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The Effect of Risk Management on the Profitability of Listed Deposit Money Banks in Nigeria

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Abstract

There has been increasing attention on risk management which had elicited various responses from several regulators and other interest bodies such as the Basel accord, International financial reporting standard and country's central banks, in which they formulated frameworks for effective management of risks by financial institutions across the world which is expected to improve the performance of such institutions. This study therefore reviewed the effect of the nine risk management variables on the profitability of deposit money banks in Nigeria using Earning Per Share as proxy for profitability and adopting the nine (9) risk management codes of Credit Risk, Market Risk, Liquidity Risk, Operational Risk, Strategic Risk, Solvency Risk. Legal/regulatory/ compliance Risk, Reputational Risk, and Counterparty Risk as independent variables. A sample of 12 banks was adopted from which secondary data covering ten years were extracted and multivariate regression analysis, ordinary least square was used to examine the effect of the risk management variables on earning per shares of the banks. This study found that risk management has a significant positive effect on the profitability of the banks as measured by earnings per share and concludes that paying more attention to the risk management attributes would actually lead to improved performance. Hence, it recommended that executive management of banks and regulators should pay proper attention to risk management as this would eventually lead to improved profitability of the banks.

Keywords: Financial Risks, Risk Management, Profitability, Performance, Earnings

JEL Codes: G110, G320

1. Introduction

1.1 Background

Banking has evolved overtime beyond the traditional practice of mere savings and investment as can be seen from the various innovations that had taken place over the years in the banking sector with the associated risks and as such there has been complementary increasing g attention on risk management. Hence, banks need to manage risks by identifying, understanding and articulating its risk climate, setting specific risk appetite and analysing inherent risks in its business not only to improve general business outlook and remain in business but also to achieve profitability goals of the bank, hence the need to pay attention to the effect of risk management on the profitability of deposit money banks.

The global economic meltdown that started in 2007 with the United States subprime mortgage market which led to the collapse of great banks such as the Lehman Brothers' investment bank, on September 15, 2008 and others like Royal Bank of Scotland, Fannie Mae, Freddie Mac, Merrill Lynch, Hypo and Alliance, Leicester, Bradford & Bingley and Fortis banks which had to be bailed out was said to have resulted from the excessive risk-taking by banks. (Blessing, 2011; Mathiason & Heather, 2008) [8, 27]. The year 2023 also recorded the collapses of Signature Bank and Silicon Valley Bank in March which were said to be the second and third largest bank failures in the history of United State and the additional three banks failure recorded in 2023 namely, First Republic bank in May, Heartland Tri- State Bank in July and Citizens Bank of Sac City in November according to Aldrich, (2024) [2] also imply the role of excessive risks taking in financial disaster. Furthermore, the introduction of Basel II and III for banks and IFRS 7 which focussed more on risk disclosure and management have all contributed to a growing need

to measure and manage risk by banks.

The Central Bank of Nigeria (CBN) in a bid to entrench effective risk management in Nigeria deposit money banks (DMBs) had identified nine (9) major risk elements namely: Credit Risk, Market Risk, Liquidity Risk, Operational Risk, Strategic Risk, Solvency Risk. Legal/regulatory/ compliance Risk, Reputational risk, and Counterparty risk. (CBN, 2014). Though, it is of note that while several works had been carried out on the four (4) major risk element of Credit Risk, Market Risk, Liquidity Risk and Operational Risk in relation to profitability as outlined in the CBN (2007) [11] framework, literature had not provided sufficient review and measurement to cover these additional risk elements of strategic risk, solvency risk. legal/regulatory/ compliance risk, reputational risk, and counterparty risk that were introduced in the CBN (2014) framework. It is on this premise that this study seeks to carry out this investigation on the effect of management of these nine (9) risk elements on the profitability of the DMBs in Nigeria in line with the CBN (2014) framework.

Meanwhile, some reviews which had investigated the effect of risk management on the profitability of DMBs have produced varying results. Some studies reported negative effect and some others reported positive effect while some reported mixed effect with varying significant levels. It is against this backdrop that this study seeks to assess the effect of risk management on performance of the Nigeria DMBs by attempting to provide answer to the question, how has the management of credit risk, market risk, liquidity risk, operational risk, strategic risk, solvency risk. legal/regulatory/ compliance risk, reputational risk, and counterparty risk effected the profitability of the DMBs in Nigeria. While the main objective is to determine the effect of Risk Management on Profitability proxied with Earnings Per Share (EPS) of DMBs in Nigeria. Other specific objectives involve the evaluation of the effect of the management of credit risk, market risk, liquidity risk, operational risk, strategic risk, solvency risk, legal/regulatory/ compliance risk, reputational risk, and counterparty risk on the EPS of the DMBs in Nigeria and to evaluate these objectives, the following hypotheses in the null form are formulated:

H_{01}: credit risk management has no significant effect on EPS of (DMBs) in Nigeria

H_{02}: market risk management has no significant effect on EPS of (DMBs) in Nigeria

H_{03}: liquidity risk management has no significant effect on EPS of (DMBs) in Nigeria

H_{04}: operational risk management has no significant effect on EPS of (DMBs) in Nigeria

H_{05}: strategic risk management has no significant effect on EPS of (DMBs) in Nigeria

H_{06}: solvency risk management has no significant effect on EPS of (DMBs) in Nigeria

H_{07}: reputational risk management has no significant effect on EPS of (DMBs) in Nigeria

H_{08}: counterparty risk management has no significant effect on EPS of (DMBs) in Nigeria

H_{09}: legal/regulatory/ compliance risk management has no significant effect on EPS of (DMBs) in Nigeria

This study is of significance to the board, executive and non-executive directors including the senior management staff of Nigeria financial institutions, to enable them set forth clear risk management's strategies that will assist the organisation to remain in business, in the face of stiff competition, Improve performance, identify and avoid unnecessary risks that may jeopardise the existence of the organisation and at the same time assist the banks executive to effectively manage their risks. This study is also of importance to employees of the financial institutions and regulators, consultants, policy makers, and law enforcement agencies such as the CBN, Nigeria deposit Insurance Corporation (NDIC), Asset Management Company of Nigeria (AMCON), Nigeria Financial Intelligent Unit (NFIU), Economic and Financial Crimes Commission (EFCC) and Independent Corrupt Practices Commission (ICPC) and others who are saddled with the supervision of the activities of banks and financial institution in Nigeria to monitor compliances to existing risk management regulations, identify new and emerging risks and provide policy guidelines for the operators in the finance industry and other law enforcement, legal and compliance agencies.

2. Literature Review

Risk management is not merely a function or a department, neither is it only limited to internal controls, but it comprises of the activities and culture that an enterprise undertakes to create and preserve value when meeting its strategic objectives. Risk management can be described as an organizational discipline which identifies, analyses and addresses risk whenever there is evidence that it carries the potential to jeopardize the achievement of the enterprise's goals and objectives (ISACA, 2018) [21].

Strategic risk is the risk that an organisation may or may not achieve its overall strategic goal. Basel (2015) [7] maintained that banks failures during the global financial crises resulted majorly from strategic risk while Deloitte (2017) [18] revealed that strategic risk proved to be the most damaging type of risk companies faced as eighty-six percent (86%) of significant market capitalisation decline within the last decade of the study were traced to strategic risk. Failure to manage strategic risk effectively would result to poor performance and eventual collapse of the bank. Market or volatility risk refers to the risk resulting from changes in financial market forces such as prices, demand and supply which can be categorised either as interest rate risks, foreign exchange risks and equity price risks. Market risk can also be described as risk related to assets that are traded on the financial market. Financial market traders often seek opportunity to diversify their risk, however market risks cannot be completely diversified away (Angote *et al*., 2015 [4]; CBN, 2014). Failure to properly manage these volatile risks could result to collapse of DMBs.

Credit risk is the probability that a debtor may not be able to fully settle his obligation as and when due because the debtor becomes insolvent. Banks are required to have a robust Credit risk management policies and procedures in place. This should include the design of overall credit strategy, credit origination, administration, analysis, measurement and control (Aruwa & Musa, 2014; CBN, 2007; Ojo, 2010) [5, 11, 31]. Liquidity risk is the risk of a funding crisis which could be in form of unexpected event resulting to huge debit against the capital, that could ginger loss of confidence or a nationwide crises situation (as in the case of covid-19), that if not properly managed may

jeopardise the existence of the organisation. Banks are expected to develop liquidity risk management framework that must be comprehensive and all-encompassing and should cover the formulation of overall liquidity risk strategy, policies, procedures, risk identification, measurement, monitoring and control process failure which may spell doom for such banks.

Operational risk can be defined as direct or indirect losses occasioned by insufficient or internal control failures resulting from systems, processes, procedures, personnel or from events that are external to the organisation. It is a risk that arises as a result of breakdown of internal processes, procedures, people, policies and systems. Thus failure to manage this risk may have serious negative impact on the performance of the banks as well as be a determinant factor in the continuous operations and existence of the bank (CBN, 2014; Chockalingam *et al*., 2018 [13]). Reputational risk is the risk that is related to trust that an organisation will act in a particular way without deviation. It is an attribute that is built over time. Banking as a business of trust depends on the image, credibility, competence and integrity of the bank. The business of banking is exclusively reliant of the trust that customers fund will be safe and could be withdrawn whenever it is needed or at maturity of the deposit. Decline in the level of trust on a bank would lead to a run off on the bank thus not only affecting the performance of the bank but also jeopardises the existence of the bank (CBN, 2014; Deloitte, 2015 [17]).

Counterparty risk refers to situation where an entity in a contract fails in his contractual obligation. It could also be referred to as a default risk which became prominent after the onset of the global financial crises (CBN, 2014). The subprimed lending that led to the collapse of the US real estate market worsened due to the failures of the insurance counterparties to execute their obligations, hence the need to pay attention to the management of counterparty risk. Legal/ regulatory/ compliance risk arises from the contractual agreement that banks undertake. This risk could also arise as a result of government suddenly amending laws in a way that may negatively affect an investor's position or from lawsuits and adverse court judgement that can disrupt or negatively affect the condition of the business entity. Compliance risk could also occur where the bank breached regulatory provisions leading to sanctions which could be detrimental to the bank. Failure to manage this risk could lead to losses arising from legal cases, penalties and sanctions that may endangered a bank's licence (CBN, 2014; Deloitte, 2015 [17]). Solvency risk is the risk that a bank cannot meet maturing obligation due to a negative net worth as the value of its assets is lower than the amount of its liabilities. This usually occurs when a bank incurs some losses from its assets because of the write–offs on securities, loans and other banks assets and as such the bank's capital base is no longer sufficient to cover the loses. The bank that could no longer meet its obligation defaults in payment thus losing its franchise value thereby becoming insolvent. To avoid such risk, banks are expected to keep an adequate buffer of capital to enable the bank absorb the losses by reducing its capital so as to remain solvent (Almarzoqi *et al*., 2015) [3].

The risk management process involves Risk identification which is the process of acquiring information on events that may have the likelihood of impacting the organisation with potential losses, risk assessment which assists the organisation to recognise which risks possesses probable opportunities and which risk portend impending danger. Risk evaluation provides a clear outline of vulnerabilities that require immediate actions. Risk mitigation helps to potential risk from crystallising by adopting methods such as reduction of the impact of the risk, avoiding such risk entirely, retain the risk, share or transfer the risk (COSO, 2004) [14]. Earnings Per Share (EPS) can be described as the financial ratio of net income to the number of ordinary shares for a specific year. It is the measure of the amount of a company's net profit that is available for payment to the ordinary holders of its common stock, thus it is arrived at by dividing net income by the numbers of available shares (Kittipat & Nopadol, 2014; Oyerogba *et al*., 2016) [24, 33]. The earnings per share value is calculated as the net income divided by the available shares.

Previous studies in the field of risk management and performance had identified some of the theories associated with the study such as the Agency theory, stewardship theory, stakeholder theory and Moral Hazard theory to mention a few. The Agency theory explains the relationship between the owners of organisation (principals) and the managers who are agents. The theory posits that the agents' goals may be different from that of the principals leading to conflict of interests as the agents may engage in extremely high risk activities to meet their personal goals as against the overall goals of the principal (Jensen & Meckling, 1976; Cullen *et al*, 2006) [22, 16]. The Moral Hazard theory describes any condition in which someone makes the decision about the level of risk to be taken, while another party bears the brunt when things go bad. Consequently, the Moral Hazard theory explains that the relationship between shareholders and banks management could induces a moral hazard condition since the shareholders are the ultimate loser who bears the brunt and the consequences if it fails (Krugman, 2009) [25]. Nevertheless, effective and good risk management cannot be explained just by one or two theories but by a combination of several theories.

Odigbo (2022) [30] assessed the effect of enterprise risk management (ERM) on the financial performance of DMBs in Nigeria with the specific objective to determine the effect of ERM on earnings per share (EPS) and market value using Tobin Q with leverage and firm size as the independent variables. The study adopted a sample of five (5) DMBs in Nigeria covering a six (6) year period from 2015 – 2020. Multiple regression analysis used to test the hypothesis yielded a positive and significant relationship between ERM and financial performance. This study though very relevant to the current study differs in that it adopted only 5 DMBs as against 12 in the current study. Further the study utilised only two (2) independent variables in the analysis unlike the current study which incorporated all the nine variables stipulated in the CBN 2014 framework.

Ololade *et al*., (2023) [32] reviewed the effect of risk management and performance of deposit money banks in Nigeria using earnings and ROE as the profitability proxy and capital adequacy risk, credit risk and liquidity risk as proxy for risk management. While management quality was adopted as control variable. A sample of 8 deposit money banks with international authorisation were taken from a population of 12 covering a period of 2008 to 2019. The study adopted disaggregated method panel data analysis and found that both liquidity and capital adequacy risk exert a negative but insignificant effect on profitability. On the

other hand, credit risk and management quality had positive and significant effect on earnings thus concluding that credit risk and management quality significantly had an overall positive effect on the profitability of the banks. This review did not consider all the risk management variables as specifically dictated by the CBN (2014) framework thus creating a gap in literature which the current study seeks to bridge.

Mehri (2015) [28] reviewed the effects of financial risks on the EPS and stock returns of companies on the Iran stock exchange using secondary data from sixty-five (65) companies' annual reports which span six years from 2008 to 2013. Three financial risk variables of liquidity, credit and solvency risk were adopted as risk management variables while EPS and stock shares were reviewed as dependent variables. Linear and multiple regression analysis conducted on the variables revealed that there were a negative and significant effects on credit and solvency risk with the relationship on earnings per share and stock returns but the effect on liquidity risk was insignificant. The major shortfall of Mehri (2015) [28] study was that it concentrated on only three out of the nine risk management variables which form the crust of the current study. Besides the scope and jurisdiction of the study was totally different from that of the current study.

Also Oyerogba *et al*., (2016) [33] reviewed the existing relationship between the practice of risk management of banks in Nigeria and their financial performance using samples from banks listed on the stock exchange covering a ten years period from 2005 to 2014 with focus on 21 Nigerian commercial banks. The assessment focussed on how management of market risk, operational risk and credit risk among other variables has affected the profitability proxied by ROCE and EPS of the reviewed Nigeria DMBs. The study employed both secondary and primary sources of data in the investigation and noted a positive and statistically significant relationship between risk management practices adopted and profitability.

Yahaya *et al*., (2015) [39] studied risk management and profitability variables of ROA and ROE in deposit money banks in Nigeria using business risk, firm risk, liquidity and leverage as IVs, while size and age were used as moderating variables. The study covered a period of 2005 to 2014 with data collected from fifteen listed deposit money banks on the NSE with a total sample observation of 150. Findings from the study revealed that profitability is positively related to the risk management mechanisms and liquidity policies adopted by the banks. The study concluded that credit risk and liquidity management policies are critical to high financial performance. This study limited the risk management variables reviewed to only four variables but did not consider other emerging risk management variables especially as recommended by CBN (2014) thereby limiting the scope of the study thus creating a gap which the current study seeks to bridge.

Adeusi *et al*., (2013) [1] assessed the relationship between risk management practices and Nigerian banks' financial performance (ROA and ROE) using Secondary data sourced from 4 years financial statements of ten (10) Nigerian banks from 2006 to 2009, while risk management variables used were liquidity, credit and capital risk. Other variables include managed funds, equity to total asset ratio, equity to loan ratio and debit-equity ratio. Findings of the study revealed an inverse relationship between ROA and ROE and doubtful loans, while capital asset ratio was found to be positive and significant thus concluded that there was a significant inverse relationship between banks profitability and credit risk management. Again the major difference between the Adeusi *et al*. (2013) [1] and this current study is that the study dwelt mainly on traditional risk management practices with no consideration for the other emerging risk management practices. The results from these reviews revealed mixed outcome as the studies on risk management variables and its effect on banks profitability clearly shows that research in this field is still on going and inconclusive.

3. Methodology

This study adopted the *ex-post facto* research design and employed a two-point filter, that is: (i) Banks must have been operational and listed on the NSE as at December 2013 and remained listed till 31st December 2022. (ii) Bank must be at least with national authorisation because of the specific risks common to them all to produce twelve banks as noted in Table 1.

Table 1*:* Sample Size: Listed DMBs with Minimum of National Authorisation

S. No	Bank Name	Year of Incorporation	Year of Listing	Sample Selection
i	Access Bank	1989	1998	√
ii	Eco Bank	1985	2006	not selected
iii	Fidelity Bank	1987	2005	√
iv	FCMB	1982	2004	√
v	First Bank	1894	1971	√
vi	Guaranty Trust	1990	1996	√
vii	Jaiz Bank	2003	2017	not selected
viii	Stanbic IBTC	1989	2005	√
ix	Sterling Bank	1960	1993	√
x	UBN	1969	2012	√
xi	UBA	1961	1970	√
xii	Unity Bank	1987	2005	√
xiii	Wema bank	1945	1991	√
xiv	Zenith bank	1990	2004	√

Note: Generated by the author from CBN and NSE on 31st August. (2023)

Data from secondary sources was analysed using descriptive statistics and multiple regression analysis (OLS). The dependent variable was proxied by EPS while the independent variables were proxied by SGR, MKR, CRR, LQR, OPR, RPR, CPR, LCR and SVR. The control variables bank size (BKZ) and bank deposit (BKD) were adopted as represented in the model.

$$\mathbf{EPS_{it}}=\beta_{0it}+\beta_1 SGR_{it}+\beta_2 MKR_{it}+\beta_3 CRR_{it}+\beta_4 LQR_{it}+\beta_5 OPR_{it}+\beta_6 RPR_{it}+\beta_7 CPR_{it}+\beta_8 LCR_{it}+\beta_9 SVR_{it}+\beta_{10} BKZ_{it}+\beta_{11} BKD_{it}+\varepsilon_{it}$$

Where:

EPS = Earnings Per Share. SGR = Strategic Risk. MKR = Market Risk. CPR = Counterparty Risk. CRR = Credit Risk. LQR = Liquidity Risk. LCR = legal/ Compliance Risks. OPR = Operational Risks. RPR = Reputational Risk. SVR = Solvency Risks. BKZ = Bank Size: weighted average log of the year-end total assets

BKD = Bank Deposit measured as a log of the year-end total deposit, i = bank holding identifier. t = year. β = Beta coefficient (measure of sensitivity or correlation).

ε = error term (A constant error term ε to satisfy the first assumption of the Classical Linear Regression Model that the expected value of the errors must be zero).

The dependent variable proxy for profitability adopted is Earnings per share (EPS) while the Diagnostic tests conducted includes Pearson correlation coefficients, Shapiro-wilk Normality test, multicollinearity tests using tolerance level (TL) and variance inflation factor (VIF). Summarily, Table 2 presents the detail of variables measured, proxies adopted and their codes.

Table 2: Summary of Variables Measurement, Proxies and their Codes

Variables (Codes)	Proxy	Measurement	Source
Profitability	Earnings Per Share (EPS)	(NPAT – Pref. Div.)/ Total Equity	(Oyerogba *et al*, 2016) [33]
Strategic Risk (SGR)	Leverage Ratio	Total Liability to total net asset (TL)/TNA=(E+D+N)/TNA	(Sagara *et al*., 2019) [35].
Credit Risk (CRR)	Non-performing loan to Total loan ratio(NPL/TL)	Total reg. impairment (TRI)/ Total loan(TL)	(Fabrice, 2018) [19].
Market Risk (MKR)	Book to Market Rati	Book Value of equity/ Market Value of equity (BVe/ MVe)	(Kassi *et al*., 2019) [23].
Operational Risk (OPR)	Operating efficiency Ratio	Operating Cost to Net profit (OC/NP)	(Yvonne, 2013) [40].
Liquidity Risk (LQR)	Loans to deposit ratio	Loan and advances to Total Deposit. (LA/TD)	(Tijani & Abdullahi, 2021) [36].
Reputational Risk (RPR)	Negative media, disclosure of antitrust issue and fraud losses	$\frac{f(NM+ TI+ FL)}{3}$	(Murphy *et al*., 2004) [29].
Counterparty Risk (CPR)	Disclosure of methods, policy and impact of off balance sheet engagement	$\frac{f(CM+ CP+ CI)}{3}$	(CBN, 2014).
Legal/Compliance/ Regulatory Risk (LCR)	Litigation cases and regulatory penalties disclosure	$\frac{f(LI+ NC+ RS)}{3}$	(Deloitte, 2015; Malm *et al*, 2023) [17, 26].
Solvency Risk (SVR)	Shareholders equity ratio	Total equity /Total asset	(Pierret, 2015) [34].
Control Variable 1	Bank Size (BKZ)	Weighted Ave Log of Total asset	Cornett, *et al*, (2006)
Control Variable 2	Bank Deposit (BKD)	Log of Bank Deposit	(Hassan, 2011) [20]

Source: Author's literature review

4. Data presentation analysis and Interpretation

Table 3 describe the statistics of the dependent variable Eps and independent variables of risk management with the EPS mean of 24% showing a weak performance level for the banks with highest max achievement at 78%.

Table 3: Descriptive Statistics

Variables	Obs	Mean	Std. Dev	Min	Max
EPS	120	0.2350	0.2177	0.0058	0.7780
SGR	120	0.0952	0.0216	0.0684	0.1951
MKR	120	0.1878	0.1860	0.0001	0.9419
CRR	120	0.0505	0.0417	0.0050	0.3938
LQR	120	0.6477	0.1592	0.1035	0.9671
OPR	120	0.0705	0.0584	0.0082	0.2947
RPR	120	0.0478	0.0260	0.0042	0.1000
CPR	120	1.000	-	1.0000	1.0000
LCR	120	0.2757	0.2443	0.0001	0.6668
SVR	120	0.1300	0.0433	0.0572	0.3958
BKZ	120	0.0930	0.0040	0.0819	0.1010
BKD	120	0.0910	0.0040	0.8340	0.0996

Source: Output of data analysis STATA 15

The independent variables revealed that strategic risk (SGR) has a mean of 10%, Market risk (MKR) 19% and credit risk (CRR) stands at 5%. However, liquidity (LQR) accounts for a mean of 65% while operational risk (OPR) had a mean of 7%. Reputational risk (RPR) is 5% and Counterparty risk (CPR) stands at 10%. Legal and compliance Risk has a mean of 28% while solvency risk stands at 13%. The control variables of bank size (BKZ) and bank deposit (BKD) however stands at 9% respectively.

Diagnostic Tests

Pearson Correlation Coefficient test revealed collinearity on variable CPR, consequently CPR was omitted in the computation while the correlation test did not show any significant multicollinearity with EPS. The VIF and TV diagnostic test also shows the highest VIF at 1.57 while lowest tolerance value is 0.64. which means that the variables are all within the acceptable value also indicating no significant multicollinearity. However, the Shapiro-Wilk W test shows evidence that data were not normally distributed as shown by the *P-Values* which are significant even at *1%* that is *P<0.01* therefore, the null hypothesis for the variables assuming data is normally distributed is rejected and non-normality is assumed.

Further, the IM- White test and Cameron & Trivedi's decomposition test also shows presence of heteroscedasticity with Chi^2 (65) = 102.68 and Prob > Chi^2 =0.002. Therefore, to deal with these anomaly, the Huber-White Sandwich estimator for robustness was used to estimate the standard residual error thereby taking care of the initial heteroscedasticity problem (Williams, 2000; Wooldridge, 2010) [37, 38]. It is this final robustness regression result that was used to estimate the regression analysis model.

Regression Analysis

The R^2 from the Huber-White Sandwich estimator of robustness is 40% as shown in Table 4. This implies that 40% variance of banks profitability measured by earnings per share is accounted for by variation in risk management. Since the result gave a significant level of 0.000 thus P<

0.01, therefore Hypothesis H_0 which states that risk management have no significant effect on profitability of DMBs in Nigeria is rejected while we accept the alternative hypothesis. Therefore, the regression result from the model as depicted in Table 4 can be represented as:

EPS= 0.09 + 0.26SGR + 0.16MKR + 0.13CRR - 0.21LQR - 1.85OPR - 0.77RPR + 0.15LCR + 0.96SVR + 0.35BKZ – 0.01BKD

Table 4: Summary of Regression Result (EPS)

EPS	Coef.	T	P>|t| Sig
SGR	0.257	0.39	0.694
CRR	0.133	0.26	0.796
MKR	0.157	1.11	0.271
OPR	-1.854	-4.80	0.000 ***
LQR	-0.207	-2.06	0.042**
RPR	-0.772	-1.34	0.184
LCR	0.150	2.55	0.012**
SVR	0.959	1.35	0.180
BKZ	0.352	0.40	0.692
BKD	-0.014	-0.30	0.764
_cons	0.089	0.11	0.911
Number of obs		120	
F(10, 109)		6.56	
Prob > F		0.000	
R-squared		0.3979	
Root MSE		0.17655	

Source: Output of data analysis STATA 15

This result further revealed that strategic risk (SGR), credit risk (CRR), market risk (MKR) and solvency risk (SVR) individually have positive but insignificant effect on EPS. While legal and compliance risk (LCR) have positive and significant effect on EPS at 5%. On the other hand, liquidity risk (LQR) and operational risk (OPR) both has negative and significant effect while reputational risk (RPR) has negative but insignificant effect on EPS. Also the control variables of bank size (BKZ) and bank deposit (BKD) recorded insignificant positive and negative effect respectively on the earnings per share.

It is of note that none of the previous works reviewed considered all the risk management variables of the CBN 2014 framework, yet their results have some semblance with the result of this study. For example, Odigbo (2022) [30] and Oyerogba *et al*. (2016) [33] finds an overall positive and significant effect on earnings per share. Similarly Ololade *et al* (2023) [32] noted an overall positive effect on earnings just as Yahaya *et al* (2015) [39] also recorded a positive relationship between risk management and profitability. However, Mehri (2015) [28] recorded negative relationship with profitability as measured by earnings per share.

5. Findings Conclusions and Recommendations

The result revealed a high compliance level with the risk management codes of strategic risk, market risk, credit risk and solvency risk which leads to an overall positive and significant effect on the profitability of DMBs in Nigeria as measured by earnings per share meaning that increased management of these codes will actually have a combined improvement effect on profitability of the banks. The study further finds that liquidity risk and operational risk has a negative effect on profitability of the bank meaning that increased liquidity without properly channelling same towards generating productive assets would not guarantee improved profits.

Conclusively, the CBN framework which introduced nine risk management codes as against the traditional four codes initially in place had assisted the banks in improving profitability and performance of Nigeria DMBs. Thus banks that paid proper attention to the risk management elements introduced actually recorded overall improved profitability within the years of review. Consequently, this study recommends that employees of banks and regulators, policy makers and monitoring agencies such as CBN, NDIC, AMCON, NFIU, ICPC and those vested with supervisory responsibilities on the banks to pay attention to identification of new and emerging risks, review and treatment of such risks in such a way that they affect the profitability of the banks positively and the banking industry as a whole.

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