

THE ROLE OF INTERNAL AUDIT AND TOP MANAGEMENT DISPOSITION IN RISK
MANAGEMENT: EVIDENCE FROM THE FINANCIAL SERVICES SECTOR IN
NIGERIA

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Abstract

This study investigated the impact of internal audit and top management disposition on risk management in the Nigerian financial services sector. This study was cross-sectional and correlational, and it used firm-level data that were collected by means of a questionnaire survey from a sample of 62 financial services firms in Nigeria. Our findings suggest that internal audit and top management disposition are both significant predictors of risk management. However, the predictive potential of top management disposition towards risk management reduces when effective internal audit is present. These results support the idea that in terms of agency theory, top management should oversee and review the organization's risks as a way of spearheading effective risk management. Similarly, it was recommended that internal auditors should sufficiently and appropriately review and coordinate risk management efforts in organizations, since high-quality internal audits lead to effective risk management. Top managers of financial services firms should encourage periodic reviews of the appropriateness and effectiveness of risk management systems and controls. At the same time, regulators should ensure that top managers of financial services firms have adequate risk management expertise, with no conflict of interest and apply mechanisms that detect significant risks in time.

Key words: financial services sector, top management disposition, internal audit, risk management

1. Introduction

Internal audit plays a crucial role in maintaining robust risk management systems and ensuring sound corporate governance practices within organizations (Arena & Azzone, 2009; Cohen & Kallman, 2012; Mihret & Grant, 2017). As businesses navigate an increasingly complex and dynamic environment, the importance of a strong internal audit function has become more apparent in identifying, assessing, and mitigating risks while fostering transparency and accountability. This research delves into the role of internal audit in risk management and corporate governance, drawing from the existing literature and real-world cases to underscore its significance in driving organizational success.

The internal audit function serves as a vital component of an organization's internal control system, ensuring the effectiveness of risk management practices and supporting informed decision-making processes (Mihret & Grant, 2017). By evaluating and monitoring the adequacy of internal controls, internal auditors help maintain an organization's financial health and operational efficiency (Cohen & Kallman, 2012). Moreover, they contribute to the improvement of corporate governance by promoting transparency, ethical practices, and compliance with relevant regulations and standards (Arena & Azzone, 2009).

As the business landscape continues to evolve, understanding the role of internal audit in risk management and corporate governance remains essential for organizations striving to adapt and thrive in the face of emerging challenges. By examining the contributions of internal auditors and drawing insights from real-world examples, this study aims to shed light on the importance of a strong internal audit function in driving long-term success and sustainability.

As it becomes crucial for financial services firms to effectively manage prevalent risks such as credit risk, cyber risk, operational risk, compliance risk and fraud risks, implementation of effective risk management practices become inevitable (PWC, [2017](#)). The necessity to implement effective risk management practices by financial services firms is ingrained in the need to enhance risk prevention, detection and reporting (Bezzina, Grima, & Mamo, [2014](#); Kim, [2019](#)). Globally, the growth of profit adjusted for risk costs in financial services firms is challenging to quantify with a single figure because it is a highly complex and evolving landscape influenced by multiple economic factors and risk types, making it difficult to pinpoint consistent, globally comparable data on adjusted growth. Ernest and Young Global Banking Outlook ([2018](#)) indicates that 85% of banks are citing proper management of evolving risks as one of the critical drivers for sustainable

success. Thus, financial services firms still need effective RMPs and reforms to contain the adverse effects of risk(s) (Ahmad, Ibrahim, & Minai, [2018](#); Chornous & Ursulenko, [2013](#); Safari, Shateri, Baghiabadi, & Hozhabrnejad, [2016](#)).

A number of studies have been conducted on the determinants of effective risk management practices but most of these studies have focused on the aspects of risk management process such as understanding risk and risk management (URM), risk identification (RI), risk analysis and assessment (RAA), credit risk management (CRM), and risk monitoring (RM) (Abu Hussain & Al-Ajmi, [2012](#); Khalid & Amjad, [2012](#); Rosman, [2009](#)).

There are hardly any studies that have directly linked tone at the top management level and risk management practices. Available scanty studies have linked tone at the top management level in terms of corporate cultures, ethical communication, operating models and organizational constructs, leadership and governance, as well as the more traditional talent management practices and processes (Cheese, [2016](#); Dresch-Langley, [2009](#); Huang, [2004](#); Ssekiziyivu, Mwesigwa, Joseph, & Nabeta, [2017](#)). As far as internal audit quality is concerned, Zwaan, Stewart, and Subramaniam ([2011](#)) found that a high involvement in enterprise risk management impacts the perceptions of internal auditors' willingness to report a breakdown in risk procedures to the audit committee. Also, internal audit should be alert to the whole process of implementation of the systems for managing operational risks in entities (Laviada, [2007](#)).

This study therefore set out to fill the above identified research gap.

Specifically, the objectives of the study were:

- (i) To find out if effective risk management practices are significantly influenced by top management disposition.
- (ii) To find out if effective risk management practices are significantly influenced by internal audit quality.

2. Literature review and hypotheses development

2.1 Conceptual framework

2.1.1 Internal audit quality

Internal audit quality involves the internal audit activity's conformance with the definition of internal auditing and the standards and an evaluation of whether internal auditors apply the Code of ethics (Coetzee, Fourie, & Burnaby, [2015](#)). Internal audit quality is further demonstrated by the

internal auditor's capability to provide useful audit findings and recommendations (Mihret & Yismaw, [2007](#)). Zwaan et al. ([2011](#)), indicate that a high involvement in enterprise risk management (ERM) impacts the perceptions of internal auditors' willingness to report a breakdown in risk procedures to the audit committee. Similarly, internal audit is a rich resource for organizations as it monitors the adequacy and effectiveness of management's internal control framework and contributes to the integrity of corporate governance; risk assessment; and financial, operating, and IT systems (Burnaby & Hass, [2009](#)). Besides, internal audit is more proactive in the implementation of ERM in smaller organizations, and is more important in the finance industry and the private sector (Castanheira, Rodrigues, & Craig, [2009](#); IIA, 2014). Though risk management is primarily the responsibility of directors and senior managers. Internal auditors also have a role in consulting and providing assurance on risk management (Stewart & Subramaniam, [2010](#)). This role for internal auditors is predicted to increase in importance in the future (Burnaby & Hass, [2009](#)). Therefore, it is important that internal auditors understand well their role in the risk management process. Coetzee ([2016](#)) also confirms that internal auditing should play a prominent role in risk-related activities to ensure that the risks threatening the organization are reduced to acceptable levels. Internal audit should be alert to the whole process of implementation of the systems for managing operational risks in organizations (Kabuye, Nkundabanyanga, Opiso & Nakabuye, [2017](#); Laviada, [2007](#)).

Consequently, we believe that:

H1: Top management disposition is positively and significantly related with effective risk management practices.

2.1.2 Top management disposition

Top management disposition, also known as tone at top management level, is the degree of commitment by management and those charged with governance of the entity (board of directors) to having an open, direct, honest, and ethically correct corporate culture (Law, [2011](#)). Top management disposition is a key element of an organization's risk management framework, since proper and adequate support from the top is likely to provide a robust foundation for effective risk management. Top management disposition is the degree of commitment by management and those charged with governance of the entity (board of directors) to having an open, direct, honest, and ethically correct corporate culture (Law, [2011](#)). Tone at the top management level is a key element of an organization's risk management framework, since proper and adequate support from the top

is likely to provide a robust foundation for effective risk management. Top management's role in setting the overall risk governance within the organization extends to the identification, assessment, designing and implementing controls, and mitigating risks, guiding the development and implementation of internal policies and procedures and ensuring that activities are consistent with goals and objectives (Gatzert & Schmit, [2016](#)). Correspondingly, Law ([2011](#)), indicates that tone at the top managerial level and managerial ethical guidelines and policies are positively associated with a lack of risks within organizations. Therefore, top management must instil values in employees in order to achieve a consistently ethical environment and to avoid risk (Johari, Alam, & Said, [2018](#); Law, [2011](#)).

Majorly, the risk management function (and/or committee) facilitates and monitors the implementation of effective risk management practices and assists risk owners in defining the target risk exposure and reporting adequate risk-related information throughout the organization (IIA, 2013). Therefore, we hypothesize that:

H2: Internal audit quality is positively and significantly associated with effective risk management practices.

2.2 Theoretical framework

In this study, we use the agency theory to explain the contribution of top management disposition and internal audit quality on effective risk management practices. According to agency theory, top managers (Agents) in the organization act on behalf of the shareholders (Principals) in dealing with other people and running the organization. Thus, top management has a duty to design, implement and maintain adequate and effective risk management practices in order to achieve the goals of the shareholders such as profit maximization, wealth maximization, business continuity, business expansion and growth. Nevertheless, the conflict of interests between the top management and shareholders tend to derail the presupposed agency relationship which leads to agency conflicts/problems. For example, top managers usually earn most of their income from the company they work for. They are therefore interested in the stability of the company, because this will protect their job and their future income. This means that management might be risk averse, and reluctant to invest in higher-risk projects. Contrarily, shareholders might want the organization to take bigger risks, if the expected returns are sufficiently high. Shareholders often invest in a

portfolio of different companies; therefore, it matters less to them if an individual company takes risks. Since, top management is unwilling to take risks it may not implement and maintain effective risk management practices which may lead to huge financial and non-financial losses due to the failure to manage risks by the top managers as the agents. In the context of this study, the appropriate tone at the top management level can help in reducing goal incongruence between top managers and the shareholders towards implementing effective risk management practices.

Internal auditors are employed to monitor the agents (the managers); however, quite often they have not achieved their objectives due to poor-quality audits. The poor-quality internal audits are mainly attributed to limited independence of the internal auditors, inadequate management support, staff expertise, scope of services, and ineffective communication (Roussy & Brivot, [2016](#)). Hitherto researchers such as Chambers and Odar ([2015](#)) have advocated the extended role and quality of the internal auditors in order to help in ensuring effective risk management practices. Thus, as per the agency theory, internal auditors are expected to remain alert and help in ensuring effective risk management practices as a way of adding value to the entity.

2.3 Control variables

Bartov et al. ([2000](#)) suggest that failure to control for confounding variables could lead to falsely rejecting the hypothesis when in fact it should be accepted. As such, firm type, ownership and size are controlled in this study. A number of studies have found that firm type (public/private limited) determine the risk management efforts and requirements in an organization (Beasley, Clune, & Hermanson, [2005](#); Eng & Mak, [2003](#); Hassan, [2009](#); Ho & Shun Wong, [2001](#)). Studies by Elshandidy and Neri ([2014](#)) and Subramaniam et al. ([2009](#)) explicitly indicate that corporate governance councils (regulators) set guidelines for risk management within public listed organizations and the board of directors are seen to hold the primary responsibility over the establishment and implementation of a proper risk management system. Relatedly, firm size is associated with effective risk management practices (Collier, Haughwout, Kunreuther, Michel-Kerjan, & Stewart, [2016](#); Subramaniam et al., [2009](#)). For instance, small firms which are exposed to a myriad of risks do not have the capability to avoid, transfer, diversify all the risky events; thus, they accept more risks which they ultimately fail to effectively manage. Thus, smaller firms inexplicably bear the costs of risk (Collier et al., [2016](#)). Nonetheless, other studies have indicated inconsistent results for the relationship between firm size and risk management (Law, [2011](#)).

Besides, firm ownership is a determinant of corporate risk management (Eng & Mak, [2003](#); Gul & Leung, [2004](#); Ho & Shun Wong, [2001](#); Nordin & Hamid, [2013](#); Samaha, Dahawy, Hussainey, & Stapleton, [2012](#)).

3. Methodology

3.1 Design, population and sample

The research design for this study is cross-sectional and correlational. This study gathered data from financial services firms in Nigeria. Financial services firms in Nigeria primarily comprise financial institutions, insurance and investments sub-sectors. Specifically, the population included 89 listed financial services firms with readily available data obtained from the three main sub-sectors of the financial services sector that is financial institutions, capital markets advisors and brokerage firms as well as insurance companies operating in Nigeria (Nigerian Exchange Group, 2023). We determine the sample size using Krejcie and Morgan ([1970](#)) and generate a sample size of 73 financial service firms proportionately (Table 1). Proportionate stratified random sampling was used to select financial services firms from each stratum thus reducing bias (Berger & Zhang, [2005](#)). The unit of enquiry is three people involved in risk management (the Chief Finance Officer, Internal Audit Manager, and Risk manager) in each of the sample firms. The respondents are selected purposively by virtue of their position, knowledge and experience (McEvily & Marcus, [2005](#); Saunders, Lewis, & Thornhill, [2012](#)). Only 62 firms responded to our questionnaire with 160 completed questionnaires. The responses were aggregated using a firm as a breaking variable.

Table 1. Distribution of firms in the sample and response rate

Sub-sector	Firms	Population	Sample size	Response
Financial institutions subsector	Commercial banks	24	20	20
Credit institutions		5	4	4
Micro finance deposit taking institutions		5	4	4
Development banks		2	2	2
Capital markets subsector	Capital markets advisors/brokerage firms	29	23	15
Insurance sub sector	Insurance companies	24	20	17
Total number of firms		89	73	62

Source: Primary data

3.2 Questionnaire and variable measurement

A six-point likert scale questionnaire ranging from strongly disagree to strongly agree designed to measure the opinion or attitude of a respondent is utilized to obtain self-reported information using closed-ended questions. The questionnaire design is based on our review of relevant literature regarding tone at the top management level, internal audit quality and risk management practices. The questionnaire was used because, data were provided to the researchers by respondents directly without going through any third party, thus retaining the confidentiality of the data. Similarly, the questionnaire is suitable for data collection from firms in several locations and for this study, data were collected from multiple financial services firms in different locations in Nigeria. Besides, a questionnaire is appropriate for descriptive and explanatory research (Saunders et al., [2012](#)). In this study, we therefore relied on responses obtained through a questionnaire survey.

The dependent variable for this study is risk management practices, which is operationalized in terms of risk prevention, risk detection and risk response. Thus, respondents were asked to indicate their perception of the effectiveness of risk management practices using fifteen items which were anchored on a six-point Likert scale with 1 = strongly disagree and 6 = strongly agree. As a measurement of risk management practices, risk prevention is defined as the process of avoiding risk or reducing the probability and impact of risk (Rooney & Cuganesan, [2015](#)).

The independent variables in this study are; top management disposition (also known as tone at top management level) and internal audit quality. Tone at top management level is measured using internal processes (inclusive of internal controls), objectivity, and experience and expertise (Cohen et al., 2002; Law, [2011](#); Cheese, [2016](#); Fraser & Henry, [2007](#)). Thus, respondents were asked to indicate their perception of the effectiveness of tone at the top management level using thirteen items which were anchored on a six-point Likert scale with 1 = strongly disagree and 6 = strongly agree. Internal audit quality with its dimensions of scope of service, independence, staff expertise, effective communication and management support was measured using the respondents' mean rank of the seventeen items of information included in the questionnaire on a six-point Likert scale (1 = strongly disagree and 6 = strongly agree).

Table 2: Factor structure of tone at top management level

Item

Our management has designed and maintained effective internal controls

We have management that ensures that we always comply with the laws

We have management that focuses on risk issues

We have management with individuals who are knowledgeable in risk management

We have management with individuals who are experienced in our nature of business

There is proper assignment of risk management responsibilities within the organization

Our top managers do not have any conflict of interest with the company

We have managers who always act in the best interest of the company

We have a clear separation of roles between the management and the board

Management has allocated appropriate resources for training and the development of an enhanced risk awareness by all stakeholders

Management has gained efficiencies through technology adoption

Our management has implemented corrective actions to address process and control deficiencies.

There is commitment from the chief executive and executive management of the organization towards risk management

Engen values

Percentage of variance

Cumulative percentage

KMO measure of sampling adequacy

Bartlett's test of sphericity

Extract method: Principal Component Analysis; Rotation method: Varimax with Kaiser Normalization

Source: Primary data

Table 3. Factor structure of internal audit quality

Item	Scope of service	Component			
		Independence	Staff expertise	Effective communication	Management support
Internal audit reviews the management of key risks	0.785				
Internal audit evaluates the risk management processes	0.748				
Internal audit coordinates the enterprise risk management framework activities	0.68				
Our internal audit gives assurance on the risk management processes	0.612				
Internal audit evaluates the reporting of key risks	0.604				
Internal audit administratively reports to executive management		0.834			
Internal audit has an independent budget approved by audit committee		0.741			
Internal audit functionally reports directly to the audit committee		0.727			
Internal auditors are trained to acquire the necessary skills to perform their duties			0.842		
The internal audit complies with the approved audit plans			0.78		
Internal audit has full knowledge of the transaction systems of the entity			0.759		
Internal audit maintains an unbiased mindset with regard to all audit engagements				0.768	
Internal auditors are normally appraised basing on set targets				0.642	
The internal audit reports are clear and well presented				0.572	
Internal auditors have the ability to analyse complex information to discover risks				0.519	
Internal audit staff assignments are rotated periodically whenever it is practicable.					0.798

The internal audit has access to records as necessary					0.61
Engen values	4.832	2.108	1.683	1.297	1.145
Percentage of variance	15.301	13.859	13.493	12.708	9.732
Cumulative percentage	15.301	29.16	42.653	55.361	65.093
KMO measure of sampling adequacy					0.684
Bartlett's test of sphericity					663.304
Extract method: Principal Component Analysis; Rotation method: Varimax with Kaiser Normalization					
Source: Primary data					

Table 4. Factor structure of risk management practices

Item
We have issued a risk policy outlining the entity's position on risk
There is ongoing monitoring of employees' activities in high risk departments
The entity ensures that adequate risk awareness activities and training
Responsibilities related to risk management are clearly defined within our company
We have technology solutions with trigger mechanisms that flag irregular activities
Our entity ensures that adequate employment screening proceedings are implemented
The entity uses the relevant government investigation standards when conducting investigations
We have established lines of communication with police for further investigations of detected risks in our organization
We have developed a risk control plan to minimize the impact and likelihood of identified risks
We have disclosure procedures in place for evidence relating to detected risk.
Our entity has a formal process in place for communicating the outcomes of completed risk investigations
Risks faced by our organization are managed on enterprise wide basis
Our risk reporting mechanisms are easily accessible by internal and external parties
The entity uses internal audit to actively review its detective control environment

Our entity provides sufficient information to enable employees recognize the possible red flags or early warning signs of risk activity

Engen values

Percentage of variance

Cumulative percentage

KMO measure of sampling adequacy

Bartlett's test of sphericity

Extract method: Principal Component Analysis; Rotation method: Varimax with Kaiser Normalization

Source: Primary data

Table 5. Description of the model

Variable	Acronym	Variable description
Outcome variable		
Risk management practices	RMPs	Measured by average rating on a six-point Likert scale of questions on risk prevention, risk detection and risk response
Predictor variables		
Tone at the top management level	TTML	Measured by average rating on a six-point Likert scale of questions on internal processes (inclusive of internal controls), objectivity, and experience and expertise
Internal audit quality	IAQ	Measured by average rating on a six-point Likert scale of questions on scope of service, independence, staff expertise, effective communication and management support
Control Variables		
Firm type	FT	A dummy variable coded as 0 if the firm is domestically owned, 1 if the firm is foreign owned.
Ownership	OWNP	A dummy variable coded as 0 if the firm is domestically owned, 1 if the firm is foreign owned.
Firm size	FS	A dummy variable coded as 0 if the firm is public limited, 1 if the firm is private limited.
	β_0	Constant
	ϵ_j	Error term

Source: Primary data

Table 6. Descriptive statistics for dependent, independent and control variables

Variables	n	Minimum	Maximum	Mean	Std. Deviation
Tone at the top management level (1)	62	4.27	5.92	5.150 ₃	0.3073
Internal audit quality (2)	62	4.21	5.76	5.174 ₄	0.3025
Risk management practices (3)	62	3.87	5.73	4.990 ₅	0.42912
Firm type (4)	62	0	1	0.274 ₂	0.44975
Ownership (5)	62	0	1	0.564 ₅	0.49987
Firm size (6)	62	0	1	0.612 ₉	0.49106
Valid n (listwise)	62				

Source: Primary data

Table 7. Global variables and financial institution category

Variables	n	Minimum	Maximum	Mean	Std. Deviation
Tone at the top management level (1)	62	4.27	5.92	5.150 ₃	0.3073
Internal audit quality (2)	62	4.21	5.76	5.174 ₄	0.3025
Risk management practices (3)	62	3.87	5.73	4.990 ₅	0.42912
Firm type (4)	62	0	1	0.274 ₂	0.44975
Ownership (5)	62	0	1	0.564 ₅	0.49987

Firm size (6)	62	0	1	0.612 ₉	0.49106
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Valid n (listwise)	62
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Source: Primary data

Table 8. Global variables and position of respondents in the firm

Variables	Respondent's position	n	Mean	SD	df	F	Significance
Tone at the top management level	Chief Finance Officer	54	5.0869	0.4708 ₉	2	1.062	0.348
Internal Audit Manager		55	5.1622	0.5404 ₃	157		
Risk Manager		51	5.2217	0.3993	159		
Total		160	5.1558	0.4756 ₇			
Internal audit quality	Chief Finance Officer	54	5.134	0.4598 ₄	2	0.447	0.64
Internal Audit Manager		55	5.2096	0.4359 ₂	157		
Risk Manager		51	5.1984	0.4496 ₈	159		
Total		160	5.1805	0.4469 ₂			
Risk management practices	Chief Finance Officer	54	5.0012	0.5623 ₄	2	0.151	0.86
Internal Audit Manager		55	4.9782	0.6475 ₁	157		
Risk Manager		51	5.0418	0.5923 ₉	159		
Total		160	5.0063	0.5990 ₃			

Source: Primary data

To control for item non-response, we carried out simple frequency runs and found that item non-response (missing values) was less than 1 per cent of all the questions, and thus trivial to suppress the standard deviation (Field, [2009](#)). However, even with this, the present study carried out a missing values analysis because missing data may reduce the precision of

calculated statistics because there is less information than originally planned. Indeed, a common concern when faced with multivariate data with missing values is whether the missing data are missing completely at random (MCAR); that is whether the missing data depend on the variables in the data set (Little, 1988). Using the E-M (expectation–maximization), the MCAR, was not significant (Little’s MCAR test: chi-square = 122.730, df = 130, Significance = 0.662). This meant that data were missing completely at random. As the missing values were for cases on different variables, it was deemed necessary to not delete those cases (because a lot of data could be lost) but instead replaced them by using linear interpolation for its simplicity.

3.3 Tests of factorability, validity, reliability and assumptions of parametrical data

We used exploratory factor analysis (EFA) based on principal components and Cronbach’s α (Tables 2–4) to examine the validity and reliability of the scales as measures of tone at the top management level, internal audit quality and effective RMPs in the financial services firms. EFA was also performed to identify patterns in data and to reduce data to a manageable level (Field, 2009). To establish convergent validity, the principal components for each variable were extracted by running principal component analysis using varimax rotation method, and factor loadings below 0.5 coefficients were suppressed to avoid extracting factors with weak loadings. Prior to performing the principal component analysis for scales, we assessed the suitability of the data for factor analysis based on sample size adequacy, the Kaiser–Meyer–Olkin (KMO) and Bartlett tests. The results show the KMO values: tone at the top management level = 0.756, internal audit quality = 0.684 and RMPs = 0.821. Bartlett’s test of sphericity in all scales reached statistical significance ($p < 0.05$) (significant value was 0.00 for each scale). Collectively, these results support the factorability of the correlation matrices because our correlation matrices are significantly different from the identity matrices in which the variables would not correlate with each other. The determinants for all the three matrices were greater than 0.01, implying that there were no multicollinearity or singularity between variables. To obtain the content validity index (CVI), we dichotomized the rating scale through a duo split of the scores such that rating scores 1–3 = measure not useable, 4–6 = measure useable. The CVI was computed by obtaining the proportion of items assessed as useable divided by the total number of items (Field, 2009). The CVI for each variable was above 0.7 (Tone at the top management level = 0.817, internal audit quality = 0.890, and RMPs = 0.889). Thus, the instrument attained content validity. To determine the internal consistency (reliability) of our scales we computed Cronbach’s α coefficients for the

study variables. The standardized α coefficients for all the scales were found to be 0.70 and above (Tone at the top management level = 0.850, internal audit quality = 0.868, and RMPs = 0.868).

The Likert scale (six-point) used in this study was analysed using parametric tests and Pearson's correlation coefficient. Parametric tests of normality and homogeneity of variance were performed before carrying out tests of hypotheses in order to avoid coming to the wrong conclusions (Norman, 2010). We checked our data for normality to determine the applicability of parametric tests. This was done by use of skewness and kurtosis statistics. The skewness scores for all variables were close to 0, and kurtosis results were all within the range of -2 and $+2$; besides standard errors for each of the variables were not very different from their respective Skewness and kurtosis scores, and therefore, normality assumption was not violated (Garson, 2012; Field, 2009). Levene's test (Levene, 1960) was used to test for homogeneity of variance because it is the most commonly used test for each group (Garson, 2012). The test results are non-significant ($p > 0.05$) for all the predictor variables, and thus homogeneity of variance for the categorical variables in relation to the outcome variable is not violated (Field, 2009). In addition to the parametric tests, the Pearson's correlation coefficient was used to analyse the multiple-item Likert scales to report the bivariate relationships that were hypothesized in this study. The problem with univariate analyses is that they do not control for other factors, thus making the interpretation of results difficult. We, therefore, extend the analysis to a multivariate setting. We first examine correlations among our independent variables to determine whether multicollinearity problems exist. Field (2009) suggests that multicollinearity becomes a problem only when correlations exceed 0.80 or 0.90. As Table 9 shows, none of the correlations between independent variables is close to these threshold values.

Table 9. Pearson correlations between the dependent, independent and control variables

Variables	1	2	3	4	5	6
Tone at the top management level (1)	1					
Internal audit quality (2)	.748**	1				
Firm type (3)	-.080	-.091	1			
Ownership (4)	0.196	0.227	0.102	1		
Firm size (5)	0.144	0.017	-.031	0.237	1	
Risk management practices (6)	.792**	.719**	-.028	.320*	0.248	1

Notes: $n = 62$. ** indicates that correlation is significant at 0.01 level (one tailed).

Source: Primary data

3.3.1 Model

To examine the contribution of tone at the top management level and internal audit quality on effective risk management practices, we specify the following regression models (see Table 5):

$$\text{RMPs} = \beta_0 + \beta_1\text{FT} + \beta_2\text{OWNP} + \beta_3\text{FS} + \varepsilon_j \quad (1)$$

$$\text{RMPs} = \beta_0 + \beta_1\text{TTML} + \beta_2\text{FT} + \beta_3\text{OWNP} + \beta_4\text{FS} + \varepsilon_j \quad (2)$$

$$\text{RMPs} = \beta_0 + \beta_1\text{IAQ} + \beta_2\text{TTML} + \beta_3\text{FT} + \beta_4\text{OWNP} + \beta_5\text{FS} + \varepsilon_j \quad (3)$$

where; RMPs are Risk management practices, FT is Firm type, OWP is Ownership, FS is Firm size, TTML is Tone at the top management level, IAQ is internal audit quality, β_0 is a constant and ε_j is the error term.

4. Empirical findings

4.1 Descriptive statistics

Table 6 shows the mean scores of the study variables. Risk management practices had the lowest mean score of 4.9905 with a standard deviation of 0.42912. Internal audit quality had the highest mean score 5.1744 with a standard deviation of 0.30250. As standard deviations relative to mean values are small; the calculated means highly represent the observed data (Field, 2009). The data also indicate that predictor variables are rated high towards risk management in the financial service firms. This implies that effective tone at the top management level, risk management committee and internal audit quality are key towards managing risk in the organization.

To determine whether the firm differences influenced the study variables, a one-way analysis of variance (ANOVA) was used to determine the impact of firm sector on the study variables. The results of the one-way ANOVA presented in Table 7 show that the p-values for all study variables are above 0.05; also, the actual difference in mean scores between the groups on each of the global variables are reasonably small, indicating that the various group differences between firms did not significantly influence their responses on the study variables. Similarly, results in Table 8 suggest that the overall differences between respondents did not bias the results of this study.

4.2. Correlation analysis results

We present Pearson's correlation coefficient analysis of the study variables. Correlations from Table 9 indicate a significant positive relationship between tone at the top management level and risk management practices ($r = 0.792^{**}$ and $p < 0.01$). Meaning that Tone at the top management level leads to enhanced risk management practices. Thus, *H1* is supported. There is also a significant positive relationship between internal audit quality and risk management practices ($r = 0.719^{**}$ and $p < 0.01$). This means that an increase in internal audit quality leads to improved risk management practices. Therefore, *H2* is also supported. The correlation analysis results also show that control variables, that is, firm type, ownership and size are not significantly related at the 1 per cent level. This implies that control variables do not confound the results of testing for the relationship between tone at the top management level, internal audit quality and effective RMPs in the financial service firms. Consequently, the relationship between tone at the top management level effectiveness, risk internal audit quality and effective RMPs is not affected by the control variables.

4.4 Discussion

The main theme arising out of this study is that effective RMPs are significantly influenced by appropriate tone at the top management level and high internal audit quality. This infers that agency theory is well suited to explain the relevance of tone at the top management level and internal audit quality in ensuring effective RMPs since most principal–agency associations can be identified among internal stakeholders of an organization (Nalukenge, Nkundabanyanga, & Ntayi, [2018](#)). For example, the results indicate that when management and those charged with governance of the entity design, implement and maintain effective internal controls and there is commitment from the chief executive and executive management of the organization towards RMPs, there is likely to be effective RMPs in the organization. This is consistent with the suggestion that tone at the top management level is crucial in ensuring effective RMPs and responsible for maintaining effective internal controls and for executing risk and control procedures in risk firms (IIA, [2013a](#)) such as financial services firms, making agency theory a relevant framework for understanding variances in RMPs. Further still, the current study concurs with Cheese ([2016](#)) on the need to manage and mitigate risks effectively, through understanding corporate cultures, operating models and organizational constructs, leadership and governance, as well as the more traditional talent management practices and processes. At the same time, since tone at the top management level's scope of activities includes the

identification, assessment, control, and mitigation of risks (Fraser & Henry, [2007](#)), these roles make it lead the way to overall risk management in the organization. However, the efforts of top managers will be enhanced if contemporaneously they are knowledgeable in risk management, do not have any conflict of interest with the organization and focus on risk issues. That way the top manager's role in managing risk is improved by the enhanced expertise and objectivity. The results also suggest that executive management should allocate appropriate resources for training and the development of an enhanced risk awareness by all stakeholders. In this regard, tone at the top managerial level is seen as an elevator of the risk management efforts in the organization which seems to concur with Sheedy and Lubojanski ([2018](#)) observation that older workers as well as those with greater seniority are more likely to report desirable risk management behaviour. Thus, senior staff are expected to play a greater role in promoting risk management in firms that are committed to risk culture. Overall, adequate internal processes, objectivity and experience and expertise are key considerations for tone at the top management level in influencing effective RMPs.

The results further suggest that the individual contribution of internal audit quality to effective RMPs is very vital. It is highly likely that if the organization has an effective tone at the top management level, this will help internal auditors to perform their duties independently. Besides, with adequate management support, internal auditors will be able to access all records as necessary and acquire training of the necessary skills to perform their duties competently to prevent, detect and report the risks. This corroborates with Coetzee ([2016](#)) who confirms that internal auditing should play a prominent role in risk-related activities to ensure that the risks threatening an organization are reduced to acceptable levels. Other corroborative studies have indicated that internal auditors are sensitive to factors that may lead to risk disclosures and that when they encounter such factors, internal auditors may be more likely to design tests to search for risk, which in turn can increase the likelihood of detection and reporting (Abdullatif & Kawuq, [2015](#); Chambers & Odar, [2015](#); Zwaan et al., [2011](#)). However, our results contradict the findings of Fraser and Henry ([2007](#)) who recommended a split of the internal audit and risk management functions to preserve internal audit independence and clarify internal audit roles. Nonetheless, in this study, we suggest that even though a separate risk management function is established in the organization, internal audit remains with the primary role of assisting the top management to meet the strategic and operational objectives of the organization, by providing an independent and objective evaluation of the adequacy and effectiveness of risk management,

controls and governance processes. As a result, the organization's internal audit approach must be aligned with the organization's risk management function by focusing on key strategic, financial, operational, compliance and information technology risks. This links well with the studies of Stewart and Kent (2006) and Ismael and Roberts (2018). The empirical results presented herein further confirm the contemporary literature in this regard, thus contributing to the internal audit quality and effective RMPs literature, particularly that focusing on the financial services sector.

5.1 Summary of findings

The purpose of this paper was to examine the contribution made by tone at top management level and internal audit quality towards effective risk management practices (RMPs) in the financial services firms in Nigeria. We surveyed 62 financial services firms and we found out that:

Tone at the top management level and internal audit quality are significant predictors of effective RMPs. Once the organization has effective tone at the top management level, it is likely to aid internal auditors perform quality audits to enhance effective risk management practices.

5.2 Conclusion

This study offers several implications. We explored the role played by the tone at the top management level and internal audit quality in enhancing the effectiveness of RMPs, meaning that organization managers who design, implement and maintain effective internal controls and do not have any conflict of interest with the organization are likely to enhance risk prevention, detection and reporting. The results indicate that when management and those charged with governance of the entity design, implement and maintain effective internal controls and there is commitment from the chief executive and executive management of the organization towards RMPs, there is likely to be effective RMPs in the organization. This is consistent with the suggestion that tone at the top management level is crucial in ensuring effective RMPs and responsible for maintaining effective internal controls and for executing risk and control

procedures in risk firms such as financial services firms, making agency theory a relevant framework for understanding variances in RMPs.

5.3 Recommendations

Policymakers like the Central Bank of Nigeria should prescribe the operating standards for financial services firms, composition and expertise of the risk management committee and qualifications for internal auditors.

In addition, internal auditors should be independent, competent, get adequate support from management and perform their new and expanded activities to ensure quality audits. The results are important for risk management policy development, for example, in terms of prescribing the role of tone at the top management level, and internal audit quality in spearheading risk management in the financial service firms.

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