

## **Electronic Fraud and Financial Performance of Quoted Commercial Banks in Nigeria**

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### **Abstract**

The desire to reduce banks' operating costs and improve financial performance has led to the deployment of electronic banking channels, through which banking transactions are performed in recent time. The Nigerian banking industry has aligned with this global trend leading to increased usage of electronic banking channels by customers. However, fraudsters are using it to defraud unsuspecting customers and banks resulting in huge financial loss. This study was aimed at investigated the relationship between electronic frauds and financial performance of quoted banks on the Nigerian Stock Exchange. Point of sale fraud was electronic fraud proxy while return on investment was the proxy of financial performance. The researchers adopted expost- facto research design for the study. The study used relevant secondary data obtained from Nigerian Electronic Fraud Forum, Nigeria Deposit Insurance Corporation, and Central Bank of Nigeria (CBN) from 2013 to 2017. The relevant secondary data were analyzed using basic descriptive, Pearson Product Moment Correlation and multivariate regression in a panel data setting with econometric analyses like Unit roots, granger causality test and cointegrated test. The results showed negative and insignificant relationship between electronic fraud channels and financial performance variables. The study concluded that there is no significant relationship between the electronic fraud and financial performance of quoted commercial banks in Nigeria in the period of this study. We recommended improved collaborations between banks and CBN via NeFF to tackle frauds and leverage on the Bank Verification Number platform to improve security of transactions on electronic banking channels through biometric authentication.

**Keywords:** Electronic fraud, financial performance, point of sales, return on Investment, Quoted Banks.

## **INTRODUCTION**

The reward attributable to the stakeholders of any business setting is a function of sound financial performance which showcases the real value of the entity for the purpose of maximizing the stakeholders' wealth (Abubakar & Ofurum, 2018). Financial performance is the measurement of the results of an economic entity's policies and operations in monetary terms with a view to ascertain its overall financial health over a given time frame (Gaspareto, 2004). The financial performance is normally announced through periodic published financial statements and it is targeted at producing complete and reliable information to assist the users to take informed investment decision. It can also be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. Pimentel, Braga and Casanova, (2005) maintained that economic success of any entity is determined by the magnitude of the financial performance. The import is that financial performance is thus crucial to any business organizational survival and continues patronage by the stakeholders in the business world particularly banks.

Banks occupy a significant place in the economy of every nation as the prime movers of its economic life. The success of commercial banks is very crucial to any economy. The Nigerian banking sector is undoubtedly the most important in the political-economic systems; because, it provides the necessary lubricant that keeps the wheel of the economy moving and it is an engine for economic growth. Financial performance of banks evolved from traditional banking with its attendance low returns to the modern electronic banking in the global world.

Before the emergence of modern banking system, banking operation was manually done, and that solely accounts for the inefficiency in handling transactions. This manual system involves posting of transactions from one ledger to another without the aid of computer systems. Computations which should be done through computer or electronic machines were done manually, which sometimes lead to miscalculation due to human errors and consequently results in extension of closing hours when account is not balanced on time (Siyabola, 2013). Customers had to queue up and spend more hours to talk to a teller to make their transactions. Inconveniences caused by these long queues discourage most customers who sometimes renegade from the queues in annoyance. For many years, bankers, IT experts, entrepreneurs and others have advocated for the replacement of physical cash and the introduction of more flexible, efficient and cost effective retail payment solutions (Siyabola, 2013). Traditional banking system was often characterized by delay and inefficiency in the delivery of financial services which led to introduction of electronic banking.

Technical Committee on e-banking (CBN, 2003) defines e-banking as a means whereby banking business is transacted using automated processes and electronic devices such as personal computers, telephones, facsimiles, Internet, card payments and other electronic channels. Electronic banking is the use of electronic and telecommunication networks to deliver a wide range of value added products and services to bank customers (Steven, 2002). The use of information technology in banking operations is called electronic banking. Ovia, (2001) argues that electronic banking is a product of e-commerce in the field of banking and financial services.

Delgado (2004) describes e-banking as the provision of banking services to customers through the internet.

Electronic banking is defined to include the provision of retail and small value banking products and services through electronic channels as well as a large value electronic payment and other wholesale banking services delivered electronically. Alsmadi and Alwabel (2011) expressed that the definition of electronic banking varies among researchers partially because electronic banking refers to several types of services through which bank customers can request information and carry out banking services. Almost all banks in Nigeria offer online, real-time banking services. Banks that are not able to brace up to this new development are rapidly losing their customers and this leads to sluggish financial performance. Online, real-time banking system has now become commonplace as customers are offered the ease of operating an account in any branch of their bank's network.

The world has witnessed unprecedented upsurge of electronic payment instruments meant to facilitate trade and simplify payments. Electronic banking has experienced explosive growth and has transformed traditional practices in banking (Gonzalez, 2008). The heightened activity in payments has been largely attributed to four major shifts being observed in the global payments landscape. First, the ongoing digital and technology revolution, championed by the smartphones and mobile internet has revolutionized digital payments; next, the entry of non-bank institutions (like Google, PayPal, and Worldpay) offering payment services and products; third, customers (consumers and merchants) are becoming more demanding and expect instant payment solutions; fourth and finally, progressive changes in the regulatory framework. These four factors have given rise to a burgeoning industry recording three trillion transactions per year globally, worth around US\$ 13 trillion in aggregate. Although non-cash and non-cheque payment solutions were made available relatively recently in Nigeria, in comparison with the Western world, the pace of growth of the payments industry in the country has been remarkable.

The World Bank Global Payments Systems Survey reports that the number of cards (debit and credit cards) grew from 4.7 million in 2010 to nearly 34 million in 2015. The number of mobile money accounts in the country grew from zero to 10 million in the same period, representing a Compound Annual Growth Rate (CAGR) of 49% and 27% respectively. Electronic banking which is also known as internet banking or e-banking has rapidly grown in the recent past years and offers variety of banking services which include electronic transfer of funds (EFT), automated teller machine, (ATM) services and direct deposits automatic bill payment and point of sale (POS). Nigeria banking sector particularly commercial has witnessed huge transformation in the last few years. Customers of banks now receive quick and improved services from their banks. Also, the use of automated teller machines (ATMs), internet and mobile banking facilities have decongested the banking halls of most banks in Nigeria thereby saving a lot of man hours. Besides, customers can also obtain banking services from the comfort of their homes. This is as a result of the deep competitive pressure, which arises from changes in the financial environment, technological advancements and the needs of the consumers in terms of product quality. This development improves the financial performance of banks

as different internet products developed by banks generate tremendous income from the services delivered to customers.

In recent times however, the stakeholders have been worried over apparent wave of electronic fraud ravaging the banking world. This worrisome phenomenon is concretized from the daily increase of attacks on the banks online products resulting to loss of hug amount of money in the banks. Nigeria electronic fraud forum (NeFF, 2015) defines electronic fraud can as online trickery and deception which affects the entire society, impacting upon individuals, businesses and governments.

Electronic fraud is a major challenge to the entire banking industry and no bank is immune to it in all facets of global banking operations (Olorunsegun, 2010). Nearly 45 percent of the 141 million adults in America pay their bills online (Garter, 2004). Banks also enjoy providing the option of online banking because they can save on operating costs. However, during the popularization of online banking, nearly two million Americans suffered from fraudulent bank activity in 2004. Consumers reported an average loss of \$1, 200 per bank fraud. Most market researchers attributed the increase in the number of bank frauds to online banking (Apostolou, Hassell and Webber, 2001). The Brazilian Banks Federation (Febraban) recently released data from a survey revealing that losses caused by electronic fraud are on the rise. These losses totaled R\$ 685 million (US\$ 460 million) from January to June this year, up from R\$ 504 million (US\$ 340 million) for the same period last year. That's an increase of 36% (Coffin, 2009).

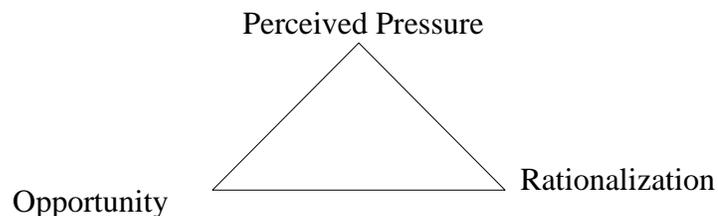
With this surge in adoption and usage of payment systems, there has been a rise in the incidence of fraud in the Nigerian payments landscape. Of the nearly 44 trillion Naira in payments made across Nigeria in 2014, over 7 billion Naira was reported as the value of 6 "attempted" fraud and 6.22 billion Naira was the actual loss value reported . The Nigeria Inter-Bank Settlement System Plc (NIBSS) report also shows that in the same year, Automated Teller Machine (ATM) fraud was the most attempted with 491 incidents and Internet Banking recorded the highest fraud value of 3.2 billion Naira. The volume of fraud reported in 2016 compared to previous years attest to the fact that fraudsters do not grow weary. Nigeria electronic fraud forum (NeFF, 2015) states that the more products and services that are rolled out without proper risk and impact analysis, the easier for the "bad guys" to perpetrate more fraud effortlessly online. The determination and commitment of these unscrupulous elements cannot be underrated within the financial sector. Banking fraud is a problem to various stakeholders (shareholders, employees, customers and family members) etc. Precisely, it diminishes the financial performance of the banks leading to low dividends payment to shareholders. In the extreme case, it may threaten the going concern of the commercial bank and this may impact negatively on shareholder wealth. Odi (2013) acknowledges that fraud in banks shakes the foundation and credibility of most banks in Nigeria, resulting to some of the banks being distressed as a result of hug financial losses. This continuous increase in the electronic fraudulent attack has negatively reduced customers trust in the ability of bank to protect them. Bank customers/depositors and other stakeholders are now worried about the safety of their money and information and are expecting the bank to find a solution that can protect them and the economy as a whole. The remainder of this paper is organized as follows

after the introduction as follows. Section 2 discusses the literature on electronic fraud and financial performance. Section 3 lays out the analytical framework and methodology, while empirical results are reported in section 4. Section 5 ended with conclusion and recommendations.

### **Literature Review**

Theories are an essential part of the framework used to organize specific phenomena within the management and social sciences. A theory provides a point of direction for evaluating the unknown in a defined area. From the above, we posit that a theoretical framework guides the research, determining what variables will be measured and what statistical relationship between variables. Several theory's provide insight into the phenomena of fraud and financial performance. Cressey (1971) postulated the theory of fraud triangle.

He observed that fraud is likely to occur given a combination of three factors; namely- Pressure (Motivation), Opportunity and Rationalization.



Pressure here refers to needs or desires that have to be satisfied. It could be divided into financial pressure, vices, work-related pressure and other pressures (Adeniji, 2012). Opportunity to commit fraud, conceal the fraud or avoid being punished forms the second element of the fraud triangle. The third element is rationalization which entails giving unnecessary explanation(s) to justify one's involvement in fraud. There exists pressure, motivation or compulsion on the fraudster who identifies opportunity which he utilizes and tries to justify his actions by unnecessary rationalization.

### **Financial Performance**

The concept of financial performance and research into its measurement is well advanced within finance and management fields. An array of performance indicators is necessary to expose the different aspects of the performance of a bank as in Gibson and Cassar (2005). Watson (2007) defines performance as how well a company uses its recourses from its primary mode of business and generates revenues. Performance can also be defined as the accomplishment of specified business objectives measured against known standards, completeness and cost (Davis & Cobb, 2010). Generally, performance relates to the realization of organisational goals and objectives with minimum resources. Ross, Westerfield and Jordan (2008) opined that achieving good financial results is therefore a key objective of any economic entity.

Assessment of financial performance is primarily based on various methods of financial analysis. Various researchers have used different measures to capture organizational performance including net income, sales (Dollinger, 1984), Return on investments (ROI), Return on sales (ROS), and a combination of ROI and ROS (Pegels and Yang, 2000), return on assets (ROA) (Birley and Wiersema, 2000) and market to book value of the equity as well as profitability and market share/growth (Entrialgo et al. 2000). Gill (1990) measures a firm's financial performance by its liquidity which is the amount of cash a company can put its hands on quickly to settle its debts. Liquidity funds consist of cash, short term investment for which there is a ready market, short term fixed deposits, trade debtors and bills of exchange receivable. However, financial performance in this study would be assessed in the perspective of revenue growth and return on investment.

### **Return on Investment**

No one invests for fun; every rational investor invests so as to good return from such an act. Return on investment (ROI) is performance measure used to evaluate the efficiency of investment. Simply put, it is a profitability ratio that calculates the profits of an investment as a percentage of the original cost. It shows investors how efficiently each naira invested producing a profit. It is one of most commonly used approaches for evaluating the financial consequences of business investments, decisions, or actions. Precisely, ROI shows the degree to which a commercial bank's revenues exceed its cost. ROI is an indicator of how profitable a commercial bank's is in relation to its total cost of investment. It gives an idea as to how efficient the management uses assets to generate earnings. The return on investment formula is calculated as below:

$$\text{ROI} = \text{Profit after Tax} / \text{Total Assets} * 100.$$

Nwude (2012) states that if the ROI so obtained is higher than the company's cost of capital prior to the investment, and no better investment opportunities exist for those funds, it may make sense to purchase the equipment. ROI is also useful to stockbrokers in determining the gain (or loss) achieved by investing in a company over a period of time. Good investment decision requires a forecast of future events that is either explicit or implicit. Since no one has a perfect picture of the future outcome, as most of the important facts are uncertain, it is important to reduce the degree of risk and uncertainty associated with such an investment to the barest minimum before commitment of fund is made.

### **Electronic Fraud**

There is no single accepted definition of electronic fraud. Nigeria electronic fraud forum (Neff, 2011) however defines e-fraud as "a fraudulent behavior connected with computerization by which someone intends to gain dishonest advantage. The Legal Practitioner, (2013) defines it in relation to wrongful or criminal deception that results in financial or personal gains. Electronic fraud is a fraud or theft committed using online technology to illegally remove money from a bank account and/or transfer money to an account in a different bank. Electronic or internet banking fraud is a form of identity theft and is usually made possible through techniques such as phishing, lottery fraud scam etc. There is no broad range of definitions for Electronic fraud; but the key reference in the

various definitions is the fact that electronic platform and losses are involved. The losses in some cases go beyond material losses such as reputational damage and competitive advantage making it difficult for organizations to adequately determine the true impact of e-fraud in financial terms. Electronic fraud or e-fraud in its short form as it is commonly called is financial loss or fraud perpetrated through an electronic platform or product. The ease and convenience that electronic products and channels offer, is an attraction to new users and a source of loyalty to many users who have embraced the new way of payment.

With the advancement in technology, cost reduction drives, increased need to improve customer satisfaction and the need to keep pace with global banking trends, the need to electronically settle transactions with the use of electronic gadgets such as Automated Teller Machines (ATMs), Point of Sales (POS) terminals and Mobile phones become popular in the Nigerian banking industry. Banking transactions are now carried out on such platforms as online, ATM, POS, mobile phones, among others. These new platforms for transacting banking businesses are called the Alternative Banking Channels (ABCs). The ABCs are innovative service delivery modes that offer diversified financial services like cash withdrawal, funds transfer, cash deposits, payment of utility and credit card bills, cheque book requests, and other financial enquiries. Majority of transactions on these ABCs are done with the presence of card while others require card information for transactions. The advent of these ABCs has been heralded as the latest development in the evolution of money, hence they are sometimes called e-money, since they perform most (if not all) of the functions of the conventional money (Agboola, 2006). All banking services, other than loans, can be self-accessed on these platforms leading to customers preferring their usage (Khan, 2010). The use of ABCs has allowed smooth operation in the financial system. It is now possible to pay for electricity bills, phone bills, phone top-ups, insurance premiums, travelling expenses, and television cable subscriptions using the ABCs anywhere anytime.

However, fraudsters are taking advantage of the increased usage of the ABCs to defraud unsuspecting customers. The number of reported frauds on the ABCs has been on the increase over the years. Table 1 shows that number of reported frauds on ATM and POS increased from 1539 in 2012 to 11,180 in 2016. This represents 626% growth in just five years. Similarly, the number of reported frauds on online and web platforms increased from 314 in 2012 to 3,374 in 2016 representing 974% growth in number of fraud incidents in just five years. Akinyele, Muturi and Ngumi (2015) reported that actual loss to fraud through POS increased from N5.8million in 2013 to N157.6million in 2014 while mobile banking fraud loss increased from N6.8million in 2013 to N13.3million although there are reductions in the actual loss to fraud through ATM and online banking from N1.242billion to N0.5billion and N3.196billion to N0.875billion respectively in the same period. As per Nigeria Electronic Fraud Forum 2016 annual report, actual fraud loss on ATM, internet banking, POS and web stood at N464.5million, N320.7m, N243.3m and N83.8million respectively. The current rise in fraud incidents on these ABCs can make the public to further lose confidence in this technology that is meant to provide convenience and comfort in making banking transactions. As Oseni (2006) noted, customers are losing their trust and confidence in the banking system due to incessant frauds. The use of ABCs has become a major source of concern for users, ABCs

providers, and banks with the proliferation of card frauds. Dipo Fatokun, director of banking and payment system, at the Central Bank of Nigeria, says fraud carried out through automated teller machines (ATM) and mobile banking is on the increase (Cable news June 29, 2018).

Speaking on Thursday at the unveiling of the 2017 Nigerian Electronic Fraud Forum annual report in Lagos, he said the value of electronic banking fraud cases between 2015 and 2017 at N5.571 billion. “It is sad to note that there has been a little increase in electronic fraud, especially in recent times. It has, therefore, become necessary to review and strengthen the existing rules and enact new regulations to steer the problem,” the CBN official said. Data made available by the NeFF showed that the value of fraud carried out over the counter was N732.85 million in 2015 and has dropped to N259.022 by the end of 2017. However, fraud carried out through ATM channels rose from N355.89 million in 2015 to N497.643 million in 2017. Also, mobile payment fraud rose to N347.645 million in 2017 from N248.144 million in 2015. The 2017 NeFF Annual Report unveiled in Lagos weekend by the Central Bank of Nigeria (CBN), has shown that while the value of fraud perpetrated across counter has been on the decline over the last three years, those on Automated Teller Machine (ATM) and mobile has been on the rise. Otherwise, from N732.85m in 2015, the value of fraud committed across the counter dropped to N511.003m and N259.022m in 2016 and 2017.

In his remarks during the public presentation in Lagos, Director of Banking and Payment System at the apex bank, Dipo Fatokun, who chaired the presentation forum, explained that fraud via ATM channels has been on the rise from N355.89m in 2015, it rose to N464.514m in 2016 and increased further to N497.643m in 2017. Also, mobile payment fraud rose to N347.645m in 2017, having dropped slightly from N248.144m in 2015 to N235.17m in 2016. According to the Nigeria Inter-Bank Settlement System (NIBSS) 2014 report on fraud, the Nigerian financial system lost over N6.2billion to fraud in 2014 when compared with previous year loss figure of N485million in 2013. Although the volume of fraud cases reported in 2014 increased by 78% relative to cases reported in 2013; the value of attempted fraud cases reported in 2014 decreased by 60%. The actual loss associated with fraud cases reported in 2014 increased by over 1000% relative to 2013 loss.

Similarly, actual fraud loss as a percentage of attempted fraud increased to 80% in 2014 from 3% in 2013. Most of the fraud loss was attributable to e-fraud. The sheer size of the 2014 fraud loss and the trend it shows ought to give every well-meaning participant in the Nigerian financial system a serious cause for concern. The outlook of e-fraud in the Nigerian financial system is expected to continue in the direction that the NIBSS 2017 fraud report presents. This is so because, e-fraud is closely indexed to electronic payment which is fast growing at an unimaginable leap and bound, fuelled by various innovations in payment technology, Government and CBN initiatives such as Nigeria's policy on cashless economy and the implementation of its Financial System Strategy (FSS 2020) on one hand, and an emerging technology savvy generation of young people on the other.

### **Point-of-Sale (POS) Fraud**

The Point-Of-Sale (POS) e-banking channel allows customers to make payment for goods and services to clients known as merchants, in the premises of the merchants (Okechi et al., 2013). A Point Of Sale terminal is a portable device that allows customers with cards (such as ATM cards) to carry out banking transactions outside the bank's environment (Okechi et al., 2013). This ebanking platform allows bank customers to carry out financial transactions with clients (merchants) who have the device deployed in their premises irrespective of the merchant's bank and the customer's bank (Okechi et al., 2013). The POS services enable customers transacting with merchants to make cashless payments for goods and services directly into the merchant's account. The customer can also carry out transactions such as account balance enquiry, and the printing of mini bank statement with the use of a credit card or a debit card (Okechi et al., 2013). This channel is mostly preferred by customers and merchants who prefer cashless transactions (Okechi et al., 2013). With the POS, the customer's account is immediately debited at the physical point while the monetary value is credited to the merchant's bank account within a short period of time (Okechi et al., 2013). This channel requires the account holder (customer) to conveniently make immediate payments for goods and services acquired from the merchant (Okechi et al., 2013). The POS terminal is a machine that has a display screen, a barcode scanner, and a card reader (InterSwitch Ltd, 2011). Alas, Akinyele, Muturi and Ngumi (2015) reported that actual loss to fraud through POS increased from N5.8million in 2013 to N157.6million in 2014 . This is a worrisome development in the banking sector

### **Electronic Fraud and Financial Performance**

Idowu (2009) did a research on the means of minimizing the incidence of fraud in Nigerian banking industry. Findings of the study revealed that, so many factors contributed to the incidence of frauds in banks amongst which are poor management of policies and procedures, inadequate working conditions, bank staff staying longer on a particular job and staff feeling frustrated as a result of poor remunerations. Adepoju and Alhassan (2010) opined that bank customers have come to depend on and trust the Automatic teller machine (ATM) to conveniently meet their banking needs, but that in recent times; there have been a proliferation of ATM frauds in the country. Managing the risks associated with ATM fraud as well as diminishing its impact is an important issue that face banks as fraud techniques have become more advanced with increased occurrences.

Akindele (2010) conducted a research on the "challenges of automated teller machine (ATM) usage and fraud occurrence in Nigeria banking industry". The study posits that lack of adequate training, communication gap, and poor leadership skills were the greatest causes of fraud in banks. He advised that adequate internal control mechanism be put in place and that workers satisfaction and comfort be taking care of. Abdulrasheed, Babaitu and Yinusa (2012) examined the impact of fraud on bank performance in Nigeria. Result of the study shows that, there is a significant relationship between banks profit and total amount of funds involved in fraud. Finally, Kanu and Okorafor (2013) did a work on the nature, extent and economic impact of fraud on bank deposit in Nigeria

using descriptive and inference statistics. The study revealed that there is a positive significant relationship between bank deposit and fraud in Nigerian banking industry.

Kanu and Okoroafor (2013) reviewed various forms of fraudulent practices and their impact on bank deposits in Nigerian banks, for the period 1993-2010. They looked at the amount of bank funds lost to frauds and related it to total deposit liabilities of insured money banks in Nigeria. They used descriptive and inferential statistics in the study. It was revealed that there exist significant relationship between bank deposits and amount lost to fraud with fraudulent withdrawals constituting the bulk of the fraud.

Aruomoaghe and Ikyume (2013) examined fraud as a challenge to accurate financial reporting with focus on the banking sector. They adopted descriptive survey research. It was discovered that non accounting for fraud in the organisations financial statement do not reflect a true and fair view of such financial statement and may mislead the users of such financial statement.

Uchenna and Agbo (2013) evaluated the impact of fraud and fraudulent practices on the performance of banks in Nigeria, for the period 2001-2011. Twenty four deposit money banks in Nigeria were used for the study looking at the nature, magnitude and economic consequences of fraud in Nigeria. Pearson Product Moment Correlation was used to ascertain the relationship between the variables, while Multiple Regression Analysis was adopted for analysis of impact of fraud and fraudulent practices on performance of Nigerian banks. It was discovered that the percentage of mobilized funds lost to fraud was highest between 2001 and 2005 but there was significant decrease between 2006 and 2011.

DeYoung (2001a, 2001b, 2001c and 2005) analyzed systematically the financial performance of pure-play Internet banks in U.S. The study found relatively lower profits at the Internet only institutions than the branching banks, caused in part by high labour costs, low fee based revenues and difficulty in generating deposit funding. However, consistent with the standard Internet banking model, the results indicated that Internet-only banks tended to grow faster than traditional branching banks. Internet-only banks have access to deeper scale economies than branching banks and because of this; they are likely to become more financially competitive over time as they grow larger.

## **Hypothesis**

There is no significant relationship between point of sales and return on investment of quoted commercial banks in Nigeria.

## **Methodology**

We investigate the time series characteristic of data to test whether the variables are integrated. The study adopted ex-post-facto research design for the study (Obasi, 2019). Relevant secondary data obtained from Nigerian electronic fraud foreign, Nigeria Deposit Insurance Corporation and Central Bank of Nigeria (CBN) from 2013-

2017 and the secondary data collected was analyzed using basic descriptive, Pearson product moment correlation and multivariate regression with the aid of e-view version 7.

### Model Specification

In accordance with the conceptual framework and hypothesis stated earlier, the model for this study is specified as follows;

Functional form of the model

$$FP = f(P) \quad (1)$$

Expanding the functional form into econometric form:

$$FP = \alpha_0 + \beta_1 POS + \mu \quad (2)$$

Where: FP = Financial Performance  
 POS = Point of Sales  
 $\alpha_0$  = Constant  
 $\beta_1$  = Regression slope  
 $\mu$  = Error Term

### Results and Discussions

This section analyzed and interpreted the results obtained from the tests conducted on the data collected for the study. The investigators employed Pearson Product Moment Correlation Coefficient statistical tool and multivariate regression analysis with the aid of E-View version 9.

### Data Presentation

The following tables depict the relevant data used for this study.

#### i. Return on Investment (ROI) of Quoted Commercial Banks in Nigeria from 2013 - 2017

S/N	Banks	2013 %	2014 %	2015 %	2016 %	2017 %
1	Access Bank Plc	0.39	2.36	1.54	2.15	2.54
2	Diamond Bank Plc	3.07	2.09	2.24	1.26	0.25
3	Eco Bank Plc	1.78	0.59	0.65	1.46	0.45
4	FBN Plc	1.93	19.12	19.04	1.34	0.77
5	FCMB Plc	1.92	1.68	1.59	4.10	1.95
6	Fidelity Bank Plc	0.79	2.43	0.71	1.16	1.13
7	Guaranty Trust Bank Plc	3.22	5.60	4.49	4.39	4.14
8	Skye Bank Plc	0.30	1.19	1.65	0.71	3.54
9	Stanbic IBTC Bank Plc	0.75	1.45	11.05	17.36	13.00
10	Sterling Bank Plc	1.37	1.20	1.17	41.94	1.13

11	UBA Plc	0.99	2.45	2.10	1.71	2.15
12	Union Bank Plc	9.87	0.36	0.58	2.23	1.78
13	Unity Bank Plc	0.65	1.56	5.58	2.59	1.06
14	Wema Bank Plc	0.45	0.47	0.48	0.62	0.59
15	Zenith Bank Plc	1.72	3.85	2.90	2.70	2.63

**ii. Electronic Fraud from 2013 - 2017**

Electronic Fraud Channels	Total Value Loss in Billion Naira				
	2013	2014	2015	2016	2017
Automated Teller Machine (ATM)	54,999,829.00	2,688,669,292	355,892,203.30	464,514,684.27	497,643,452
Mobile Phone Banking (MPB)	6,787,544.00	13,328,957	248,144,131.00	235,170,720.40	347,645,783
Post of Sales (POS)	5,851,443.00	157,610,831	63,533,467.48	243,321,812.67	140,979,867

**Descriptive Statistics**

The presentation of the descriptive statistics result with the minimum, maximum, mean and the standard deviation of variables used in our statistical models is displayed below.

**Table iii: Extract of Descriptive Statistics Result**

Variables	POSF	ROI
Mean	1.22E+08	50.84000
Maximum	1.41E+08	46.40000
Minimum	2.43E+08	85.72000

The above table shows that automated teller machine fraud has a mean performance of ₦8.12 billion with a minimum of ₦2.69 billion and a maximum of ₦4.65 billion fraud. Mobile phone banking fraud revealed mean of ₦1.70 billion with a minimum of ₦2.35 billion and a maximum of ₦3.48 billion fraud. Similarly, point of sale fraud have an average of ₦1.22 billion with a minimum of ₦1.41 billion and a maximum of ₦2.43

billion fraud.. The mean of RG stood at of ₦445.21 percent with a minimum of 429.36 percent and a maximum of 605.53 percent fraud. Finally, Return on investment has an average of 50.84 percent with a minimum of 46.40 percent and a maximum of 85.72 percent fraud. This means that high level of fraud was noticed in the Nigeria banking industry during the period of this study.

**Table iv: E-View Extract of ADF Stationarity Unit Root Test Results**

Variables	ADF statistic % Levels	ADF statistic Diff.	ADF statistic Critical Level.	t-Statistic	Prob.*
POSF	10%	3 <sup>rd</sup>	-1.660551	-1.966675	0.2973
ROI	10%	3 <sup>rd</sup>	-2.055194	-2.155168	0.2273

**Note;** ADF = Augmented Dickey Full.

The table above displayed the result of Stationarity using Augmented Dickey Fuller (ADF) unit root test. The results revealed that automated teller machine fraud became stationary at the first difference with (ADF t-statistic value of -3.285385 and the test critical value of -3.831511 at 1% level), mobile phone banking fraud became stationary at the first difference (ADF t-statistic value of -2.845955 with test critical value of -2.754993 at 1% level) and point of sale fraud became stationary at the third difference (ADF t-statistic value of -1.966675 with test critical valve of -1.660551 at 10% level). Similarly, revenue growth became stationary at the first difference (ADF t-statistic value of -3.764686 with test critical valve of -3.5886751 at 10% level) and return on investment became stationary at the third difference with ADF t-statistic valve of -2.155168 with a test critical value of -2.055194 at 10% level.

### Granger Causality Tests

Table v below shows the Granger Causality Tests that exists among the variables in this study and this was achieved with the aid of E-View version 9.

**Table v: Extract of Pairwise Granger Causality Test Output**

Null Hypothesis:	Obs	F-Statistic	Prob.
ROI does not Granger Cause POSF	4	33.5563	0.1088
POSF does not Granger Cause ROI		0.38102	0.6479
ROI does not Granger Cause RG	4	2.87055	0.3394
RG does not Granger Cause ROI		0.21481	0.7237

The table above revealed the results of Pairwise Granger Causality Tests aimed at establishing if one variable Granger – cause the other and the direction of the causality

amongst the elements of electronic fraud proxies. However, all the variables are positive but not effective enough by this analysis to exert influence on financial performance in the period of this study

### Cointegration Test

Table vi below shows the Johansen tests output of variables in this study via E-View 9.

**Table 4: Johansen Cointegration Test Results.**

Paired	Eigen Value	Trace Statistic	5% Critical Value	1% Critical Value	Hypothesized no. CE (S)
ROI & POSF	0.915597	56.079624	15.41	20.04	At most 1
POSF & ROI	0.518898	14.119058	19.17	26.69	At most 2

\*(\*\*) denotes rejection of the hypothesis at the 5 % (1%) significance level

Endogenous Variables are ATMF, MPBF, POSF, RG and ROI

Under the Johansen Cointegration Test, eigenvalue statistic is used to determine whether cointegrated variables exist. Mencet (2006) states that cointegration is said to exist if the values of computed statistics are significantly different from zero and the trace statistic is lower than 5% and 1% critical values. According to the table 4 above, the results revealed no cointegration in the paired variables of (POSF & ROI, and POSF & ROI). This is so because their eigenvalues (0.518898) are significantly different from zero and also their trace statistics (14.119058) are lower than 5% and 1 % critical values respectively. However, there is long-run cointegration exists amongst the paired variables (POSF & POSF & ROI) used in the model. This is due to the fact that, their trace statistics (56.079624 & 22.77175) were respectively higher than 5% and 1% critical values. This could be as a result of interest and financial openness volatility in the financial market.

### Regression

The study further conducted a multivariate regression analysis to determine the actual relationship between the predictor and criterion variables with the aid of E-View 9. The findings are as presented in the table vii and appendices i- ii.

**Table vii: Extract of the Regression Model 2 Results**

$$ROI = \alpha_0 + \beta_1 POSF + \varepsilon$$

Variables	$\beta$ - Coefficient	Standard error	t-statistic	P-value
BS	1.56E-09	1.71E-08	0.091264	0.9356
BM	5.82E-08	1.13E-07	0.515680	0.6574
ACM	2.68E-07	2.20E-07	1.218853	0.3472
	$R^2 = -0.0565563$ Adjusted $R^2 = -0.886874$			

\*Significant at 5% (0.05) level of significance

Similarly, the result of the multivariate regression model 2 is presented in table viii and appendix iv. The result also explains the empirical relationship between the dependent variable (return on investment) and the independent variable. The explanatory power of the regression model, R – square of the predictor variables (ATMF, MPBF & POSF) revealed negative and weak ability to predict financial performance proxy – return on investment as it accounts for about -5.66% of the cross sectional variations in the dependent variable of ROI. This implies that the remaining variation in ROI cannot be explained because it is related to other variables which are not depicted in the model. The implication is that there may be number of variables which can have impacts on financial performance of banks that needs to be studied.

The coefficients model displays negative relationship implying that electronic fraud demonstrated negative correlation with the financial performance of banks. In addition, the coefficient values of (1.56E-09, 5.82E-08 & 2.68E-07) for ATMF, MPBF & POSF respectively signifies that a unit change in them will decrease ROI of the banks. Yet, they were found statistically insignificant as the p-value 0.9356, 0.6574 & 0.3472 are greater than standard alpha (0.05) value.

## **Hypothesis Testing Results**

### **Hypothesis One**

There is no significant relationship between point of sale fraud and return on investment of quoted commercial banks in Nigeria.

The results in table iii and table iv, depicted that, POSF with ( $\beta = 2.68E-07$ ,  $t = 1.218853$  &  $P = 0.3472$ ) negatively associated with ROI. This means that a unit change in the automated teller machine fraud would results in 2.68E-07 decrease in ROI of the quoted commercial banks. Besides, it is statistically insignificant as the P-value 0.3472 is greater than 0.05% alpha value. Thus, the null hypothesis was accepted and the study concluded that POSF does not significantly relate to ROI of quoted commercial banks in Nigeria in the period of this study. The result also demonstrated that POSF with ( $\beta = 2.68E-07$ ) negatively related with return on investment implying that an increase in POSF surely decreases financial performance by 2.68E-07. Nonetheless, it was also not significant as the P-value (0.3472) was greater than standard Alpha value (0.05). This result does not tally with the findings by Odi (2013) who evaluated the impact of fraud on the performance of commercial banks in Nigeria. He found that electronic fraud shows a weak significant relationship financial performance of Nigerian banks.

## **Conclusion and Recommendations**

In line with the results from the tested formulated hypothesis, we conclude thus that:

- i. Point of sale fraud does not significantly related to return on investment of quoted commercial banks in Nigeria in the period of this study. Based on the findings from this study, the following recommendations are therefore put forward:
- ii. Banks should introduce more stringent measures in their staff recruitment exercise to reduce engagement of unscrupulous staff with high tendency of insider collusion and fraud that tend to reduce bank profits. Therefore, the administration at the banks should enhance the employee morale and satisfaction through

- bonuses and allowances. The banks should also lid of the high turnover rate experienced at the banks by having a rapid promotion scheme for the experienced hands.
- iii. There should be strong and improved collaboration among banks and regulatory interventions on the part of the CBN to bring down the rate of fraud occurrences as well as deployment of improved transaction authentication technology on alternative banking channels. Currently banks have fraud desk to track suspicious transactions and the NEFF in collaboration with CBN that monitors electronic frauds. However, there is need for more collaborations in tracking down fraud beneficiaries hidden in banks, deployment of advanced technology and collaboration with internet services providers to track web and online fraudsters as well as extension of Know Your Customer (KYC) requirement to all merchants who accept card or online payments (by the CBN in collaboration with the Federal Government of Nigeria).

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