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THE EFFECT OF FRAUD ON PROFITABILITY OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

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ABSTRACT

The increasing rate of fraud occurrence and poor profitability rate in the listed Deposit Money Banks (DMBs) in Nigeria calls for a research investigation. To unravel the likely connection between fraud and profitability, this study has examined the effect of fraud on the profitability of listed DMBs in Nigeria. To achieve this objective, the study adopted a correlational research design and utilised secondary data extracted from the Nigerian Deposit Insurance Commission (NDIC) and published financial statements of the DMBs. The study focused on 14 listed DMBs for a six-year period (2012-2017). Panel multiple regression technique was used to estimate the model of the study. The findings showed that fraud (proxied by actual loss from fraud and staff involvement in fraud) has a negative and significant effect on profitability (proxied by return on asset) of listed DMBs in Nigeria. In line with the findings, this study has recommended that listed DMBs should establish fraud detection mechanisms which will

entail the setting up of an efficient, reliable and functioning fraud detection unit to monitor transactions that may be susceptible to fraud.

Keywords: Deposit money banks, fraud, loss, Nigerian deposit insurance commission, profitability.

INTRODUCTION

Profitability is one of the most critical issues confronting the Deposit Money Banks (DMBs)in Nigeria. It is a fundamental concern and priority of all the DMBs in the country. This is because achieving shareholders' wealth maximization and long term survival objective is dependent on continuous profitability. It is essential for DMBs to earn enough profit in order to maintain their activities and enhance expansion and growth of their banks. Profit has been viewed as the disparity between expenses and revenue over a time frame, mostly a year (Bassey & Moses, 2015). In general, profitability entails comparison of the revenue made by a firm and expenses incurred in making it. From the banking perspective, profitability is seen as the ability of a DMB to make revenue over and above the expenditure, in relation to the bank's capital base. A sound and profitable DMB has a high tendency to survive negative shocks and enhance the stability of the financial system (Brissimis et al., 2005). Thus, shareholders and the management of the DMBs are very interested in conducting a periodic evaluation of their activities to determine their banks' level of profit.

Profitability ratios measure the rate at which a firm turns its business activity into profits. Shareholders and the management are not the only parties interested in the profitability of DMBs. Other stakeholders, such as potential investors, depositors, supervisory authorities, employees and the government are also keenly interested. This is because profitability of the DMBs is fundamental to the existence and performance of even companies in other sectors of the economy. For the DMBs to achieve sound profitability, their major role of financial intermediation must be performed efficiently and effectively. Financial intermediation entails provision of links between the surplus and the deficit units. In the same vein, the business of DMBs entailed fund

mobilization, credit allocation, the payment and settlement system, and implementation of the country's monetary policy (Ogbechie & Koufopoulos, 2010). Thus, financial intermediation is said to be a catalyst for the performance of companies in other sectors and the economic growth of the nation as a whole. Failure of the DMBs to effectively carry out their intermediation roles might leadto a credit crunch (Kanu & Idume, 2016).

The ability of the DMBs to perform their intermediation role is dependent on the level of public trust and confidence. According to Ogbechie and Koufopoulos (2010), the business of the DMBs has been built on public trust and confidence. Their role could only be fulfilled with adequate trust and confidence. This was because public trust and confidence would facilitate the readiness of the surplus and deficit units to transact with the DMBs and in turn, has allowed them to perform their financial intermediation role.

However, public trust and confidence in the DMBS has deteriorated as a result of the occurrence of fraud. Fraud has become a major threat to the DMBs in terms of profitability and survival. This is because it has not only destroyed the corporate image of the DMBs, it has also undermined the ethics of the banking profession. Ordinarily, for the DMBs to earn and sustain public trust and confidence as well as goodwill, they are expected to discharge their duties with absolute sincerity and integrity. It means that people expect fairness, accountability, transparency and effective intermediation from the DMBs. Unfortunately; the DMBs have failed in these expectations as a result of fraud and other unethical practices.

Fraud occurrence is very critical and more pronounced in the banking sector globally. This is basically due to the fact that the stock-in-trade of a bank is cash (Association of Certified Fraud Examiners, 2012). Fraud was seen as involving a number of illegal acts characterized by intentional deception for the advantage of, or to the disadvantage of the organization and can be perpetrated by staff as well as non-staff of an organization (Olaoye & Dada, 2014). Fraud has also been understood as an intentional deception with the aim of accessing unlawful gain or unfair advantage at the detriment of others (Osuala et al., 2016; Fadipe-Joseph & Titiloye, 2012; Anyanwu, 1993) and it would be

done by way of misleading financial reporting, misappropriation, accumulation of illegal revenue or assets (Raju & Murthi, 2015). According to Ihiagarajah (2008), fraud in the DMBs involved a set of actions and conduct done with the aim of defrauding a financial institution. This could lead to a loss of money, assets, or other property.

Banking fraud affects the foundation and credibility of most banks, as there will be serious implications for all the stakeholders and the nation's economy at large. It has remained the principal cause of bank failure and distress in the Nigerian banking system as experienced in the 1990s and between 2008 and 2009. It has even led to the closure of some banks (Idolor, 2010; Ogunleye, 2010). Banking fraud has become the leading cause of bank failure. Meanwhile, bank failure brings untold hardship to shareholders, employees and customers. Fraud is usually committed by both banking staff and non-banking staff. This was due to the nature of banking operations and their stock-in-trade (Taiwo et al., 2016). For the purpose of this study, fraud refers to financial fraud. It is perceived as a deliberate and organized action perpetrated by bank staff with the intent and motive of taking unlawful advantage at the expense of the bank. This can be in the form of embezzlement, theft, stealing and illegal withdrawals from customers' accounts.

In the last few decades, the level of involvement of bank staff in fraud has become alarming (Olaoye & Dada, 2014). This cut across all categories of staff, as even CEOs would not be spared. This situation has become very worrisome, given the involvement of CEOs who have been expected to protect the interest of the other principals in the banking system. It is to be expected that bank CEOs, alongside other strata of bank officials to share the same commitment and focus on providing an effective financial intermediation function which will bring about good profitability for the DMBs. However, there will be bank staff who will work against this expectation and get involved in fraudulent practices, which means they will not be working towards the actualization of shareholders' objectives. Consequently, such actions will bring about a poor image of the bank for external stakeholders. Fraud involving high level officials in the bank has a high tendency of affecting the bank's profitability. Therefore, this study has proposed to measure fraud using the total number of staff involved in fraud relative to the total number of employees of the DMBs.

Fraud has been associated with a number of costs, and these have included monetary loss, reputation loss, as well as banking distress and the exposure to bankruptcy (Abdul Rahman & Anwar, 2014). More importantly, the actual loss from fraud has had a serious implication on the profitability of the banks, as well as shareholders' funds. For instance, in 2014, 2015 and 2016, the actual loss arising from fraud in the DMBs sector in Nigeria was ₦6.19bn, ₦3.17bn and ₦2.40bn, respectively. The total combined loss for the three years was a staggering ₦11.76bn (NDIC, 2016). Such a huge loss has reduced the DMBs' assets and consequently, it has also affected the returns (profit after tax). If the assets of the DMBs were to be continuously reduced, the DMBs sector might collapse. The actual loss would form part of the expenses charged against income, thereby directly affecting the profit as well as return to the shareholders. As such, this study sought to measure fraud as the actual loss from fraud relative to the total equity of the DMBs.

It has been generally observed that some of the stakeholders (investors and depositors) appear to lack, or have no knowledge at all about the level of fraud being perpetrated in the DMBs. This is the result of the fact that DMBs do not disclose fraud related information in their financial report. In fact, if not for the statutorily required regulation which made it compulsory for the DMBs to file returns on fraud to the NDIC, the issue of fraud in the DMBs would have been kept hidden. Thus, stakeholders hardly regard the issue of fraud as an underlining factor responsible for the poor financial performance and corporate survival of the DMBs. Following the foregoing description of the background problem, this study has aimed at establishing the relationship between fraud and profitability of the DMBs using a better method of analysis.

Fraud in the DMBs is a critical issue that requires serious attention, as it is capable of affecting the foundation, credibility, profitability and survival of banks, with a multiplier effect on the economy as a whole. The serious consequences of these negative impacts of fraud have served as a motivating factor for this study. In addition, although previous researchers have conducted several studies on fraud and profitability (Irungu, 2016; Kanu & Idume, 2016; Verma & Singh, 2017), all the existing studies on fraud and profitability in Nigeria

only made use of aggregate data for the DMB sector. Aggregate data is a sectoral data on fraud and it does not reveal the extent of the fraud perpetrated by the individual DMB. In contrast, firm specific data reflects the individual firm data on fraud. It reveals the actual level of fraud perpetrated by the individual DMB. No previous study has employed such firm specific data in its investigation, and all the existing studies in Nigeria have adopted time series as their method of data analysis. It has been argued that panel data is better than time series data. This is because panel data is a blend of the inter-individual differences and intra-individual dynamics (Hsiao, 2007). Owing to the arguments presented above, this study has been motivated to fill this methodological gap by employing DMB specific data.

In light of the issues addressed above, the main objective of this study was to investigate the effect of fraud on the profitability of listed DMBs. More specifically, this study sought to determine the effect of actual loss from fraud on the return on asset of listed DMBs in Nigeria. It also wanted to ascertain the effect of staff involvement in fraud on the return on asset of listed DMBs in Nigeria. The remainder of this paper is divided into four sections. The next section of the paper discusses the theoretical framework, literature review and hypotheses development. Section 3 presents the methodology, Section 4 discusses the findings and discussions, and the final section ends with the conclusions.

LITERATURE REVIEW

The ownership of the listed DMBs is held by individuals or groups (called shareholders) who possess shares of stock and these shareholders (principals) authorized the managers (agents) to manage the business on their behalf (Jensen & Meckling, 1976). However, the critical matter of concern is whether these agents truly place priority on the owners' interest. Agency theory deals with the issue of agency problem that arises in the firm as a result of separation of owners and managers. Jensen and Meckling (1976) described the firm as a black box, which existed and operated to maximise its value and profitability. However, there are different parties in the firm and each has a role(s) to play in order to achieve the objectives of the firm.

There is always the possibility of a conflict of interest among these different parties.

The theory holds that the agents (employees) usually place the priority on their own interest over the interest of the shareholders (principals), thus there will be conflicting interests between the owners and the managers. A conflict of interest is capable of affecting organizational performance negatively, especially when the agent's opportunistic behaviour is not monitored and controlled. To be able to thwart the agent's opportunistic behaviour and reduce the intensity of the conflict, a mechanism could be put in place (Dion, 2016) to monitor agent behaviour and provide incentives to align managers' interests with those of the firm's owners (Eisenhardt, 1989). Jensen and Meckling (1976) believed that the wealth maximisation objective of the firm can be achieved through adequate coordination and team-spirit among the parties involved in the firm. For this reason, the listed DMBs have instituted boards to monitor managers and to incentivize them. The monitoring role of these boards is to prevent sharp practices among CEOs and other employees, and facilitate good performance in the interest of shareholders.

In spite of the presence of the board of directors in the listed DMBs, opportunistic behaviour still exists. Fraud is one of the means through which this behaviour is exhibited. Managers and other employees pursue their personal interest by engaging in fraud. To be sure, fraud is absolutely against the interest of the owners (shareholders). This is because the achievement of the shareholders' wealth maximization objective is evaluated based on the performance of the firm. Intuitively, the involvement of managers (and other staff) in fraud is in conflict with the interest of the shareholders and as such it reduces the firm's performance. Thus, continuous occurrence of fraud should give rise to a serious concern for the well-being of the firm. In consonant with the tenets of agency theory, the involvement of the DMBs staff in fraud and the actual loss arising from fraud will run contrary to the owners' interest. The staff involvement is driven by self-interest, which is essentially in conflict with the DMBs' objective. This conflict of interest is capable of bringing about an adverse effect on the performance of the DMBs.

The effect of fraud on the profitability of DMBs has been studied widely. In Africa, researches in this area abound mostly in Nigeria and Kenya. However, studies in Nigeria are just beginning to extend their interest to this area. For example, Ogbeide (2018) undertook a study which was an empirical examination of fraudulent banking practices and their impact on the financial performance of the banking industry in Nigeria. Using exploratory and longitudinal research designs, the study focused on all banks in Nigeria and collected sectoral data from the NDIC annual reports. The study found that even a three-year lag in the number of fraud cases had a significant inverse effect on the financial performance of banks. In addition, the same study found that a one-year lag of total amount involved in the fraud and actual loss had a statistically significant inverse effect on the banking sector's financial performance in Nigeria.

Odi (2013) studied the impact of fraud on the performance of commercial banks in Nigeria. The study also sought to ascertain the relationship between bank ATM fraud, forged cheque, clearing cheque fraud and bank performance. The researcher adopted a quantitative research design and used secondary data generated from the NSE fact-book, NDIC and CBN publications from 2001 to 2011. The outcome of the study revealed that fraud had had a significant impact on the performance of commercial banks in Nigeria. The implication was that if the level of fraud in commercial bank was not minimized, commercial banks might continuously experience poor performance.

The effect of fraud on the profitability of the Indian public sector banks was investigated by Verma and Singh, (2017). A quantitative research design was employed while data were sourced from the India Stat which covered a period of 11 years, that is, between 2005 and 2015. The sample involved 26 public sector banks. Panel least square regression was used for the analysis, together with help of E-Views statistical software. The study found that the frequency and severity of frauds had had a significant effect on profitability, which was measured by return on assets (ROA) and return on equity (ROE), in the Indian public sector banks. Irungu, (2016) studied the effect of fraud on the financial performance of insurance companies in Kenya. Using a survey research design and a judgemental sampling technique, data over a period of five years, that is, from 2011 to 2015 was collected from the finance departments of companies, published

annual financial statement and the Insurance Regulatory Authority (IRA). Using multivariate regression analysis, the study found that both the number of fraud cases reported and the amount lost through fraud had a positive relationship with the ROA. However, only the amount lost through fraud had a statistically significant effect on the ROA. It was concluded that fraud could affect financial performance of the insurance firms.

Maina (2016) conducted a research on the effects of financial fraud, as well as liquidity on the financial performance of insurance companies in Kenya. The study adopted a descriptive research design. The population of the research consisted of all 47 licensed and operational insurance companies in Kenya from 2011 to 2015. Data was obtained from secondary sources and multiple regression analysis was used. Findings of the research showed that fraud loss had a direct and significant relationship on the ROA of quoted insurance companies. Uchenna and Agbo (2013) examined the impact of fraud and fraudulent practices on the performance of banks in Nigeria. The study focused on the nature, magnitude and economic consequences of fraud in Nigeria and involved twenty four DMBs in Nigeria for between 2001 and 2011. With the use of the Pearson product moment correlation, as well as multiple regression analysis, it was discovered that the percentage of mobilized funds lost to fraud was highest between 2001 and 2005. However, there was a significant decrease between 2006 and 2011. In taking a different tack, Inaya and Isito (2016) evaluated the social impact of fraud on the Nigerian banking industry. The study adopted an ex-post facto research design and sourced data from the Nigerian Deposit Insurance Corporation and annual financial reports of commercial banks from1990 to 2014. Ordinary Least Square (OLS) was also used to analyse the data. The study discovered that although the banks in Nigeria appeared to continue to thrive under the high rate of fraud, it had a negative social impact on the Nigerian banking industry.

It is clear that most of the studies reviewed above attempted to establish a link between fraud and performance. However, it is also worth noting that all the investigators adopted different measures of fraud and performance. For instance, Inaya and Isito (2016) studied fraud from the standpoint of its social impact, Odi (2013) studied fraud in its various manifestations, and Uchenna and Agbo (2013) studied

fraud from the perspective of its nature, magnitude and economic consequences. Only a few studies, such as those by Ogbeide (2018) and Verma and Singh (2017) which considered the financial impact of fraud. The financial impact of fraud can be seen as an essential proxy of fraud because it can affect the shareholders. In the same vein, performance is very broad and that explains why it has been measured differently. In light of these background input, the hypotheses of this study have been formulated as:

Ho_1: Actual loss from fraud has no significant effect on the return on assets of the listed DMBs in Nigeria.

$H1_1$: Actual loss from fraud has a negative significant effect on the return on assets of the listed DMBs in Nigeria.

Muritala et al. (2016) examined the impact of fraud on bank performance in the Nigerian banking industry using quarterly data for the period from 2000 to 2013. The study found that the rate of staff involvement in fraud had had a direct significant impact on the return on asset. Meanwhile, fraud perpetrated and the amount involved in fraud perpetration had had an inverse impact on bank performance. The anticipated coefficient of the Vector Error Correction Model (VECM) result showed that there was a short run dynamic effect on the return on asset, meaning that the variables adjusted to correct the imbalances in the fraudulent banking environment. But, the study failed to state the source of the data used. Kanu and Idume (2016) undertook a study to evaluate the insecure situation of bank fraud and its impact on bank performance. The researchers used secondary data collected from the NDIC's Annual Report and employed multiple regression analysis. The findings revealed a negative relationship between expected losses on insecurity and fraud (ELF), rate of fraud cases (NFC) and rate of staff involvement in fraud and earnings before tax of commercial banks in Nigeria. The Granger causality test showed a uni-directional causality of bank insecurity and fraud with commercial bank performance. However, the volume (amount) of bank insecurity, NFC and earnings of commercial banks in the parsimonious error correction mechanism (ECM) revealed a direct and significant relationship. However, it is worth noting that the study used earning before tax as proxy for bank performance and used

aggregate data, which are both in nominal scale. The current study has adopted a ratio scale to measure the variables and this scale has been suggested as a better measure (Hsiao, 2017).

A study on the growth of bank frauds and its impact on the Nigerian banking industry was also conducted by Taiwo et al. (2016). The study adopted an econometric model through the use of secondary sources of data. The data was gathered from the Central Bank of Nigeria statistical bulletin. The study employed a multiple regression technique and also conducted the Augmented Dickey-Fuller (ADF) unit root test. The result revealed that there was an inverse significant relationship between bank profitability as proxied by the ROA, and fraud as proxied by the total amount involved in frauds and the number of staff involved (NSI).

However, the result also revealed a positive significant relationship between the ROA and the number of fraud cases involved (NOC). However, this study employed aggregate data which was not a good representation of the individual DMBs. Odi (2013) was another important study which investigated the impact of fraud on the performance of commercial banks in Nigeria. Using regression analysis, the study considered the relationship between ATM fraud, forged cheque, clearing cheque fraud, and bank performance between 2001 and 2011. He found that fraud had a significant impact on the performance of commercial banks in Nigeria. Thus, the second hypothesis for this study has been formulated as follows:

Ho_2:Staff involvement in fraud has no significant effect on the return on assets of the listed DMBs in Nigeria.

$H1_2$: Staff involvement in fraud has a negative significant effect on the return on assets of the listed DMBs in Nigeria.

METHODOLOGY

This study employed a correlational research design to examine the strength and direction of the relationship between fraud and profitability. A correlational research design has been chosen because

it could explain and predict the extent of the variability in profitability that was associated with the fraud. This study also adopted the strategy of gathering data from a secondary source, the data were obtained from the NDIC and the published financial statements of the DMBs.

The population of this study comprised all the DMBs as they were listed in the Nigeria Stock Exchange (NSE) on 31st December 2017. Based on the information provided on the NSE website, the total number of listed DMBs was 16. The study spanned over a period of six years, from 2012 to 2017. The DMB sector became the focus in this study due to its higher rate of fraud occurrence and the sensitivity of bank operations. Also, the particular period was chosen for the study due to the poor profitability experienced by some of the DMBs during that frame time. This study focused on all the listed banks in Nigeria, except Skye bank which had not published its financial statements for some years and the Jaiz bank which was just listed in 2016. In sum, the sample size for this study comprised 14 DMBs which yielded 84 firm-year observations as such. The panel data set was a balanced panel.

The panel multiple regression technique was employed to analyse the data. This technique was chosen because it could not only determine the relationship between fraud and performance, but also explain the level of changes in profitability for a given level of changes in fraud. As part of the technique, correlation analysis and descriptive statistics were also utilized. The correlation analysis was carried out to assess the existence of association between the variables of the study. The descriptive statistics were computed to assess the nature and pattern of the sampling distribution from which the variables were drawn. The statistics revealed the values for mean, standard deviation, minimum and maximum.

The variables of interest in this study comprised the dependent variable (profitability) and the independent variable (fraud). Profitability of DMBs can be measured in several ways, but there are two common profitability ratios namely the ROA and the ROE. Return on assets measures the capacity of a bank's asset to generate profit. It measures how well the assets of the DMBs are being used to generate profits. Meanwhile, return on equity relates the net income to shareholder equity (Briand, 2010). It makes available information as to how much

the DMB is earning on their equity investment. The ROA and the ROE are two important profitability ratios for banks. Although, the two ratios produce a similar result, they are slightly different. The ROE indicates shareholders' gain after all expenses and taxes have been taken into account, as it does not reflect the impact of a bank's leverage. Meanwhile, the ROA measures profitability in relation to both shareholders' equity and debt holders, as such the ROA is in relation to all assets. For this reason, the ROA is considered as a better measure for profitability. Therefore, this study adopts the ROA as a proxy for profitability.

The independent variable was perceived from two angles. First, from the stand point of the financial implication of fraud on the DMBs. Second, from the perspective of staff involvement in taking undue personal benefits at the expense of the bank and customers. As such, fraud was proxied with actual loss from fraud and staff involvement in fraud. The firm's specific data on actual loss from fraud and staff involvement in fraud were extracted from the NDIC records and its statistics department. Meanwhile, the data on the return on assets were extracted from the annual financial reports of the listed DMBs. The present study has introduced a control variable to capture other firm level attributes which could affect the profitability of the DMBs. However, the control variable was limited to only firm size because it had a strong connection with the dependent and independent variables. This study has employed Equation (1) to test the hypotheses of the study.

Profitability = f (fraud)

$$ROA_{it} = \beta_0 + \beta_1 ALF_{it} + \beta_2 SIF_{it} + \beta_3 FS_{it} + \varepsilon_{it} \quad (1)$$

where;

ROA = Return on asset

SIF = Staff involvement in Fraud

ALF = Actual loss from fraud

FS = Firm size

ε_t = Error term

β_0 = intercept

$\beta_1 \ldots \beta_3$ = coefficients.

The measurement of the variables is as presented in Table 1.

Table 1

Definition of Variables and their Measurement

Variable	Variable Type	Measurement	Sources
Return on Asset Ratio (ROA)	Dependent Variable	Percentage of profit before tax to total asset.	Okaro & Nwakoby, (2016).
Staff Involvement in Fraud (SIF)	Independent Variable	Percentage of total number of employees that are involved in fraud to total number of employees in the firm.	Maina, 2016; Olongo, 2013.
Actual Loss from Fraud (ALF)	Independent Variable	Percentage of actual loss arising from fraud after all efforts have been used to recover amount involved in fraud to total equity.	Maina, 2016; Olongo, 2013.
Firm Size (FS)	Control Variable	Log of naira value of total asset	Suleiman, (2020).

RESULTS AND DISCUSSION

The descriptive statistics are measures of central tendencies and measures of dispersions. It shows the mean, standard deviation, minimum and maximum. From Table 2, it can be seen that the ROA has a mean of 1.93 percent, with a standard deviation of 2.04 percent, a minimum ROA of -8.33 percent and a maximum of 9.10 percent. This implied that on the average, listed DMBs got a return of 1.93 percent of ₦67.5 bn. Thus, this was the profit due to both equity holders and debt holders on average annually. The deviation of this return from the mean was by 2.04 percent.

Table 2

Descriptive Statistics

Variable	Obs.	Mean	Standard. Deviation	Min	Max
ROA	84	1.93	2.04	-8.33	9.10
ALF	84	0.29	1.32	0.003	12.12
SIF	84	0.77	0.70	0.032	3.63
FS	84	9.12	0.31	8.20	9.68

This has suggested a narrow dispersion, or low variability of the ROA from the average ROA of the listed DMBs. In addition, the listed DMB with minimum return on asset for the period had negative value of ₦33.6 bn. The minimum ROA indicated that within the period of this study, the DMB with the lowest ROA had incurred loss on the usage of bank asset to the tune of ₦33.6 bn. Moreover, the listed DMB with maximum return on asset for the period was ₦14.2 billion. Again, the maximum ROA indicated that the DMB had made the best use of its assets and gained a profit to the tune of ₦14.2 billion.

From Table 2, it can be seen that the mean of ALF was 0.29 percent, standard deviation was 1.32 percent and minimum value was 0.003 percent, while maximum value was 12.12 percent. On the average, ₦619.3 million was lost as a result of fraud. This implied that on average the DMB was losing ₦619.3 million of bank owners' equity to fraud. Furthermore, the standard deviation of 1.32 percent indicated that ALF was widely dispersed from its mean. This was further evident in the minimum and maximum value which produced a range of 12.11 percent. The listed DMBs with a minimum value of ALF had a total of ₦18.5 million as actual loss from fraud. This implied that the DMBs with the most effective fraud control system would only suffer losses amounting to ₦18.5 million of the owners' equity to fraud. Such control system must be very proactive in minimizing the effect of fraud. The listed DMBs with a maximum value of ALF reported ₦154.9 billion as actual loss from fraud. This implied that the DMBs with the poorest fraud control system would lose ₦154.9 billion of the owners' equity to fraud.

Table 2 also shows that the mean of SIF was 0.77 percent, indicating that on the average 23 employees of the DMBs were involved in fraud. Even though, this average was less than one percent, one might be surprised at the huge amount involved, the actual loss from it and the impact on the DMBs. The standard deviation of 0.70 percent showed that the SIF was revolving around the mean. This signified that the SIF was not widely dispersed. This was further evident with the minimum and maximum value of the SIF. The DMBs with a minimum staff involvement in fraud had only three employees engaged in fraud. This signified that listed DMBs with the most effective fraud control system had only three of the staff involved in fraud. Also, the DMBs

with the maximum staff involvement in fraud had 42 of the employees engaged in fraud. This signified that listed DMBs with the weakest fraud control system had 42 of the staff involved in fraud.

In addition, Table 2 reveals that Firm Size (FS) had an overall mean of 9.12, a standard deviation of 0.31, a minimum of 8.20 and a maximum of 9.68. The average for firm size is ₦1.34 trillion, this indicated that on average the size of listed DMBs in Nigeria was ₦1.34 trillion. The standard deviation of 0.31 indicated the level of variability in the DMBs. This signified that the sizes of the listed DMBs were widely dispersed. The DMBs with the lowest firm size was ₦245.7 billion, this implied that no listed DMBs had a net worth lower than ₦245.7 billion within the period. Also, the DMBs with the highest firm size was ₦4.8 trillion, this indicated that no listed DMBs had a net worth higher than ₦4.8 trillion within the period. Intuitively, the listed DMBs in Nigeria varied in size.

The correlation matrix showed the association between the dependent variable (ROA) and the explanatory variables (ALF, SIF & FS), as well as between the explanatory variables themselves. Also, the correlation coefficients would provide both the direction and strength of the relationship among the variables. Table 3 presents the correlation matrix of the data set.

Table 3

Correlation Matrix

Variable	ROA	ALF	SIF	FS
ROA	1.000			
ALF	-0.260**	1.000		
SIF	-0.229**	0.373***	1.000	
FS	0.270**	-0.312***	-0.511***	1.000

Note: ***, ** and * denote statistically significant at 1%, 5% & 10% level of significance, respectively.

Table 3 reports the Pearson correlations among the key variables of interest. The results showed that the ALF and the ROA were negatively correlated to the tune of 0.260 and their correlation was significant at

5 percent. This implied that the more the actual loss from fraud, the less the return on asset of the listed DMBs. Table 3 also shows that the SIF and the ROA were negatively correlated to the tune of 0.229 and their correlation was significant at 5 percent. This implied that the more the staff involvement in fraud, the less the return on asset of the listed DMBs. In addition, the FS and the ROA were positively correlated to the tune of 0.270 and their correlation was significant at 5 percent. This implied that the higher the firm size, the higher the return on asset of the listed DMBs. From the above discussions of the results, it can be concluded that all the independent variables had a significant correlation with the dependent variable at a 5 percent significant level.

For the independent variables, the SIF and the ALF were positively correlated to the tune of 0.373 and their relationship was significant at 1 percent. It implied that for the listed DMBs the higher the staff involvement in fraud, the higher the actual loss from fraud. In addition, the FS and the ALF were negatively correlated to the tune of 0.312 and their relationship was significant at 1 percent. It implied that for the listed DMBs the higher the firm size, the lower the actual loss from fraud. In addition, the FS and the SIF were negatively correlated to the tune of 0.511 and their relationship was significant at 1 percent. It implied that for the listed DMBs the higher the firm size, the lower the staff involvement in fraud. The direction of the two correlations might be due to the fact that DMBs with huge firm size were capable of having a strong internal control system that could prevent the perpetration of fraud.

Regression Estimation Result

Table 4 presents the summary of the regression results as captured in the model of the study. Table 4 shows that the coefficient determination (R^2) was 0.196. It signified that almost 20 percent of the total variations in the ROA of the listed DMBs in Nigeria were jointly explained by the independent variables. Also, the Wald Chi^2 of 5.45 was significant at 5 percent indicating that the model of the study was well fitted and that the independent variables were properly selected, combined and used.

Table 4

Regression Estimation Results

Variable	Coefficient	*t*-value	*p*-value
Constant	59.363	3.31	0.002***
ALF	-0.324	-2.19	0.032**
SIF	-0.609	-1.75	0.085*
FS	-6.239	-3.18	0.002***
R^2	0.196		
Wald Chi^2	5.450		
F-Sig	0.002		

Note: ***, ** and * denote statistically significant at 1%, 5% & 10% level of significance, respectively.

Table 4 also shows that the coefficient of ALF was significant at 5 percent. This signified that the ALF significantly affected the ROA of listed DMBs in Nigeria. For every one percent increase in the ALF, there would be a 0.32 percent decrease in the ROA of the listed DMBs and vice versa. This was in line with the researcher's expectation because the ALF had reduced profit before tax, thereby reducing the ROA. This study therefore rejected the first hypothesis that actual loss from fraud did not significantly affect return on assets and accepted the alternate hypothesis which stated that actual loss from fraud significantly affected the return on assets. This was in line with agency theory, as the actual loss from fraud negatively affected the ROA (profitability). This was also in line with the findings of Kanu and Idume, (2016) and Verma and Singh, (2017). However, this result was in contrast with the findings of Irungu (2016), Maina (2016) and Olongo (2013) who found a significant but positive relationship between the ALF and the ROA. This differences in findings could be attributed to the nature of the country in which the study was conducted.

From Table 4, it is also clear that the coefficient of the SIF was significant at 10 percent. This signified that the SIF had a significant

effect on the ROA of listed DMBs in Nigeria. Since there was a negative relationship between the SIF and the ROA, for every one percent increase in the number of employees who were involved in fraud, there would be a 0.61 percent decrease in the return on assets of the listed DMBs, and vice versa. This result was in line with the researcher's expectation because the SIF was expected to reduce customer patronage of the DMBs, thereby reducing profit before tax and by extension significantly reducing the ROA. This study therefore, rejected the second hypothesis that staff involvement in fraud did not significantly affect the return on assets and accepted the alternate hypothesis which stated that staff involvement in fraud significantly affected the return on assets of the listed DMBs in Nigeria. This was in agreement with agency theory which had proposed that the owners' wealth maximization objective could only be achieved if there was no conflict of interest between owners and their agents. Staff involvement in fraud signified the pursuit of their personal interest and it was in conflict with the interest of the owners and as such lead to a reduction in firm profitability. This result was also in agreement with the findings of Taiwo et al. (2016), Muritala et al. (2016) and Kanu and Idume (2016) who found a negative but significant relationship between the SIF and the ROA. However, this result was in contrast with the finding of Chiezey and Onu (2013). This could be the result of the different methodology adopted by the study.

CONCLUSION

Based on the empirical evidence present above, this study has concluded that the financial consequence of fraud significantly affected shareholders' wealth maximization objective (profitability) of listed DMBs in Nigeria. In addition, staff involvement in fraud was against the interest of the corporate objective, as it could significantly reduce the profitability of listed DMBs in Nigeria. Fraud occurrence in the listed DMB gave a negative signal and resulted in a poor corporate image which in turn, affected the firm's financial intermediation function. It is worthy to note that in the course of this study, the researcher was faced with a major limitation. It took the researcher a lot of effort and time to get fraud related firm-specific data from the NDIC office. This was a major obstacle to overcome because such data was considered too sensitive and confidential for public consumption.

As such to facilitate research undertakings in this field in the future, it is highly recommended that listed DMBs in Nigeria should establish fraud detection mechanisms, such as the setting up of a functioning and effective fraud detection unit to monitor all transactions that are prone to fraudulent practices. This will prevent fraud occurrence, but in the event that fraud still somehow manages to take place, the actual loss from its occurrence will be minimized and as such, one can still improve profitability and maximize shareholders' wealth.

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