Assessing the Impact of Risk Management Structure on Financial Firm Performance: Evidence from Nigerian Services Sector Listed Firms

MARTINS MUSTAPHA ABU
Department of Business Administration,
Nile University of Nigeria,
Plot 681, Cadastral Zone C-OO, Research & Institution Area
Abuja, NIGERIA

ABBAS UMAR IBRAHIM
Department of Business Administration,
Nile University of Nigeria,
Plot 681, Cadastral Zone C-OO, Research & Institution Area
Abuja, NIGERIA

Abstract: -With the advancement in the global economy, corporate risk management has been more impactfully implemented by firms and equally become a topic of scholarly studies. However, most of these studies are from different contexts. The purpose of this study is to assess the relationship between enterprise risk management (ERM) structure and the financial performance of Nigerian listed Services Sector firms from 2010 to 2019. The study relates risk governance structure to firms financial performance. The ex post facto research design was adopted, and data were collected from the annual reports and accounts of selected firms with a complete set of data for the study. From the study population of 25 firms, a final sample of 21 Services Sector firms. Descriptive and inferential statistics of regression analysis stacked as panel data was employed for data analysis. The study results revealed that risk management committee had a negative and insignificant relationship with ROA but significant with Tobin-Q. The size of the audit committee, however, exhibited a positive and insignificant relationship with ROA but a significant relationship with Tobin-Q. Furthermore, the study revealed an insignificant negative relationship between board finance experts with all financial performance (both ROA & Tobin-Q). However, chief risk officer exhibited a positive and significant relationship with firm performance (both ROA & Tobin-Q). It was, therefore, concluded that although the firms have structures of ERM governance in place to meet the legal requirement, the innovations aimed at improving market evaluation are yet to be deeply rooted in the listed services firms in Nigeria. It contributed through evidence of mixed relationship between risk management structure and firm performance in an under-investigated context such as Nigeria. It was recommended that the firms should adopt effective risk management structural practices as a strategy for enduring growth and survival in the face of environmental complexity. Also, further research is suggested to extend the study by widening the scope and context of the research.

Key-Words: risk management structure; risk governance; performance; ROA; Tobin-q; Services firms Nigeria

Received: May 17, 2021. Revised: January 27, 2022. Accepted: February 10, 2022. Published: February 21, 2022.

1 Introduction

In recent times business managers are experiencing critical risk events in managing not just a globally diversified business but even the small businesses as well (Rubino, et al., 2017). These events are not limited to mitigating new technology risk, changing workforce demographics risk, varied financing instruments, etc. (Liff, & Wahlstrom, 2018). However, risk management has become the focus of many executives who are exploring ways to measure these risks and better understand their relationship to the overall business strategy (Alawattegama, 2018; Jankensgård, 2019; Olson, & 2020). Understanding and managing risk in a business has been seen as an improvement activity (Slagmulder, & Devoldere, 2018). However, irrespective of the effort put into improving business processes, there is always the risk that something unanticipated or uncommon may happen that may impact to a great extent if not all, facets of the organization. Therefore, to create value for the stakeholders is to minimize and mitigate the risk of

business failure. This is because risk has become one of the key important variables that impact the attainment of the objective of an enterprise (Niehaus, 2017; Salaudeen, et al., 2018).

One of the primary objectives of an enterprise is to maximize shareholders' wealth measured by performance; and this performance is the capacity of the enterprise to generate adequate earnings in the risky environment within which the business operates (Khan, & Ali, 2017; Bohnert, et al., 2017). These have become the critical factor for engaging in risk management. Also, the sources of risk and its consequences are becoming more difficult to handle. These range from sudden variations in demand to the insolvency of a key supplier, from terrorist attacks to cybercrime, etc. (McShane, 2018). The has attendant threats to the smooth running of business operations and the consequences of such risk events are on the increase (Olson, & 2020). Therefore, for most firms managing risks is not just desirable, it is essential because the risks to the smooth running of the business are not confined to major events. Therefore, the question of how to manage the risk to adequately understand their characteristics has become topmost priority of the firm.

Enterprise Risk Management (henceforth ERM), a broad approach to risk management, requires the identification, assessment, and management of risk in a unified and organized way and it consists of risk governance and risk aggregation (Ahmed, & Manab, 2016; Linke, & Florio, 2019). It has been considered as a robust framework to assess and manage the risk that an enterprise faces in achieving it's objective and to meet the standard of compliance of the creditors, rating agencies, regulators, and stock exchanges (Hoyt, & Liebenberg, 2011; Dugguh, & Diggi, 2015). ERM is becoming common in business operations, and it has been embraced as an avenue to recognize, manage, and mitigate enterprise-wide risk (Pierce, & Goldstein, 2018; Ojeka, et al., 2019). Other than being used for effective management decisions (Hoyt, & Liebenberg, 2011), ERM could foster more efficient investment allocation, robust capital structure decisions, proactive risk management decisions, and create risk responsiveness, which advances operational and strategic decision (Ojeka, et al., 2019).

The dynamic nature of the environment and the unpredictable wave of globalization have heightened the risk of firms and has resulted in declining performances of firms (Ahmed, & Manab, 2016; Slagmulder, & Devoldere, 2018). Studies also have indicated that the rate at which business initiatives becomes unsuccessful is remarkably high because of poor risk management (Karanja, 2017; Florio, & Leoni, 2017; McShane, 2018). However, inadequate attention has been given to risk management because of the associated weak and ineffective risk management structures and programmes in most businesses (Kakanda, & Salim, 2017; Yilmaz, & Flouris, 2017; Adegboye, et al., 2019). Therefore, to effectively manage the earnings volatility and return the firms to the track of growth through economic sustainability, there is the need to encourage the firms to adopt an efficient risk management model that will mitigate inherent risk in the environment (Zou et al., 2019). However, there are limited studies that highlight the problem of risk management structures and programmes especially in Nigerian firms (Salaudeen, et al., 2018; Ojeka, et al., 2019). Most studies are from contexts outside Nigeria

Therefore, the impact of risk governance structure, especially Risk Management Committee (RMC), Audit Committee (AC), Chief Risk Officer (CRO), and Executive Directors with financial expertise on the performance of quoted firms in Nigeria need to be examined to curtail the surge of distress and collapse. This is because the firms' directors and management are responsible for the execution and monitoring of the risk management programmes by determining how they should be incorporated into the day-to-day activities of the firm. Their presence in a firm is assumed that there is an ERM governance framework in place to ensure adequate resources are deployed to improve risk management systems that can positively impact the firm's performance.

1.1 Research Objective

This study seeks to assess the impact of ERM governance structure on the performances of listed services firms in Nigeria. The specific objectives are to:

i. Ascertain the effect of the Risk Management Committee on the performance of quoted firms in Nigeria.
ii. Determine the impact of the Audit Committee on the performance of quoted firms in Nigeria.
iii. Examine the impact of the Financial Experts on the board on the performance of quoted firms in Nigeria.
iv. Establish the effect of the existence of Chief Risk Officer on the performance of quoted firms in Nigeria.

1.2 Research Questions

i. To what extent has the Risk Management Committee influenced the performance of listed firms in Nigeria?
ii. Has the Audit Committee significantly affected the performance of listed firms in Nigeria?
iii. Does the number of Financial Experts on the board significantly impact the performance of listed firms in Nigeria?
iv. Does the presence of Chief Risk Officer have an impact on the performance of listed firms in Nigeria?

1.3 Research Hypothesis

Therefore, to attain the objective of this study, the study hypothesizes that:

i. **H01:** Risk Management Committee has no significant effect on the performance of the listed firms.
ii. **H02:** Audit Committee has no significant effect on the performance of listed firms.
iii. **H03:** The proportion of Financial Experts on the board have no significant influence on the performance of listed firms.
iv. **H04:** Chief Risk Officer has no significant influence on the performance of listed firms.

1.4 Motivation for the Study

This study is motivated by several attributes of the services sector. The sector occupies a crucial segment in every economy yet with little or no attention being given by researchers in ensuring their survival and growth. Since the services industry also plays a very significant role in providing labour to the teeming population, ERM has long been accepted by most countries including Nigeria to be one of the easiest ways of combating risk-related issues and improving an attractive investment climate to achieve this laudable objective. The findings from this study are expected to theoretically and practically contribute to the various stakeholders. This study will add to the extant literature and attempt to contribute to narrowing the identified gaps in the discourse of firms' risk governance practices in Nigeria

The remaining segments of this paper are organized as follows. Section 2 reviews the conceptual, theoretical, and empirical literature on ERM and firm performance focuses on the concept of risk management. Section 3 describes the methodology adopted, whereas Section 4 focuses on both the results and the discussion of findings. Section 5 covers the conclusion of the study.

2 Literature Review

2.1 Conceptual Framework of Enterprise Risk Management (ERM)

Risk has become a frequent occurrence in every aspect of our lives and as such, there is no place devoid of risk in the world (Eryilmaz 2018). It has become paramount for businesses to detect and manage risks to reduce their outcomes (Dugguh, & Diggi, 2015). Varied research alternatively uses the terms "Corporate Risk Management", "Business Risk Management", "Holistic Risk Management", "Enterprise-wide Risk Management", "Integrated Risk Management" and "Strategic Risk Management" these terms are synonyms to ERM. Currently, there is no agreed definition of ERM (Eryilmaz 2018). Nevertheless, the Committee of Sponsoring Organizations (COSO) has defined ERM as "a *process, put in place by an entity's board of directors, management and other personnel, applied in strategy setting and across the business, aimed at identifying potential events that may affect the entity, and manage risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of the firm's objectives" (*Almeida, et al., 2019*).*

The awareness about ERM was relatively low prior to the COSO initiative which resulted in the formulation of a comprehensive ERM framework to aid management in improving the risk management processes of their firms. COSO is a collective initiative of five organizations based in United States aimed at addressing corporate risk. The COSO provided the guiding framework for executive management on the governance structure, internal control, risk and fraud (Corelli, 2019). Its components assist the firms to manage their risk with the intent of providing reasonable assurance on the attaining of the firms' objectives (Stein, et al., 2019; Panfilo, 2019).

ERM has evolved as a strategic tool for businesses with a broader scope and has become part of corporate philosophy both for practitioners and academia (Rubino, et al., 2017; Liff, & Wahlstrom, 2018). In the process of implementing ERM programmes, the COSO stresses the mechanisms of objective setting, risk identification, risk assessment, risk response, internal control environment, the involvement of management, sections/units, and all lines of directors within an organisation

(Bogodistov, & Wohlgemuth, 2017; McShane, 2018). It equally accentuates the implementation of the ERM framework by firms being dependent on the scope of the existence of enabling laws and regulations, coupled with the listing standards and the effectiveness of the corporate governance practice being instituted by the firms. Thus, the effective implementation of any ERM framework rests on the presence of an audit committee, risk management committee, chief legal officer, chief risk officer, the rules and regulations by the regulatory bodies and the size of the enterprise (Karanja, 2017; McShane, 2018).

2.2 Concept of Performance

Performance measurement concept refers to the method and practices of measuring the firm's efficiency and effectiveness (Landy, et al., 2017). This performance measurement is essential for the effective management of the firm (Inkinen, 2016; Sutrisno, 2019). Many methods have been advanced by scholars and practitioners for the measurement of performance. Prominent and the most used is the accounting-based (backwards-looking) method of performance measures such as the Profit Margin (PM), Return on Equity (ROE), Return on Asset (ROA), Return on Investment (ROI), Dividend Yield (DY), Earnings Per Share (EPS), etc. (Shaverdi, Ramezani, Tahmasebi, & Rostamy, 2016; Wang, et al., 2018; Durst, et al., 2019). Another method of performance measurement is the market-based measurement which is regarded as a long-term measure among which is Tobin-Q. The market-based measurement is depicted by its forward-looking characteristics, and it reflects the anticipations by the shareholders on the firm's future performance which has its basis on previous or current performance (Shah, & Hussain, 2012).

In theory, studies have revealed that the historical-based measurements like ROA, ROE, profit margin and others are used for the short-term performance of the corporation, while on the other hand, the market-based performance of the firm measures performance through Tobin's Q; a representation of future long-term performance (Florio, & Leoni, 2017). These measures of performance have been employed by past studies in relation to organizational performance. This study, therefore, seeks to investigate the significance of the firm's ERM on listed firms' performance.

2.3 Theoretical Framework

The agency theory by Berle and Means, (1932) serves as the theoretical underpinning for this study. Agency theory emphasized the need for resolution of the conflict of interest between the principal (shareholders) and the agents (managers) by improving monitoring mechanisms such as institutional governance, ERM, and effective internal control system (Jensen, & Meckling, 1976). Agency theory serves as the interaction between the principal and the agent in ensuring that the business achieves its corporate objective. It stressed the need for the firm to resolve conflict in reaching its objective of improving performance and maximizing shareholders' value through ERM practices as managers take decisions involving risk on behalf of the shareholders (Salaudeen, et al., 2018).

2.4 Empirical Review of the relationship between ERM and Performance

Literature is repleted with numerous studies on the impact of ERM on firm performance and value. Some studies went as far as to evaluate the issue of risk management structure and aggregation and have arrived at varied conclusions.

From the results of studies that used OLS regression, Callahan and Soileau, (2017) examined the impact of ERM on firm performance. The study used OLS regression analysis on three years of financial data (2006 to 2008) of the companies sourced from U.S. based publicly traded firms. The findings of their study revealed that ERM has a significant positive relationship with firm performance. Malik, et al, (2020) followed the models of previous works and examined the influence of ERM on firm performance by investigating whether firm performance is strengthened or weakened by the setting up of a board-level risk committee, a vital governance process that oversees ERM processes. Also found strong BLRC governance balances this relationship and increases the firm performance impacts of ERM. However, instruments are weak indicating a possible omission of variables.

From the perspective of how specific companies carry out ERM programmes, Chen, et al, (2019) examined 68 Taiwan firms compiled by TWSE from 2001 - 2016. The result indicated that those financial companies that implemented ERM benefited by adding a 5.37% value in comparison to non-users. Therefore, ERM acceptance also significantly aided firms to improve their revenue and cost efficiencies up to 9.22% and 16.34%, respectively. Farrell and Gallagher, (2019) focused on performance implications of ERM development on firms and used more explicit firm characteristics that serve to engender or constrain the performance implications. Their findings revealed that ERM

maturation increases firms' value and return on assets and the influence is moderated by stakeholder related variables such as the intensity of innovation and knowledge focused industry structures.

To address the problem of heteroscedasticity, Florio and Leoni, (2017) studied the relationship between the extent of implementation of ERM systems and performance of 154 Italian listed firms on the Milan Stock Exchange from 2011 to 2013. The study used panel data analysis to resolve the issue of error bias and endogeneity, Results indicated that firms with advanced levels of ERM implementation exhibited higher performance, both in the financial performance and market evaluation. The study recommended that this should be extended to other contexts

It was in the same vein that, Kaya, (2018) examined the effectiveness of internal control and ERM on the firms' value creation and revealed that firm performance and value are enhanced by high-quality ERM adoption and implementation. Also, Silva and Chan, (2019) extended this study and investigated the association between ERM and firm value and indicated a positive association between firm value and practice of ERM programme.

From the Nigerian context, Salaudeen, et al. (2018) focused on the listed consumer sector firms and revealed inconclusive results while, Ojeka, et al., (2019) examined the impact of CFO roles in the implementation of ERM initiatives from a sample of Nigerian financial sector firms. Highlighting a minimal impact. The study, however, shows possible omission of variables. Also, the studies from Nigeria have considered only the performance of firms using ROA as against Tobin-Q, which is regarded as a preferred measure of firm value.

Zemzem and Kacem, (2014) revealed that having a risk management committee in the institution has a significant negative consequence on performance. Likewise, Danisman and Demirel, (2019) studied combined the effect of firms' risk management strategies, like financial, operational, on their value in the context of an emerging market, their results revealed that none of the three risk management strategies increase firm value. Jonek-Kowalska, (2019) investigated the impact of ERM on companies' efficiency in a comparative analysis of Central-European firms. The result revealed that with the adoption of ERM systems, none of the studied companies translated into clear stabilization of financial results and enterprise value.

3 Methodology

This study adopts a positivist paradigm which calls for the collation and analysis of quantitative data in line with objectivism and ontological realism. The ex post facto design research method in line with previous by Salaudeen, et al. (2018) was used. The emphasis was to explain the relationship between the variables as it has occurred in the past and there will be no manipulation/treatment of the independent variables used in the study.

The services sector listed firms on the Nigerian Exchange (NGX) was the target population. There are 168 firms listed in NGX as at 31st December 2020. The services sector has a total number of 25 firms. The sample was a complete enumeration of the entire services sector firms. We, however, selected 21 firms that have a complete set of data from the entire 25 services listed firms. The data for the research work was obtained from secondary sources. The data for this study are secondary data sourced from annual reports and accounts of the 21 firms in the services sector of the NSE covering a period of 10 years starting from 2010 to 2019. The motive for choice of the years was that the governance guidelines were introduced in 2003. Seven years later, that is 2010, was considered an appropriate time of period, in which firms that had adopted the practices would have shown some changes as a fallout of the implementation of the risk management practices. This period was chosen because it would reflect the risk management practices of firms after the coming into full effect of some of the governance codes of risk management is an integral part. The data for the criterion variable is derived from the computation of ROA derived from the NSE factbooks and Tobin-Q ratios from the Thomson Reuters' DataStream. The descriptive and inferential statistics using panel data analysis aided by e-view software was used to examine the impact of ERM governance on the performance of Nigerian services sector listed firms. The Panel Regression Method is used when the data exhibit cross-sectional and time-series features a similar method was employed in studies by Florio, and Leoni, (2017).

The reliability checks of the research data collected for this study were enhanced using only published annual reports of selected firms obtained from well-recognized sources; the NSE fact books and Thomson Reuters' DataStream. These sources are identified among the most appropriate data sources for this study and fulfilled all the assessment criteria. This is because of low risk of bias or error in the values, as data have been provided by

independent sources rather than originated by the researcher.

3.1 Study Variable Measurement and Model Specification

The following measurements were employed to examine the impact of ERM on financial performance.

The model predictor variables are:

i. Risk Management Committee (RMC): to be measured as (1) for the presence and (0) absence
ii. Audit Committee (ACOM): to be measured as the size of the audit committee on the board
iii. Financial Expertise (FIN EXP): to be measured as the proportion of directors with accounting/finance background or relevant professional certification
iv. Chief Risk Officer (CRO): to be measured as (1) for the presence and (0) non-existence

While the criterion variables are:

i. Return on Assets (ROA):

$$= \frac{Profits\ after\ int.tax\ less\ profits\ of\ extraord\ nature}{Total\ Assets} x\ 100\%$$

ii. Tobin-Q:

$$= \frac{Market\ value + liabilities}{Total\ assets\ or\ book\ value\ of\ liabilities}$$

Because the study is structured using a regression model. The model by Salaudeen, et al., (2018) was adapted for this work as specified below.

$ROA = \beta 0 + \beta 1\ RMC + \beta 4AC + \beta 2 + FIN.EXP + \beta 3CRO + e$ …. (1)

$TQ = \beta 0 + \beta 1\ RMC + \beta 4AC + \beta 2 + FIN.EXP + \beta 3CRO + e$ …. (2)

Where:

β0	= constant
β1-4	= coefficient of the explanatory variables
RMC	= Risk management committee
ACOM	= Audit committee
FIN.EXP	= Financial expertise
CRO	= Existence of chief risk officer
e	= error term

4 Results and Discussion

To enable the study to use regression analysis, which allows for an assessment of whether one or more predictor variables explain the dependent (criterion) variables, the data were tested for the key assumptions of regression analysis and the results are okay.

Table 1 presents descriptive statistics for the dependent and independent variables, the sampled firms present low operating profitability on average, as mean ROA is equal to 0.8%, because, some firm-year observations recorded strong negative performances. Also, the median for ROA is equal to 2.7%. However, the mean for Tobin-Q is negative (-6.4%) and the median is 0.8%, signalling low performance in market evaluation and the replacement cost of assets.

4.1 Descriptive Statistics

Table 1. Summary statistics for performance and control variables.

Variables	Mean	Median	Min	Max
RMC	0.191	0	0	0.75
AC	0.381	0.500	0.2	0.8
FIN_Exp	0.660	1	0	1
CRO	0.760	1	0	1
ROA	0.008	0.027	-1.196	0.359
TQ	- 0.064	0.008	-0.987	1.03

Source: Authors computation (2021)

With reference to the test variables, the audit committee is present in just 38.09% of our sample, indicating the small diffusion of the officer in Nigeria. The finance experts on the board are more present, with more than 66% of firms with a dedicated risk committee. Most of the sampled firms have chief risk officers with a mean of 76%, as recommended by the Nigerian CG code. Only 19.06% of firms have a risk management committee. This finding is the same as that of Salaudeen, et al., (2018) who found an average of 95% risk management committee, 41% financial experts and 28% chief risk officer presence in the consumer goods subsector. However, this result could have been a result of the absence of risk governance in some firms in the beginning period under study. It is noteworthy that the Nigerian government had through the capital market regulator announced the corporate governance codes stipulating the setting up of risk management committee and audit committee were recommended.

4.2 Hausman Test Result

This test enables the study to decide the appropriate models to use for the panel data analysis. The Hausman specification test was for the comparison

of the estimates results of the fixed and random estimators; the standard is that; there is a null hypothesis of random effect model and the other an alternative hypothesis of fixed effect, therefore, this test enables the study to decide the appropriate models to use for the panel data analysis.

Table 2. Hausman test result

Model 1	**Model 2**
Asymptotic test statistic:	
Chi-square(4) = 24.179 with p-value = 0.00	Chi-square(4) = 3.550 with p-value = 0.470

Source: Authors computation (2021)

The results of the test are presented in Table 2. In model 1, with a p-value being 0.000, which is less than 0.05, the study accepts the alternative hypothesis at a 5% level of significance. This informed the use of the fixed-effect model in this study for Model 1.

On the other, in model 2 with a p-value of 0.470 which is more than 0.05, the study failed to reject the null hypothesis at a 5% level of significance. This however informed the use of the random effect model in this study for Model 2.

4.3 Evaluation of Estimated Models Parameters:

The estimated parameters of the models are evaluated in two stages. In the first stage, the signs or directions of effects of variations in the relevant ERM variables on performance are discussed vis-a-vis a priori expectations. The second stage is the determination of significance or otherwise of the effects of ERM variables on performance, that is, the extent to which the ERM variables explain changes in performance. This second stage of the evaluation enriches the decision to accept or reject the research hypothesis. The significance of the isolated and joint effects of ERM on performance is evaluated using the t-statistic and F-statistics respectively. The significance is considered at the 5% level. While the degree to which the ERM variable explains performance dynamics is determined using the coefficient of multiple determinations (R-squared).

In table 3, for model 1, the R square is 0.480 which indicates that the data explained the dependent variables (ROA performance) in this model up to 47%. It can be inferred from the value of the F-statistics 20.500 with a p-value is 0.000 that the variables are fit and suitable for the model.

Tables 3. Output Summary

Regression Statistics	*Model 1*	*Model 2*
Mean dependent Var	0.008	0.064
S.D Dependent Var	0.187	0.297
Sum Squared Resid	4.260	9.142
R Square	0.480	0.504
Adjusted R Square	0.456	0.482
Standard Error	0.144	0.214
F (9,200)	20.500	22.598
P-value (F)	0.000	0.000
Log-Likelihood	111.285	31.118
Durbin-Watson	1.560	1.499

Source: Authors computation (2021)

Also, the R square model 2 is 0.504 which indicates that the sample data also explained the dependent variables| (Tobin-Q performance) in this model up to 50.42%. it can also be concluded from the value of the F-statistics 22.598 and a p-value of 0.000 that the variables fit and suitable for the model.

4.4 Test of Hypotheses

For the test of the hypotheses, the decision rule is as stated below: When the probability associated with the computed t-statistic is less than the specified significance level of 5%, the effect is significant. That is, if the prob (t-statistic) < 0.05 it is significant. Otherwise, it is insignificant, that is if the prob (t-statistic) > 0.05.

Table 4a. Regression Estimates for Model 1: Fixed-effects, using 210 observations Dependent variable: ROA

Variables	*Coefficient*	*Std. Error*	*t-ratio*	*p-value*
const	-0.201	0.039	-5.1164	0.000***
RMC	-0.126	0.047	-0.9	0.0079**
AC	0.102	0.091	1.1179	0.264
FIN_Exp	-0.02	0.026	-0.7684	0.443
CRO	0.274	0.023	11.75	0.000***

Source: Authors computation (2021)

In table 4a the estimated value of the intercept (βo=-0.201) conforms to the expectation that a negative level of performance is attainable when the firms do not comply with the ERM structural practices. This is shown in figure 1.

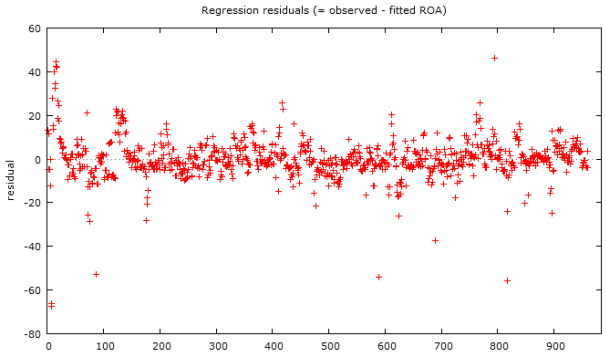

Fig. 1: Regression Residual for ROA

Table 4b. Regression Estimates for Model 2: Random-effects, using 210 observations: Dependent variable: Tobin-Q

Variables	*Coefficient*	*Std. Error*	*t-ratio*	*p-value*
const	-0.480	0.058	-8.129	0.000***
RMC	-0.347	0.128	-2.721	0.0071**
AC	0.437	0.156	2.790	0.0058**
B_FINEXP	-0.017	0.050	-0.342	0.7234
CRO	0.432	0.038	11.480	0.000***

Source: Authors computation (2021)

Also, from table 4b, for model 2, the estimated value of the intercept (βo=-0.480) follows the expectation that a negative level of performance is achieved when the firms do not comply with practices of ERM. See figure 2.

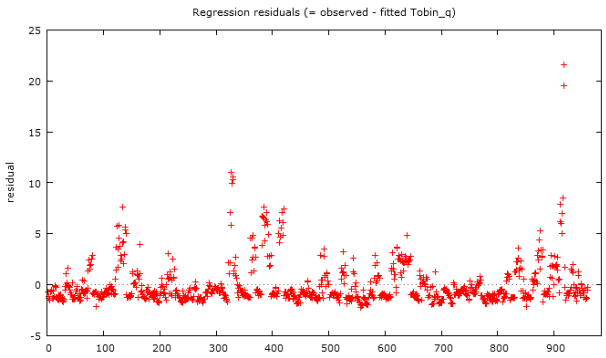

Fig. 2: Regression Residual for Tobin-Q

Statement of Hypothesis One

HO1: Risk Management Committee has no significant effect on the performance of the Nigerian listed services firms

Risk Management Committee (RMC) and return on assets (ROA): Model 1 in table 4a, reveals β = (-0.126), and p-value = 0.0079 at the 5% level of significance. This implies that there is a negative and statistically significant relationship between RMC and ROA. Therefore, the alternative hypothesis is accepted.

Risk Management Committee (RMC) and Tobin-Q: Model 2 in table 4b, reveal β = (-0.347), and the associated p-value = 0.0071 shows that there is a negative and statistically significant relationship between RMC and Tobin-Q, therefore, the alternative hypothesis is also accepted.

These conclude that the risk management committee has a positive and negative variation for ROA and Tobin-Q. However, it exhibits a significant relationship with the performance of services sector firms in Nigeria. From the result of the data analysis, the existence of risk management committee has positive and significant impact on accounting-based performance this finding is in line with those of Karanja, & Rosso, (2017); Bailey, (2019). On the other hand, the result is in support of the findings of Zemzem, and Kacem, (2014), whose study indicated a negative but significant effect of risk management committee on performance. However contrary to the findings by Malik, et al., (2020).

Statement of Hypothesis Two

H02: Audit Committee has no significant effect on the performance of Nigerian listed services firms.

Audit Committee (AC) and return on assets (ROA): from table 4a, the results of model 1, shows β =0.102, and p-value = 0.264 this depicts AC has a positive but statistically insignificant relationship with ROA. Therefore, the study failed to reject the null hypothesis.

Audit Committee (AC) and Tobin-Q: from table 4b, model 2, has β =0.4365, and a p-value =0.0058. This shows that there is a positive and statistically significant relationship between AC and Tobin-Q. Therefore, the study accepts the alternative hypothesis.

The above results of the relationship are mixed and inconclusive between audit committee and performance of services sector firms in Nigeria,

these results support the findings by Iswajuni, et al., 2018; Zungu, et al., 2018; Muslih, 2019 and Busru, et al., 2019.

Statement of Hypothesis Three

H03: The proportion of Financial Experts on the board have no significant influence on the performance of Nigerian listed services firms.

Financial Experts (B_FINEXP) and return on assets (ROA): from table 4a, *model*, 1 β = (-0.020), with a p-value = 0.443. This indicates a negative but statistically insignificant relationship between (B_FINEXP) and ROA. Therefore, the study failed to reject the null hypothesis.

Financial Experts (B_FINEXP) and Tobin-Q: table 4b model 2, with β = (- 0.017) and p-value = 0.732. This depicts a negative and statistically insignificant relationship between (B_FINEXP) and Tobin-Q. also, the study failed to reject the null hypothesis.
It concludes that there is a negative and insignificant relationship between financial experts on the board and the performance of Nigerian services sector firms. This is in tandem with the findings of Hoyt and Liebenberg (2008), Shima et al (2013) and Kallamu (2015) but is different from that of Saeidi, et al., (2019).

Statement of Hypothesis Four

Ho4: Chief Risk Officer has no significant influence on the performance of Nigerian quoted services firms.

Chief Risk Officer (CRO) and return on assets (ROA): in table 4a model, 1 with β =0.274, and p-value = 0.000. This indicates that there is a positive and statistically significant relationship between CRO and return on assets (ROA). Hence, the study accepts the alternative hypothesis.

Chief Risk Officer and Tobin-Q: from table 4b, the prediction model 2, β = 0.432 and p-value = 0.000. This also, reveals a positive and statistically significant relationship between CRO and Tobin-q. Hence, the study accepts the alternative hypothesis.
Therefore, it concludes that there is a positive and significant relationship between chief risk officer and the performance of Nigerian services sector firms. This finding is supported by Karanja, & Rosso, (2017); Bailey, (2019); and Girangwa, et al., (2020).

4.5 Diagnostic Test

To ensure the validity of the findings and examine if data were normally distributed and cross-sectional dependency exists in the empirical results, the following tests were conducted

i. Normality Test:

The normal distribution test result for this study is as presented in table 5. The analysis of the skewness and kurtosis indicates that most of the variables used in this study are normally distributed.

Table 5. Normality test statistics

Model 1	Model 2
Test for null hypothesis of normal distribution: Chi-square (2) = 117.115 with p-value 0.000	Test for null hypothesis of normal distribution: Chi-square (2) = 40.786 with p-value 0.000

Figures 3 and 4 reveal the normality plots

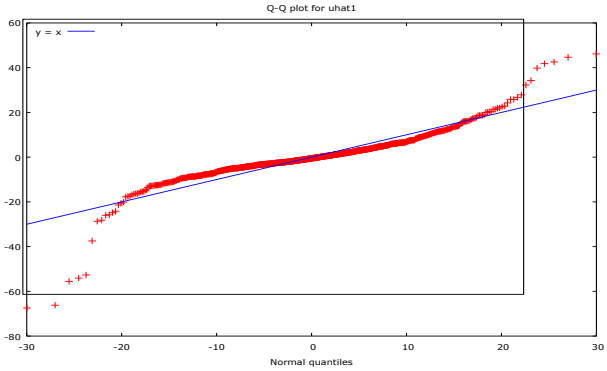

Fig. 3: Normality Plot for Model 1

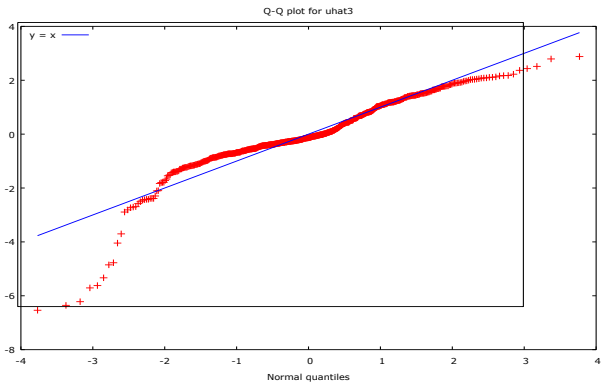

Fig. 4: Normality Plot for Model 2

ii. Test for Multicollinearity:

In order to test the assumption of regression analysis, the test for multicollinearity was carried out. The reason for testing for multicollinearity test is to avoid misleading regression results. The

nonexistence of multicollinearity is indicated when the variance inflation factor (VIF) obtained is greater than 1 and below the benchmark of 10.

Table 6. Variance Inflation Factors

RMC	1.075
AC	1.633
FIN_Exp	1.568
CRO	1.01

Values > 10.0 may indicate a collinearity problem

The result of the VIF as shown in table 6 revealed that all the explanatory variables are significant to the study, with a value greater than the minimum possible value of VIF 1 and below the upper acceptable limit of 10, this is the non-existence of multicollinearity. Therefore, it is assumed that all the variables are appropriate and fit well into the model.

iii. Heteroscedasticity and Cross-sectional Dependence Tests.

Table 7. White's test for heteroscedasticity

Model 1	Model 2
Test statistic: TR^2 = 64.548092, with p-value = P (Chi-square (12) > 64.548092) = 0.000000	Test statistic: TR^2 = 53.142925, with p-value = P (Chi-square (12) > 53.142925) = 0.000000

In this study, data are said to be free when the probability of Chi-square is >0.05. Table 7 shows that the probability of Chi-square of White test is 64.548 for model 1 and 53.1429 for model 2 which are >0.05. Thus, accept that the regression data model is free of heteroscedasticity.

5 Conclusion

This study examines the implementation of risk management structural systems of the ERM and its impact on both the accounting-based performance and market evaluation from the Nigerian services sector listed firms. Therefore, it is patterned on a rather new line of a sectoral focus study examining whether increased attention towards corporate risk management structure demonstrated by the creation of chief risk officers and committees with the adoption of certain structural configurations impacted firm performance. The finding revealed that the implementation of a corporate risk management structure could enhance the performance of firms in the services sector of the Nigerian economy. This finding implies that the proper implementation of this model to manage all the risks of the organization could enhance the extent to which the firms' objectives are attained and maximise the wealth of the stakeholders are met.

While the existence of audit committee and financial expertise on the board, exhibits insignificant impact on ROA performance. On the other hand, risk management committee, audit committee and chief risk officer have a significant impact on market evaluation as reflected in the Tobin-Q. However financial experts on the board have insignificant with Tobin-Q. Audit Committee has a positive significant impact on firm performance. The existence of the financial experts on the board has an insignificant impact on the performance of listed services firms.

In summary, the results of the findings reveal further evidence that some of the ERM governance variables considered in the analysis exhibited low influence in explaining variations in the performance of the firms. This suggests that innovations in risk management practices in the services sector in Nigeria are still at a shallow stage. However, the study offers new insights on the determinants of the performance through the ERM governance structure aside from the ERM sophistication, among the many other mechanisms, which are asserted to foster an integrated and holistic approach to risk management. Especially, the study validates the importance of the overall integration of risk management tasks in corporate governance. This study contributes it provides evidence of a mixed relationship between risk management structure and firm performance in an under-investigated context such as Nigeria

5.1 Recommendation and Limitation

The following recommendations are based on the finding that the regulatory bodies and other relevant establishments are enjoined to reevaluate and increase their supervisory role with the view to strengthen the risk management structure and process. Also, issue of risk management should be not be treated with levity at every level of the firm to give a reasonable assurance.

The study is not limitations-proof, which also presents a new avenue for further research on the

relationship between ERM and performance. First, a larger sample empirical study may provide compelling evidence on whether and how certain features of ERM affect firm performance. Furthermore, even though anchored on previous studies and effective practice on risk management, the variables selected to define ERM are to some extent representative of just some possible ERM mechanisms. As a result, the study restricted the analysis to the presence of a CRO, audit committee, finance experts on the board and a risk committee therefore, further analysis may focus on their specific characteristics, e.g., CRO experience, knowledge and power, risk committee experience, their meetings frequency and chief finance officer's roles. While Future studies are suggested to extend the study by widening the scope and context of the research.

Acknowledgements:
We want to acknowledge the Nile University of Nigeria for the provision of enabling environment for this research.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

1. Abbas Umar IBRAHIM, Ph.D. Supervision, Conceptualization, Methodology, Discussion, Conclusion & proofreading.
2. Martins Mustapha ABU Writing-Original Draft, Literature Review & Data Analysis