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RISK GOVERNANCE AND FINANCIAL PERFORMANCE: AN EMPIRICAL ANALYSIS

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Abstract. This study examines the influence of risk governance on financial performance of 50 quoted firms in the Nigerian financial sector for the period of five years (2013–2017). Panel data was used to examine how the risk governance variables (Enterprise Risk Management_index, Chief Risk Officer_presence, Board Risk Committee_size, Board Risk Committee_activism, and Board Risk Committee_independence) affects financial performance (Return on Asset). The study reveals empirically that most of the risk governance variables (ERM_index, CRO_presence, BRC_activism, and BRC_independence) have a significant and positive impact on the performance of the firm with the exception of BRC_size which shows a negative association with the financial performance of the studied firms. The study empirically reveals that strong Chief Risk Officer (CRO) presence, effective board risk committee, and inclusion of independent directors in the risk committee will go far in serving as factors that would improve the performance of firms in today's financial environment. This study made a lot of core findings that contribute to the emerging literatures on risk governance and risk management research.

Keywords: board risk committee, chief risk officer, financial performance, Nigerian financial sector, return on assets, risk governance.

JEL Classification: M21, M40, M41.

Introduction

The subject of risk governance has received global attention in recent times, due to the financial crisis that engulfed most financial institutions in 2008. Not only does risk governance is believed to have enhanced the ability of a firm to prevent the impact of economic crisis, but it is also predicted to impact positively on the profitability of a firm (Committee of Sponsoring Organisations of the Treadway Commission) (COSO, 2004). Risk governance endorsement of by most countries such USA, China, Malaysia is a major achievement towards the mitigation of further economic crisis and improvement of accounting information quality (Boholm et al., 2011; Dabari & Saidin, 2015). The recognition of risk governance worldwide is a significant step towards corporate transformation which has given rise to major areas of research in accounting such as Enterprise Risk Management (ERM), corporate monitoring and corporate ownership (Decker & Galer, 2011; Daud et al., 2011; Arumona et al., 2019). It is

believed that the complexity of financial dealing, increase in global cross borders transaction, business uncertainty and volatility in financial markets have brought to fore the recognition and practice of risk governance.

In response to dramatic failures of corporate organisations recently, there has been a significant need to ensure that the practice of risk governance is strengthened. Hoyt and Liebenberg (2011) believed that the traditional way of measuring risk is inadequate, therefore, there will be a need to develop an approach that will be holistic to confront the organisation's risk exposure. The framework of risk governance requires identification and assessment of all the aggregate risks affecting the financial performance, by the management, and hence the need to apply a holistic strategy in risks management process. Similarly, Meulboek (2002) described risk governance as a concerted effort put in place by the management with the aim of identifying and assessing the aggregate risks that affect the performance of a firm so as to ensure a comprehensive management and reduction of those risks.

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Risk governance framework that was developed in 2005 by International Risk Governance Council (IRGC) with a view to strengthening financial reporting process, especially for financial institutions. The framework viewed risk governance as a governance process designed by the board in the firm to oversee the management of risk issues in organizations. The whole essence of risk governance is that board members are directly involved in the risk process, risk implementation, risk reporting, and disclosure (IRGC, 2008; Liaropoulous et al., 2016; Kakkanda et al., 2017; Erin et al., 2017).

It is argued that due to the regulatory pressure and stakeholders' demand; it has become necessary for the institutionalisation of risk governance both in the developed and emerging countries (Marjolein et al., 2011, Golshan & Rasid, 2012; Fadun, 2013). Authors such as Gordon et al. (2009), Pagach and Warr (2011), Kakkanda et al., (2017) found that effective risk governance framework is a major step towards creating sustainable future for stakeholders. These authors believed that risk governance is linked to wealth maximisation of shareholders. This means the risk governance framework has the potential to improve the firms' performance. Along the same lines, Quen et al. (2012) revealed that shareholders wealth maximisation and enhancement of financial performance is the major objective of risk governance. The benefits of risk governance to investors are enormous since it reduces organisation's exposure to fraud, strengthens governance structure and provides a better platform to improve the financial performance of a firm (Carlon et al., 2003; Sobel & Reding, 2004).

It is important to study the subject of risk governance in Nigeria because of the recent collapse of financial institutions in Nigeria. However, recent studies on financial performance are from the perspectives of the corporate performance, audit committee and International Financial Reporting Standards (IFRS) without due consideration to the subject of risk governance in Nigeria, this constitutes the gap this study intends to fill. Also, studies (Emeni et al., 2016; Ilaboya & Ohiokha, 2016; Uwugbe et al., 2017a, 2017b; Erin et al., 2017; Soliman & Adam, 2017; Erin et al., 2018; Erin et al., 2019a, 2019b) on risk management process were limited to the subject area of enterprise risk management and credit risk management without holistically considering risk governance vis-à-vis how it influences performance of financial firms in Nigeria. In respect of the timeliness and importance of this research on Nigerian financial institution and other emerging markets; we are motivated to examine this study and present our findings that could help improve the value of the firm and create sustainable growth in financial institutions. Against this backdrop, this study examines the impact of risk governance on financial performance with a focus on firms operating in the financial sector in Nigeria.

1. Literature review

Risk governance and financial performance

Meulbroek (2002) viewed risk governance as an integrated risk management approach which helps in identifying and assessing the collective risk affecting firm performance with a view to ensuring that those predominant risks are comprehensively reduced and managed. Harrington et al. (2002), in their study described risk governance as an integrated approach that is used for identification and measurement of all risk exposure including competitive and operational risks. They opined that risks should be managed as a single centralized approach contrary to the fragmented risk management approach. Liebenberg and Hoyt (2003) opined that risk governance is corporate risk management which enables corporate organization to derive benefit from a more robust and integrated approach to managing a wide array of risks. This enables corporate management to shift focus from an approach that is defensive to a more strategic and offensive way of managing risk exposures. Verbrugge et al. (2003) described risk governance as a corporate-wide approach in managing all the organisation's total liability structure with a view to maximizing the profitability of a firm.

Much has been discussed in the literature on the importance of financial performance on corporate governance, IFRS, capital structure and risk management. As regards risk management, it has been found that risk governance system has greater tendency to improve the financial performance (Lam, 2004; Hoyt & Liebenberg, 2008; Waweru & Kisaka, 2010; Barger et al., 2010). Financial performance serves as financial indicators as well as non-financial indicators that show improvement in shareholder value (Kleffner et al., 2003; Standard & Poor, 2008). Carter et al. (2003) opined that the success of any organisation's operation depend largely on its management of risk structure. They argued that there can be value creation by adopting and applying effective risk governance framework.

Studies have shown that effective risk governance structure leads to maximisation of shareholders value by reducing the overall risk of the organisation which invariably reduces the cost of capital (Beasley et al., 2005). John et al. (2008) in their study noted that a consistent increase in financial performance is dependent on the risk management strategy of the organisation. They found that the application of holistic system of risk management adds value to the firm by reducing cash flow volatility, reduction in earnings volatility and an increase in revenue growth. Similarly, Miccolis et al. (2001) agreed that an effective risk governance framework helps companies to increase their financial performance by increasing return on capital, reducing expenses, increased earnings and revenue growth.

Risk governance framework (construct)

We examined risk governance determinants found in the literature; these factors should be in place before an organization can have an effective and strong risk governance framework.

Board Risk Committee Size: The board is charged with the overall responsibility for the oversight function of risk and risk management (Scarborough et al., 2010; Ng et al., 2012). Going by the recent trends in corporate governance and risk management, companies have increased the proportion of independent directors and the diversity of those directors in order to enhance board performance (Nakano & Nguyen, 2012). This underscores the need to institute an independent committee within the board that will be responsible for risk management policies and framework.

Board Risk Committee Activism: Board activism is the extent of involvement of a company's board of directors in the affairs of an organization while measuring the scope of a board's activities (Erin et al., 2019a, 2019b). Activism promotes boardroom independence (Baxter et al., 2013) and board activism increases as the proportion of outside board members increases.

Chief Risk Officer Presence: The study of Beasley et al. (2005) considered the appointment of Chief Risk Officer (CRO) as a strong determinant factor of the risk governance framework. These studies found a positive and significant relationship between CRO appointment and risk governance process. Consistent with this result, the study of Kleffner et al. (2003) and Yazid et al. (2011) revealed that the appointment of CRO influences the risk governance system in any organization. The role of CRO is to establish a functional and integrated risk management framework for all levels within the organisation.

Board Risk Committee independence: The independence of the risk committee is pivotal to risk management activities of any organization (Eckles et al., 2014). It is expected that the risk governance process is founded on sound corporate governance principles. Studies of (Hoyt & Liebenberg, 2008; Pagach & Warr, 2011; Bromiley et al., 2014, Okoye et al., 2017) argued that the inclusion of independent persons in the risk committee will further strengthen the risk culture, risk architecture and risk disclosure.

Enterprise Risk Management (ERM): The emergence of Enterprise Risk Management (ERM) in recent times has resulted in a new paradigm for managing the portfolio of risks that face organizations thereby making policymakers focus on mechanisms that help to improve corporate governance and risk management (Beasley et al., 2005; Uwugbe et al., 2019). McShane et al., (2011) posited that the purpose of ERM is to gain a systematic understanding of the interdependencies and correlations among risks aggregated into portfolios, then hedging the residual risk, which is more efficient and value maximizing than dealing with each risk independently.

Empirical review

In the last decade, risk governance has become a new discipline that has drawn the attention of accounting, risk management and finance professionals and researchers. Several authors have written on various perspectives regarding risk. Most of these studies have a higher concentration on financial industry such as banks, insurance companies, and investment firms.

Li et al. (2014) researched on the relationship that exists between risk governance and financial performance of Chinese insurance companies. The study used 135 insurance firms obtained from the China Insurance Regulatory Commission (CIRC) as their sample. They used Pearson correlation matrix and regression analysis as a method of data analysis. Explanatory variables such as ERM index, leverage, firm size, sales growth and institutional investors were used to measure risk governance process while Return on Equity (ROE) was used as a dependent variable, serving as firm's performance measure. The study revealed that all the independent variables show a positive and significant relationship with ROE; which signify that risk governance implementation has a significant influence on financial performance.

Similarly, Tahir and Razali (2011) examined how risk management influences financial performance of quoted companies in Malaysia. They investigated 528 quoted companies on the Malaysian Stock Exchange. ROA was used as a proxy for performance of the firms while risk management proxies were institutional ownership, firm size, ROA, leverage and international diversification. The study found that risk management is not significantly related to financial performance but it shows a positive relationship. In addition, the study found that firms that do not diversify have a significant and positive relationship with financial performance. Institutional ownership has a positive value but insignificantly related to financial performance. The size of the firm and return on asset (ROA) showed a negative value but significant relationship with financial performance. Similarly, Hoyt and Liebenberg (2008) researched on the impact of ERM on performance of U.S. insurance companies. Maximum-likelihood treatment effect was employed to test the model specification of study. The study sampled 275 U.S insurance companies for the period of 1995 to 2005 which is the 11-year period. The study found that implementations of ERM is positively related to institutional ownership and firm size, and negative relationship with financial leverage. In the overall, ERM program contributed significantly to the firm performance of U.S. insurance firms for the sampled period.

Furthermore, Grace et al. (2015) investigated the value of investing in ERM for U.S. insurance companies. The research focused on the insurance industry using Tillinghast Towers Perrin ERM survey for the year 2004 and 2006 respectively. The authors considered the following factors in selecting insurance firms: product line mix, capital-to-asset

ratio, a publicly traded firm, personal property insurance, and commercial liability. The study found that the implementation of ERM has a significant influence on efficiency of cost and revenue. In addition, ERM system has an impact on Tobin's Q showing a positive relationship which invariably increases firm performance.

McShane et al. (2011) also critically studied the impact of risk governance on financial performance. The study was carried out using 82 insurance companies. The financial performance of the studied sample was measured through the use of ROA which is a common proxy for firm performance in researches on risk management (Hoyt & Liebenberg, 2003; Beasley et al., 2005). Risk governance was measured using the (S&P) risk rating, that is, Standard and Poor's risk rating. Several factors were considered in S&P risk rating which are: strategic risk management, emerging risk management, risk management culture, risk control processes, and risk modelling techniques. The authors used control variables such as growth opportunities firm size, systemic risk, leverage, cash flow and volatility in the study. The study found that risk governance process has not increased financial performance of insurance firms in the U.S. The authors believed that firms with strong risk governance structure are taking bigger risks in the areas of their core capabilities.

Considering the issues reviewed, the study hypothesis is stated as:

H₁: Risk governance has a positive and significant impact on the financial performance of firms operating in the Nigerian financial sector.

The section provides the summarized version of the literature reviewed in chronological order (Table 1).

Theoretical perspective

Many researchers have observed that risk governance process is contingent on several variables in order to be successful (Corbett & Kirsch, 2001; Sharma et al., 2010). Most studies mirror early contingency theory research in accounting and management research, which believed that several contingent factors are related to governance and control. Contingency theory started in the 1950s in relation to organisation structure and effectiveness (Dickinson, 2001). The early founders (Fried Fraser and Sharper) believed that organisation performance is contingent on several factors (internal and external); these factors shape organisation behaviour and existence. In recent time, contingency theory has been expended beyond the management literature to incorporate finance and risk literature (Beasley et al., 2005).

Most studies viewed contingency theory with respect to organisational performance in determining the risk governance process (Cohen et al., 2009; Ellul & Yerramilli, 2012; Baxter et al., 2013). These authors argued that the likelihood of minimizing performance or firm's value destroyed during economic or financial distress justifies the need for the risk governance process. Furthermore, Aabo et al., (2005) suggested that resource planning, effective organisation structure, size, and governance structure might affect risk governance practices of firms. Several studies revealed that a link exist between risk governance and contemporary structure of corporate governance in the context of contingency theory (Kleffner et al., 2003; Power, 2009; Mikes & Kaplan, 2015; Uwujigbe et al., 2017a, 2017b). These studies argued that effective risk management practices are contingent on governance issues like risk management committee, independence of the board,

Table 1. Summary of selected empirical studies

S/N	Authors and Year	Country of Study	Purpose of the Study	Methodology Adopted	Findings
1	Hoyt and Liebenberg (2008)	USA	Investigated the impact of ERM on firm value from the U.S. insurance companies.	Panel Data Regression	ERM program significantly contributes to the firm value of insurance firms in the U.S. for the sampled period.
2	Tahir and Razali (2011)	Malaysia	Examined the relationship between risk management and firm performance of listed companies in Malaysia.	Regression Method	The study shows that risk management has no significant impact on financial performance.
3	McShane et al. (2011)	USA	Examined the impact of risk governance on financial performance of 82 insurance firms.	Panel Data	The study found that implementation of risk governance has increased the firm performance of insurance firms in the U.S.
4	Li et al. (2014)	China	Investigated the relationship between risk governance and firm value of insurance companies in China.	Panel Analysis	The study reveals that all the explanatory variables show a positive and significant relationship with ROE; which signify that risk governance implementation has a significant impact on firm performance.
5	Grace et al. (2015)	USA	Investigated the value of investing in ERM for insurance companies in the U.S.	Survey Method	The study found that ERM implementation has a significant influence on cost and revenue efficiency.

board diversity in terms of financial expertise and effective board monitoring. Most academic studies revealed the importance of contingency theory in the process of risk governance.

In the work of Beasley et al. (2005); Hoyt and Liebenberg (2008), Bromiley et al. (2014), it was reported that the risk governance system acceptability is contingent on the appointment of a firm Chief Risk Officer (CRO) including other risk specialist functions. They argued that risk governance is a new discipline that requires a new design of organisation responsibility. One crucial factor that signals the effectiveness of risk governance process is the invention of the CRO, which is a specialised managerial position, whose responsibility is risk management coordination. Other studies also believed that contingent theory is seen from an external perspective and this external factor influence a firm's decision. The financial crisis consequence has brought to fore the agitation from external factors like investors, regulatory bodies, stakeholders, and rating agencies on the need of adopting approaches that are more holistic to risk management. Contingency theorists recognized both factors that are internal and external to firms as the determinant of organisational structure and effectiveness (Stulz, 2008; Adam & Shavit, 2009; Plambeck & Weber, 2009). Therefore, the relevance of contingency approach cannot be undermined in the risk governance process.

2. Research methods

Content analysis and panel data were employed for this study, they were used to examine the how risk governance influences the financial performance of listed firms operating in Nigerian financial institutions (banks, insurance firms and investment companies). This study covered the period of 2013–2017. Data were gathered

across the firms over a period of five (5) years (2013–2017). The population of the study are fifty-seven (57) firms quoted on the floor of the Nigerian Stock Exchange (NSE), however, the sample size was limited to fifty (50) firms. We gathered our data from the annual reports of selected firms and from African financial report. This study focused on financial institutions because of its stabilising role in the economy and its ability to prevent a systemic collapse of the entire economic system. Therefore, it is important to investigate critically, the impact of risk governance system on financial performance in the Nigerian financial institutions. The data were analyzed through descriptive statistics, Pearson correlation and regression method.

Variable measurement

In this section, we examined the variables used in this study ranging from the dependent variable to explanatory variables, however, the same set of variables were used in all the study periods respectively (Table 2).

ERM_Index: this is derived from both corporate governance measure and risk assessment procedure. The first three variables from corporate governance (CG) measure are:

- Presence of CRO – 1;
- Risk Committee – 2;
- Reporting frequency between Risk Committee (RC) and board of directors (BOD) – 3.

The other three variables from the risk assessment procedure measure are:

- Risk Assessment frequency (RA_frequency) – 4;
- Risk Assessment Level (RA_level) – 5;
- Risk Assessment Methodology (RA_Method) – 6.

The comprehensive ERM_Index is the sum of all the six variables ranges from 1 to 6. ERM_Index rates firms from numbers 1 to 6 depending on the level of their ERM implementation.

Table 2. Operationalization of variables

Variable(s)	Symbols	Operationalization	Adapted from prior studies
Dependent Variable			
Financial Performance	ROA	Proxy by net income divided by total assets	McShane et al. (2011), Cummins et al. (2006)
Independent Variables (Risk Governance Variables)			
Chief Risk Officer Presence	CRO_presence	CRO is dummy variable, set equal to 1 for firms with CRO designation, and 0 otherwise	McShane et al. (2011), Cavezzali and Garddenal (2015)
Board Risk Committee Size	BRC_size	The total number of members on the risk committee	Erin et al. (2018)
Board Risk Committee Activism	BRC_activism	BRC activism is the number of times meeting was held in a financial year	Aabo et al. (2005), Li et al. (2014)
Enterprise Risk Management Index	ERM_index	ERM index is measured through the combination of corporate governance and risk variables	Hoyt and Liebenberg (2011), Arnold et al. (2011)
Board Risk Committee Independence	BRC_independence	The proportion of non-executive directors divided by total numbers of directors	Gordon et al. (2009), Soliman and Adam (2017)

Model specification

Our models was developed in relation to the conceptual issues reviewed in the literature. This model captured the risk governance variables examined in this study literature. The estimated econometric model is expressed in the following equations:

$$ROA = f(ERM_index, BRC_size, BRC_activism, CRO_presence, BRC_independence); \quad (1)$$

$$ROA_{it} = \beta_0 + \beta_1 ERM_index_{it} + \beta_2 BRC_size_{it} + \beta_3 BRC_activism_{it} + \beta_4 CRO_presence_{it} + \beta_5 BRC_independence_{it} + \mu_{it}, \quad (2)$$

where: ROA = Return on Assets; ERM_index = Enterprise Risk Management Index; BRC_size = Board Risk Committee Size; $BRC_activism$ = Board Risk Committee Activism; $CRO_presence$ = Chief Risk Officer Presence; $BRC_independence$ = Board Risk Committee independence; $i = 1, 2, 3, \dots, 50$ indicating the number of firms that were used for the study; $t = 1, 2, \dots, 5$ indicating the time period that was used for this study (2013–2017); $\beta_1 - 5$ = Coefficient or slope of the regression line or independent variables; μ_{it} = The error term which accounts for other possible factors that could affect the dependent variable not captured in

our model. (The stochastic error term is presumed to be identically and independently distributed).

3. Results

This section performs the empirical analysis by considering the descriptive statistics, correlation method and the regression analysis.

Table 3 above shows the descriptive statistics for all variables. Looking at the risk governance variables, the result of $CRO_presence$ revealed that 85% of firms operating in financial institutions have a designated CRO to oversee the risk management department and other risk-related activities. The mean value of ERM_index showed 4.74, which means that 79% (4.74/6) firms have an ERM framework in place to manage risk activities. This result signifies a commitment to holistic risk management practices and the adoption of a more integrated risk system to tackle emerging risks. The BRC_size showed a maximum value of 5, the minimum value of 3 and a mean value of 3.7. This suggests that approximately, there are 4 members that constitute the risk committee. This is in line with the Central Bank of Nigeria (CBN) guidelines that members of the risk committee must not be less than 3. Considering

Table 3. Descriptive statistics

	ROA	ERM_index	BRC_size	BRC_activism	CRO_presence	BRC_indp
Mean	28.9681	4.74	3.7245	3.8729	0.85	2.122
Median	25.777	4	3.2347	3.4596	0.78	2
Maximum	44.7625	6	5	6	1	3
Minimum	12.278	3	3	2	0	1
Std. Dev.	10.8646	0.8829	0.1071	0.8653	0.4499	0.112
Skewness	1.3306	0.1589	0.1685	1.4253	-0.9854	0.5022
Kurtosis	2.515	2.3095	1.6551	2.1168	1.9603	2.1929
Jarque-Bera	76.5431	6.0188	20.0239	97.6401	51.2732	17.2959
Probability	0	0.0493	0	0.0045	0	0.0001
Sum	274.2035	108.5	56.125	93.2401	18	30.5
Sum Sq. Dev.	23.9212	15.5328	2.8593	34.7433	50.4	3.129
Observations	250	250	250	250	250	250

Table 4. Correlation analysis

Covariance Analysis: Ordinary						
Included observations: 250						
	ROA	ERM_index	BRC_size	BRC_activism	CRO_presence	BRC_indp
ROA	1					
ERM_index	0.2701	1				
BRC_size	-0.2184	0.6392	1			
BRC_activism	0.3024	0.8735	0.5657	1		
CRO_presence	0.2181	0.1778	0.2085	0.0924	1	
BRC_indp	0.0794	0.2012	-0.1931	-0.3143	-0.0061	1

the BRC_independence, the result showed that at least 2 members are independent members; it means that 50% of the risk committee are independent members. The result of the BRC_activism reveals that on the average, board members meet 3 or 4 times a year for discussion on issues that relates to risk activities.

Table 4 shows the correlation coefficients of the variables examined to measure financial performance (ROA) used in the study. As observed from the above table, ERM_index is positively correlated with ROA. The same is observed for BRC_activism, BOD_independence, CRO_presence while BRC_size is a negatively related to ROA. This result is of the opinion that risk governance process is more likely to have a positive and significant impact on the financial performance of companies operating in the Nigerian financial sector. The relationship between ERM_index and financial performance which is positive, proves that the firms with the ERM framework are more likely to increase the value of its shareholder than firms without ERM program. In addition, the relationship between CRO_presence and financial performance which is positive infers that firms with designated CRO are most times likely to deploy sophisticated risk infrastructure to tackle emerging risks that may negatively affect the firms' real and financial assets.

The regression analysis result of the study is presented in Table 5. The result presents the variables of risk governance (independent variable) that are linked with the financial performance which is the dependent variable. The result showed that the relationship between the ERM_index ($0.0219 < 0.05$), CRO_presence ($0.003 < 0.05$) and financial performance is positive and significant. Also, BRC_activism ($0.0001 < 0.05$) and BRC_independence ($0.0178 < 0.05$) reported a positive and significant relationship with financial performance. On the contrary, BRC_size ($0.7686 > 0.05$) showed a negative and insignificant relationship with financial performance. The Durbin-Watson statistic of 2.01613 is not substantially different from the 2.00

benchmark which indicates the absence of serial correlation. The adjusted R^2 value of 61% shows an average explanatory power of the independent variables.

4. Discussion

Restatement of hypotheses and discussion of findings

H_1 : *Risk governance has a positive and significant impact on the financial performance of firms operating in the Nigerian financial sector.*

The regression analysis is centred on how risk governance influences financial performance. From the regression result, there is a positive and significant relationship between ERM_index ($p = 0.021 < 0.05$) and financial performance. The same is observed for BRC_activism ($p = 0.001 < 0.05$), BRC_independence ($p = 0.017 < 0.05$), CRO_presence ($p = 0.003 < 0.05$) which revealed a positive and significant relationship with financial performance. Contrary to this, only BRC_size ($p = 0.768 > 0.05$) showed an insignificant relationship with financial performance. In overall, the regression result showed risk governance variables have significant impact on financial performance of selected firms operating in the Nigerian financial sector. Therefore, the stated hypothesis is accepted that between risk governance has a positive and significant impact on financial performance.

The foregoing results present a major implication on the subject of risk governance vis-à-vis how it impact on financial performance. The positive relationship between ERM_index and financial performance suggests that effective implementation of ERM framework has the capacity to increase firm performance and invariably enhance shareholders' value. This finding is consistent with the studies of Hoyt and Liebenberg 2011 and Rahim et al. (2015). These studies documented that the risk governance process improves financial performance, and reduces the threats of emerging risks. This

Table 5. Regression analysis

Variable	Coefficient	t-Statistic	Prob.	VIF	Tolerance
ERM_index	0.295916	2.185682	*0.0219	3.56	0.2808
BRC_size	0.328536	1.115555	0.7686	2.92	0.3425
BRC_activism	0.638521	3.102648	*0.0001	1.84	0.5434
CRO_presence	0.022863	3.129892	*0.0038	2.67	0.3745
BRC_independence	0.148971	2.062564	*0.0178	4.32	0.2314
Effects Specification					
Cross-section fixed (dummy variables)					
	Weighted Statistics				
R-squared	0.66789				
Adjusted R-squared	0.61456				
F-statistic	9.28599	DW Stat.			2.01613
Prob.(F-statistic)	0.00001				

Note: * 5% level of significance.

is a clarion call to institutionalise effective risk governance process in order to enhance financial performance. The assumption is that a sound risk management framework is likely to minimize emerging risks that may likely erode shareholders' investment and value, especially for firms in financial institutions. Also, the BRC_independence revealed a positive and significant relationship with financial performance. This denotes that independent directors are important in risk governance and strategy. Therefore, there is need to hold senior management accountable for the overall risk management and execution. This result is in tandem with the studies of Pagach and Warr (2011), Soliman and Adams (2017), Erin et al. (2018).

Furthermore, the regression result revealed that the relationship between BRC_activism and financial performance is positive and significant. From our findings, risk committee members meet about 4 times in a year to discuss risk-related matters. This underscores the importance of risk issues in financial institutions in Nigeria; this suggests that members of the risk committee are more committed and concerned about risk issues affecting the organization. This corroborates the findings of McShane et al. (2011) and Eckles et al. (2014) that document a positive relationship between BRC_activism and firm performance.

The result of CRO_presence revealed a positive and significant relationship with financial performance. This result suggests that the presence of CRO is important in tackling wide and emerging risks confronting organization today. Quite a number of studies found that hiring of CRO has the likelihood of reducing the impact of risk on the organization (Liebenberg & Hoyt, 2003; Daud et al., 2011; Pagach & Warr, 2011; Soliman & Adams, 2017). However, the study of Ernst and Young (2017) opined that the position of CRO is indispensable but cannot alone carry out his mandate without the support of senior management and all business units. However, this does not undermine the role of CRO in executing risk governance functions and other oversight duties.

Conclusions and contribution

This study focused on examining the impact of risk governance on financial performance of firms operating in financial sector in Nigeria. The approach followed was to analyse fifty (50) selected firms for the year 2013 to 2017. The observation from our findings reveals that almost all the explanatory variables in relations with financial performance shows a positive and significant relationship, except the BRC_size that revealed an insignificant relationship with financial performance. The study used the risk governance variables (ERM_index, CRO_presence, BRC_activism, BRC_size, BRC_independence). The study concludes that risk governance variables are likely to increase and enhance the performance of firms used in this study.

This study contributes to the growing research in the area of risk management, risk governance, the financial performance in emerging economies especially in the Sub-Saharan African countries. The empirical approach used in investigating the effect of risk governance on financial performance contributes to the quality of this research in the area of risk governance and risk management, which reinforces the originality of this study. The findings from this study suggest that strong Chief Risk Officer (CRO) presence, effective board risk committee, and inclusion of independent directors in the risk committee will go far in serving as factors that would improve the performance of firms in today's financial environment.

Limitation and future research

This study was limited to firms of financial institutions in Nigeria, however, the study sets the tone for future empirical research on the subject matter especially for non-financial firms. Further studies could also research into the comparative analysis of African countries compared to other continents of the world in the area of risk governance and financial performance.

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References

- Aabo, T., Fraser, S., & Simkins, B. (2005). The rise and evolution of the Chief Risk Officer (CRO): Enterprise risk management at Hydro One. *Journal of Applied Corporate Finance*, 17(3), 62–75. <https://doi.org/10.1111/j.1745-6622.2005.00045.x>
- Adam, A., & Shavit, T. (2009). How can a rating-based method for assessing corporate social responsibility (CSR) provide an incentive to firm excluded from socially responsible investment indices to invest in CSR. *Journal of Business Ethics*, 82(4), 899–905. <https://doi.org/10.1007/s10551-007-9600-4>
- Arumona, J., Erin, O., Onmonya, L., & Omotayo V. (2019). Board financial education and firm performance: Evidence from the healthcare sector in Nigeria. *Academy of Strategic Management Journal*, 18(4), 1–13. <https://www.abacademies.org>
- Arnold, V., Benford, T., Canada, J., & Sutton, S. (2011). The role of strategic enterprise risk management and organizational flexibility in easing new regulatory compliance. *International Journal of Accounting Information Systems*, 12(3), 171–188. <https://doi.org/10.1016/j.accinf.2011.02.002>
- Bargeron, L., Lehn, K., & Zutter, J. (2010). Sarbanes-Oxley and corporate risk-taking. *Journal of Accounting and Economics*, 49, 34–52. <https://doi.org/10.1016/j.jacceco.2009.05.001>
- Baxter, R., Bedard, J., Hoitash, R., & Yezegel, A. (2013). Enterprise risk management program quality: Determinants, value

relevance, and the financial crisis. *Contemporary Accounting Research*, 4(2), 34–54.
<https://doi.org/10.1111/j.1911-3846.2012.01194.x>

Beasley, M., Clune, R., & Hermanson, D. (2005). Enterprise risk management: An empirical analysis of factors associated with the extent of implementation. *Journal of Accounting and Public Policy*, 24(1), 521–531.
<https://doi.org/10.1016/j.jaccpubpol.2005.10.001>

Boholm, A., Corvellec, H., & Karlsson, M. (2011). The practice of risk governance: Lessons from the field. *Journal of Risk Research*, 15(1), 1–20.
<https://doi.org/10.1080/13669877.2011.587886>

Bromiley, P., McShane, M., Nair, A., & Rustambekov, E. (2014). Enterprise risk management: review, critique, and research directions. *Long Range Planning*, 2(1), 1–12.
<https://doi.org/10.1016/j.lrp.2014.07.005>

Carlton, S., Loftus, J., & Miller, M. (2003). The challenge of risk reporting: Regulatory and corporate responses. *Australian Accounting Review*, 13(3), 36–48.
<https://doi.org/10.1111/j.1835-2561.2001.tb00170.x>

Carter, A., Simkins, J., & Simpson, W. (2003). Corporate governance, board diversity, and firm value. *Financial Review*, 38, 33–53. <https://doi.org/10.1111/1540-6288.00034>

Cavezzali, E., & Garddenal, G. (2015). *Risk governance and performance of the Italian banks: An empirical analysis*. Working paper, University of Foscari, Venezia, Italy.
<https://doi.org/10.2139/ssrn.2684516>

CBN. (2012). *Exposure draft CODE for banks in Nigeria*. Central Bank of Nigeria (CBN).
<https://www.cbn.gov.ng/Out/2013/FPRD/Exposure>

Cohen, J., Krishnamoorthy, G., & Wright, A. (2014). *Enterprise risk management and the Financial Reporting Process: The Experiences of Audit Committee Members*. CFOs, and External Auditors. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2444397

Corbett, C., & Kirsch, D. (2001). International diffusion of ISO 14000 certification. *Production and Operations Management*, 10(3), 327–342.
<https://doi.org/10.1111/j.1937-5956.2001.tb00378.x>

Committee of sponsoring organisations of the tread way commission. (COSO, 2004). *Enterprise risk management–integrated framework: Executive summary*. <http://www.coso.org>

Cummins, J., Yijia, L., & Richard, D. (2006). *Capital allocation and the pricing of financially intermediated risks: An empirical investigation*. Wharton Financial Institutions Centre, 06–13.
<https://doi.org/10.2139/ssrn.911613>

Dabari, J., & Saidin, S. (2015). Determinants influencing the implementation of enterprise risk management in the Nigerian banking sector. *International Journal of Asian Social Science*, 5(12), 740–754.
<https://doi.org/10.18488/journal.1/2015.5.12/1.12.740.754>

Daud, W., Yazid, A., & Hussin, M. (2011). The effect of Chief Risk Officer (CRO) on Enterprise Risk Management (ERM) practices: Evidence from Malaysia. *International Business & Economics Research Journal*, 9(11), 55–64.
<https://doi.org/10.5539/ijbm.v6n12p205>

Decker, A., & Galer, D. (2010). *Getting the focus on enterprise risk management right*. http://community.rims.org/RIMS/RIMS/Community/Resources/ViewDocument/.Default.aspx?DocumentKey=47b6_1f84-4341-47f9-8fdc-2dd50d64ac29

Dickinson, G. (2001). Enterprise risk management: its origins and conceptual foundations. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 26(3), 360–366.
<https://doi.org/10.1111/1468-0440.00121>

Eckles, D., Hoyt, R., & Miller, S. (2014). The impact of enterprise risk management on the marginal cost of reducing risk: Evidence from the Insurance Industry. *Journal of Banking and Finance*, 43(2), 247–261.
<https://doi.org/10.1016/j.jbankfin.2014.02.007>

Ellul, A., & Yerramilli, V. (2012). Stronger risk controls, lower risk: Evidence from U.S. bank holding companies. *Journal of Finance*, 68(5), 1757–1803. <https://doi.org/10.1111/jofi.12057>

Ernst and Young (2017). *The evolving role of the board in cybersecurity risk oversight*. <https://www.eycom.ch/en/Publications/20170901>

Emeni, F., Uwrigbe, O., Uwrigbe, U., & Erin, O. (2016). The value relevance of adopting IFRS: Evidence from the Nigerian Banking Sector. *Review of Economic Studies and Research Virgil Madgearu*, 9(2), 49–56.

Erin, O., Eriki, E., Arumona, J., & Ame, J. (2017a). Enterprise risk management and financial performance: Evidence from an emerging market. *International Journal of Management, Accounting and Economics*, 4(9), 937–952. <https://pdfs.semanticscholar.org/f700/3158a730dcb303bcb878f45bb99475fcfa2d.pdf>

Erin, O., Olojede, P., & Ogundele, O. (2017b). Value relevance of accounting data in the pre and post IFRS era: Evidence from Nigeria. *International Journal of Finance and Accounting*, 6(4), 95–103.

Erin, O., Osariemen, A., Olojede, P., Ajeturumobi, O., & Usman, T. (2018). Does risk governance impact bank performance? Evidence from the Nigerian Banking Sector. *Academy of Accounting and Finance Journal*, 4(1), 1–14.
<https://www.abacademies.org>

Erin, O., Uwrigbe, U., Eriabie, S., Uwrigbe, O., & Omoike, O. (2019a). Does enterprise risk management impact accounting quality? Evidence from the Nigerian financial institutions. *Investment Management and Financial Innovations*, 16(4), 16–27. <https://doi.org/10.21511/imfi>

Erin, O., Uwrigbe, U., Eriabie, S., & Uwrigbe, O. (2019b). Risk governance and firm performance in the Nigerian's financial sector. *Proceedings of the 33rd International Business Information Management Association Conference, IBIMA 2019: Education Excellence and Innovation Management through Vision 2020*. Spain.

Fadun, O. (2013). Risk management and risk management failure: Lessons for business enterprise. *International Journal of Academic Research in Business & Social Sciences*, 3(2), 225–241.

Golshan, N., & Rasid, S. (2012). Determinants of Enterprise Risk Management (ERM) adoption: An empirical analysis of Malaysian Public Listed Firms. *International Journal of Social and Human Sciences*, 6(1), 119–126.

Gordon, L., Loeb, M., & Tseng, C. (2009). Enterprise risk management and firm performance: A contingency perspective. *Journal of Accounting and Public Policy*, 28(4), 301–327.
<https://doi.org/10.1016/j.jaccpubpol.2009.06.006>

Grace, M., Leverty, J., Phillips, R., & Shimpi, P. (2015). The value of investing in enterprise risk management. *Journal of Risk and Insurance*, 4(2), 1–25. <https://doi.org/10.1111/jori.12022>

Harrington, S., Niehaus, G., & Risko, K. (2002). Enterprise risk management: the case of United grain growers. *Journal of Applied Finance*, 14(4), 71–81.
<https://doi.org/10.1111/j.1745-6622.2002.tb00450.x>

Hoyt, R., & Liebenberg, A. (2008). The value of enterprise risk management: Evidence from the US insurance industry. In *unpublished paper*. http://www.aria.org/meetings/2006papers/Hoyt_Liebenberg_ERM_070606.pdf

Hoyt, R., & Liebenberg, A. (2011). The value of enterprise risk management. *Journal of Risk and Insurance*, 78(4), 795–822. <https://doi.org/10.1111/j.1539-6975.2011.01413.x>

Ilaboya, O., & Ohiokha, I. (2016). Firm age, size and profitability dynamics: A test of learning by doing and structural inertia hypotheses. *Business and Management Research*, 5(1), 29–39. <https://doi.org/10.5430/bmr.v5n1p29>

International Risk Governance Council (IRGC). (2005). *White Paper No. 1: Risk governance – towards an integrative approach*. International Risk Governance Council (IRGC).

International Risk Governance Council (IRGC). (2008). *The introduction to the IRGC risk governance framework*. International Risk Governance Council (IRGC). <https://doi.org/10.1007/978-1-4020-6799-0>

John, K., Litov, L., & Yeung, B. (2008). Corporate governance and risk-taking. *The Journal of Finance*, 63, 1679–1728. <https://doi.org/10.1111/j.1540-6261.2008.01372.x>

Kakanda, M., Salim, B., & Chandren, S. (2017). Corporate governance, risk management disclosure, and firm performance: A theoretical and empirical review perspective. *Asian Economic and Financial Review*, 7(9), 836–845. <https://doi.org/10.18488/journal.aeefr.2017.79.836.845>

Kleffner, A., Lee, R., McGannon, B. (2003). The effect of corporate governance on the use of enterprise risk management: Evidence from Canada. *Risk Management and Insurance Review*, 6(1), 53–73. <https://doi.org/10.1111/1098-1616.00020>

Lam, J. (2014). *Enterprise risk management: From incentives to controls*. John Wiley & Sons. <https://doi.org/10.1002/9781118836477>

Liebenberg, A., & Hoyt, E. (2003). The determinants of enterprise risk management: evidence from the appointment of chief risk officers. *Risk Management and Insurance Review*, 6(1), 37–52. <https://doi.org/10.1111/1098-1616.00019>

Li, Q., Wu, Y., Ojiako, U., Marshall, A., & Chipulu, M. (2014). Enterprise risk management and firm value within China's insurance industry. *ActaCommercii*, 14(1), 1–10. <https://doi.org/10.4102/ac.v14i1.198>

Liaropoulos, A., Sapountzaki, K., & Nivolianitou, Z. (2016). Risk governance gap analysis in search and rescue at offshore platforms in the Greek territory. *Safety Science*, 86, 132–141. <https://doi.org/10.1016/j.ssci.2016.02.013>

Marjolein, B., Van, A., Renn, O. (2011). Risk governance. *Journal of Risk Research*, 14(4), 431–441. <https://doi.org/10.1080/13669877.2011.553730>

McShane, M., Nair, A., & Rustambekov, E. (2011). Does enterprise risk management increase firm value? *Journal of Accounting, Auditing & Finance*, 16(4), 641–658. <https://doi.org/10.1177/0148558X11409160>

Meulbroek, L. (2002). Integrated risk management for the firm: A senior manager's guide. *Journal of Applied Corporate Finance*, 14(1), 56–70. <https://doi.org/10.2139/ssrn.301331>

Miccolis, J., Dickson, K., & Franklin, B. (2003). ERM committee priorities, progress, and findings. *Risk and capital management seminars and Enterprise Risk Management (ERM) Symposium*. Washington DC.

Mikes, A., & Kaplan, R. (2015). *Managing risks: Towards a contingency theory of enterprise risk management*. Working paper, Harvard Business School. https://www.hbs.edu/faculty/Publication%20Files/13-063_5e67dffe-aa5e-4fac-a746-7b3c07902520.pdf

Nakano, M., & Nguyen, P. (2012). Board size and corporate risk taking: further evidence from Japan. *Corporate Governance: An International Review*, 20, 369–387. <https://doi.org/10.1111/j.1467-8683.2012.00924.x>

Ng, T., Chong, L., & Ismail, H. (2012). Is the risk management committee only a procedural compliance? An insight into managing risk taking among insurance companies in Malaysia. *The Journal of Risk Finance*, 14, 71–86. <https://doi.org/10.1108/15265941311288112>

Okoye, L., Adetiloye, K., Erin, O., Ebuomwan, G. (2017). Impact of banking consolidation on the performance of the banking sector in Nigeria. *Journal of Internet Banking and Commerce*, 22(1), 1–16.

Pagach, D., & Warr, R. (2011). The characteristics of firms that hire chief risk officers. *Journal of Risk and Insurance*, 78(1), 185–211. <https://doi.org/10.2139/ssrn.1010200>

Pagach, D., & Warr, R. (2007). *An empirical investigation of the characteristics of firms adopting Enterprise Risk Management (ERM)*. Working paper, North Carolina State University.

Plambeck, N., & Weber, K. (2009). When the glass is half full and half empty: CEO's ambivalent interpretations of strategic issues. *Strategic Management Journal*, 31(7), 689–710. <https://doi.org/10.1002/smj.835>

Power, M. (2009). The risk management of nothing. *Accounting, Organisations and Society*, 34(6), 849–855. <https://doi.org/10.1016/j.aos.2009.06.001>

Quen, T., Zeghal, D., & Maingot, M. (2012). Enterprise risk management and firm performance. *Procedia – Social and Behavioural Sciences*, 62(2), 263–267. <https://doi.org/10.1016/j.sbspro.2012.09.042>

Rahim, S., Mahat, F., Nassar, A., & Yahya, M. (2015). Re-thinking: Risk governance? *Procedia Economics and Finance*, 31(2), 689–698. [https://doi.org/10.1016/S2212-5671\(15\)01157-0](https://doi.org/10.1016/S2212-5671(15)01157-0)

Scarborough, S., Haynie, J., & Shook, C. (2010). Board composition, process, and activism: evidence within American firms. *Journal of Management & Marketing*, 5, 3–18.

Sharma, U., Lawrence, S., & Lowe, A. (2010). Institutional contradiction and management control innovation. A field study of total quality management practices in a privatized telecommunication company. *Management Accounting Research*, 21(4), 251–264. <https://doi.org/10.1016/j.mar.2010.03.005>

Sobel, P., & Reding, K. (2004). Aligning corporate governance with enterprise risk management. *Management Accounting Quarterly*, 5(2), 1–9.

Soliman, A., & Adam, M. (2017). Enterprise risk management and firm performance: an integrated model for the banking sector. *Banks and Banks Review*, 12(2), 116–123. [https://doi.org/10.21511/bbs.12\(2\).2017.12](https://doi.org/10.21511/bbs.12(2).2017.12)

Stulz, R. (2008). Rethinking risk management: The evolution in corporate finance. *Journal of Applied Corporate Finance*, 9(3), 8–24. <https://doi.org/10.1111/j.1745-6622.1996.tb00295.x>

Standard & Poor. (2008). *Evaluating the risk management practices of insurance to the corporate rating*. Standard and Poor.

Tahir, I., & Razali, A. (2011). The relationship between enterprise risk management (ERM) and firm value: evidence from Malaysian public listed companies. *International Journal of Economics and Management Sciences*, 1(2), 32–41. <https://doi.org/10.22610/jds.v1i5.645>

Uwugbe, U., Erin, O., Uwugbe, O., Igbinoba, E., & Jafaru, J. (2017a). Ownership structure and financial disclosure quality: Evidence from listed firms in Nigeria. *Journal of Internet Banking and Commerce*, 22(8), 1–12.

Uwugbe, O., Erin, O., Uwugbe, U., Peter, D., & Jinadu, S. (2017b). IFRS and stock market behaviour: An emerging market. *Corporate Ownership and Control*, 14(4), 93–102. <https://doi.org/10.22495/cocv14i4art8>

Uwugbe, O., Olorunshe, O., Uwugbe, U., Ozordi, E., Asiriwu, O., Asaolu, T., & Erin, O. (2019). Corporate governance and

financial statement fraud among listed firms in Nigeria. *IOP Conference Series: Earth and Environmental Science*.
<https://doi.org/10.1088/1755-1315/331/1/012055>

Verbuggle, J., Smith, C., Niehaus, G., Briscoe, C., Cohman, W., Lawder, K., Ramamurtie, S., & Chew, D. (2003). University of Georgia roundtable on enterprise-wide risk management. *Journal of Applied Corporate Finance*, 15(4), 8–26.
<https://doi.org/10.1111/j.1745-6622.2003.tb00523.x>

Waweru, N., & Kisaka, E. (2010). *The effect of enterprise risk management implementation on the value of companies listed on the Nairobi stock exchange*.
<https://doi.org/10.2139/ssrn.1907248>

Yazid, A., Hussin, M., & Daud, W. (2011). An examination of Enterprise Risk Management (ERM) practices among the Government-Linked Companies (GLCs) in Malaysia. *International Business Research*, 4(4), 94–103.
<https://doi.org/10.5539/ibr.v4n4p94>