Payment of bills
(iv) Cash advances
(v) Display of promotional messages.

Obiano (2009) blamed the menace of ATM frauds on indiscriminate issue of ATM card without regard to the customer's literacy level. According to him one of the frequent causes of fraud is when customers are careless with their cards and pin numbers as well as their response to unsolicited e-mail and text messages to provide their card details. Omankhanleu (2009) opined that the current upsurge and nefarious activities of Automated Teller Machine (ATM) fraudster is threatening electronic payment system in the nation's banking sector with uses threatening massive dumping of the cards if the unwholesome act is not checked.

Adeloye (2008) identified security as well as power outage as major challenges facing the ATM users in Nigeria. A Report on Global ATM Frauds (2007) identified the following types of ATM Frauds:

(a) Shoulder Surfing: This is a fraud method in which the ATM fraudster use a giraffe method to monitor the information the customer keys in into the ATM machine unknown to the customers.

(b) Lebanese Loop: This is a device used to commit and identify theft by exploiting Automated Teller Machine (ATM). Its name comes from its regular use among Lebernese financial crime perpetrators, although it has now spread to various other international crime groups.

(c) Using Stolen Cards: This is a situation in which the ATM card of a customer is stolen and presented by a fake presenter.

(d) Card Jamming: Once the ATM card is jammed, fraudster pretending as a genuine sympathizer will suggest that the victim re-enter his or her security code. When the card holder ultimately leaves in despair the fraudster retrieves the card and enters the code that he has doctored clandestinely.

(e) Use of Fake Cards: Fraudsters use data collected from tiny cameras and devices called 'skimmers' that capture and record bank account information.

(f) Duplicate ATMs: The fraudsters use software which records the passwords typed on those machines. Thereafter duplicate cards are manufactured and money is withdrawn with the use of stolen Passwords. Sometimes such frauds are insiders' job with the collusion of the employees of the company issuing the ATM Cards.

(g) Card Swapping: This is a card theft trick whereby a fraudster poses as a "Good Samaritan" after forcing the ATM to malfunction and then uses a sleight of hand to

substitute the customer's card with an old bank card. As the customers is endlessly trying to push the card through, the fraudster offer assistance by pretending to help the customer push through the card.

(h) Diversion
(i) ATM Burglary

METHODOLOGY

For the purpose of the study, 5 banks were randomly samples from the 25 banks. These are Guarantee Trust Bank, First Bank, UBA, Union Bank and Zenith Bank.

Questionnaires were served to 50 customers per sampled banks in Ilorin metropolis. A Likert Scale of 5-points was used to measure the level of agreement or disagreement by the respondents. The response format is as follows:

SA - Strongly Agree
A - Agree
N - Not Sure
D - Disagree
SD - Strongly Disagree

Frequency distribution was used to analyze the data collected and examined the pattern of response to each variable under investigation.

DATA ANALYSIS

The analysis of the data is discussed here under.

Since the study seeks to investigate the dimensions of ATM frauds in Nigeria, the frequency counts and percentages were used to capture the responses of the respondents.

From the above gender distribution of respondents, 52% of the respondents were males, while 48% were women (Table 2). The higher percentage of males over the females was as a result of the eagerness of the men to express their dissatisfaction on the ATM frauds than the women. This was reflected in the banking hall of all the selected banks as many of them heartily collect the questionnaire immediately they saw the heading – ATM frauds questionnaire. The frequency counts of males and females differ from one bank to another based on the day of the week the customers were served the questionnaires.

Table 2: Gender distribution of respondents

Banks	*Male*	*Female*	*Total*
First Bank	25	25	50
GTB	28	22	50
UBA	30	20	50
Union	21	29	50
Zenith	26	24	50
Total	130	120	250

Source: Administered Questionnaire 2009

Table 3: Respondents' age range

Age classification	*Frequency (n)*	*Percentage (%)*
21 – 30 years	40	16.0
31 – 40 years	102	40.8
41 – 50 years	78	31.2
50 – 60 years	20	8.0
60 and above	10	4.0
Total	250	100.0

Source: Administered Questionnaire 2009

From the respondents' age classification, 40.8% of the respondents were within the age bracket of 31-40 years while 31.2% of the respondents were within the age bracket of 41-50 years (Table 3). In other words 72% of the respondents were youths whose ages range between 31 and 50 years. This is an indication of the level of literacy of the respondents.

Table 4: Respondents' marital status

Marital status	*Frequency (n)*	*Percentage (%)*
Single	70	28.0
Married	140	56.0
Divorce	25	10.0
Widowed	15	6.0
Total	250	100.0

Source: Administered Questionnaire 2009

With reference to the Table 4, 56% of the respondents were married, 28% were single and 10% and 6% were divorcee and widows / widowers respectively. Students, civil servants and self employed business men and women fall into the categories of the singles and the married which constitutes about 84%.

Table 5: Respondents' educational level

Level of education of customers	*Frequency (n)*	*Percentage (%)*
Illiterate	20	8.0
Primary education	25	10.0
Secondary education	90	36.0
Tertiary	115	46.0
Total	250	100.0

Source: Administered Questionnaire 2009

The level of education of the customer in all

the 5 sampled banks are as follows: 46% of the sampled customers have tertiary education, 36% have secondary education while 10% had primary education. 8% of the sampled customers were illiterate (Table 5).

Table 6: Distribution of respondents on dimensions of ATM frauds

Dimensions	*Frequency (n)*	*Percentage (%)*
Shoulder Surfing	53	21.2
Lebanese Loop	20	8.0
Stolen ATM Cards	50	20.0
Card Jamming	60	24.0
Fake Cards	10	4.0
Duplicated ATM Cards	15	6.0
Card Swapping	22	8.8
Diversion	16	6.4
ATM burglary	4	1.6
Total	250	100.0

Source: Administered Questionnaire 2009

Three dimensions featured prominently in the level of agreement and disagreement on dimensions of ATM frauds in banks (Table 6). The three prominent dimensions are ranked in Table 7.

The Dimensions that are 20% and above are card jamming, shoulder surfing and stolen ATM cards. The three constitute about 65.2% of ATMs fraud cases in Nigeria.

Table 7: Ranking of dimensions by respondents

Dimensions	*Percentage*	*Ranking*
Card Jamming	24	1
Shoulder Surfing	21.2	2
Stolen ATM Cards	20.0	3
Card Swapping	8.8	4
Lebanese Loop	8.0	5
Diversion	6.4	6
Duplicated ATM Cards	6.0	7
Fake Cards	4.0	8
ATM burglary	1.6	9

Source: Administered Questionnaire 2009

Table 8: Distribution of respondents on methods of checkmating ATMs frauds

Methods	*Frequency*	*Percentage*
Video Surveillance	80	32.0
Setting Withdrawal Limit	50	20.0
Remote Monitoring	40	16.0
Anti Card Skimming Solution	30	12.0
Customers Awareness	35	14.0
On-Line fraud monitor	15	6.0
Total	250	100.0

Source: Administered Questionnaire 2009

From the data from Table 8, 80 respondents (32%) favored video surveillance as a method of checkmating the ATM frauds, 50 respondents (20%) supported setting withdrawal limit while 40 respondents amounting to 16% supported remote monitoring. 14% of the respondents believed that customers' awareness is very central to checkmating ATM frauds. Many customers have received text messages from hackers asking them to send their pin codes.

Hypothesis Testing

The only hypothesis tested in this paper is to find out whether ATM frauds significantly affect the patronage of banks by those affected.

Test: Ho: ATM frauds do not affect customers' patronage of banks.

H_1: ATM frauds significantly affect customers' patronage of banks.

Table 9: Distribution of respondents on ATM and banks' patronage

Options	*SA*	*A*	*N*	*D*	*SD*	*Total*
Yes	90	80	3	2	0	175
No	8	20	2	30	15	75
Total	98	100	5	32	15	250

Source: Administered Questionnaire 2009

Table 9 is the observed values of the respondents of bank customers on ATM frauds. To obtain the expected value, we simply use the formular

fe = Row Total X Column Total/Grand Total

Table 10 compares the observed frequency of the respondents and expected frequency of ATM frauds' effect on banks' patronage.

The χ^2 calculated is 129.77. Hence, by comparing this with χ^2 tabulated at 5% significance level and at (r-1) (c-1) degree of freedom i.e. (2-1) (5-1) = 4 degrees of freedom.

Hence, at 5% level of significance and at 4 degree of freedom,

Chi-square (χ^2) tabulated is 14.9 which is lesser than ?2 calculated which is 129.77. Hence, we accept the alternative hypothesis that ATM frauds affect banks patronage.

From the foregoing study, it may be evaluated that the higher percentage of male respondents to female suggests that, the men are opposed to the practices of ATM theft of all kinds. The age range of majority of the respondents was between 31 and 40 years and nearly

92% of bank customers in all the sampled banks were educated. Card jamming appears to be the dominant dimension of ATM frauds in Nigeria followed by shoulder surfing and stolen ATM cards.ATM burglary is not a common phenomenon in Nigeria. It ranked lowest in the ranking of the dimensions. Video surveillance rated higher under the method of checkmating or preventing ATM frauds. ATM frauds tend to erode the customers confidence in the banks, thereby affecting their patronage.

Table 10: Frequency of ATM fraud's on banks patronage

fo	*Fe*	*fo-fe*	$(fo-fe)^2$	$(fo-fe)^2/fe$
90	68.6	21.4	457.96	6.68
80	70	10.0	100.0	1.43
3	3.5	-0.5	0.25	0.07
2	22.4	-20.4	416.16	18.5
0	10.5	-10.5	110.25	10.5
8	29.4	-21.4	457.96	15.6
20	30.0	10.0	100	3.33
2	1.5	0.5	0.25	0.16
30	9	21	441	49
15	4.5	10.5	110.25	24.5
				χ^2 =129.77

Source: Administered Questionnaire 2009

CONCLUSION

This paper is of the opinion that every nation has a peculiar ATM fraud that is common to it. The e-banking has great possibilities but that would be dependent on the extent to which the ATM frauds are controlled. There are many other products that are ATM related that have been developed in developed countries. For such products to have a hold in Nigeria, the ATM fraud-related problems must be solved. Such products are electronic fund transfer at the point of sale and electronic card products.

RECOMMENDATIONS

Like we have rightly observed in the abstract, all the stakeholders have a role to play in minimizing the ATM frauds in Nigeria.

(a) Solution for Customers

(i) Customers must ensure that they are not careless about their Personal Identification Number and must not release their cards or delegate anyone to ATM machine.

(ii) To protect themselves from shoulder surfing, customers must ensure that those who are on the queue for similar transaction are far away from where they are doing transaction with ATM machine.

(iii) Illiterate customers should not be issued ATM cards.

(iv) If the ATM of a customer is stolen or lost, the customer should alert the bank immediately.

(v) Sign new cards as soon as they arrive and cut up the old ones when they expire.

(vi) If your card got stuck in the ATM, do not reveal your PIN even to concerned bank officials. It suffices for the official to know that your card got stuck in the ATM.

(b) Solution for Banks:

(i) Creating a designated time for the card users. The customers can choose times for using ATM on phone, thus once anybody comes outside the designated time of the customer, he could be arrested.

(ii) The ATM cards can be provided with microchip technology that will make it difficult to forge.

(iii) Banks can monitor the ATMs continuously by installing closed-circuit cameras and other devices.

(iv) The banks can employ customized software that records relevant information on ATM cards so that banks can establish whether unauthorized transaction has taken place or not.

(v) The banks must alert customers on any suspicious and unusual transaction on their accounts.

(vi) There must be adequate security around the ATM.

(vii) Biometric tokens are the safest means of preventing ATM frauds. The most widely used biometric tokens are finger prints, irises, faces and palms. The fraudster may match everything but they can never match the biometric peculiarities.

(viii) Banks must cooperate together to fight this menace of ATM frauds in banks.

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