Empirical Relationship between Board Size, Board Tenure on Corporate Risk Management: Evidence from Nigerian Quoted Companies

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Abstract
The fundamental goal of this article is to look into the link between board size, board tenure, and corporate risk management. amid the background of the modern portfolio theory. The study population consists of 328 companies listed on the Nigerian Stock Exchange as at December 2020. A sample of 30 firms was scientifically selected for the study. The analysis was carried out using dataset from 2014 to 2020, comprising of 210 observations. The panel data regression analysis is the technique for data analysis. The technique was chosen because of its ability to enhance data points while still controlling for individual variation. The research uncovers a positive and insignificant relationship between board size and corporate risk management. While board tenure had a positive and significant relationship on corporate risk management. Firm size, as a control variable, has a positive but insignificant connection with corporate risk management. In light of the findings of the study, we recommend that management work to strengthen the board of directors' traits in order to maximize the efficacy of their functions and to manage the risks involved to ensure more risk management that works and take advantage of the opportunities that arise.

Keywords: *Corporate Risk Management; Board Size; Board Tenure; Enterprise Risk Management; Modern Portfolio Theory*

Introduction

Management of risk is critical for all firms, including small- and medium-sized practices (SMPs). This is true both in terms of safeguarding the firm's assets, finances, and operations, as well as contributing to adequate legal compliance, corporate governance, and due diligence. In order to safeguard the firm's reputation, credibility, and status, an workable risk management should be put in place.

In the middle of the effect of the Covid-19 pandemic, the Nigerian economy slipped into another recession in five years, contracting by 6.1 and 3.62 per cent, year-on-year, in real terms, in the second and third quarters of 2020 financial year, respectively, as stated by the National Bureau of Statistics (NBS) report.This technical recession was triggered mainly by the sluggish performance of the oil and gas sector, which recorded negative growth of 13.89 per cent in Q3 2020 relative to a decline of 6.63 per cent recorded in Q2 2020. The adverse performance of the oil and gas sector was occasioned by a sharp dramatic drop in crude oil prices (from about $100 in December 2019 to around $49.9 per barrel). Covid-19 pandemic along with global lockdowns and restrictions have resulted in a considerable drop in the aggregate demand for crude oil in the international commodity markets. The development has resulted to significant dollar scarcity, a high headline inflation rate, and devaluation of the naira against a basket of major currencies in all segments of Nigeria's macroeconomic foreign exchange market. These adverse effects of Covid-19 pandemic, inconsistency and fiscal policy posed a very serious challenge for business risk management strategies.

The linkage between the size of the board of directors, their tenure, and corporate risk management has been a subject of theoretical (modern portfolio theory) and mixed empirical results with some reporting positive relationship (Tarus, 2021; Maruhun et al., 2018; Gouiaa, 2018 and Fu and Li, 2014 and Mohammadi and Lotfi, 2013;) and others advancing negative relationship (Tarus, 2021; Gouiaa, 2018; Salhi and Boujelbene, 2012; Wang, 2012; Coles et al., 2008; Guest, 2008 and Holmstrom, 1999). When investors builds a portfolio of assets that maximizes expected return for a given amount of risk is called Modern Portfolio Theory (MPT).This theory was first espoused by American economist Harry Markowitz who posits that shareholders use portfolio diversification to eliminate firm-specific (idiosyncratic) risks or the risk inherent in each investment, leading many financial economists to doubt whether risk management can add value to the company. Stulz (1996), however, argues that risk management creates value by reducing or eliminating the costs and losses of financial distress. Froot et al., (1993) advocate that risk management is beneficial if it helps the firm avoid unfavorable outcomes that prevent it because of insufficient internal funds from investing in attractive, positive net present value opportunities. Risk management is more valuable for highly leveraged companies that also have volatile earnings, and limited cash reserves, according to modern portfolio theory. Companies with high growth options associated with future unrealized cash flows and high levels of current research and development research and development also benefit from risk management (Sum and Khalik, 2020; Desender and Lafuente, 2009).

Statement of the Problem

The Skepticism of many financial economists as to whether risk management of an enterprise can add value to the company, and the mixed empirical reactions, testify to the ambiguous relationship between board of directors size, tenure on corporate risk control and disclosure. The developing economy standpoint on the subject has not received the desired attention. Hence, there is paucity of empirical consideration. The primary goal of our contribution is to investigate the relationship between board of directors' size and tenure on corporate risk control in the context of the aforementioned inconsistencies, as well as to present the topic to a developing country. It evaluates the effectiveness of board of directors' size, and their tenure on corporate risk management of the money deposit banks in Nigeria using a data set from the Nigerian stock exchange.

The following is how the rest of the study is organized: The second section, which follows the introduction, is devoted to a survey of the existing literature. The third section discusses the study's methodology, with a focus on model specification. The estimation results and discussion are presented in part four, while the conclusions and recommendations for further research are presented in section five.

Review of Literature

Corporate Risk Management

The identification, assessment and prioritization of risks or uncertainties in a business is referred to as risk management. Risk management assessments and plans to manage or mitigate risks should be supported by a company's risk management strategy. Risk management is an integral part of standard business practices and is the responsibility of everyone, from the executive committee to individual employees. Everyone is responsible for understanding the risks in their field of activity and for managing them within the framework of their obligations, powers and delegated responsibilities. All of a company's measures for minimizing financial loss are referred to as risk management. Internal controls of people and technology are implemented by risk managers, executives, line managers, middle managers, and all employees to reduce exposure to losses. Risk management is also associated with external threats to businesses, such as fluctuations in financial markets that affect financial assets. The risks companies face are both financial and non-financial. The appointment of a chief risk officer, senior risk management, risk management director, deputy risk management director, and enterprise risk management director, according to Tarus (2021), is a measure of corporate risk management.

Board size and Corporate risk management

The total number of directors (executive and non-executive) who sit on the company's board is considered one of the most important features of board characteristics (Vafeas, 2000). The number of directors on a board of directors (Rachdi and Ameur, 2011) is an important aspect in influencing the board's effectiveness. Larger boards of directors have been proposed as a means of increasing diversity and assisting corporations in protecting their resources, reducing business uncertainty, and ensuring successful management decisions (Dahya and McConnell, 2005). Larger boards, according to Jensen and Meckling (1976), boost a company's board of directors' efficiency and minimize agency costs coming from management mismanagement, resulting in better finances.Smaller boards can be a more effective controller because decision-making costs should be lower for smaller boards than for larger boards. If the board acts in the interests of shareholders, the size of the board and the risk it poses are predicted to be inversely proportionate. On the other side, if the board is concerned with the interests of regulators, a negative association between board size and risk can be expected.Cheng (2008) also argues that due to adjustment issues that can occur on larger boards, the decision on a larger board is less extreme and the level of risk can be lower. The increasing interest and focus on risk management and disclosure in recent years, has increasingly clearly review that a strong framework is needed to effectively identify assessments and manage risk (Yazid, 2011). In addition, businesses face many high-risk activities associated with different types of risk, including physical risk, interest rate risk, political risk, and investment risk. Jensen (1994) found that smaller board sizes correlate more with follow-up quality. As the size of the board increases, the effectiveness of monitoring and managing the board decreases. The study recommends that the board has 8-9 members, and the additional benefits of increased oversight by additional members offset the cost of slow decision-making (Lehn et al). , 2009; Lipton and Lorsch (1992) Board size plays an important role in the ability of directors to manage management and oversee accounting and financial processes (Belkhir, 2009; Mak and Kusnadi, 2005; Pearce and Zahra., 1992). Distribute the workload to more observers (Klein, 2002). In addition, larger boards are more effective in control by allowing better monitoring and providing better expertise (Gafoor et al., 2018). Although, the findings of Limpaphayom and Connelly, 2006; Beiner et al., 2004, Bhagat and Black, 2002 found no significant association between board size and risk management. More empirical studies by Mohammadi and Lotfi (2013) found a positive correlation between board size and risk management. This means that risk management will be strengthened by increasing the size of the board of directors. The reason is that as more people oversee the work of management, larger boards are more likely to be wary of agency issues. Finally, Maruhun et al., (2018) found a significant and positive relationship between board size and control of risk, and found that board size is an important determinant of risk control. Other empirical evidence reveals a relationship that is negative between board size and risk control, which reflects the balance in which the two variables are jointly determined according to the business environment (Eldernburg, et. al, 2004). For example, a company may find a smaller board that is better suited to high-risk business conditions. In such a situation, reducing the board size does not increase the risk. On the other hand, the idea that risk control is related to the complexity of a company's operations suggests that risky companies need to operate on a larger board because of the high need for advice and guidance. & increase monitoring (Coles et al., 2008). The results review that the board size has a significant negative impact on managing financial risk (Gouiaa, 2018). According to Salhi and Boujelbene (2012), reducing the number of boards can reduce risk management. Wang (2012) found out that firms with smaller boards had higher risks in the future and supported the conjectures that board size has a negative correlation with risk management. Therefore, the following hypothesis is made in this empirical study.

$H0_1$: There is no significant relationship between board size and corporate risk management.

Board tenure and corporate risk management

The board of directors' tenure at the aggregate level influences both the extent of the specific knowledge, along with the scope of its independence. Boards of Directors with a long-term mandate on the Board amass more experience and greater knowledge (Vafeas, 2003, McDonald et al., 2008, Reguer-Alvarado and Bravo, 2017). The long-term mandate increases the quality and efficacy of the Commission in the execution of its functions, with the date of a mandate relating to a greater experience, commitment and knowledge of the organization and its commercial community. According to Anderson et al., (2004), effective supervision is acquired skills, which indicates that the Directors on the Board that are made up of more experienced administrators can provide greater supervision. Considering the above, the board of directors on the board with longer administrative experience would be less exposed to an excessive risk. An experienced manager after a long floor may have enough corporate skills, and the company needed to take strategic risks

(Simsek, 2007). Some studies also suggest that experiments promote strategic risk management practices that not only guarantee the improvement of shareholders' value, but also its sustainable development skills. The director elects a risky project regardless of its skills, which results in excessive risk management. As part of the dynamic environment, (FU and Li 2014) claimed that the Council informed private incentives to support the risky reform to see the most capable of performing. The results of FU and Li (2014) suggest that the Council's mandate is a positive-related risk management if the manager has private information about its abilities. The demands of Gouiaa (2018) revealed that the mandate of the Council had a positive and significant impact on risk management. Existing literature There are several interpretations of the company management mandate. A longer office period increases the experience of the power of the Manager (Chacraborty et al., 2017, Simsek, 2007, Ryan and Wiggins 2004). Since the mandate increases, managers also have a more diversified human capital invested in society (Berger et al., 1997), the recent appointed officer can have strong fears for future career opportunities, so it can therefore affect his willingness to manage the risk. The forecasts relating to the ratio between the regulation and the management of the risks based on other interpretations are uncertain, but have a significant impact on the general performance of the organization. The questions of (Holmstrom 1999) revealed that the completeness and management of risks are negative and significantly related. A differential impact of the mandate of conditional risk management at the level of asymmetry information on the capacity of the manager is provided. Hence, the hypothesis that:

$H0_2$: There is no significant relationship between board tenure and corporate risk management.

Research methodology

The study adopted a panel approach research design. This is because it was deemed to be appropriate in establishing a link between predictor and outcome variables over several years. We used firm-level data collected from the audited financial statements of 30 publicly quoted companies in Nigeria from 2014-2021. The sample size of 30 firms is in tandem with balanced panel data format. The variables were derived from the annual financial statements for the relevant years. A sample of 30 companies to be researched was determined using Yamane (1967) method. Panel data was used because it provides more data points, increases the degree of independence, and reduces the problem of integrating explanations (Ilaboya and Ohiokha, 2016).Continuing to test the developed hypotheses, the researchers analyzed the impact of board size and board risk management using the following multiple regression model.

$$CRM_{it} = \beta o_{it} + \beta_1 FSIZE_{it} + \beta 2BSIZEit + \beta_3 BTENURE_{it} + \varepsilon_{it}$$

Where: CRM = Corporate Risk Management; FSIZE = Firm Size; BSIZE = Board Size; BTENURE = Board Tenure; ε = error term; i = company; t = time covered; β_0 = constant; β_1,β_2, β_3 = coefficient of estimates

Aproiri expectations: A negative coefficient is expected, between firm size and corporate risk management i.e. $\beta_1 < 0$ and a positive relationship between Board size, board tenure and corporate risk management i.e β_2, $\beta_3 > 0$.

3.2. Operationalisation of variables

variables	code	Operational definition	source	apriori

Corporate Risk Management	CRM	Checking the appointment of chief risk officer	Tarus, 2021	+ve
Firm Size	FSIZE	Log of total assets	Akinyomi and Olagunju, 2012	-ve
Board Size	BSIZE	Total number of directors on the board	Rachdi, and Ameur, 2011	+ve
Board Tenure	BTENURE	Total number of years served on the board divided total directors serving the board	Jackling and Johl, 2009	+ve

Source: Researchers' Compilation 2021

Results and Discussion
Descriptive Statistics
Table 1. descriptive statistics

	N	Min.	Max.	Mean	Std. Dev.	Skewness	Kurtosis
LFSIZE	240	3.07000	5.84000	4.30327	0.5155648	-0.333430	2.548026
BSIZE	240	9	18	8.35	2.38	0.079	-0.04
BTENURE	240	1	13	4.33	2.19	1.06	2.18

Source: Researcher's computation, 2021

The statistical summarized results of the board size and board tenure are presented in table 1. Results indicated that publicly quoted firms had board size with a (mean = 8.35, standard deviation = 2.38, skewness = 0.079, and kurtosis = -0.04) implying that the number of directors on the board on average was 8 members. A review of the board tenure which is indicated by the number of years the directors have served on the board revealed that they have been in the company between a minimum of 1 year and a maximum of 17 years with a (maen = 4.33, standard deviation = 2.19, skewness = 1.06 and Kurtosis = 2.18). this implies that on average the tenure of the board is 4years.

Correlation Results
Table2. Correlation Matrix

	CRM	LFSIZE	BSIZE	BTENURE
CRM	1			
LFSIZE	0.215**	1		
BSIZE	0.185**	0.248**	1	
BTENURE	0.249**	0.197**	0.295**	1

Source: Researcher's computation, 2021

Correlation is a method that measures the extent to which two variables are linearly related. From table 2, the findings revealed that the firm size had a positive and significant correlation with corporate risk management ($r= 0.215$, $p< 0.01$). The findings also revealed that the board size had a positive and significant correlation with corporate risk management ($r= 0.185$, $p< 0.01$). The findings also revealed that the board tenure had a positive and significant correlation with corporate risk management (r = 0.249, p< 0.01) an indication of a 21.5% ,18.5% and 24.9% positive relationship respectively with the outcome variables.

Table 3. Regression Results

	Coefficient	T-stats	P-Value	Collinearity Statistics	
				Tolerance	VIF
Intercept	2.097	3.883	0.000	-	-
LFSIZE	0.118	0.358	0.005	0.799	1.241
BSIZE	0.032	0.292	0.549	0.827	1.003
BTENURE	0.192	0.302	0.001	0.904	1.218
R-Squared	0. 562		Durbin-Watson	1.1294	
Adj. R-Squared	0. 528		F-Stats.	35.937	

Note: Dependent variable is Corporate Risk Management

Hypothesis Testing

Statistical findings from Table 3 revealed that the model summary of multiple regression was at R squared =0.562 implying that approximately 56.2 percent of the variation of corporate risk the management is explained by both board size, board tenure and log of firm size. The contribution was statistically significant at $\rho<0.05$ confidence level.

Firm size was found to have a positive and insignificant relationship with corporate risk , management. The control variable reported a coefficient of 0.118, insignificant t-value of 0.358 and a probability value of 0.005 hence we rejected the null hypothesis of an insignificant relationship between firm size and corporate risk management.

The board size findings showed a positive coefficient of estimates and were statistically insignificant (0.032, $\rho=0.549$), signifying that board size does not affect corporate risk management. The findings are consistent with the studies by (Tarus, 2021, Limpaphayom and Connelly, 2006; Beiner et al., 2004, Bhagat and Black, 2002) found no significant association between board size and risk management.

However, the results are in contrast with empirical studies by (Maruhun et al., 2018; Mohammadi & Lotfi, (2013), where they found a positive correlation between board size and corporate risk management. Whereas, (Gouiaa, 2018; Salhi and Boujelbene, 2012; Wang, 2012) revealed that the size of the board of directors have a negative and significant relationship with corporate risk management.

Finally, the statistical findings revealed that board tenure had a coefficient of estimates which was significant and positive based on (0.192, $\rho<0.01$) values. Therefore, board tenure significantly affects corporate risk management. This suggested that there was up to 0.192 unit increase in corporate risk management for each unit increase in board tenure. The t-test value was at 3.02 which surpasses the standard error by over 3 times. The findings are consistent with (Tarus, 2021 and Gouiaa, 2018) who found that board tenure had a positive and significant effect on corporate risk management. The results by Fu and Li (2014) suggest board tenure is positively and significantly associated with risk management if the manager possesses private information about its ability. The findings are in contrast to (Holmstrom 1999), who found that board tenure and risk management are negatively and significantly associated. A differential impact of managerial tenure on risk management is expected conditional on the level of information asymmetry regarding the ability of the manager.

Conclusion and Recommendations

The study investigates the empirical link between board size, board tenure and corporate risk management in a sample of 30 quoted companies on the Nigerian Stock Exchange. The finding of the study indicates that a moderate boards can also be effective in managing corporate risks due to efficiency in enterprise risk management planning. Therefore, for a company to benefit from the effectiveness of its business risk control strategy, it must have a board of directors consisting of at least 8 members (executive and non-executive).

The finding of the study also indicates that board tenure impacts positively on corporate risk management. The longer the experience of board members, the more knowledgeable they become. As a result, they are more capable of managing corporate risk. Besides, the accumulation of experiences results in less risk-taking and in cases where the board tenure of executive directors was greater than that of non-executives. There is evidence from the study that board tenure impacts positively on corporate risk management. It is, therefore, key for the businesses to retain board members that have a vast wealth of experience since they are knowledgeable and more capable of managing corporate risk. The control variable of firm size is positively related to corporate risk management which is however at variance with our apriori expectation of negative coefficient. The relationship is statistically significant.

This result contributes to enriching the accounting and financial literature by demonstrating the importance of the characteristics of the board of directors as a key governance mechanism in determining risk management practices. This study encourages companies to strengthen the attributes of the board of directors in order to maximize the effectiveness of their functions and to manage the risks involved to ensure more effective risk management that can take advantage of the opportunities that arise. This study provides additional empirical evidence for the determinants of a company's risk management.

This study is limited by the fact that it could not establish the behavioural pattern of corporate risk management beyond the mean board size of 8.35 and mean board tenure of 4.33 years. Further research using values beyond the ,want board size and mean board tenure could offer evidence useful to establish the maximum board size and board tenure that will cause the level of corporate risk management to either decline or increase.

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