IUT Journal
of
Advanced Research and Development

Volume 9, No. 1 (April 2023 - September 2023)

ISSN: 2455-7846

Published by

ICFAI University, Tripura

Kamalghat, Mohanpur, Agartala - 799210, Tripura (W)

Ph: 0381-2865752/62

Toll Free No. 18003453673

Website: www.iutripura.edu.in

ISSN: 2455-7846

 ISSN2455–7846

CORRELATION ANALYSIS OF FIDELITY BOND INSURANCE AND FRAUD IN THE NIGERIAN BANKING SECTOR (2012-2021)

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Abstract

The fidelity bond insurance is a policy that provides cushion against the effect of loss resulting from frauds, forgeries, unethical and dishonest acts of employees on the performance of the organization. However, the extent to which compliance with the insurance is related to frauds in the banking sector has not being clearly described in past studies. Thus, the study described the relationship between fidelity bond insurance and fraud in the Nigerian deposit money banks (DMBs) for the period, 2012-2021. Descriptive statistics and as well as both parametric (Pearson Product Moment) and non-parametric (Spearman rank-order and Kendall's tau b) correlation techniques were employed in analyzing the annual secondary data obtained from the annual reports of the Nigeria Deposit Insurance Corporation. The descriptive statistics indicates the average level of compliance with the fidelity bond insurance by DMBs as 50.34 per cent while the minimum and the maximum rate was 25.00 and 88.00 percent respectively. Also, the average number of staff of DMBs involved in fraud was 523 with its minimum and maximum standing at 231 and 899 respectively. Furthermore, the average frequency of fraud cases in DMBs was 52,147 while it ranges from 3380 to 211713. Both parametric and non-parametric correlation tests confirms a negative relationship (correlation) between compliance with fidelity bond insurance and each of frequency of fraud occurrence and number of staff involved in fraud in DMBs in Nigeria. The study concludes that fidelity bond insurance reduces the fraud cases in terms of frequency of occurrence and staff involvement in the Nigerian banking sector. There should be implementation of stricter measures against non-compliance with the insurance policy. The Regulatory Authorities should also provide rewards and commendation for consistent and full compliance by the banks with the insurance policy in order to encourage higher compliance rate in the Nigerian banking sector.

Keywords: Banking Sector, Compliance, Correlation Tests, Deposit Money Banks, Fidelity Bond Insurance, Nigeria Deposit Insurance Corporation.

1. Introduction

Fraud is a big industry and is pervasive of all economies, sectors, countries and nations of the world. As the world and human activities get more sophisticated, so do complications arise from the network of human activities capable of distorting the normal order of doing things. For instance, due to the fallibility of human nature, organization staff may be involved in certain dishonest and fraudulent activities that could undermine the growth of the organisation. Thus, implementing intermediation function of linking customers with capital deficit to customers with capital surplus, banks and bank workers come in contact with both customers and non-customers, and this contact engenders the risk of fraud (Adeyemo, 2012). Thus, insurance policy called fidelity bond insurance is usually put in place to provide cushion against the effect of loss resulting from fraud and dishonest acts by employees on the performance of the organization. Fidelity insurance protection is appropriate for all banks because it insures against certain risks that contain the potential for significant loss.

Banking industry is the most controlled and regulated industry in Nigeria; still, this did not stop fraud from eating deep into every unit and department in the banking sector (Olaoye et al., 2014). The frequency of fraud occurrences, population of staff involved, amounts of loss, as well as amount of money involved in fraud have been on the increase in corporate organisations like banks and this has badly affected the firms' bottom line. Banking sector like other sectors of the economy is not immune against fraud. Bank fraud entails the fraudulent use of one's position within or outside of the bank for personal enrichment by deliberately misusing or misappropriating the bank's financial resources and other assets and obtaining funds from bank customers through fraudulent representation (Akelola, 2012). Fraud can be committed by employees, customers or others, operating independently or in conjunction with others inside or outside the bank and the effect of fraud on the banking sector could be devastating thus causing liquidation (Ogunleye, 2010). The Central Bank of Nigeria, Nigeria Deposit Insurance Corporation (NDIC) and other regulatory authorities charged with the responsibility of ensuring the safety and soundness of the banking system have instutionalised different policies and frameworks to curb the menace of fraud in the financial system. For instance, Section 35 of the NDIC Act No 16, 2006 requires the insured banks in Nigeria to render to NDIC monthly returns on frauds, forgeries or outright theft occurring during such month and notify the Corporation of any staff dismissed or terminated on account of such malpractices (Ogunleye, 2010).

The relationship between fidelity bond insurance and frauds in the banking sector has not being clearly described in past studies. Past studies on the subject of fraud in the banking in industry in Nigeria are mostly impact assessment which include empirics like forensic auditing and financial crime (Akenbor and Oghoghomeh (2013)); forensic audit on fraud detection and prevention in the Nigerian banking sector (Uniamikogbo et al (2019)); forensic accounting and fraud mitigation (Aigienohuwa et al (2017)); fraud and bank deposit (Offiong et al (2016)). Past descriptive studies include the form of conceptual review (Adeyemo (2012)) and as well quantitative descriptive analysis (Olaoye et al (2014)). None of these past studies analysed fraud in relation with fidelity bond insurance in Nigeria. Problems that cannot be accurately and clearly described cannot be easily solved.Hence, the descriptive approach employed in this study. The existence of a consistent increase in the number of cases of frauds in DMBs in Nigeria prompted the need to consider means of curbing the menace. Considering fraud as a problem in the Nigerian banking industry, this study describes the problem of fraud in the industry using quantitative approach. Specifically, this study aims to (i) describe the level of compliance with fidelity bond insurance by DMBs, frequency of fraud occurrence, staff involvement in fraud, total amount involved in fraud, as well as total actual loss resulting from fraud in the DMBs in Nigeria; (ii) analyse the relationship between compliance with fidelity bond insurance and frequency of fraud occurrence in DMBs in Nigeria; (iii) examine the relationship between compliance with fidelity bond insurance and number of staff involved in fraud in DMBs in Nigeria.

The outline of this paper is as follows. In addition to the Introduction in section one, section two reports the conceptual, theoretical and empirical literature reviewed. The research methods are clearly described in section and data are presented, described and analysed in section four. Finally, conclusion and recommendations are subject matters of section five.

2. Literature Review

2.1 Conceptual Review

2.1.1 Fraud

Bank fraud involves an act of dishonesty, deceit and imposture (Ogunleye, 2010). Fraud involves an intentional and unlawful misrepresentation which causes prejudice, most often misappropriation, which is the removal of cash, or asset to which the fraudsters is not entitled as well as false accounting in which records and numbers reported are to give and create false impression (Ogunleye, 2010). Fraud could be grouped into classes like management fraud, insiders fraud (employee fraud or non-management fraud), outsiders fraud, outsiders/insiders fraud (Adeyemo, 2012).

There is no curse without causes and as such the major causes of bank frauds enumerated by Ogunleye (2010) have been classified into two factors namely: institutional or internal factors and environmental or societal factors. According to the author, the institutional causes of frauds include excessive workload, poor staffing, inadequate or lack of staff training, poor management culture, frustration, inadequate infrastructure, poor accounting and internal control systems; while environmental causes of frauds include poor and warped social values, the penchant to get rich quick, slow and tortuous legal process, lack of effective deterrent or punishment and redundancy on the part of the individual bank to report frauds.

Bank managements do embark on unethical acts and frauds due to certain reasons which could be due: to hide illiquidity; to evade sanctions for breach of the regulatory lending limits; to hide capital deficiency; to minimise payment of premium to NDIC, cash reserve obligation to the CBN and tax to the relevant Tax Authorities; to present healthy credit portfolio and hide the weaknesses in risk assets; to meet up with peer standards and industry performance benchmarks and paint rosy pictures of their state of affairs before the investing public and potential depositors; and to shrink deposits and reduce their loan portfolio; to obtain arbitrage income from round-tripping of foreign exchange which are acquired from the CBN with fictitious documentation (Ogunleye, 2010). Furthermore, the influence of power, personal gain and self-control, loss aversion and risk acceptance, rationalization, and emotion are the drives or propensity to commit fraud (Ikechi&Nwadiubu, 2020).

According to Ogunleye(2010), measures to guard against fraud could either be direct controls or indirect controls. The author noted that some of the direct controls include: timely and periodic reconciliation of bank accounts, cash in hand, inventory and other items of value; dual signatories and authorization limits; segregation of duties; and management review. The indirect controls measures include: physical security/access controls (like the use of security tags, CCTV cameras or other surveillance equipment); effective internal audit; pre-employment screening; conducive working environment; fraud policy; prompt fraud resolution; fraud training; whistle-blowing policy; controls over the information technology environment; and insurance policy (Ogunleye, 2010). Other precautionary measures that should be taken to guard against fraud in the Nigerian banking industry include effective corporate governance, strong internal control mechanisms; strong financial regulation and supervision; continuous system of evaluation and mitigation of any irregularities; healthy co-operation between government and private enterprise (Ikechi&Nwadiubu, 2020).

2.1.2 Fidelity Bond Insurance

Fidelity bond insurance cover is a type of insurance subscribed to by an employer to protect against losses caused by employees through embezzlement or theft and it is a type of insurance that protects an employer against losses caused by employees through dishonest practices (NDIC Annual Report, 2021). The minimum fidelity insurance Coverage required is 15% of DMB's paid-up capital as at December 31 of the preceding year. Sections 33, 35, and 36 of the NDIC Act No 16 of 2006 mandate licensed DMBs in Nigeria to render statutory returns on the cases of fraud and forgeries in their institutions to the NDIC. The provisions also require banks to have fidelity bond insurance against potential losses that may arise from the fraudulent and dishonest activities of their employees.
Fidelity insurance cover also called fidelity bond, fidelity bond insurance or fidelity guarantee is an insurance policy designed to mitigate the effect of the potential losses on institutions occasioned by forgeries, theft, misappropriation, embezzlement, dishonest, unethical acts, fraud and other intentional wrongful acts by the employees of the institutions. The policy covers policyholders for losses that they incur as a result of fraudulent acts by specified individuals. They are a form of insurance taken up by a business to cushion the effect of losses caused by the dishonest acts of its employees-full and/or contract staff. The policy which protects businesses against fraud committed by employees is called first-party fidelity insurance while the one that covers employees engaged on contract basis is called third-party fidelity insurance.

2.2 Theoretical Review
2.2.1 Fraud Triangle Theory

This is one of the pioneer theories of fraud. It was propounded by Cressey in 1953. The theory states that for there to be fraud three elements: pressure, opportunities and rationalization must meet. According to the author, pressure is non-sharable financial need/problem and opportunity relates to the ability to execute a fraud scheme without being caught secretly resolve the financial pressure and perceived rationalization and justification of the illegal act relates to rationalization. The six sub-division of pressure are violation of ascribed obligations, problems resulting from personal failure, business reversals, physical isolation, status gaining, and employer-employee relations (Cresssey, 1953). The meeting of the need yet unmet which put pressure on individual; the opportunity to satisfy cool down the pressure in an illegal way and go scot-free (‘violation of the position of financial trust’ (Cressey, 1973, p.30); and the mental attitude of justification of the said behavior without any form of mental condemnation of the intentional wrongful act (forgeries, theft, embezzlement, fraud) will result enjoy the commission of fraudulent act. Rationalisation entails the “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” (Cressey, 1973, p.30).

2.2.2 The Potato Chip Theory of Fraud

The Potato Chip Theory of Fraud states that committing fraud and getting away with it can be addictive and so, once an employee starts stealing, he tends to continue because he cannot stop at just one fraud because fraud, by likening fraud perpetrators to a person that eats a potato chip, but never satisfied (Offiong et al., 2016; Ikechi&Nwadiubu, 2020). The theory accounts for repeated cases of fraud in an organization because once a fraudster succeeds in cheating, he becomes addicted, and it will be difficult for them to stop because they feel that they will not be caught(Ikechi&Nwadiubu, 2020). The theory recognizes the power of addiction inherent in successfully execute scheme of crime and fraud in an organization. Like sweet potato chips, once a bank employee, without being caught, successfully defraud the bank or its customers, such an employee will graduate to higher frequency, bigger magnitude of fraud in the organization.

2.2.3 Fraudster as Employee Theory

The most important asset of any organization is the human asset and such asset (human capital) is expected to contribute positively to the performance of the organization. However, employees who are not trustworthy but fraudulent will do otherwise to the organization. And as such (Ikechi&Nwadiubu, 2020), the employee who commits fraud against the company he or she works for should not be considered an employee because fraudsters masquerading as employees use their positions to find weaknesses in the internal controls and exploit them to commit fraud. The authors observe these people are not out to better the company, other employees, shareholders, customers, or partners but they are only out to line their pockets with ill-gotten gains, and they have ceased to be employees (Ikechi&Nwadiubu, 2020). The theory consider employee as asset if they are contributing to the growth and survival organization but fraudulent individuals who works in the organization are mere liabilities and problems to the organization.

2.3 Empirical Review

Adeyemo (2012) in a descriptive study, examined the nature, causes, effects and remedy for bank frauds in Nigeria. From the review, the study concludes that reduction in the temptation to commit fraud and increase in the chances of fraud detection are key to the preclusion, uncovering and retribution of fraud offenders. Thus, a positive work environment and sound internal control system are instrumental to achieving the two keys, the study affirmed.

Akenbor and Oghoghomeh (2013) investigated forensic auditing and financial crime in Nigerian banks with a focus on employees of banks in Port-Harcourt, Rivers State, Nigeria. Frequencies count, percentages, Pearson product moment correlation techniques were used in the analysis. And findings therefrom reveal that the proactive approach to forensic auditing helps in the reduction of the risk of financial crimes in Nigerian banks.

Applying ordinary least squares (OLS) regression method, Offiong et al (2016) examined the effect of frauds on bank deposit level in Nigeria (1994-2013). The study concludes that the number of fraud cases and the amount of fraud loses have significant effects on banks deposit levels in Nigeria unlike the number of staff involved which was found to exert no significant relationship with the level of bank deposits in the country.

Aigienohuwa et al (2017) assessed the effectiveness of forensic accounting and fraud mitigation in the Nigerian banking industry. From the questionnaire survey, the study revealed that forensic accounting significantly reduces fraud in the banking industry and also helped to improve the internal control system of banks.

Uniamikogbo et al (2019) analysed the impact of forensic audit on fraud detection and prevention in the Nigerian banking sector between 2012 and 2016. From the regression analysis, the study revealed that forensic audit has a significant negative impact on number of fraud cases, number of staff involved in bank fraud, and actual amount of bank losses through fraud in the Nigerian banking sector. Further evidence from the study however, indicates forensic auditing not to significant impact on expected fraud losses in the Nigerian banks.

3. Methods

The study aims to examine the relationship between fidelity bond insurance compliance and frauds in Nigerian banking sector. To achieve this aim, already existing data were employed in the study in line with the ex-post facto research design. The study was based on the raw data obtained from NDIC annual reports for various years. The correlation and descriptive statistical tests were applied to the annual time series data for the period 2012 to 2021. Both parametric (Pearson product moment correlation) and non-parametric (Spearman rank-order, and Kendall's tau b) correlation tests techniques were applied to the data.

Frequency of fraud occurrences and staff involvement in fraud are the two indicators of fraud examined while compliance with fidelity bond insurance by banks is measured as the quotient of the number of DMBs that fully complied with fidelity bond insurance to the total number of DMBs in operation (Table 1). The descriptive statistical test involves the description and characterization of the variables of study (fraud compliance with fidelity bond insurance by banks) and using measures like mean, minimum, maximum, kurtosis, skewness, standard deviation, Jacgue-Bera. Thereafter, the relationship between bank fraud and fidelity bond insurance was investigated through correlation tests. Tabular presentation of these results were employed. The statistical tool used in the analysis of the annual time series data is the Eviews version 10.

4. Results and Discussion

4.1 Presentation and Description of Data

4.1.1 The Level of Compliance with Fidelity Bond Insurance by Deposit Money Banks (DMBs) in Nigeria

The ten (10) year details of compliance with the fidelity insurance coverage by DMBs is presented in Table 1.

Table 1: DMBs' Level of Compliance with Fidelity Bond Insurance for the Period, 2012-2021

Years	No of DMBs in operation	No of DMBs that rendered returns	No of DMBs that fully complied with fidelity bond insurance	% compliance with fidelity bond insurance
2012	20	20	7	35.00
2013	24	24	6	25.00
2014	24	24	21	88.00
2015	24	22	12	50.00
2016	25	25	17	60.00
2017	27	25	18	72.00
2018	27	26	14	51.85
2019	27	27	12	44.44
2020	30	29	13	44.83
2021	32	31	10	32.26

Source: NDIC Annual Reports (2012-2021).

Table 1 presents the DMBs' level of compliance with fidelity bond insurance for the Period 2012-2021. In 2012, the total number of DMBs in Nigeria stood at 20 and they all rendered the required returns to NDIC but in terms of compliance with the fidelity bond insurance, only 7 out the 20 of the DMBs fully complied, thus representing 35 per cent compliance rate (7/20) in the year. However, in 2013, the fidelity bond insurance' compliance rate by the 24 DMBs in operation fell to 25 per cent, representing about 31.43% decrease in compliance level. Furthermore, between 2012 and 2021 the highest compliance rate of 88% was recorded in 2014, wherein 21 out of the 24 DMBs in Nigeria fully complied with the fidelity bond insurance. From the 25% in 2013, there was increase of 252% in the Fidelity Bond Insurance' compliance rate compared with the 2014's 88% compliance rate.

In 2015, 22 out of the 24 DMBs in Nigeria rendered returns to NDIC while 12 of the 24 fully complied with the fidelity bond insurance, resulting in 50% compliance rate in the year. In relation to the 2015's compliance rate (50%), an increase of 20% in compliance level was experienced in 2016 with the year's compliance rate of 60%. The 2017 statistics shows that out of the 27 DMBs in operation in Nigeria, only 25 rendered the required returns to NDIC and 18 of them, fully complied with the fidelity bond insurance. The 72% compliance rate in 2017 is about 20% increase from 2016's compliance rate of 60%. There had been consistent increase in DMBs' level of compliance with the fidelity bond insurance from year 2015 to 2017 but the rate declined to 51.85% in 2018. Specifically, in 2018, 26 out of the 27 DMBs in operation in Nigeria rendered returns to NDIC and only 14 of them fully complied with the insurance. Compared with 72% compliance rate in 2017, the 2018's compliance rate (51.85%) is a 27.99% decrease compared with the preceding year's rate.

Table 1 indicates a further decline from 2018's fidelity bond insurance' compliance rate by DMBs of 51.85% to 44.44% in 2019, thus representing a 14.29% decrease from the preceding year's rate. In 2020, there were 30 DMBs in operation in Nigeria and 29 of them rendered returns to NDIC and also only 13 of the 30, fully ensured compliance with the Insurance cover. This resulted in 44.83% compliance rate with the Fidelity Bond Insurance expected by DMBs in Nigeria. The 44.83% compliance rate in 2020 indicates a slight increase of about 0.88% decrease from the 2019's compliance rate (44.44%). Compared with the 2015-2017 consistent rise in the fidelity bond insurance' compliance rate by DMBs, there were persistent decrease, in the periods, 2019-2021. Specifically, 32.26% compliance rate was recorded in 2021 because of the 32 DMBs operational in Nigeria, only 10 of them ensured complete compliance with the fidelity bond insurance cover.

4.1.2 Description of Fraud Cases in Deposit Money Banks in Nigeria

Table 2 contains the number of fraud cases, total number of DMBs staff involved in fraud, total amount involved,total actual loss, and fraud cases per fraudulent staff between 2012 and 2021.

Table 2: The Number of Fraud Cases, Number of Banks' Employees Involved, Total Amount Involved,Total Actual Loss, and Fraud Cases per Fraudulent Staff for the Period, 2012 to 2021

Years	Total No of fraud cases in DMBs	Total amount involved (N'M)	Total actual loss (N'M)	Total No. of DMBs Staff	Fraud Cases Per Fraudulent Staff*
2012	3380	18045	4516	531	6
2013	3786	21795	5756	682	6
2014	10621	25,608	6,192	465	23
2015	12279	18,021	3,170	425	29
2016	16751	8,682	2,397	231	73
2017	26182	12,011	2,370	320	82
2018	37817	38,923	15,150	899	42
2019	52754	204,651	5,463	835	63
2020	146183	120,786	5,334	474	308
2021	211,713	51,483	7,193	365	580

Source: Adapted from NDIC Annual Reports (2012-2021) Note: * rounded-up to a whole number.

Table 2 presents frauds in DMBs in Nigeria from 2012 to 2021. The Table (2) shows that the number of fraud cases was 3780 in 2013, resulting in 12.01 per cent increase when compared with the 3380 cases reported in 2012. Also reported in 2014 was 10621 fraud cases in DMBs, hence a rise of 180.53 percent in comparison with the preceding year's cases of 3786. Compared with the 10621 fraud cases in 2014, the 2015 witnessed an increase of 15.61 per cent given the year's fraud cases in DMBs standing at 12279. Furthermore, in 2016, the number of fraud cases was 16751, resulting in 36.42 per cent increase when compared with the 12279 cases reported in 2015. The number of fraud cases in DMBs was 126182 in 2017, signifying a rise of 56.30 percent when compared with the 2016's cases (16751). In relation to 2017' statistics, a further increase of 44.44 percent was witnessed in fraud cases in 2018 when the figure was 37817 cases. The number of fraud cases in DMBs in Nigeria standing at 146183 in 2020 implies an increase of 177.10 per cent when compared with the 52754 fraud cases of 2019. Finally, in 2021, the number of fraud cases was 211,713, indicating a 44.83 per cent rise when compared with the 146,183 fraud cases of 2020. In the study period (2012-2021), 2021 recorded the highest number of reported fraud cases with 211,713 incidences while the lowest number of incidence of 3380 was reported in 2012. Generally, these statistics also suggest the existence of a consistent increase in the number of cases of frauds in DMBs in Nigeria in the study period.

Furthermore, Table 2 indicates that there is an increase total number of staff of the DMBs involved in fraud to the tune of 28.44 percent in 2013 when the total number stood at 682 in comparison with the 531 staff in 2012. Likewise, the total number of DMBs staff that perpetrated fraud in 2018 was 899 resulting in 180.94 percent when compared with 2017's figure of 320. However, a persistent decline in the total number of DMBs staff involved in fraud was witnessed in the years 2014, 2015 and 2016 at the rate of 31.82%, 8.60% and 45.65% respectively compared with their respective immediate preceding year's figure. Similarly, a three-year consistent decline in the total number of DMBs staff involved in fraud was reported in the years 2019 to 2021 at the respective rate of 7.12%, 43.23% and 23.00% compared with their respective immediate preceding year's figure. The breakdown of frauds perpetrated by staff of DMBs in Nigeria in the study period (2012-2021) shows that the categories of staff involved include supervisors and managers; officers, accountants and executive assistants; clerks and cashiers; typists, technicians and stenographers; messengers, drivers, cleaners, security guards and stewards; full/staff; and temporary staff.

Also Table 2 indicates that, 2018 has the highest number of DMBs staff involved in fraud with 899 members of staff while the lowest number of fraudulent staff of 231 was reported in 2016. The number fraud cases per fraudulent staff posted a minimum of 6 fraud per fraudulent staff in both 2012 and 2013 while the highest fraud per fraudulent staff of 580 was reported in 2021.

Moreover, the highest total amount involved in fraud of ₦204651million was reported in 2019 while the least amount total amount involved of ₦8682 million was reported in 2016. In the study period, ₦2370million and ₦15150million was the minimum and maximum total actual loss resulting from fraud in 2016 and 2018 respectively. Between 2012 and 2021, the average amount involved and actual loss involved in fraud stood at ₦52000.5 million and ₦5754.1 million respectively.

4.2 Descriptive Statistics

Table 3: Descriptive Statistics

Descriptive Statistics:	**Fidelity Bond Insurance Compliance Rate**	**Number of DMBs' Staff Involved in Fraud**	**Frequency of Fraud Occurrence in DMBs**
Mean	50.33800	522.7000	52146.60
Maximum	88.00000	899.0000	211713.0
Minimum	25.00000	231.0000	3380.000
Std. Dev.	19.01061	218.8023	70291.24
Skewness	0.653493	0.553190	1.505921
Kurtosis	2.662960	2.147167	3.768485
Jarque-Bera	0.759087	0.813083	4.025736
Probability	0.684174	0.665949	0.133605
Observations	10	10	10

Source: Author's computation using Eviews 10

Table 3 contains the descriptive statistics on DMBs' level of compliance with fidelity bond insurance, frequency of fraud occurrence and staff involvement in fraud cases in DMBs in Nigeria. The average fidelity bond insurance compliance rate by the DMBs in the study period was 50.34 percent while the minimum rate was 25.00 per cent. The highest compliance rate by DMBs stood at 88.00 per cent. The skewness of the compliance rate is around zero and its kurtosis is almost 3. Both skewness and kurtosis are pointing to the normality which is formally confirmed by the Jarque-Bera (J-B)'s normality test. The compliance rate's mean value which exceeds its standard deviation indicates the compliance rate to be relatively stable around its mean.

In the Table 3 also reported is the mean number of banks' staff involved in fraud of 523, which exceeds the standard deviation (218.8023). This implies that staff involvement did not exhibit wide dispersion from its mean. The total number of DMBs' staff involved in fraud ranges between a minimum of 231 and a maximum of 899 staffers. Number of staff involved in fraud is also normally distributed given its J-B value (0.8131083) and the associated p-value (0.665949) exceeding 0.05 level of significance. The series' skewness is around zero while its kurtosis (2.147167) is platykurtic in nature.

Furthermore, in the period of the study (2012-2021), the average frequency of fraud occurrence in DMBs in Nigeria was 52146.60 while its minimum and maximum was 3380 and 211713 respectively. Also, the series (frequency of fraud occurrence) has the characteristics of being leptokurtic (kurtosis>3); positively skewed (skewness>0); and normally distributed (J-B's p-value>0.05).

4.3 Correlation Analysis of the Relationship between Compliance with Fidelity Bond Insurance by Banks and Cases of Fraud in the Nigerian Banking Sector

Table 4: Pearson Product Moment, Spearman rank-order, and Kendall's tau b Correlation Tests

Correlation Coefficients:	**Pearson product moment correlation**	**Spearman rank-order correlation**	**Kendall's tau b correlation**
Variables:	Compliance with Fidelity Bond Insurance	Compliance with Fidelity Bond Insurance	Compliance with Fidelity Bond Insurance
Compliance with Fidelity Bond Insurance	1.0000	1.0000	1.0000
No of Staff Involved	-0.3116	-0.3818	-0.2444
No of Fraud Cases	-0.3250	-0.0424	-0.1111

Source: Author's computation using Eviews 10

Table 4 contains the results of both parametric (Pearson product moment) and non-parametric (Spearman rank-order, and Kendall's tau b) techniques of correlation tests conducted to determine the relationship between fidelity bond insurance compliance and fraud in the Nigerian banking sector. Specifically, Table 4 reports that the parametric Pearson product moment correlation test produced a coefficient of -0.3116 for the correlation between fidelity bond insurance compliance and number of staff involved in frauds in the Nigerian banking sector. In the same vein, -0.3250 was the coefficient of the Pearson product moment correlation between fidelity bond insurance compliance and number of fraud cases in DMBs in Nigeria. These imply that, an increase in banks' level of compliance with fidelity bond insurance, is associated with a decrease in the frequency of occurrence (by 32.50 percent) and number staff (by 31.16 percent) involved in fraud in banks in Nigeria.

On the non-parametric end, the Spearman rank-order correlation test also agree in submission with the parametric Pearson correlation test by reporting -0.3818 and -0.0424 as the respective correlation coefficient of fidelity bond insurance compliance with each of number of DMBs' staff involved in frauds; and the number of fraud cases in DMBs in Nigeria. These suggest that, an increase in banks' level of compliance with fidelity bond insurance is associated with a decline in the frequency of occurrence (by 4.24 percent) and number staff (by 38.18 percent) involved in fraud in banks in Nigeria.

 ISSN2455–7846

Furthermore, the non-parametric Kendall's tau b reported a coefficient of -0.2444 as the correlation between fidelity bond insurance compliance and number of DMBs' staff involved in frauds while -0.1111 was the correlation coefficient of the link between fidelity bond insurance compliance and number of fraud cases in DMBs in Nigeria. These suggest that, an improvement increase in banks' level of compliance with fidelity bond insurance, is associated with a reduction in the frequency of occurrence (by11.11 percent) and number staff (by 24.24 percent) involved in fraud in banks in Nigeria.

5. Conclusion and Recommendations

The study described the relationship between level of compliance with fidelity bond insurance and frauds in Nigerian banking sector between 2012 and 2021 using descriptive statistical test as well as both parametric (Pearson product moment) and non-parametric (Spearman rank-order, and Kendall's tau b) techniques of correlation. From descriptive statistics, the study found the average fidelity bond insurance compliance rate by the deposit money banks; number of staff involved in fraud and frequency of occurrence of fraud in deposit money banks to be 50.34 percent, 523 staffers, and 52147 respectively. Findings from both parametric and non-parametric techniques of correlation tests indicate a negative correlation between compliance with fidelity bond insurance and each of frequency of occurrence and number of staff involved in fraud in deposit money banks in Nigeria. This suggest that, an increase in banks' level of compliance with fidelity bond insurance, is associated with a decline in the frequency of occurrence and number staff involved in fraud in banks in Nigeria.

The study argues that an improvement in banks' level of compliance with fidelity bond insurance has the potential inducing a reduction in the frequency of occurrence and number staff involved in fraud in the Nigerian banking industry. Therefore, there is the need for stricter measures against non-compliance with the mandatory fidelity bond insurance as well as rewards and commendation for consistent and full compliance by the deposit money banks in order to ensure higher compliance rate that help in the reducing the incidence of fraud among deposit money banks in Nigeria.

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