Bank Verification Number and Fraud Prevention and Detection in Nigerian Banks

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ABSTRACT

This study examines the roles of the Bank Verification Number (BVN) in detecting and preventing fraudulent activities in the Nigerian banking sector. The specific objectives are to assess the effectiveness of BVN in fraud detection and prevention and identify challenges facing its implementation. Descriptive and regression analyses were conducted using data from respondents in the Nigerian banking sector. The R-squared value of 0.613 infers that all the identified factors account for 61.3% of the variation in BVN's ability to prevent fraud in Nigerian banks, while the F-statistic diagnosing the fitness of the model shows that all t.he independent variables are statistically significant (F=55.203) for the model this implied that the majority of respondents view BVN as an effective tool in preventing and detecting fraud. Bank-related factors such as average customer size, total deposit, and staff strength significantly influence BVN's efficacy in fraud prevention. However, The R-squared value of 0.517 infers that all the identified factors account for 51.7% of the variation in challenges facing implementation of BVN in Nigerian banking industry, while the F-statistic diagnosing the fitness of the model shows that all the independent variables are statistically significant (F=37.268) for the model this implied that challenges such as lack of cooperation among financial institutions and poor regulatory performance hinder BVN implementation. Therefore, study recommended that include strengthening BVN implementation, addressing challenges, conducting awareness programs, and continuously monitoring bank-related factors to enhance fraud prevention measures. Collaboration and further research are also recommended to improve BVN's effectiveness in fraud prevention.

Keywords: Bank Verification Number, Fraud Prevention, Fraud Detection, Customer size.

INTRODUCTION

One of the most significant financial institutions in Nigeria and the brain of the country's economy, with a focus on its duties and difficulties, is the banking sector (Campiglio, Dafermos, Monnin, Ryan-Collins, Schotten, & Tanaka, 2018). The Nigerian banking sector is a cornerstone of the country's economy since it manages and distributes financial resources to other economic sectors, enabling the economy to develop and prosper. According to Ogbonna, Mobosi, & Ugwuoke, (2020) with significant effects on Nigeria's economic growth and change, the banking industry has emerged as one of the most important and dominant segments of the Nigerian economy. Unfortunately, the nation had a painful period of financial crisis from late 2013 until the end of 2018 as a result of the bank executives' financial irresponsibility (CBN, 2019).

Prior to this period of financial turmoil in the banking sub-sector in the country, Nigerian bank is notable among other things for high recruitment of labour force (Abubakar, 2020) and in a bid to ensure an efficient

and effective performance, banks get the best hands to handle daily transactions and activities.

The financial sector and deposit money institutions in Nigeria are targets of increasing numbers of frauds by criminals who use increasingly inventive and imaginative methods to exploit any perceived flaws in the banking industry and credit-granting processes. Additionally, it has consistently caused issues for both management and regulators of the Deposit Money Bank. The occurrence of fraudulent activities in the Nigerian banking sector has been documented in various instances (Uniamikogbo, Adeusi, & Amu, 2019). As of 2023, fraudulent activities in Nigerian banks continue to be a concern, with reported cases on the rise. According to the most recent annual report from the Nigeria Deposit Insurance Corporation (NDIC), the amount of reported fraud in Nigerian banks increased from N857 million in 2016 to N1.5 billion in 2022.

The ratio of actual/expected loss to the amount involved in fraud has also seen an increase. In 2016, the ratio stood at 15.57%, and it has further risen to 18.29% in 2022. This indicates a growing challenge for banks in managing fraud risks effectively.

The increase in fraudulent activities has prompted the banking sector to focus more on advancing fraud detection and prevention strategies. With fraudsters becoming increasingly sophisticated, it is essential for banks to adopt cutting-edge technologies and strengthen their security measures to combat the evolving threat. Vigilance and proactive measures are necessary to protect customers and safeguard the integrity of the banking system in Nigeria.

Top of Form

Due to the growing sensitivity of security concerns, certain nations have adopted biometric technology in an effort to curb the wave of bank frauds occurring around the world. Nigeria's top issue overall has been identified as fraud in both the governmental and commercial sectors.. It has not only snapped public trust in government but it has cost the government and people of Nigeria billions, due to corrupt management of public companies, unrealized public projects and deteriorated infrastructure caused by looted maintenance budget (Onuora, 2018). A centralized biometric identity system called the Bank Verification Number was inaugurated on February 14, 2014 by the Central Bank of Nigeria, the Banker's Committee, and all Nigerian banks in response to the seriousness of bank fraud (CBN, 2018 quarterly reports). It is imperative to assess the perception of the managers and customers to the use of the long-awaited biometrics for secure, seamless and successful transactions. Security is a fundamental and increasingly important issue in today's banking industry (Li, Lu, Hou, Cui, & Darbandi, 2021). The Bank Verification Number (BVN), a biometric identification system that gives every bank customer in Nigeria a distinct identity as part of an identity management program enforced by the CBN and launched in February 2014, was created to address the current challenges with identity management. Additionally, it helps to ensure that Know Your Customer (KYC) practices are successful (CBN, 2014). The BVN gives each Bank customer a unique identity across the Nigerian Banking industry that can be used for easy identification and verification at the Point of Banking operations (Ekeh, Afolabi, Uche-Nwachi, Ekeh, & Eze-Udu, 2022).

Statement of the Problem

In spite of the Nigerian Central Bank of Nigeria's (CBN) supervision over the banking sector, the Nigeria Deposit Insurance Corporation (NDIC), and The Chartered Institute of Bankers of Nigeria (CIBN), fraud and other unethical banking practices continue to be a source of increasing concern in that country. As of the most recent available data, it has been reported by the Nigerian Deposit Insurance Corporation (NDIC) that certain banks are still facing challenges such as fraud, weak board and management oversight, inaccurate financial reporting, poor bookkeeping practices, nonperforming insider-related credits, declining asset quality, and the resulting high provision requirements, insufficient debt recovery, noncompliance with banking laws, rules, and regulations, and significantly higher levels of nonperforming insider-related credits (NDIC Report, 2021).

The repercussions of fraud in the Nigerian banking sector, as well as its identification and prevention, had been extensively covered in earlier study. For instance, Olusegun and Peter (2022) examined the effect of internal control systems in the Nigerian banking industry using the case of Wema Bank Plc. The study collected primary data, used descriptive and inferential statistical (chi-square) methods, and discovered that internal control systems play a major role in the detection and prevention of fraud in the Nigerian banking industry. Internal control can be seen as a loss prevention strategy, and as frauds are known to create enormous losses for creditors and shareholders, this is self-evident (Tama?, Petra?cu, & Toader, 2018). Also, Albrecht and Romney (1986) found in a survey of practicing auditors that 31 flags related to internal control were considered better predictors of fraud. The survey contained a list of 87 red flags. Loebbecke & Willingham (1989) in Durtschi, Hillision & Pacini, (2004) offered a model that considers the probability of material financial statement and misstatement due to fraud as a function of three factors, the first is degree to which those in authority in an entity have reason to commit management fraud; secondly, the degree to which conditions allow management fraud to be committed; thirdly, The extent to which those in authority have an attitude or set of ethical values that would facilitate committing fraud.

However, none of these studies have addressed how Nigeria's Bank Verification Number (BVN) might be used to identify and stop fraudulent activity in deposit money institutions. Therefore, it is necessary to investigate whether bank verification numbers and fraud detection in the Nigerian banking sector are related in any way.

Research Questions

The following research questions will be addressed in this study:

1. What is the effectiveness of Bank Verification Number (BVN) to detect and prevent fraudulent practices in Nigerian banking sector?
2. What are the challenges facing the operations of Bank Verification Number (BVN) to detect and prevent fraudulent practices in Nigeria banking system?

Objectives of the study

The general objective of this study is to examine the roles Bank Verification Number (BVN) play to detect and prevent fraudulent activities in the Nigerian banking sector. The specific objectives are to;

1. determine the effectiveness of Bank Verification Number (BVN) to detect and prevent fraudulent practices in Nigerian banking sector
2. identify challenges facing the operations of Bank Verification Number (BVN) to detect and prevent fraudulent practices in Nigerian banking system.

Research Hypotheses

For the purpose of this research the following hypotheses were formulated:

Hypothesis One:

The Bank Verification Number (BVN) does not have significant effect to detect and prevent fraudulent practices in Nigerian banking system.

Hypothesis Two:

There are no challenges facing the operations of Bank Verification Number (BVN) in detecting preventing fraud practices in Nigeria banking system.

Justification for the Study

Technology's quick development has brought both significant advantages and, regrettably, new dangers. The need to protect that information from unauthorized access grows as more and more data are converted to and stored in electronic formats. (Sukhai, 2004). Biometric identification and authentication will play a major role in mitigating the threats pose by the explosion in the technology as it has affected Nigerian banks. With the advancement of information and communication technology, the banking industry's operation has recently grown more sophisticated, which has altered the nature of bank fraud and other fraudulent activities. For instance, Amoh, Awunyo-Vitor, & Ofori-Boateng (2021) found that clients use the internet substantially for their banking needs, which increases the volume of online transactions. Similar claims have been made by Gates and Jacob (2009) and Malphrus (2009) that fraudsters have greater opportunity to target online users who aren't physically present to confirm transactions. However, a significant portion of operational risk involves fraud.

Banking fraud is a problem to various stakeholders. First, it diminishes the profitability of a bank and this may lead to reduced firm value arising out of low dividends to shareholders. In the extreme case, it may threaten the going concern of the Deposit money bank and this may impact negatively on shareholder wealth. The depositors may be negatively affected by bank fraud especially if it leads to a bank ruin. This may lead to huge losses on customer deposits. As a result of banking fraud, some staff in the industry have been dismissed, while some others appointments have been terminated and some were forced to retire prematurely. This means that some experienced hands in the sectors are lost due to their involvement in frauds and forgeries. The employees also stand the risk of job loss if a bank wind up or go into liquidation (Popoola, Fakunle, Omole**,** & Oyedeji, 2018).

Fraud in the banking sector is a widespread issue that affects all economies, countries, continents, and environments. This has placed a tremendous burden on establishing and maintaining an efficient system of internal checks and controls and making the best use of cutting-edge technologies like Biometric Verification Numbers (BVN). Thus, not only will the banking industry benefit from the findings of this study, but so will researchers, decision-makers, and most importantly, the community of customers who use banks' services. The senior management will be better able to comprehend how the bank's operational efficiency has been impacted by the biometric technology, which will benefit the decision-makers. The study will greatly contribute to the understanding of the bank verification number, fraud detection and prevention also serves as a basis for further studies on bank verification.

LITERATURE REVIEW

Conceptual Review

The Bank Verification Number (BVN) is a biometric identification system that gives every bank customer in the Nigerian banking sector a distinct identity. It is a component of the CBN's identity management program, which was launched in February 2014 and partially ensures the effectiveness of the Know Your Customer (KYC) principles (Akyuz, Tony, & Opusunju, 2019). After customers' data has been verified and their image, fingerprints, and signature have been taken for entry into the bank's database, a biometric process called BVN generates 11 digits (Taiwo, 2015). In addition to protecting consumer information, BVN seeks to reduce the high level of corruption that exists in the banking industry (Taiwo, 2015). One of the main duties of commercial banks has been the security of consumer data. Customers are significant banking system stakeholders; without them, commercial banks would not be necessary. According to Jan and Abdullah (2014) and Okoye, Omankhanlen, OKOH, Ezeji, and Achugamonu (2019), banks offer a variety of services to their clients, including accepting deposits, cash withdrawals, fund transfers, internet transactions, loan approval, and honoring checks. Commercial banks are able to cover expenses and turn a profit thanks to these services.

However, services were provided to customers manually prior to the use of technology. Security concerns, particularly those involving bank customers' data, received little attention during this time (Cheng, Lam, & Yeung, 2006; Zhu, Li, Li, & Amirteimoori, 2020). Commercial banks have still embraced many technologies in order to enhance services and satisfy clients' high expectations (Bamidele, 2015; Gupta & Mehta, 2021). As a result, several security vulnerabilities have put Nigeria's consumers' data and money at risk. Numerous frauds have been committed, costing victims a significant amount of money. The banking system's integrity and sanity have been impacted by this. Therefore, banks and regulatory agencies have made an effort to protect clients from fraud.

Generally, Fraud is understood to be any undesired activity including unethical behavior between two parties, where one party benefits and the other suffers. Fraud is defined by law as the dishonest taking of another person's property (Popoola, Fakunle, Omole**,** & Oyedeji, 2018). Therefore, any attempt to cheat a customer of his financial resources qualifies as bank fraud (Kolapo & Olaniyan, 2018). According to Akintola (2020), fraud includes the issuance of bonds, cashier's checks, bankers acceptances, fake stocks, treasury notes, deposit certificates, and changed documents submitted to banks for the redemption of financial resources. The presenter of these financial documents who cannot be traced at the time of notification in this case withdraws the proceeds. Fraud is defined as any calculated effort directed at deceptive moves in omissions, commissions, all arts, and concealment that may breach confidence between parties and cause significant harm to a third party, leading to a conscienceless and illegitimate advantage for a fourth party (Owolabi, 2010).

Fraud may be the worst threat to banks of all (Sood, & Bhushan, 2020). The scope of bank fraud in Nigeria is demonstrated by its size, volume, and actual loss. Due in part to the personalities of the offenders or because the bank is concerned about how publication of the fraud may affect its reputation, many bank frauds go unreported. Customers' loss of trust could prevent the bank from growing (Leonardo Cavaliere, Subhash, Durga Rao, Mittal, Koti, Chakravarthi, & Regin, 2021; Asaleye, Babajide, Inegbedion, Eluyela, Lawal, & Maimako, 2023). Fraud results in the theft of money from the client or the bank. The amount of profit that would have been available for distribution to shareholders may be lessened as a result of such losses being covered by the earnings for the affected trading period (Dagogo, & Ngerebo-a, 2018). Fraud losses, which are covered by equity capital and restrict the bank's ability to make loans and advances for profitable operations, threaten the stability of the bank's finances. In severe cases, widespread and significant fraud episodes may result in a bank's failure (Mawutor, Enofe, Embele, Ndu, & Awodola, 2019, Kolapo, & Olaniyan, 2018). Fraud can increase a bank's operational costs due to the increased cost of putting in place the equipment necessary for its detection, prevention, and asset protection. Lower outputs and earnings as a result of these inefficient resource allocations could obstruct the bank's growth. It also has a detrimental effect on the banks' asset quality. It becomes riskier when insider loan abuses are included in the problem. In fact, the NDIC had to liquidate the first generation of banks as a result of insider loan abuses (Ugwumba, 2022). If this problem is not resolved appropriately, it could lead to stress and bank failure.

The reasons of fraud and fraudulent practices in Nigerian banks are also due to a variety of variables. Fadayo (2018). categorizes the institutional or endogenous variables and the environmental or exogenous (social) elements as the two general components that contribute to fraud and forgeries in banking transactions. The institutional elements or causes are those that can be linked to the environment that banks have created internally. The following institutional factors stand out: poor accounting and internal control systems, ineffective subordinate supervision, disregard for the "know your customers" rule, poor information technology and database management, careless personnel policies, poor salaries and working conditions, general dissatisfaction brought on by management's broken promises, failure to engage in regular call-over, and employees' refusal to follow established procedures without facing any consequences or consequences. According to Younus, (2021), the environmental or social determinants are those that can be linked to the nearby and distant environments of the bank. According to Ogbunka (2002), these elements or causes are evident in the desire to get wealthy quickly, the drawn-out judicial system, poverty and the

expanding wealth disparity, insecure employment, social pressure, societal expectations, greater financial load on individuals, and fierce rivalry.

Theoretical Review

Relevant theories as shown in literature will be reviewed here. Specifically, for the purpose of this study, three main theories relevant to fraudulent banking system will be reviewed and understudied. These three major theories are:

Fraud Preventative Theory

Intentions are the best predictor of any planned behavior and understanding the antecedents of intentions provides practical insights into the behavior (Ajzen & Fishbein, 1980). Therefore, Fraud preventative theory was proposed to curb the behavioral intention of any individual to fraud. According to Goosen, Pampallis, Merwe & Mdluli, (1999), a bank owes a duty to its customers to keep accurate records of all the transactions effected against the account in question. Thus, a bank statement serves a vital role in meeting the bank's accountability to its clients, and is a fundamental aspect of modern banking. Goosen *et al*. (1999) state that the role of a bank account statement, which is of the utmost importance to a bank, is that it serves as an audit trail showing in detail the various transactions effected against the account. Pheijffer (1998) defines financial investigation as investigations in which, on behalf of law enforcement, financial expertise is used in order to gather, check, refine, process and analyse financial information. According to Tuffey (2002), financial investigation is the investigation of an individual or corporation through their financial affairs. Willemse (2004) is of the view that financial investigation is the identification and documentation of the movement of money during the course of and after a crime. It establishes the link between where the money comes from, who gets it, when it was received, and where it was stored or deposited. This can provide proof of unlawful activity such as money laundering, racketeering, corruption and terrorist financing, as well as identify and trace assets for asset forfeiture purposes, in effect addressing the proceeds of unlawful activity.

Fraud Management Lifecycle

The Fraud Management Lifecycle is a network lifecycle where each stage in the lifecycle, is a composite of interrelated, interdependent, and independent actions, functions, and operations. These activities can, but do not necessarily, occur in a sequential or linear flow (Wilhelm, 2004). The Fraud Management Lifecycle is made up of eight stages: deterrence, prevention, detection, mitigation, analysis, policy, Investigation and prosecution. These stages need to be successfully integrated and balanced so that the benefits of advancements in fraud detection technologies are realized (McRae, 2001; Ernst and Young, 2000). Effective management of the Fraud Management Lifecycle starts with a common understanding or definition of the stages in the lifecycle. Without this awareness and understanding, fraud management professionals are unlikely to communicate effectively with each other, with their peers in other industries, and within their respective businesses. The terms "lifecycle stage" and "stage" throughout this study are used as a reference to a set of activities. Unlike a traditional linear lifecycle, a network lifecycle's stages are not necessarily linked sequentially, where activities in one stage are completed and then the functioning is passed on to the next stage in the chain. To the contrary, a network lifecycle facilitates simultaneous and sequential actions within each of the lifecycle stages or network nodes. The Fraud Management Lifecycle is, therefore, a network lifecycle where each node in the network, each stage in the lifecycle, is an aggregated entity that is made up of interrelated, interdependent, and independent actions, functions, and operations. These activities can, but do not necessarily, occur in a sequential or linear flow.

Fraud Triangle Theory

The most widely accepted fraud theory is that offered by Cressey (1973), he stated that trusted persons become trust violators when they conceive of themselves as having a financial problem which is non-

shareable, are aware that this problem can be secretly resolved by violation of the position of financial trust, and are able to apply to their own conduct in that situation verbalizations which enable them to adjust their conceptions of themselves as trusted persons with their conceptions of themselves as users of the entrusted funds or property. He stated further that fraud is a crime that is costlier than most people realized, when businesses and organization understand the fraud triangle they can more effectively combat behavior that negatively impacts their operations. There are three factors that make up fraud triangle;

Pressure: Most individual require some form of pressure to commit a criminal act. This pressure does not need to necessarily make sense to outside observers, but it does not need to be present. Pressure includes money problem, gambling debts, alcohol or drug addiction, overwhelming medical bills. Greed can also become a pressure but it usually needs to be associated with injustice.

Rationalization: The mindset of a person about to commit an unethical act is one of rationalization. The individual managers to justify what he or she is about to do. Some may think they are just going to borrow the stolen goods or that they need money than the company they are stealing from.

Opportunity: This means that one's socio-economy environment serves to predetermine their likelihood of achieving unethical financial success through legitimate and illegitimate means. Cressey put forward the fact that all people have opportunity to commits fraud against third parties, employees, suppliers and customers of the employers.

Empirical Review

Nangih and Davies (2017) investigated how payroll fraud and ghost worker syndrome may be controlled in Rivers State's local government system using biometrics and BVN technologies. In-depth information was gathered via questionnaires. The statistical tools Chi-Square and Kruskal Wallis were used to test the hypotheses. In order to depict the responses of the respondents diagrammatically, descriptive statistics were also utilised. The use of biometrics and BVN, it was determined, may significantly aid in the elimination of payroll fraud and ghost workers in the local government payroll system.

Kolapo and Olaniyan (2018) looked into how fraud affected Nigerian deposit money banks' performance from 1994 to 2015. Adoption of the Generalized Method of Moments. The performance of Nigeria's deposit money institutions was found to be negatively and insignificantly impacted by the number of workers implicated in fraud and the small sums involved in fraud cases. By concentrating on The Daily Sun and The Leadership newspaper, Olijo (2018) used content analysis to examine newspaper coverage of BVN in Nigeria. It was discovered that the newspapers did a good job of addressing the concerns surrounding BVN in Nigeria.

Funmi et al. (2018) examined into how bank fraud affected the Nigerian economy. The results of the OLS Model's application revealed a connection between bank fraud and economic growth. Additionally, there is a strong relationship between Nigeria's economic success and bank fraud. In 2018, Udeh and Ugwu looked into fraud incidents in the Nigerian banking industry. Regression research using the descriptive and Ordinary Least Square (OLS) methods revealed, among other things, that fraud has a weak but negligible connection with bank earnings.

Akyuz et al. (2019) assessed how BVN affected corruption in Abuja. A questionnaire was used to gather information from 246 United Bank for Africa employees, and multiple regression was used to evaluate the results. The study showed that BVN has a favorable and significant impact on unethical business practices. The influence of BVN on fraud management in Ebonyi state was examined by Nnachi et al. in 2020. Descriptive statistics were used to evaluate the primary data, which were obtained by questionnaires from 35 commercial banks chosen by the staff. It was discovered that BVN directly correlated with a decrease in theft and safety.

Ajugwe (2019) investigated the various actions the CBN implemented in the banking sector through circulars, policy announcements, and instructions to the banks in order to minimize fraudulent activities there. The paper also examines how BVN has benefited the industry and the difficulties in putting the rules into practice. According to the research, BVN has improved accountability and transparency, provided precise identification, increased security, and saved time, among other things. It was determined that BVN was successful in promoting a reliable and secure banking sector in Nigeria.

Olatunde and Fasunle (2019) studied into the types of fraud committed in Nigerian deposit money institutions involving electronic banking, as well as the consequences and safeguards put in place to guard against financial loss. A case study research design was used in the study. The results showed a strong correlation between Nigerian e-banking practices and improved banking transaction security.

In Federal Capital Territory, Nigeria, branches of United Bank for Africa, Akyuz et al. (2019) investigated the effect of BVN on corrupt business practices. Using multiple regression, the results show that BVN deployment has a favorable, significant impact on corrupt business practices in United Bank for Africa. Findings also showed that the adoption of BVN in UBA's Abuja branches had a good and significant impact on anti-money laundering.

The relationship between ICT, BVN, and Fraud Prevention in the Nigerian Banking Sector was explored by Odusina and Fowosire (2019). Multiple regression analysis was used in the study, and it was discovered that BVN had a favorable and significant impact on fraud prevention in the Nigerian banking system.

Akintola (2020) examined the effects of fraud from 2005 to 2016 on the performance of the Nigerian banking industry. It was decided to use the ordinary least square (OLS) approach. Results point to a direct link between fraudulent actions in the Nigerian banking sector and the anticipated loss of the banking sector.

In Nigeria's Ebonyi state, Nnachi et al.'s (2020) investigation into the impact of bank verification numbers (BVN) on commercial banks' ability to manage fraud 50 management workers from eight different banks were chosen for the study, which used a survey research design. Findings from descriptive and basic regression analysis showed that BVN significantly improves the security of depositors' money and the incidence of identity theft.

However, Udenze (2015) disclosed that the CBN's goal for the banking sector in Nigeria is an 80% reduction in fraud. Therefore, there are three steps in the fraud management process: Fraud prevention, detection, and investigation are the first three. The greatest way to combat fraud is to avoid it, and enhancing the essential risk management procedures is the main component of prevention.

METHODOLOGY

Population, Sample Size and Sampling Technique

All of Nigeria's deposits money banks (DMBs) were the study's population. There are 13 deposit money banks in Nigeria, according to the Central Bank of Nigeria (CBN). The top ten DMBs banks in Nigeria according to Bankers' magazine's rankings were among the banks chosen for this study. Due to the fact that these banks were chosen based on their reputation, the researcher thought it appropriate to give a questionnaire to their staff in order to get their honest opinions. Respondents were purposefully chosen from each bank. Based on Bankers' magazine's rankings, a sample size of ten deposit money institutions was chosen. Consequently, a multistage sampling strategy was used in this investigation. In other words, multistage random cluster sampling will be used to choose the respondents. The first phase involved choosing banks. According to the CBN, there are 13 deposit money banks in Nigeria. A random selection of ten banks will be made from the list of 13 banks. The second stage entails choosing the branches..

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Additionally, the branches will be chosen at random, with proportionate branch selections made for each location. The questionnaire will be distributed to each employee of the chosen branch. Therefore, the simple random procedure will be used in the selection of respondents to be interviewed in order to ensure accuracy and provide every member of the population an equal chance of being chosen. It will be a very representative sample. For the selection of the sample size, the statistical formula given by the National Education Association (NEA) will be used. This formula is express as

$$s = \frac{x^2NP(1-P)}{d^2 (N-1) + x^2P (1-P)} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad 3.1$$

Where:

s = the required sample size.

x^2 = the table value of Chi-square at one degree of freedom for the desired confidence level [for 10% (2.71), 5% (3.84) and 1% (6.64)].

N = the population size

P = the population proportion (assumed to be 0.05); since this would provide the maximum sample size.

d = margin error permissible and expressed as a proportion (0.05) at 95% accuracy and confidence level.

Sources and Data Collection Technique

Primary sources of data vis-à-vis questionnaire and interview will be utilized as data collection techniques in this study. Data from these sources are usually collected for specific purposes. One hundred and eighty (180) copies questionnaire were administered to the respondents across the selected deposit money banks and collected. These sources guarantee the authenticity of information required in this research work.

Questionaire distribution table

Sample Size		
Cadre	Number of Branches	Sample of the Respondents
Operation manager	18	18
Chief Internal Auditor	45	45
Accountant	21	21
Field Auditor	57	57
External Auditor specialized banking	39	39
TOTAL	180	180

Research Instruments

This involved the utilization of structured questionnaire. This is to ensure that all facets of opinions and perceptions will be covered and to provide more insight in the extent to which Biometric Verification number can affect the performance in the Nigerian banking sector. Each section of the questionnaire will be five-point rating scale (Likert scale), starting from strongly agree (SA), agree (A), and undecided (UN), disagree (D), and strongly disagree (SD).

Questionnaire is generally cost-effective as compared to other methods, particularly where the sample for the study is widely dispersed. Questionnaire involves the list of questions structured in closed ended format. These questionnaires will be structured in a manner that suggest for immediate and easy response from the

respondents, bank staff. The questionnaire will be divided into two parts; the first part includes questions on socio-demographic characteristics of respondents, their age group, and sex. While the second part will be based on the achievements of the stated objectives and was sub divided into three sections. Section one includes questions on the effectiveness of Biometric Verification to prevent fraud in Nigerian banking sector. Section two dealt with the effect of Biometric Verification on Performance of banks. While section three dealt with the challenges facing the operation of BVN.

Model Specifications

The below model was used to examine the impact of bank verification number on fraud detection in Nigerian deposit money banks.

$Y = a + bX$ 1

$Logit(FDR) = \beta_0 + \beta_1 BVN + \varepsilon$ 2

Where:

- Fraud Detection Rate*it* is the fraud detection rate for bank *i* in year *t*.
- BVN*it* is the BVN implementation indicator for bank *i* in year *t*.
- β1represents the impact of BVN on fraud detection rates.

Measurement of Variables

The dependent and independent variables are the study's two primary variables. This study's dependent variable is fraud detection in Nigerian deposit money banks. Two perspectives—low banking fraud and high banking fraud—will be used to assess Nigeria's fraudulent banking systems. The independent variable, Bank Verification Number (BVN), will be assessed using average customer size, total deposits, and staff size. The study examined the functions of the Bank Verification Number (BVN), an independent variable, in Nigeria's attempt to identify and prevent fraudulent banking practices (dependent variable).

Data Analysis Techniques

In order to achieve the stated objectives, two analytical techniques will be employed in this study. These included descriptive statistics and the inferential statistics. Descriptive analysis involves the use of mean and median to evaluate the selected variables. To measure the degree of variability of these estimates, other descriptive estimates such as standard deviation will be employed. Inferential statistics will be adopted using chi-square method in testing the hypotheses. Appropriate descriptive and inferential statistics with the use of SPSS statistical package will be adopted. The descriptive analysis tools such as frequency and percentage tables, mean and standard deviation will be used to describe some variables.

DATA ANALYSIS AND INTERPRETATION

Effectiveness of Biometric Verification Number (BVN) to Detect and Prevent Fraudulent Practices in Nigerian Banking Sector

Table 4.1

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Fraud prevention and detection	180	4.0	5.0	4.556	.4983
Customers account are protected from unauthorized access	180	3.0	5.0	4.444	.6000

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BVN can be used to address the issue of identity theft	180	1.0	5.0	4.083	1.1812
BVN is the effective means to prevent fraud in Banking sector	180	3.0	5.0	4.806	.4855
BVN has reduced the likelihood of fraud since its inception	180	1.0	5.0	3.572	1.3984
BVN can be used to fish out backlisted customers	180	1.0	5.0	3.883	1.3172
Valid N (listwise)	180				

The result in table 4.1 revealed the effectiveness of Biometric Verification Number (BVN) to prevent fraud in Nigerian banking sector. It can be deduced that the majority of the respondents agreed that with the use of BVN, customers' accounts were protected from unauthorized access, BVN can be used to address the issue of identity theft, BVN is an effective means to prevent fraud in the Nigeria banking sector, BVN has reduced the likelihood of fraud since its inception, and that it can be used to fish out blacklisted customers.

To assess the efficacy of BVN in tackling different aspects of fraud within the banking sector, a descriptive analysis was conducted. The result from the table 4.2 revealed that BVN as a Fraud prevention and detection has minimum, maximum, mean and standard deviation value of 4.0, 5.0, 4.556, and 0.4983 respectively. BVN as a means of protecting customers account from unauthorized access has the minimum, maximum, mean and standard deviation value of 3.0, 5.0, 4.444 and 0.6000 respectively. BVN as means to address the issue of identity theft has the minimum, maximum, mean and standard deviation value of 1.0, 5.0, 4.083 and 1.1812 respectively. BVN as an effective means to preventing fraud in banking sector has the minimum, maximum, mean and standard deviation value of 3.0, 5.0, 4,806 and 0.4855 respectively. BVN has reduced the likelihood of fraud since its inception has the minimum, maximum, mean and standard deviation value of 1.0, 5.0, 3.572 and 1.3984 respectively. While BVN can be used to fish out backlisted customers has the minimum, maximum, mean and standard deviation value of 1.0, 5.0, 3.883 and 1.3172 respectively. This implied that BVN has moderate effect, and the most respondents see BVN as a beneficial tool in combating fraud, but there is some variation in opinions, especially regarding its effectiveness in addressing identity theft and reducing fraud likelihood.

Linear regression analysis showing the bank-related factors associated with effectiveness of BVN in preventing fraudulent practices in the Nigerian banking sector.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.783[a]	.613	.602	.3143	.613	55.203	5	174	.000	.357

a. Predictors: (Constant), BVN can be used to fish out backlisted customers, BVN can be used to address the issue of identity theft, BVN is the effective means to prevent fraud in Banking sector, Customers account are protected from unauthorized access, BVN has reduced the likelihood of fraud since its inception

b. Dependent Variable: Fraud prevention and detection

Table 4.2.1

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.260	5	5.452	55.203	.000[b]
	Residual	17.185	174	.099		
	Total	44.444	179			

a. Dependent Variable: Fraud prevention and detection

b. Predictors: (Constant), BVN can be used to fish out backlisted customers, BVN can be used to address the issue of identity theft, BVN is the effective means to prevent fraud in Banking sector, Customers account are protected from unauthorized access, BVN has reduced the likelihood of fraud since its inception

Table 4.2.3

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.843	0.397		9.689	0	3.061	4.626
	Customers account are protected from unauthorized access	0.206	0.094	0.248	2.198	0.029	0.021	0.391
	BVN can be used to address the issue of identity theft	-0.143	0.023	-0.338	-6.18	0	-0.188	-0.097
	BVN is the effective means to prevent fraudin Banking sector	-0.093	0.066	-0.09	-1.4	0.163	-0.223	0.038
	BVN has reduced the likelihood of fraud since its inception	0.32	0.063	0.898	5.109	0	0.196	0.443
	BVN can be used to fish out backlisted customers	-0.082	0.052	-0.216	-1.57	0.118	-0.185	0.021

a. Dependent Variable: Fraud prevention and detection

Null Hypothesis:

The Bank Verification Number (BVN) does not have significant effect to detect and prevent fraudulent practices in Nigerian banking system.

The results of the regression study, which examined into the bank-related variables connected to the overall effectiveness index of BVN in fraud prevention, are shown in Table 4.2. The R-squared value of 0.613 infers that all the identified factors account for 61.3% of the variation in BVN's ability to prevent fraud in Nigerian banks, but that 38.7% of the variation can be explained by other factors that were not taken into account in the regression model, or what is known as the error term.

The F-statistic indicates the significance of the independent variables used (average customer size, total deposit and staff strength) on the dependent variable (effectiveness of BVN). From the result, the F-statistic diagnosing the fitness of the model shows that all the independent variables are statistically significant (F=55.203) for the model.

The regression coefficients indicated that not all the identified factors had significant association with effectiveness of BVN in preventing fraud. The null hypothesis is rejected. Hence the study concluded that the bank-related factors had significant effect on effectiveness of BVN in preventing fraud in Nigerian banking sector. Based on these findings, the study concluded that the bank-related factors, including average customer size, total deposit, and staff strength, had significant impact on the effectiveness of BVN in preventing fraud in the Nigerian banking sector. In other words, these particular variables did play a meaningful role in determining how well BVN performed in its fraud prevention capabilities within the context of the study.

Challenges Facing the Operations of Biometric Verification Number (BVN) to Prevent Fraudulent Practices in Nigeria Banking Sector

Table 4.3

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Fraud prevention and detection	180	4.0	5.0	4.556	.4983
Lack of cooperation among financial institutions to help eliminate fraud in the banking sector	180	2.0	5.0	4.406	.6226
Poor performing roles of regulatory agencies and law enforcement agencies in implementation of cyber law	180	2.0	5.0	4.772	.5576
cybercrime hinders the successful implementation of BVN	180	1.0	5.0	3.983	1.2394
Absence of centralized electronic databank containing specific information on each individual hinders implementation of BVN	180	1.0	5.0	3.539	1.3998
Lack of comprehensive internet legislations regulating electronic financial transactions	180	1.0	5.0	3.900	1.3122
Valid N (listwise)	180				

The result in table 4.3 revealed the challenges of implementing BVN to prevent fraudulent practices in Nigerian banking sector. It can be deduced from the result that a significant number of respondents agreed that lack of cooperation among financial institutions is a major challenge in eliminating fraud in the banking sector. Additionally, cybercrime, poor performance of regulatory agencies and law enforcement in implementing cyber laws, absence of a centralized electronic databank containing specific information on each individual, and lack of comprehensive internet legislation regulating electronic financial transactions were identified as the major challenges hindering the successful implementation of BVN in the Nigerian banking sector.

To assess the listed challenges of implementing BVN in the banking sector, a descriptive analysis was conducted. The result from the table 4.3 revealed that Lack of cooperation among financial institutions to help eliminate fraud in the banking sector has minimum, maximum, mean and standard deviation value of 2.0, 5.0, 4.556 and 0.4983 respectively. Poor performing roles of regulatory agencies and law enforcement

agencies in implementation of cyber law has minimum, maximum, mean and standard deviation value of 2.0, 5.0, 4.772 and 0.5576 respectively. Cybercrime hinders the successful implementation of BVN has minimum, maximum, mean and standard deviation value of 1.0, 5.0, 3.983 and 1.2394 respectively. Absence of centralized electronic databank containing specific information on each individual hinders implementation of BVN has minimum, maximum, mean and standard deviation value of 1.0, 5.0, 3.539 and 1.3998, respectively. Lack of comprehensive internet legislations regulating electronic financial transactions has minimum, maximum, mean and standard deviation value of 1.0, 5.0, 3.900 and 1.3122 respectively.

This implied that the results suggest that respondents generally perceive the listed challenges as significant obstacles to the successful implementation of BVN in the Nigerian banking sector. Challenges related to lack of cooperation among financial institutions and poor performance of regulatory agencies stand out as particularly noteworthy, based on their higher mean scores and relatively lower standard deviations. On the other hand, challenges related to cybercrime, absence of a centralized electronic databank, and lack of comprehensive internet legislations have more varied opinions among respondents, indicating differing levels of concern or importance.

Linear regression analysis showing challenges facing the operations of Bank Verification Number(BVN) in detecting preventing fraud practices in Nigeria banking system.

Table 4.4

Model Summary[b]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.719[a]	.517	.503	.3512	.517	37.268	5	174	.000	.288

a. Predictors: (Constant), Lack of comprehensive internet legislations regulating electronic financial transactions, cybercrime hinders the successful implementation of BVN, Poor performing roles of regulatory agencies and law enforcement agencies in implementation of cyber law, Lack of cooperation among financial institutions to help eliminate fraud in the banking sector, Absence of centralized electronic databank containing specific information on each individual hinders implementation of BVN

b. Dependent Variable: Fraud prevention and detection

Table 4.4.1

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.983	5	4.597	37.268	.000[b]
	Residual	21.461	174	.123		
	Total	44.444	179			

a. Dependent Variable: Fraud prevention and detection

b. Predictors: (Constant), Lack of comprehensive internet legislations regulating electronic financial transactions, cybercrime hinders the successful implementation of BVN, Poor performing roles of regulatory agencies and law enforcement agencies in implementation of cyber law, Lack of cooperation among financial institutions to help eliminate fraud in the banking sector, Absence of centralized electronic databank containing specific information on each individual hinders implementation of BVN

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Table 4.4.2

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.327	0.284		11.7	0	2.766	3.889
	Lack of cooperation among financial institutions to help eliminate fraud in the banking sector	0.257	0.071	0.322	3.637	0	0.118	0.397
	cybercrime hinders the successful implementation of BVN	0.02	0.022	0.049	0.879	0.38	-0.024	0.064
	Poor performing roles of regulatory agencies and law enforcement agencies in implementation of cyber law	-0.138	0.062	-0.155	-2.242	0.026	-0.26	-0.017
	Absence of centralized electronic databank containing specific information on each individual hinders implementation of BVN	0.137	0.053	0.386	2.612	0.01	0.034	0.241
	Lack of comprehensive internet legislations regulating electronic financial transactions	0.049	0.055	0.129	0.88	0.38	-0.061	0.158

a. Dependent Variable: Fraud prevention and detection

Null Hypothesis:

There are no challenges facing the operations of Bank Verification Number(BVN) in detecting preventing fraud practices in Nigeria banking system.

The result of the regression analysis in table 4.4 addressed the bank-related factors associated with overall index of challenges facing implementation of BVN in Nigerian banking industry. The results of the regression study, which examined into the bank-related variables connected to the overall effectiveness index of BVN in fraud prevention, are shown in Table 4.4. The R-squared value of 0.517 infers that all the identified factors account for 51.7% of the variation in challenges facing implementation of BVN in Nigerian banking industry, but that 48.3% of the variation can be explained by other factors that were not taken into account in the regression model, or what is known as the error term.

The F-statistic indicates the significance of the independent variables used (average customer size, total deposit and staff strength) on the dependent variable (implementing of BVN). From the result, the F-statistic diagnosing the fitness of the model shows that all the independent variables are statistically significant (F=37.268) for the model.

The regression coefficients indicated that most of the identified challenges had significant association with implementing of BVN in Nigeria's banking industry because of it positive association except for Poor performing roles of regulatory agencies and law enforcement agencies in implementation of cyber law which is negative (-0.138). Therefore, the null hypothesis is rejected. The regression analysis suggests that the identified challenges have a significant positive association with the implementation of BVN in Nigeria's banking industry, except for the poor performing roles of regulatory agencies and law enforcement

agencies, which has a negative association.

SUMMARY

The general objective of this study is to examine the roles Bank Verification Number (BVN) play to detect and prevent fraudulent activities in the Nigerian banking sector. To achieve this objective, three specific objectives were stated which are to determine the effectiveness of Biometric Verification Number (BVN) to detect and prevent fraudulent practices in Nigerian banking sector; and to identify challenges facing the operations of Biometric Verification Number (BVN) to prevent fraudulent practices in Nigeria banking system.

The results from the descriptive analysis (Table 4.2) indicate that the majority of respondents view the Bank Verification Number (BVN) as an effective tool in preventing and detecting fraud in the Nigerian banking sector. It shows that BVN is perceived as beneficial for protecting customers' accounts from unauthorized access, addressing identity theft, and reducing the likelihood of fraud. However, there is some variation in opinions, especially regarding its effectiveness in addressing identity theft and reducing fraud likelihood. Regarding the regression analysis (Table 4.2), the R-squared value of 0.613 suggests that the identified bank-related factors (average customer size, total deposit, and staff strength) account for 61.3% of the variation in BVN's ability to prevent fraud in Nigerian banks. The F-statistic of 55.203 indicates that the independent variables are statistically significant in predicting the effectiveness of BVN. As a result, the null hypothesis is rejected. The study concludes that the bank-related factors indeed have a significant impact on the effectiveness of BVN in preventing fraud in the Nigerian banking sector.

The descriptive analysis (Table 4.3) indicates significant challenges hindering BVN implementation in Nigerian banking, with lack of cooperation and poor regulatory performance standing out. The regression analysis (Table 4.4) shows that most challenges have a positive association with BVN implementation, except for poor regulatory performance which is negative.

CONCLUSION OF THE FINDINGS

Based on the above discussions of this study, the study therefore concluded that:

1. The bank-related factors indeed have a significant impact on the effectiveness of BVN in preventing fraud in the Nigerian banking sector.
2. A significant majority of respondents view BVN as an effective tool for safeguarding against unauthorized access, addressing identity theft, and reducing the likelihood of fraud within the Nigerian banking sector.
3. The lack of cooperation and poor regulatory performance emerged as significant obstacles.

RECOMMENDATION

Therefore the below recommendation were provided:

1. Strengthen BVN implementation and enforce its usage for all customers to enhance fraud prevention measures.
2. Address challenges such as lack of cooperation among financial institutions and poor regulatory performance to improve BVN's efficacy in combating fraud.
3. Conduct awareness and training programs for bank staff and customers to enhance understanding of BVN's capabilities in fraud prevention
4. Continuously monitor and evaluate bank-related factors to make data-driven decisions and fine-tune strategies for fraud prevention.
5. Collaborate on improving the regulatory framework for cyber laws and financial transactions to

strengthen BVN's effectiveness in fraud prevention.

6. Conduct further research to explore reasons behind varying opinions on BVN's impact on identity theft and fraud likelihood, and investigate additional factors influencing its performance in fraud prevention.

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