



Impacts of Operational Risk Management on Financial Performance: A Case of Commercial Banks in Nigeria

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Abstract

Increase in losses borne by banks as a result of inadequate operational risk management practices and the adverse impact on banks' financial performance has been a major concern to bank management and regulators. Hence, the purpose of this study is to analyse the impact of operational risk management practices on the financial performance of commercial banks in Nigeria. 10-years (2008 - 2017) secondary data extracted from audited financial statements of selected commercial banks in Nigeria was used for the study. The data was analysed using the Linear Multiple Regression Model. The results showed that there is a positive relationship between operational risk management and the financial performance of banks. The findings revealed that sound operational risk management practices impact positively on the financial performance of banks. We, therefore, recommend that banks' management should deploy adequate resources towards understanding operational risk to ensure sound operational risk management and improved financial performance of banks. The study is based on a limited scope; therefore, a larger sample size may make for an interesting research in the future.

Key Words: *operational risk; risk management; commercial banks; financial performance*

JEL Classifications: *G21, G32, G17*

Introduction

Banks play an essential role in the development of any economy by facilitating businesses, trade, and ensuring judicious allocation of idle funds. Banks are also pivotal in the implementation of government monetary policies (Nguyen, Vu & Le, 2017). However, the inability of banks to meet its intermediation obligations introduces some vulnerability into the financial system. In fact, some studies have shown that inadequate management of these vulnerabilities may fuel a sovereign debt crisis (Jongh, Jongh, Jongh & Vuuren, 2013). Though risk taking is an integral part of banking, albeit, bank management should balance its risk and return to make adequate profit and remain a going concern, else, the bank, financial system and the economy at large may be adversely impacted; as was the case of the Asian Financial crisis of 1997 - 1998. Banks are susceptible to two categories of risks: financial and non-financial risks. Financial risks are a result of the business operations/transactions of the bank and can be further categorized into credit risk, and market and liquidity risk. Non-financial risk on the other hand impact negatively on performance as a result of management failure, competitions, external factors etc. Non-financial risks mainly include operational risk, strategic risk and compliance risks (Patel, 2015).

Prior to the recent decade, attention of banks had been on the financial risks (credit risk and market risk). However, following the collapse of some giant organizations like Enron and WorldCom and the financial crisis of 2008, there has been an increase into the studies of the root causes of these loss events. Surprisingly, many of the studies alluded these failures to inadequate management of operational risks. Chernobai, Jorion and Yu (2011) asserted that several high-profile losses were linked to operational risk; an example is the \$7.2billion loss at Société Générale of 2008 which was largely due to absence of internal controls and unmanaged operational risks. Jongh et al. (2013) asserted that the 2008 financial crisis resulted from failure to manage operational risk in banks and mortgage brokers. These myriads of issues have made regulators beam more light on the banking industry and increase the demand for better management of operational risks. More than ever, regulators are now stricter with financial institutions who flout their regulations on operational risk management as can be seen in the Aviva and Wells Fargo cases of 2016 where they both paid £8.2 million and \$187.5 million respectively in penalties for failure to maintain adequate internal controls and manage their operational risks (Risk Net, 2019). These sanctions ultimately impacted their financial performance for those periods. Despite regulatory involvement through issuance of various policy frameworks and supervision, public world data still suggests improper operational risk management practices as evidenced by the huge operational losses recorded by some organisations presumed to have a robust risk management system (Pakhchanyan, 2016; Bain & Company, 2018). For instance, major operational losses of \$175.5m and \$22m were recorded by Bank of America and Citigroup respectively in 2012 as well as \$1b and €252m by Rabobank and Fondiaria-SIA in 2013 (Pakhchanyan, 2016). The Nigerian Banking industry is also not exempted as it still battles with weak risk management practices resulting from lack of elemental control which is ordinarily within their internal sphere of influence (CBN, 2014). The importance of operational risk management cannot be overemphasized as it will help to promptly identify prohibited activities, reduce future risk exposure and ultimately lead to a decrease in operational losses (Habib, Masood, Hassan, Mubin & Baig, 2014).

This study therefore analysed the impact of operational risk management practices on the financial performance of commercial banks in Nigeria. Due to time and cost constraints however, six (6) (out of the 20 licensed commercial banks in Nigeria at the time of this study) were used for this study.

Literature Review

Operational risk is not a new risk; it is simply a tagging of some old risks by regulators to improve the visibility of such risks and drive the culture of self-regulation of banking operations (Hemrit & Arab, 2013; Power, 2003). The notion of operational risk became prominent after the collapse of Barings Bank in 1995 and the 1998 Long-Term Capital Management (LTCM) crisis which investigation credited to failure of operational risk

management (Peter, Gordon & Yueran 2018; Siminyu, Clive & Musiega, 2017; Hussain & Shafi, 2014). Prior to this period, operational risk was neglected and viewed as a mere residual risk, that is, part of other risks type that falls outside the purview of market risks and credit risks (Siminyu; Clive & Musiega, 2017; Power, 2003). Following these events, Basel II recognized operational risk as a separate risk class different from credit and market risk (Abdullah, Farouk & Bassam, 2018). The hype by regulators and the eventual inclusion of Operational Risk in Basel II; as one of the risk types attracting regulatory capital, drove the wide acceptance and institutionalization of operational risks (ORX, 2018).

The importance of operational risk management cannot be overemphasized. Inadequate operational risk management can result in unpredictable financial performances. It can also impact negatively on banks' revenues and erode banks' net worth, most importantly, it can have calamitous systemic consequences as was highlighted on the part alluded to have been played by operational risk in the 2008 financial crisis (Muriithi & Waweru, 2017). Effective operational risk management will lead to lower capital charge, improved decision making, improved customer and staff satisfaction and improved regulatory compliance (Accenture, 2015). Effective management of operational risks will also assist in reducing operational losses, reduce compliance and audit costs, prompt identification of illegal activities and reduce exposure to future risks (Habib, Masood, Hassan, Mubin & Baig, 2014). Effective operational risk management will also help banks to identify all the risks that they are exposed to, including those that they do not have the expertise or experience to manage, thereby helping them to put frameworks in place to reduce such risks and the associated impact if it crystallizes which in turn makes them less vulnerable to systemic problems (Barbu, Olteanu & Radu, 2008).

There are eleven fundamental principles guiding the practices of operational risk management in banks. Basically, the principles place great responsibility on the board of directors and senior management in embedment of sound operational risk management in banks. It outlines the importance of having appropriate frameworks, systems, policies and standards in place to guide bank activities at all levels (BCBS, 2011). In line with the principles of operational risk management, the three line of defence is a way to ensure accountability for operational risk management in banks. This entails delineating responsibilities of operational risk management to the risk owners, control functions and audit functions in the bank. The first line of defence (FLOD) is the business line. The business line should identify, own and manage risks emanating from its activities. The second line of defence typically involves the risk management and compliance functions. These functions are established to make sure that the FLOD is adequately designed and operating effectively. The third line of defence is the internal audit function which is independent and distinct from the other two lines of defence. This function reviews the governance, risk management and internal controls and provides objective assurance on their effectiveness. However, active support of board members and senior management is required for the model to be effective (Luburis, Perovic & Sekulovic, 2015).

As stipulated in the fundamental principles of operational risks, banks are expected to leverage on appropriate management tools to regularly identify and assess their operational risks. Example of some of these tools include audit findings, internal and external loss data collection & analysis, risk self-assessment, business process mapping, key risk & performance indicators, scenario analysis and comparative analysis (BCBS, 2011). Risk Control Self-Assessment (RCSA) is one of the major risk identification and assessment tools used by banks to evaluate their inherent risks, control effectiveness, and residual risks (BCBS, 2011; OSFI, 2016). Usually, RSCA is expected to be completed by the business lines in conjunction with the control functions who should review the output. RSCA should mirror the current business environment and the results of the RSCA should be monitored to ensure implementation of exceptions identified (OSFI, 2016).

Internal Loss Data Collection and Analysis is also a useful operational risk management tool as it provides important information on the trend of banks' risk exposures as well as the effectiveness of enterprise operating controls. This tool ensures that root-cause analysis is done on any material internal loss to identify the source of such loss and put measures in place to guard against its recurrence (OSFI, 2016; BCBS, 2011). Ideally, the first line of defence should capture their losses and ensure root-cause analysis is done for losses considered as material; based on the bank's risk appetite, this should however be escalated to the second line of defence for objective review (OSFI, 2016).

Operational risk data may also be collected from other external sources and compared with the organisation's internal data to identify potential exposures in the organisation's current control environment (OSFI, 2016; BCBS, 2011). Key risk/performance indicators are used to track operational risk activities by providing statistics on risks that are key to the organisation. Key Indicators assist organisations to identify areas of weaknesses in its operative controls by identifying risk trends over time. To achieve this, an acceptable threshold is set, and triggers are put in place to warn stakeholders when risk level is higher than expected for prompt remediation before such risk crystallizes (OSFI, 2016; BCBS, 2011).

Another common tool used to identify operational risks is the Business Process Mapping which involves illustrating essential business process in diagrams (using boxes and arrows). The tool diagrams a process from start to finish and allows stakeholders have holistic view of the different facet of the process including the sequence of activities and the responsible persons. The graphical illustration is powerful as it allows stakeholders identify process and control loopholes (Bradford & Gerard, 2015).

Scenario analysis is an important operational risk management tool that can be used unearth vital aspects of an event that with high chance of being missed. The tool helps to navigate events that portend great impact on an organisation's future. It involves evaluating possible future possibilities of a phenomena by leveraging on the current knowledge of that same phenomena of the entity and the environments it operates (Dutta & Babbel, 2014). In banks, it entails obtaining the opinions of experts as well as the opinions of risk officers to identify possible operational risk events along with the associated probable outcome. The tool is useful in identifying probable sources of operational risks that are significant. However, due to its subjectivity, there must be an effective framework in place to drive the integrity and embedment of the process (BCBS, 2011). Comparative Analysis tool is also used to manage operational risks exposures. The process involves comparing the results from the various operational risk assessment tools to provide a holistic view of the bank's operational risk profile. It can be used to compare results of the various tools and highlight consistent significant risks for an enhanced understanding of the bank's exposure to such operational risk events (BCBS, 2011; OSFI, 2016). Banks may also leverage on audit findings to get better understanding of the inherent risks resulting from various both internal and external factors (BCBS, 2011).

Though operational risks have been institutionalized in banks, there are still indications that this risk is not properly managed. For example, available consortium data showed that major banks have suffered nearly \$210bn in losses between 2011 and 2016 due to operational risk (Bain & Company, 2018). These operational losses negatively impact the performance of banks as it reduces the profit declared by the banks (Levy, Samandari & Simoes, 2019; Ayodele & Alabi, 2014). Banks must therefore take appropriate steps to manage their operational risks to reduce the direct impact on their financial performances (Bain & Company, 2018).

Several studies have been conducted to examine the relationship between operational risk management and financial performance of banks. One of the pioneer studies in this regard was the study on the effect of risk management practices on the financial performance of commercial banks in Ethiopia by Bekele (2015). The study used secondary data collected from the annual reports of eight (8) sampled commercial banks in Ethiopia from 2004-2013. The independent variables considered included credit risk (measured by non-performing loan ratio), liquidity risk (measured by liquidity ratio) and operational risk (measured by efficiency on assets utilization, bank size and cost ratios). Financial performance was the dependent variable which was measured by ROA. The data was analysed using the multiple regression model and revealed that credit risk and liquidity risk both have negative and significant effect on performance. Although one of the proxies of operational risk management (bank asset size ratio) had positive and insignificant effect on the financial performance, however, the study concluded that operational risk management have positive and significant statistical impact on banks' performance.

Muriithi (2016) investigated the effect of market risk, credit risk, liquidity risk and operational risk on financial performance of commercial banks in Kenya. The study used secondary data for 10 years between 2005 to 2014, which were extracted from the audited annual reports of all the forty-three (43) licensed commercial banks in Kenya. Utilizing an unbalanced panel data, the data collected were analysed using regression equations. The predictors considered in the study include market risk, liquidity risk, credit risk and operational risk. Credit risk was measured by asset quality, loan loss provision, loan & advance and capital to risk

weighted asset; market risk was measured by financial leverage, interest rate risk, foreign currency exposure; liquidity risk was measured by liquidity coverage ratio, net stable funding and operational risk was measured by cost income ratio. The dependent variable, financial performance, was measured by ROE. The study concludes that liquidity risk, market risk, operational risk and credit risk all have a negative significant impact on the financial performance of Kenyan commercial banks and operational risk was highlighted to have the greatest impact.

Ng'aari (2016) also studied the effect of risk management practices on profitability of listed commercial banks in Kenya for the periods 2002-2015. Secondary data were collected on liquidity risk management (measured by equity capital to total capital), credit risk management (measured by total debt to total assets ratio), operational risk management (measured by asset utilization ratio) and profitability (measured by return on asset) from the audited financial statement of the banks. Credit risk management, operational risk management and liquidity risk management were the independent variables and profitability was the dependent variable. They used panel regression analysis method to analyse the data and the result showed that operational risk management, liquidity risk management and credit risk management are all positively and significantly correlated with bank profitability.

The study by Ali, Bagram and Ali (2018) on the Pakistan commercial banks also concludes that effective risk management impacts positively on bank performance. In their study, data were collected from the published annual statement of five large banks and five small banks over an eleven-year period, from 2005-2015. The independent variables were capital adequacy ratio, credit risk, interest rate risk, liquidity risk and operational risk. The dependent variable was financial performance of banks measured by ROE. The data was analysed using the regression model. The results showed that the risk management variables including credit risk, Market risk (interest rate risk), liquidity risk and operational risk have significant and negative effects on performance for large commercial banks, however, for small banks the impact of operational risk on performance was found to be significant but positive.

Furthermore, Simamora and Oswari (2019) investigated the effects of credit risk, operational risk and liquidity risk on the financial performance of banks listed in Indonesian stock exchange. The study used secondary data extracted from the financial reports of five (5) sampled banks out of the 43 licensed banks in Ethiopia from 2009-2017. The predictors used were credit risk (measured by non-performing loan ratio), liquidity risk (measured by loan to deposit ratio) and operational risk (measured by operational cost to operational income). Financial performance was the dependent variable which was measured by ROA. The data was analysed using the multiple linear regression model and showed that operational risk and liquidity risk had significant negative effect on financial performance. Credit risk was however found to have no effect on financial performance.

Based on the results posited by previous researchers and the objective of this study, the understated hypothesis was formulated:

Ho: Operational risk management practices do not impact positively on the financial performance of banks.

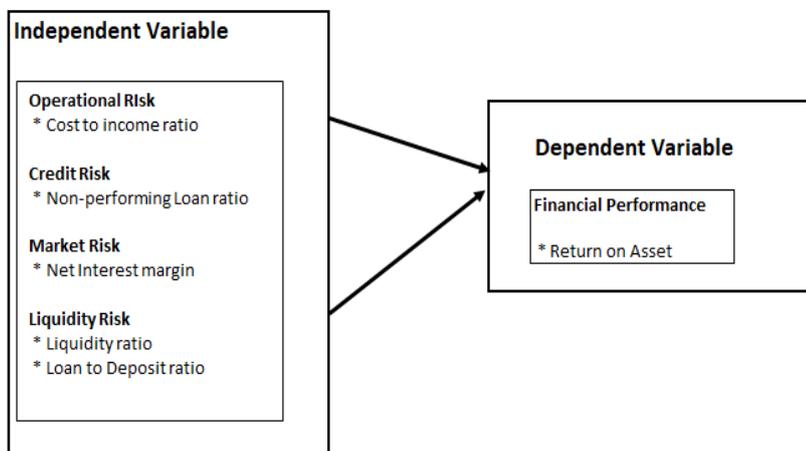
Hi: Operational risk management practices impact positively on the financial performance of banks.

Research and Methodology

The study employed longitudinal (panel) research design. According to Heather (2018), a longitudinal study involves collection of repeated observations of a sample at regular intervals over several periods. The generation of a longitudinal data via panel study is very useful as it can be analysed to monitor trends, inter-relate variables and predict future effects of the observed factors. The population of the study consisted of the 20 licensed commercial banks in Nigeria; as at the time of the study, however, quota sampling technique was used to stratify the population along their years of operations into 'old', 'not so old' and 'relatively new' categories and two banks were thereafter selected from each category. The banks selected for the study include: First Bank Nig. Ltd (Founded in 1894), Union Bank Plc (Founded in 1917), Access Bank Plc (Founded in 1989), Fidelity Bank (Founded in 1988), Zenith Bank (Founded in 1990) and Stanbic IBTC

(Founded in 1991). This study observed the sample of balanced panel datasets of measures of Operational risk, Credit risk and Market & Liquidity risks which were collected from the audited financial statements of the selected banks for 10-years (2008-2017) consisting of 60 observations. The researcher used ratios to measure the variables to mitigate against the effect of inflation. The research framework is given in figure 1.

Figure 1: Research Framework



Source: Authors

Return on Asset (ROA): ROA is measured as ratio of net profit after tax to total assets and provides information on management's ability to generate income from using the assets of the business. ROA is a key performance indicator for banks and it is used to monitor changes in the efficient use of assets over time (Osman & Iddrisu, 2015). This study therefore used ROA as a measure of Financial Performance.

Cost to Income ratio (CIR): This study operationalized operational risk as CIR which represents the ratio of operating costs (minus bad and doubtful debt) to the net interest income (including non-interest income of the bank). The CIR was used as a proxy for operational loss as it shows the controllable non-interest costs incurred by the management and staff during business operations.

Loan to Deposit ratio (LTDR): LTDR measures bank's ability to convert deposits into loans, a higher ratio suggests that the bank can manage with a low level of cash and tradeable investments (Murthy, 2004) and vice versa.

Liquidity ratio (LQR): This measured as a percentage of 'total specified liquid assets' to 'total current liabilities' (CBN, 2009).

Net Interest Margin (NIM): Market risk was proxied by NIM which was computed as the ratio of net interest income to total assets. This ratio was used because it is a true measure of bank's ability to manage interest rates (Murthy, 2004).

Non-Performing Loan Ratio (NPLR): NPLR shows the quality of bank loans (Li & Zou, 2014, pg. 39). Banks are primarily in the business of lending and are inherently exposed to default risk. This means that loans will constitute the biggest driver of credit risk to banks. Thus, NPLR was used as a measure of Credit risk for this study. NPLR in banks is measured as the ratio of non-performing loans to total loans and advances. The summary of variables is presented in Table 1.

Table 1: Summary of Variables

	Variables	Calculation method	Proxy
Dependent Variable	ROA	Net profit/Total Asset	Proxy of financial performance
	CIR	Operating costs (minus bad and doubtful debt)/ Net interest income (including non-interest income of the bank)	Proxy of operational risk
Independent Variables	NPLR	Non-performing loans/ Total loans and advances	Proxy of credit risk
	LQR	Total specified liquid assets/Total current liabilities	Proxy of liquidity risk
	LTDR	Total Loan/Total Deposit	Proxy of liquidity risk
	NIM	Net interest income/ Total assets	Proxy of market risk

Source: Authors

In line with the objective of this study, the impact of operational risk practices on bank performance was analysed using multiple linear regression model in the form:

$$Y = a + \beta_1LTDR + \beta_2LQR + \beta_3NIM + \beta_4NPLR + \beta_5CIR + \epsilon$$

Where;

- a = constant/the interception point of the regression line
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = the coefficients of the independent variables
- ϵ represent the Error term

Data Analysis and Results

The summary of the descriptive statistics of the variables is presented in Table 2.

Table 2: Summary of Descriptive Statistics - Structured review of financial statements

Variable	ROA	LTDR	NPLR	LQR	NIM	CIR
Mean	0.0211	0.6502	0.0537	0.5052	0.0635	0.6449
Standard Error	0.0015	0.0179	0.0027	0.0193	0.0020	0.0113
Standard Deviation	0.0114	0.1385	0.0208	0.1495	0.0157	0.0879
Minimum	-	0.2983	0.0270	0.2962	0.0217	0.4800
Maximum	0.0419	0.9152	0.1600	1.0230	0.0940	0.8000
Count	60	60	60	60	60	60

Source: Author's calculation

ROA has a mean of 2.11% with a minimum and maximum value of 0 and 4.19% respectively. The implication of this is that most of the selected banks make good investment decisions which earned them a good profit. The average CIR stood at 64.5% with a maximum of 80.0% and a minimum value of 48.0%. The CIR measures the percentage of operating income left after catering for the operating expenses. The mean value of 64.5% therefore implies that the selected banks has a balance of 35.5% to cushion their non-operational expenses. Generally, bank CIR should not be more than 50%. The CIR mean value of 64.5% indicates that the banks are not very efficient in managing their operational costs.

The LTDR has a mean of 65.0%, standard deviation of 1.8% with a minimum and maximum values of 29.8% and 91.5% respectively. This shows that, on the average, the sampled banks gave out N0.65 out of every N1 deposit received. The implies that the banks made judicious use of their deposit liabilities by converting some of their deposits to credit facilities to earn interest from borrowers while still being sufficiently liquid to meet daily withdrawal obligations.

Average NPLR stood at 5.4% with a maximum value of 16.0% and minimum value of 2.7%. The implication of this is that the sampled banks are able to manage their credit risks exposures within a reasonable threshold. The average liquidity ratio stood at 50.5% with a maximum and minimum values of 102.3% and 29.6%. This implies that on the average, the selected banks have adequate liquid buffers to effectively carry out their intermediation role.

The NIM has a mean value of 6.35% with a minimum value of 2.1% and a maximum value of 4.4%. The NIM is a proxy of interest rate risk and shows the profit recorded by the banks from interest earning transactions. The mean value of 6.35% implies that the selected banks recorded marginal profit on their credit activities within the period studied.

Multicollinearity implies that the predictors are closely related (i.e. provides same information) and hence makes it difficult to estimate the statistical significance of each individual predictor which ultimately affects the regression estimates. If two predictors are found to be related, one of such predictors would need to be dropped to resolve the problem. As a rule, a correlation coefficient that is close to +/-1 is considered as high while coefficient of zero connotes that there is no relationship between the variables (Muriithi, 2016). The coefficient matrix is used to test for multicollinearity between variables. The correlation matrix is presented in Table 3.

Table 3: Correlation Matrix

Variables	CIR	NIM	LQR	LTDR	NPLR
CIR	1				
NIM	-0.2332	1			
LQR	-0.3439	0.02024	1		
LTDR	-0.1177	0.0357	-0.243	1	
NPLR	0.09759	0.14991	-0.0164	-0.0361	1

Source: Author's calculation

The result shows that the maximum correlation coefficient of -0.3439 is found between LQR and CIR which is within an acceptable limit. This therefore implies that there is no presence of multicollinearity between the independent variables used for the study.

In addition to the descriptive analysis, the study used a cross-sectional OLS regression method to analyse risk management factors that can impact on bank performance. Table 4 shows the estimates for the OLS regression for the banks' financial performance predictors over the period 2008 - 2017.

Table 4: Summary of the Regression Model

<i>Regression Statistics</i>	
Multiple R	0.714811
R Square	0.510955
Adjusted R Square	0.465673
Standard Error	0.008331
Observations	60

Source: Author's calculation

Table 4 shows that the regression model significantly explains the relationship between the dependent and independent variables. The Adjusted R² is 0.4657 which means that 46.57% of variations in ROA are explained by the independent variables. This also implies that bank's risk management practices have moderate impact on their financial performance. The standard error (SE) of the 95% confidence interval (C.I)

of the model is estimated to be 0.83% which is far lower than the 2.5% (5%/2) threshold. This suggest that 95% of the observed values lie within the regression line +/-1.66% SE and suggests that the model is sufficiently precise.

Table 5: ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	0.003915	0.000783	11.28387	1.77784E-07
Residual	54	0.003748	6.94E-05		
Total	59	0.007663			

Source: Author's calculation

The calculated F-statistics further confirms the significance of the relationship between the risk management proxies and the financial performance of Nigerian commercial banks. This is because the P- value, 1.77784E-07, of the model is less than 0.05 which implies that there is a significant relationship between risk management practices and banks' financial performance at 95% level significance level.

To test the stability of the relationship between Operational risk management practices and financial performance of Nigerian commercial banks further, the researcher divided the 10-year time horizon to 2 sub-periods of 5 years each and re-performed the regression analysis to test the null hypothesis. Here, the control variables were not considered. The summarized regression results are shown in Table 6.

Table 6: Results of Stability Test

Cost to Income ratio (CIR)	Statistics	2008 - 2012	2013 - 2017
	Correlation Coefficient	-0.07986538	-0.05323579
	P-Values	0.00096717	0.016445521
	Adjusted R-Squared	0.30273119	0.159758726

Source: Author's calculation

Table 6 shows that the p-values of the two sub-periods of 5 years each (i.e. 0.00096717 and 0.016445521) are far lower than the 0.05 significant level; which is consistent with the 10years results. By this result, the null hypothesis is again rejected and the alternate hypothesis is accepted. Also, like the 10 years' regression result, there is an obvious and recurring negative correlation pattern between CIR and ROA (i.e. -0.07986538 and -0.05323579 in 2008 - 2012 and 2013 - 2017 sub-periods respectively). The results, therefore, confirms that there is a negative relationship between CIR and ROA. Consequently, we established that there are sufficient evidences to reject the null hypothesis and conclude that operational risk management practices impacted on the financial performance of commercial banks in Nigeria.

The hypothesis formulated above, shown below, is validated in this sub-section.

Ho: Operational risk management practices do not impact positively on the financial performance of banks.

To validate the hypothesis, test statistics were computed for 10 years' data on operational risk proxy, CIR and other risk management types (i.e. credit risk proxied by NPLR; and market & liquidity risk proxied by NIM, LQR and LTDR). The credit risk as well as market & liquidity risk proxies served as the control variables for the study. The results are shown in Table 7.

Table 7: Coefficients of Determination

Variables	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.021960746	0.015289379	1.4363399	0.156674	-0.008692614	0.052614105
CIR	-0.036361034	0.013999254	-2.5973551	0.012081	-0.064427849	-0.008294219
NIM	0.22456528	0.072585635	3.0937979	0.0031272	0.079039845	0.370090715
LQR	0.017928295	0.008131443	2.204811	0.0317471	0.001625733	0.034230857
LTDR	0.017077527	0.008280325	2.0624224	0.0439919	0.000476476	0.033678579
NPLR	-0.220140889	0.053225454	-4.1360077	0.0001243	-0.3268515	-0.113430278

Source: Authors' calculation

Table 7 shows that all the regressors were statistically insignificant (at 95% level of significant) because their P-values are lower than 0.05 and so fall within the critical region. Hence, the null hypothesis (Ho) was rejected, and the alternative hypothesis (Hi) which states that 'operational risk management practices impact positively on the financial performance of banks' was accepted.

Based on the results, the regression equation stated earlier is substituted as follows:

$$Y = 0.02196 + 0.01708 \text{ LTDR} + 0.01793 \text{ LQR} + 0.22457 \text{ NIM} - 0.22014 \text{ NPLR} - 0.03636 \text{ CIR}$$

Discussions

Based on the findings of the study, all the independent variables were found to be statistically significant as their p-values were less than 0.05. As expected, there is a negative and significant relationship between CIR and ROA which suggests that increase in CIR would result to a decrease in the ROA. Holding other predictors constant, the coefficient of -0.04 suggests that a unit increase in CIR will lead to a decrease of 0.04 in ROA. This suggests that unsound operational risk management practices impacts negatively on banks' performance. This result also corroborates findings in the researches carried out by Bekele (2015), Simamora and Oswari (2019), Ali et al. (2018), Muriithi (2016), and Ng'aari (2016). The findings provided sufficient evidences to reject the null hypothesis and established that operational risk management practices influences financial performance of Nigerian commercial banks positively.

There is also a significant negative relationship between 'non-performing loan ratio' and 'ROA' which implies that an increase in 'non-performing loan' would result to reduction of banks' ROA. This is consistent with the findings of Harelimana (2017), Isanzu (2017), Almekhlafi et al. (2016), Ndoka and Islami (2016), Alshatti (2015), and Kayode et al. (2015). The findings also showed that there is a positive and significant relationship between Net interest margin and Banks' financial performance. As expected, there is a positive and significant relationship between 'loan to Deposit ratio' and 'ROA' which implies that an increase in LTDR would result to increased ROA. Contrary to expectation however, 'Liquidity ratio' was found to be positively correlated to ROA. The results of the impact of financial risk types on financial performance of banks suggests that banks must also pay attention to these risks as they can impact negatively on financial performance if they crystallize. Though banks have hitherto paid more attention to the financial risk types (i.e. credit risk and market & liquidity risks), many still do not pay the required attention to operational risk management probably due to inadequate knowledge of its impact on bank's financials. The outcome of this study further reemphasizes the importance of operational risk management and the need for banks to pay close attention to its management as it has significant effect on their financial performance. Nigerian Commercial Banks should endeavor to comply with the various policies and guidelines issued by the CBN and continuously identify emerging risks through the application of the operational risk management tools for prompt remediation of same to be able to reduce avoidable operational losses. Management of operational risk should be prioritised as it is inherent in all banking activities and has a far-reaching implication on bank's performance, reputation and going-concern.

Conclusion

This study analysed the impact of operational risk management practices on the financial performance of commercial banks in Nigeria. The findings revealed that there is a positive relationship between operational risk management practices and the financial performance of banks. The findings have two major implications for management practices. The first involves incorporating operational risk management practices in the corporate strategy of banks. To achieve this, there is need to have regular scheduled trainings on operational risk management, its benefits and applications bank-wide. Boards of banks should promote sound operational risk management and emphasis relevant key performance indicators (KPIs) in the scorecards of management staff to engender the proliferation of a positive risk culture. The second implication of the findings entails development of relevant frameworks and policies for prompt operational loss reporting and recording. Banks' management should formulate and implement relevant policies to ensure that timely information is obtained on the root-causes of operational losses, the product affected and the accumulated position of each loss type. This would improve banks' operations and enhance their performances. To achieve this, board members and management staff should be trained on the importance of operational risk management. Investments should also be made to acquire relevant operational risk management software to ensure prompt identification, analysis and reporting of risk events for prompt management information and decision making.

One of the limitation of this study was the inaccessibility of specific operational loss data for Nigerian Banks. Though each bank maintains a confidential operational loss database, there is however no country-wide central pool of losses. Keeping an integrated operational loss database is vital as it may serve as an early warning signal for more serious risks (Murphy, 2008). CBN should therefore consider developing a framework that will drive the implementation of operational loss consortium data industry-wide and make loss information available to participating banks. The consolidated data will also provide required information to the apex bank on the class of risk that is dominant and hence serve as a guide in developing effective policies that will improve the security of the financial system.

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