

## Board Attributes, Risk Management Committee and Survival of Listed Manufacturing Firms in Nigeria

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### Abstract

The dynamics and makeup of a company's board play an important role in determining its success and overall survival. This is due to the crucial role boards play in shaping a company's strategic decisions, risk management, and overall governance. The particular attributes of the board that support long-term company survival, however, are still unknown because research in this area produced contradictory results without taking into account conditions that can strengthen the correlations between the variables. Therefore, this study investigates the moderating effect of risk management committee on the relationship between board attributes and survival of listed manufacturing firms in Nigeria. The study utilized secondary data extracted from annual reports and accounts of 34 sampled firms for the period from 2011 to 2022. The Generalized Least Square (GLS) regression techniques were used for the analysis. The results show that while board independence and board size were negatively associated with survival, greater board expertise enhances firm survival. Similarly, findings reveal that the existence of a risk management committee (RMC) did not only significantly contribute to survival but also moderates the relationship between board attributes and survival of listed manufacturing firms in Nigeria. Thus, the study recommends, amongst others, that the shareholders of listed manufacturing firms in Nigeria should consider reducing the size of the boards to a more manageable and effective number since smaller boards can make decisions more efficiently and prevent conflicts arising from an overly large board.

**Keywords:** Firm survival, Board attributes, Risk management, Corporate Governance.

### 1.0 Introduction

Corporate survival refers to a company's ability to accomplish its corporate objectives and increase long-term value for shareholders by incorporating economic, environmental, and social opportunities into its business strategies. It explains the effectiveness of a firm, both in terms of maintaining human or societal welfare and preservation of the ecosystem, as it seeks the attainment of its goals (Roper, 2012; Nongnit et al., 2012; Iwasaki 2013, Lopez et al., 2017). It is dependent on many factors. For instance, Nwaobia and Jayeoba (2016) posit that the central determinants of any firm's survival are solvency and liquidity. On the other hand, Lopez et al (2017) reveal that the key determinants of firm survival are profitability, size and leverage. Additionally, it has been argued that a major determinant of the wellbeing and long-term economic survival of any organization is corporate governance and that failure in governance systems is a major cause of collapses of many organizations around the world (Duke & Kankpang, 2011; Sarbah & Xiao, 2015; Darrat et al., 2016).

Evidence from prior literature suggests that board attributes are associated with corporate survival. For example, the findings of Platt and Platt (2012) indicate that board composition and board characteristics

do differentiate between bankrupt and non-bankrupt firms; non-bankrupt firms appear to have larger and more independent board members as compared to bankrupt firms. Similarly, Hapsari (2018) reports that companies with higher number of board members have lower probability of being bankrupt. In other words, an increase in board size increases the prospect of firm survival. More so, Goktan et al. (2018) found that board size has positive and significant association with firm survival. However, while Appiah (2013) reveal a positive association between board gender diversity and corporate failure (suggesting that the possibility of corporate failure increases with increase in the number of female directors on the board), Igor and Steve (2018) report that survivor companies have a significantly larger board compared to the early exits.

A number of studies have examined the relationship between board attributes and firm survival both locally and internationally, including Australia (Nongnit et al., 2012), Russia (Iwasaki, 2013), UK (Nick et al., 2013; Chenchehene & Mensah, 2014), China (Surachai & Nongnit, 2013), Brazil (Evaldo, 2016), Spain (Gemar et al., 2016), Chile (Lopez et al., 2017); and Korea (Cho et al., 2018). Similarly, studies on corporate survival in Nigeria include Omolade and Tony (2014), Amah (2017), Nwaobia et al. (2019), Abdulateef et al (2019), Ekwoaba and Adekambi (2020), Garba et al. (2020), Williams and Shaibu (2020), Akinnuoye and Onuoha (2021). However, the outcomes of these studies appeared mixed and inconsistent, which may be due to the fact that these studies only focused on the direct relationship between board attributes and firm survival.

Thus, the present study intends to expand previous studies by investigating how the relationship can be affected if risk management committee is introduced as moderating variable. Hence, this study aims to examine the moderating effect of risk management committee on the relationship between board attributes and survival of listed manufacturing firms in Nigeria. The specific objectives are to: (i) examine the effect of board attributes (board independence, board size, board gender diversity and board expertise) on the survival of listed manufacturing firms in Nigeria. (ii) investigate the effect of risk management committee on the survival of listed manufacturing firms in Nigeria. (iii) ascertain the moderating role of risk management committee on the relationship between board attributes and survival of listed manufacturing firms in Nigeria.

The remaining part of the paper is structured as follows: section two contains the review of literature; and section three presents the methodology adopted by the study. While section four presents the results and discussion, section five contains the conclusion and recommendations of the study.

## **2.0 Literature Review**

### ***Firm Survival***

Firm survival is considered the ultimate criterion of organizational effectiveness. It is the probability that a firm will continue operations rather than exit an industry (Cefis & Marsili, 2012). According to Roper (2012), corporate survival is seen as a company's ability to accomplish its corporate objectives and increase long-term value for shareholders by incorporating economic, environmental, and social opportunities into its business strategies. In the views of Gabriel and Arboló (2015), corporate survival is concerned with the capacity of an organization to continuously meet the demands of the market, its workforce, shareholders, investors, host communities, the government and other relevant stakeholders. Stein and Wiedemann (2016) contend that the company's ability to respond to the external business environment and to manage social and environmental concerns help to boost stakeholders' value for long-term survival. Khan and Ali (2017) define firm survival as the ability of a firm to realize and actualize its goals in line with its mission despite prevailing environmental conditions. Furthermore,

Erengwa et al. (2017) opine that corporate survival is an essential element in assessing an organization's growth, profitability, its capacity to add value to society, as well as a tool for measuring its immediate and future prospects.

### ***Board Attributes***

Board attributes, also referred to as board characteristics, are those features that could affect the effectiveness of a board in discharging its duties. Abdeljawad and Masri (2020) state that the degree to which the board would be effective in performing its duties and tasks depends on several factors, which may be made up of particular board characteristics like board independence, CEO duality, board size, board diversity, and board skills among others. The board attributes considered in this study include board independence, board size, board gender diversity and board expertise.

Board independence represents the proportion of independent non-executive directors to the total number of directors on the board of a company, while the number of directors on the corporate board, including executive and non-executive members is referred to as the board size (Rajeevan & Ajward, 2019, as cited in Obeitoh, 2023). Gender diversity on boards pertains to the presence and involvement of women on a company's board of directors. It is the ratio of female directors to total board size. Board expertise on the other hand, refers to the board members' educational backgrounds and expertise in areas related to the goals or day-to-day activities of the company. Their background can offer perceptions, direction, and well-informed decision-making, which will increase the board's efficacy (Abu & Ibrahim, 2022).

### ***Risk Management Committee***

Risk management is considered as one of the pillars of good corporate governance. This is because the management of risk is believed to be one of the main components of corporate governance and the ultimate responsibility for efficient risk management lies with the board (Omer et al., 2020; Rimin et al., 2021). Therefore, without the immediate assistance and participation of the board members, it will be difficult to create an effective risk management policy (Abdul Rahman et al., 2013; Jia & Bradbury, 2020; and Karim et al., 2020). The tenacity of good governance is to enhance organizational worth by reducing financial risks, business risks, and operational risks (Rashid, 2016; Ishak & Mohamad, 2017). According to Zabri et al. (2016), the risk management committee (RMC) is responsible for monitoring the company's risk management strategies and implementation. Awang et al. (2021) posit that the establishment of a risk management committee aids the firm in proactive risk management system and consequently create a risk awareness culture within the organization. Having a focused committee responsible for risk identification and mitigation would encourage an all-round risk management effort that would lead to business sustainability and survival.

### ***Board Independence and Firm Survival***

Board independence may affect firm survival positively because independent directors are more vigilant in monitoring managerial behaviour and decision making of the company as they bring in more skills and knowledge to the company which increases expertise necessary for strategy implementation (Kamardin & Haron, 2011). Similarly, Mishra and Kapil (2018) states that non-executive directors are more active in checking managerial excesses, thereby protecting the interest of shareholders as well as improved results. In the views of Hassan et al. (2016), the presence of independent directors on the board gives greater weight to board's deliberations and judgment, reduces agency costs and enhance the likelihood of company survival.

Studies carried out by Nongnit et al. (2012) and Iwasaki (2013) show that board independence is associated with an increase in the likelihood of corporate survival. Such results were corroborated by Goktan et al. (2018) who examine corporate governance and firm survival using all public U.S. corporations over the period from 1990-2004. The findings indicate that the more outsider members are on a board, the less likely a firm is to be acquired or go bankrupt. Similarly, Igor and Steve (2018) investigate corporate governance strategies and survival of UK cotton textile companies during the period from 1950-1965. The results show that the survivor companies have more outside directors compared to the early exits.

On the contrary, Nwaobia et al. (2019) evaluate the interactions between earnings management and survival of listed manufacturing companies in Nigeria for the period from 2005 - 2016. The findings reveal that board independence exerts a significant negative effect on survival. However, Williams and Shaibu (2020) on the other hand examine the relationship between corporate governance and organizational survival in manufacturing firms in Port Harcourt, Rivers State and report a positive relationship between board independence and organizational survival. In a related study, Li et al. (2020) explores financial distress using corporate governance measures. The results suggest that the monitoring role of independent directors significantly reduces the risk of financial distress. In the same vein, Akinnuoye and Onuoha (2021) explore corporate governance and firm survival of oil and gas companies in South-South Nigeria. The study adopts cross-sectional survey design and results show that board independence has a positive and significant association with firm survival. Therefore, the study hypothesized that:

H<sub>01</sub>: Board independence has no significant effect on the survival of listed manufacturing firms in Nigeria.

### ***Board Size and Firm Survival***

Board size is the magnitude of board of directors of a company. It is the total number of directors serving on the board of a company (Ogege & Boloupremo, 2014; Olabisi et al., 2018). Board size is regarded as an indispensable element of board attributes that has generated contrary views in the literature. For instance, while Nongnit et al. (2012) and Nick et al. (2013) found a strong positive relationship between board size and firm survival, Darrat et al. (2016) report that the board size variable is insignificantly different from zero, indicating that on average, there is no relationship between board size and the probability of firm success. On the other hand, the study of Hapsari (2018) indicate a negative and statistically significant relationship between board size and bankruptcy, which indicates that company with higher number of board of directors has lower probability of being bankrupt.

Furthermore, Igor and Steve (2018) investigate corporate governance strategy and survival of UK cotton textile companies during the period of 1950-1965. Study sample consists of 23 companies that have been taken over or liquidated and 7 survivor companies. Findings show that the companies in the two sub-samples differ in their board characteristics - the survivors had relatively larger boards, with the average size of 7 compared to 4 in the early exits.

Nguta (2021) explores board characteristics and financial distress of deposit taking savings and credit cooperatives in Kenya. Results reveal that board size has positive and significant impact on financial distress. Similarly, Yuli and Choisi (2021) assess the influence of corporate governance structures on financial distress of coal mining companies listed on the Indonesian stock exchange during 2013 - 2017. The study utilized 16 companies as its sample using purposive sampling technique. Data were obtained

from annual reports of the sampled firms and were analyzed using descriptive analysis and multiple linear regressions. The results indicate that the size of the board of directors had a significant positive effect on financial distress. Akinnuoye and Onuoha (2021) explore corporate governance and firm survival of oil and gas companies in South-South Nigeria. The data gathered was analyzed with Spearman's correlation coefficient and results show that board size has a positive association with firm survival. In the same vein, Goktan et al. (2018) report that board size has positive and significant association with firm survival. The study therefore hypothesized as follows:

Ho<sub>2</sub>: Board Size has no significant effect on the survival of listed manufacturing firms in Nigeria.

### ***Board Gender Diversity and Firm Survival***

Board gender diversity refers to the percentage of female directors on the board of a company. Customarily, boardrooms are dominated by men, leaving little or no room for women to contribute their distinctiveness to firms' governance (Carter et al., 2003; cited in David & Okenwa, 2021). However, Onyali and Okerekeoti (2018) posit that appointment of women on the board is expected to bring about diversity of opinions and perspectives to board deliberations. Similarly, Nick et al. (2013) maintains that gender diversity may bring access to a wider pool of human and social capital that reduces conflicts and creates more space to address potential threats to survival, and better treasury management. Similarly, Darrat et al. (2016) found that board gender diversity has negative influence on the probability of bankruptcy, indicating that bankruptcy is less likely for firms with a higher proportion of female directors. However, Hapsari (2018) found no relationship between the proportion of female directors and the probability of bankruptcy.

In the same vein, Ngu and Amran (2019) explore risk management committee, corporate governance and financial performance of listed companies in Malaysia. The study utilized partial least squares technique to analyze the data. Results reveal that board gender diversity is significantly correlated with financial performance of listed Malaysian firms. Nguta (2021) explores board characteristics and financial distress of deposit taking savings and credit cooperatives in Kenya for the period of seven years, 2012-2018. Longitudinal research design was adopted. The findings reveal a significant negative interaction between board gender diversity and financial distress of deposit taking savings and credit cooperatives in Kenya.

The study hereby hypothesized as follows:

Ho<sub>3</sub>: Board Gender Diversity has no significant effect on the survival of listed manufacturing firms in Nigeria.

### ***Board Expertise and Firm Survival***

Board expertise refers to the collective knowledge, skills, and experience that the members of a board of directors bring to an organization. This expertise is crucial for effective governance and decision-making within a company (Ganesan et al., 2019). According to Nguta (2021), board members' academic achievements and skills are essential components that assist management in decision making. This can be appreciated better for instance in the role of control and monitoring which is implemented better if directors are highly qualified and possess great experience and skills. Similarly, in order to improve sustainability reporting practices, Razaq et al. (2023) emphasize the significance of board members' education and experience in the field of their oversight functions.

To the best of the researcher's knowledge, no empirical study has looked at the relationship between board's academic background and company survival. However, studies have shown that there is a connection between board education and company performance. For instance, Ujunwa (2012) reports that board members with a PhD qualification impact positively on firm performance. Similarly, Mahadeo et al (2012) found a significant positive correlation between board educational background and financial performance. Akpan and Amran (2014) also discover that board education is positively and significantly related to company performance. Similarly, Gande and Kalpathy (2017) found that CEO educational background has a relation with bank performance. However, while Pereira and Filipe (2015) indicate a significant negative effect of boards' educational qualifications on banks financial performance, Abu and Ibrahim (2022) reveal that board finance experts have no significant relationship with financial performance of listed service firms in Nigeria. Thus, the study hypothesized that:

Ho<sub>4</sub>: Board Expertise has no significant effect on the survival of listed manufacturing firms in Nigeria.

#### ***Risk Management Committee (RMC) and Firm Survival***

A search through the literature shows that no study has examined the relationship between risk management committee and firm survival. This could be as a result of the relative newness of the concept of risk management committee (RMC) in relation to firm survival. This, therefore serves as one of the contributions of the study to the literature. Nonetheless, prior researchers (Tao & Hutchinson 2013; Hoque et al., 2013 and Wu et al., 2016) suggest that risk management committee characteristics are associated with firm performance. Therefore, the study hypothesized that:

Ho<sub>5</sub>: Risk management committee has no significant effect on the survival of listed manufacturing firms in Nigeria.

#### ***The moderating effect of Risk Management Committee (RMC) on the relationship between Board Attributes and Firm Survival***

Just as there are sparse literature on the association between risk management committee and firm survival, studies on the moderating effect of RMC on the relationship between board attributes and firm survival are also scarce. However, given the link between financial performance and firm survival (Al-Hadi et al., 2016), the study hereby reviews some empirical studies that have investigated the interaction between board attributes, RMC and firm performance as follows:

Ngu and Amran (2019) explore the moderating effect of risk management committee on corporate governance and financial performance of listed companies in Malaysia. The content analysis was used to obtain data from annual reports of the top 100 companies. The data were analyzed using partial least squares technique. Results reveal that risk management committee has no effect on the relationships between corporate governance characteristics and financial performance. Similarly, Ganesan et al. (2019) investigate the moderating role of a risk management committee (RMC) on the relationship between corporate governance and sustainability disclosure. The study utilized a cross-sectional research design and the data were analyzed using the structural equation modeling (SEM) approach via Smart PLS. The results provide no evidence of a moderating role of RMC on the relationship between corporate governance and sustainability disclosure.

Additionally, Linda et al. (2021) seeks to find out if risk management committee can improve risk management disclosure practices in Indonesian companies. The study utilized secondary data which were analyzed using multiple regression techniques. Results show that risk management committee

moderates the relationship between ownership concentration and enterprise risk management disclosure. In addition, APOCHI and BAFFA (2022) examine the moderating role of risk management committee on the relationship between credit risk and financial performance of 13 deposit money banks in Nigeria for a period of 10 years (2012-2021). The study adopts census sampling technique while regression model was used to analyze the data. The result revealed that risk management committee significantly moderates the relationship. Thus, the study hypothesized as follows:

H<sub>06</sub>: Risk management committee has no significant moderating effect on the relationship between board attributes and the survival of listed manufacturing firms in Nigeria.

Therefore, by examining the moderating role of risk management committee on the link between board attributes and firm survival, the current study adds to the body of literature already in existence. The study aimed to shed more light on how the risk management committee reshapes the effect of board attributes on firm survival by focusing on all listed manufacturing firms in Nigeria, an area that has previously received less attention.

### *Theoretical Review*

Many theoretical models and frameworks have been developed to examine the relationship and the impacts of board attributes on firm survival. However, the theoretical foundation of this study is the stakeholder theory, which provides the means of identifying and resolving conflicts that emerge between managers and the various interest groups. In order to ensure a firm's continuous survival, the interests of shareholders and other stakeholders must be taken into consideration in the policies and practices of management (Korolo, 2023).

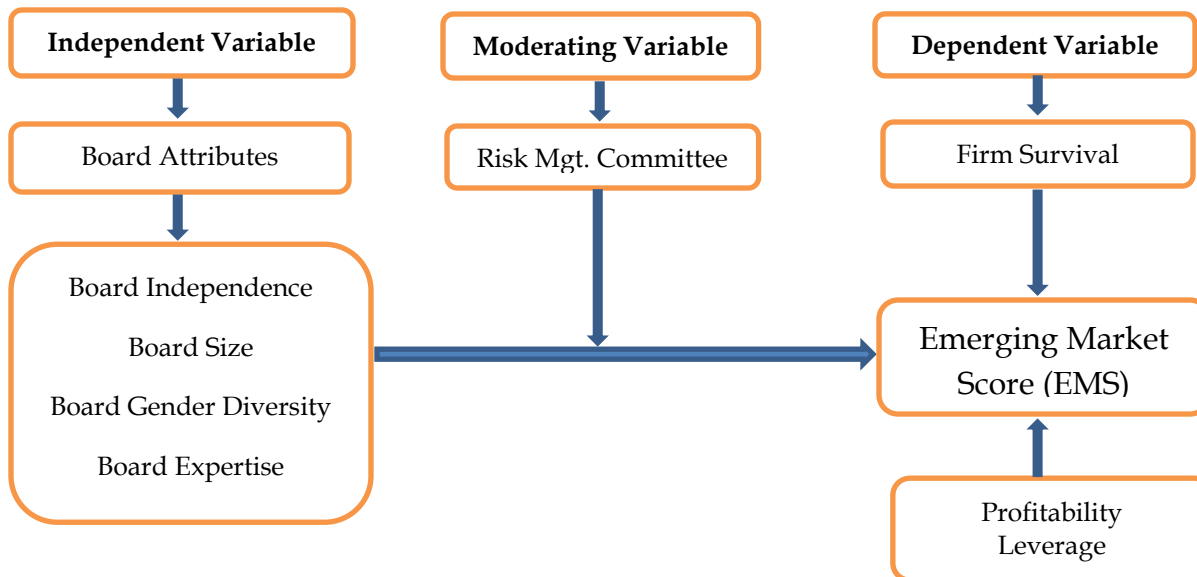
The stakeholder theory was proposed by Freeman (1984), who views the firms and society as interdependent and thus, opines that the firms serve a broader social purpose than their responsibilities to the shareholders. According to Freeman et al. (2004), the theory is predicated on the idea that businesses can only be considered successful if they provide value to a wide range of stakeholders. In addition to shareholders, these stakeholders include staff members, clients, vendors, and the general public. The theory emphasizes that in order for enterprises to succeed over the long term, they must take into account and balance the interests of various interest groups. Stakeholder theory also highlights the fundamental relationship between corporate operations and values, highlighting the necessity for management to express common values that guide decision-making (Ali & Nasir, 2014).

Kwarteng et al. (2023) posit that board members play essential roles in comprehending and speaking for the many interests of people and organizations who have a stake in a firm; and the attributes of the board influence these roles, which in turn determine the organization's interactions with its stakeholders. Hence, the stakeholder theory is intertwined with board attributes and firm survival, where particular traits are critical (Munyradadzi et al., 2016). According to Gande and Kalpathy (2017); and Mansoor et al. (2019) independent boards have the ability to guarantee equitable representation of stakeholders' interests, thereby promoting sustainable decision-making. Similar to this, diversified stakeholder representation is facilitated by an ideal board size. Gender-diverse boards also support the long-term survival of the firm by fostering innovation and resilience, recognizing the value of multiple perspectives, and aligning with stakeholder inclusion. Last but not least, board expertise guarantees a thorough comprehension of the values and concerns of stakeholders. Diverse skill sets on a board make it easier for the company to overcome obstacles and increase its chances of surviving. In order to ensure

the long-term survival of the companies, the stakeholder theory acts as a link between the management of the companies and the numerous interest groups.

### Conceptual Framework

The conceptual framework of the study shows the relationship between the independent variable (Board attribute), moderating variable (Risk management committee) and the dependent variable (Firm survival), represented by the emerging market score-EMS). This is represented diagrammatically in figure 1 as follows:



**Figure 1: Conceptual Framework of the Study**

Figure 1 presents the conceptual framework of the study, showing the connections between board attributes and firm survival, as measured using the emerging market score (EMS). It also depicts the moderating role of risk management committee on the relationship between board attributes and firm survival. The figure also specifies the influence of other factors (control variables) on firm survival.

## 3.0 Methodology

### Research Design

This study adopts correlation research design, which describes the statistical relationship between two or more variables and allows for the testing of this relationship. Thus, the design provides a basis for analyzing the degree to which risk management committee impacts the association between board attributes and survival of listed manufacturing firms in Nigeria.

### Population and sample of the Study

The population of the study consists of sixty-four (64) listed companies drawn from seven (7) sectors out of the eleven (11) sectors on the Nigerian Exchange Group (NGX) as at 31st December, 2022. The sectors are: Agriculture (5), Conglomerates (6), Consumer Goods (20), Health Care (7), Industrial Goods (13), Natural Resources (4), and Oil and Gas (9). Census sampling technique was used in this study. It involves examining every segment of the population. However, firms with incomplete data and those delisted or suspended by the Nigeria exchange group during the study period were excluded. Similarly, firms must be listed on the Nigeria exchange group on or before January 2011, the base year of the study. Consequently, a sample of 34 firms were used by the study. Secondary data was extracted from the



annual reports of the 34 firms over the period from 2011-2022. The data were analyzed using descriptive statistics, correlation and multiple regression techniques with the aid of Stata 14.2 statistical software.

### Variables of the Study

The dependent variable for the study is firm survival, denoted by the emerging market score (EMS) as used by prior studies such as Sanja et al (2014) and Abdulateef et al. (2019). The emerging market score (EMS) is a modification of the Altman Z Score (Altman, 1968) to account for the fact that an emerging market's environment may differ from that of a developed economy (Altman, 1993). It is a multivariate model, also known as multiple discriminant analysis model (MDA), that combines four financial ratios in a linear fashion that is weighted by coefficients. It serves as a diagnostic tool for testing the stability and financial health of a company (Swalih et al., 2021). The independent variable, board attribute, was represented by board independence, board size, board gender diversity, and board expertise. This is in line with previous studies, including Ngu and Amran (2019); David and Okenwa (2021); and Mohammed and Barde (2021). The moderating variable of the study is risk management committee (RMC), as used by Ngu and Amran (2019), and Ganesan et al. (2019). Lastly, the study utilized profitability and leverage as control variables. This is in line with the studies of Ganesan et al. (2019), Nwaobia et al. (2019) as well as Mohammed and Barde (2021). The variables of the study and their measurements are as summarized in Table 1 as follows:

**Table 1**  
**Variables and their Measurement**

Variables	Label	Measurement	Source
<b>DEPENDENT</b>			
Firm Survival	EMS	$3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$	Sanja et al. (2014) ; Abdulateef et al. (2019)
<b>INDEPENDENT</b>			
Board Independence	BIND	Proportion of independent directors to total board size	Nongnit et al (2012), Iwasaki (2013), Abdeljewad and Masri (2020).
Board Size	BSIZ	The total numbers of directors on the board of a company during a particular year	Olabisi et al (2018), Abdeljewad and Masri (2020),
Board Gender Diversity	BGEN	Percentage of female directors to total board size	Ngu and Amran (2019), David and Okenwa (2021)
Board Expertise	BEXP	Percentage of directors with higher degrees/relevant professional certifications to total board size	Akpan & Amran (2014); Abu & Ibrahim (2022).
<b>MODERATING</b>			
Risk Mgt. Committee	RMC	Proportion of risk committee members with accounting/finance qualification/experience	Malik (2017); Jia and Bradbury, (2020).
<b>CONTROL</b>			
Firm profitability	PROF	PBIT/Total assets	Abdelkarim (2016); Abdeljewad and Masri (2020), Mohammed and Barde (2021).
Financial leverage	LEV	Total debt/Equity	Lopez et al. (2017) ; Adulateef et al. (2019).

**Source:** Author's compilation (2023).

**NOTE:**

- $X_1$  = Working capital/Total assets
- $X_2$  = Retained earnings/Total assets
- $X_3$  = Earnings before interest and taxes/Total assets
- $X_4$  = Book value of equity/Total liabilities

3.25 is a constant as contained in the EMS model, while the values: 6.56, 3.26, 6.72 and 1.05 are coefficients of  $X_1$ ,  $X_2$ ,  $X_3$  and  $X_4$  respectively.

PBIT = Profit before interest and taxes

**Models of the Study**

In order to evaluate the moderating effect of risk management committee on the relationship between board attributes and the survival of listed manufacturing firms in Nigeria, the following model is specified: The original regression model is specified as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_{it} + \beta_3 X_{it} * Z_{it} + \epsilon_{it} \dots\dots\dots (I)$$

Where the dependent variable is denoted by  $Y_{it}$  of firm  $i$  at time  $t$ ,  $\beta_0$  is the constant, the coefficients of the independent variable and the moderating variables are denoted by  $\beta_1$  and  $\beta_2$  for firm  $i$  at time  $t$  while  $\beta_3$  is the coefficient of the interaction effect between  $X$  and  $Z$  which measures the moderation effect and  $\epsilon_{it}$  is the disturbance or error term. From the above general form of the regression equation, and in line with Ngu and Amran (2019), the model of the study is specified as follows:

$$EMS_{it} = \beta_0 + \beta_1 BIND_{it} + \beta_2 BSIZ_{it} + \beta_3 BGEN_{it} + \beta_4 BEXP_{it} + \beta_5 RMC_{it} + \beta_6 PROF_{it} + \beta_7 LEV_{it} + \epsilon_{it} \dots\dots\dots (II)$$

The hierarchical regression technique was used to examine the moderating effect of risk management committee as presented in the function of the model. When the moderator is introduced into the regression model, the hierarchical regression models appear thus:

$$EMS_{it} = \beta_0 + \beta_1 BIND_{it} + \beta_2 BSIZ_{it} + \beta_3 BGEN_{it} + \beta_4 BEXP_{it} + \beta_5 RMC_{it} + \beta_6 BIND * RMC_{it} + \beta_7 BSIZ * RMC_{it} + \beta_8 BGEN * RMC_{it} + \beta_9 BEXP * RMC_{it} + \beta_{10} PROF_{it} + \beta_{11} LEV_{it} + \epsilon_{it} \dots\dots\dots (III)$$

Where:

- EMS = Emerging Market Score (proxy for firm survival)
- BIND = Board Independence.
- BSIZ = Board Size
- BGEN = Board Gender Diversity
- BEXP = Board Expertise
- RMC = Risk management committee
- PROF = Firm Profitability
- LEV = Firm leverage.
- $\epsilon_{it}$  = Error term
- $\beta_0$  = Intercept/Constant
- $\beta_1 - \beta_{11}$  = Parameter estimates.
- $it$  = Period  $i$  at time  $t$

## 4.0 Results and Discussion

### *Descriptive Analysis*

This subsection of the study presents the descriptive analysis of the data, showing the mean, maximum, minimum, variance, standard deviation, skewness, and kurtosis of the data for all variables. The maximum reflects the greatest recorded observation for each variable, while the mean gives the average value of all recorded observations. Additionally, the minimum represents each variable's lowest recorded observation. Measures of dispersion such as variance and standard deviation demonstrate the variability of data with respect to the mean. Skewness also shows whether the observed values were symmetrically distributed or skewed in either a positive or negative direction. Kurtosis, the final indicator, shows how peaked the observed values are.

**Table 4.1**  
**Descriptive Statistics**

Variables	Mean	Max.	Min.	Variance	Std. Dev.	Skewness	Kurtosis
EMS	5.121	12.860	-7.834	14.601	3.821	-0.898	4.205
BIND	0.469	0.923	0	0.067	0.258	-0.178	1.740
BSIZ	9.368	15	4	6.287	2.507	0.345	2.604
BGEN	0.171	0.667	0	0.019	0.140	0.586	3.063
BEXP	0.509	0.818	0.143	0.017	0.132	0.027	2.319
RMC	0.431	0.833	0.167	0.025	0.160	0.606	2.397
PROF	0.095	0.792	-0.557	0.022	0.148	0.859	8.357
LEV	0.474	0.881	0.0928	0.048	0.220	0.063	1.884

**Source:** STATA (14.2) output based on study data.

Table 4.1 shows that the dependent variable (Firm Survival), as measured using the Altman's emerging market score (EMS) has a mean of 5.121, which is above the 2.60 cut-off point for the 'safe zone'. This implies that on average, listed manufacturing firms in Nigeria are safe and free from financial distress. The maximum observation for EMS is 12.86, while the least is -7.834. The EMS variable has a relatively high extent of variation (variance = 14.601), implying that the EMS values in the dataset are widely spread out from the mean. This means that there is greater variability in EMS. Similarly, the standard deviation of 3.821 indicates that, on average, the EMS values deviate from the mean by approximately 3.821 units. Additionally, it can be seen that the EMS variable is negatively skewed (Skewness = -0.898), thereby implying that most of the observations were less than the mean. Further, the kurtosis is 4.205, which implies that majority of the observed values for EMS either coincided with the mean or were very close to the mean.

Board Independence, measured as the proportion of independent non-executive directors to total board size, has a mean of 0.469 which implies that 46.9% of board members of the sampled listed manufacturing firms in Nigeria were independent. The highest observed value for the indicator was 0.923, implying that 92.3% of the members of the pertinent board were independent. Conversely, the minimum of 0 shows that the least observed level of board independence was in a board in which none of the members were independent. Furthermore, this indicator has a variance of 0.067 and standard deviation of 0.258, which indicates that there is no significant variation in board independence amongst the sampled firms during the period of the study. However, the variable is negatively skewed (skewness = -0.178) and also leptokurtic (kurtosis = 1.740).

On board size, it can be seen from Table 4.1 that the average size of the board of the sampled firms in the years of the study is approximately 9 members (from mean value of 9.368). The largest observation for this indicator was a board size of 15 members, while the smallest observation was a board size of 4 members. This indicator has a variance and standard deviation of 6.287 and 2.507 respectively, indicating a low level of dispersion. Furthermore, board size was fairly symmetrically distributed, positively skewed (skewness = 0.345) and leptokurtic, since the kurtosis is positive (kurtosis = 2.604).

Board gender diversity has a mean of 0.171, which shows that on average, the female representation on the boards of the sampled listed manufacturing firms in the 2011 – 2022 periods was 17.1%. The highest observed level of female representation was 66.7%, while the least observed level was 0. Furthermore, this variable has a variance of 0.019 and a standard deviation of 0.140, implying low variation from the mean. Lastly, the variable was observed to be positively skewed (skewness = 0.586) and leptokurtic (kurtosis = 3.063).

Board Expertise on the hand, has a mean value of 0.509, implying that on average, 50.9% of board members of the sampled firms have higher degrees/possess professional certifications. The maximum observation of this indicator is 81.8% with a minimum observation of 14.2%. The level of variability in this indicator is quite low (variance = 0.017; standard deviation = 0.132). Additionally, this indicator is positively skewed (skewness = 0.027) and also leptokurtic (kurtosis = 2.319).

Risk management committee has a mean observation of 0.431, which means that on average, 43.1% of risk committee members are knowledgeable in accounting/finance. The maximum observation was 83.3%, while the minimum observation was 16.7%. The variance and standard deviation for the moderating variable were 0.025 and 0.160 respectively. Furthermore, this variable was positively skewed (skewness = 0.606) and also leptokurtic (kurtosis = 2.397).

Profitability, measured as the ratio of profit after tax to total assets has a mean of 9.5%, with minimum and maximum values of -55.7% and 79.2% respectively. The variance and standard deviation of 0.022 and 0.148 suggest a considerable dispersion in profitability during the periods of the study. The variable is leptokurtic (kurtosis = 8.357) and positively skewed (skewness = 0.959). On the other hand, leverage has a mean value of 47.4%, with minimum and maximum values of 9.2% and 88.1% respectively. The leverage variable has a variance of 0.048 and a standard deviation of 0.220. The variable is positively skewed (skewness = 0.0603) and leptokurtic (kurtosis = 1.884).

### ***Correlation Matrix***

In order to conceptualize the intrinsic relationship amongst the variables of the study, Spearman correlation analysis was undertaken. The correlation analysis shows the relationships between all pairs of variables in the regression model; the relationships between all explanatory variables individually with the dependent variable, and the relationship between all the explanatory variables themselves. Another essence of the correlation analysis is to evaluate the strength of the linear interrelationships between these variables, thereby precluding the problem of multicollinearity. The results of the correlation analysis of the study shown in Table 4.2 as follows.

**Table 4.2**  
**Correlation Matrix**

	EMS	BIND	BSIZ	BGEN	BEXP	RMC	PROF	LEV	VIF	TOL.
EMS	1.0000									
BIND	-0.2989*	1.0000							2.94	0.340
BSIZ	-0.1458*	0.1354*	1.0000						1.45	0.691
BGEN	-0.0635	-0.1097*	-0.1364*	1.0000					4.33	0.231
BEXP	0.1939*	-0.1007*	-0.1655*	-0.1379*	1.0000				2.36	0.423
RMC	0.4634*	-0.0641	-0.00701	-0.0419	0.0884	1.0000			1.05	0.952
PROF	0.5324*	-0.0584	0.0326	0.0094	-0.0208	0.1934*	1.0000		1.03	0.971
LEV	0.0385	0.0087	-0.0475	-0.0498	0.0325	0.0683	0.0545	1.0000	1.01	0.986

**Source:** STATA (14.2) output based on study data.

\* Correlation is significant at 5% level.

Table 4.2 presents the correlation results on the relationship between the dependent variable (EMS) and explanatory variables (BIND, BSIZ, BGEN, BEXP, RMC, PROF, LEV). The Table shows that board independence, board size and board gender diversity are negatively correlated with survival. On the other hand, board expertise, risk management committee, profitability and leverage are positively connected with survival. It is obvious from Table 4.2 that there are no high correlations among the independent variables themselves which could signal the existence of multicollinearity, since the correlation coefficients of all the variables are less than 0.80 (Gujarati & Porter, 2009)). Since the explanatory variables do not have any excessive levels of strong correlation among themselves, they can be jointly fitted into the same model. Furthermore, the VIF values range from 1.01 – 4.33 with a mean VIF of 3.64 which is less than the threshold of 10. Similarly, tolerance value ranges between 0.231 and 0.986, all greater than the threshold of 0.1. These values indicate that multicollinearity does not exist among the variables of the study.

**Table 4.3**  
**Normality Test**

Variables`	OBS	W	V	Z	Prob>Z
resid	408	0.96636	0.428	5.344	0.00000

**Source:** STATA (14.2) output based on study data

To test whether the data of the study are normally normality or not, the Shapiro Wilk test for normality was conducted. The results indicate that the Prob>Z for all the variables were less than 0.05 (i.e. were all significant). As a result, the null hypothesis that the data of the study are normally distributed was rejected. However, non-normality of data does not affect the validity of the estimations as the study took further steps to arrest this problem by estimating robust standard error as well as conducting a normality of the error term.

**Table 4.4**  
**Breusch-Pagan / Cook-Weisberg test for Heteroskedasticity**

Variable:	Fitted values of EMS
Chi2	0.80
Prob.>chi	0.3699

**Source:** STATA (14.2) output based on study data

The results of the Breusch-pagan/Cook-Weisberg test for Heteroskedasticity shows an insignificant probability for the chi-square value of 0.80. This indicates the absence of Heteroskedasticity among the panel of the study.

***Hausman Specification Test***

In order to test the hypotheses of the study, the Generalized Least Square (fixed and random effect) models was utilized. Hence, the study conducts the Hausman specification test to choose the most appropriate models between fixed and random effect.

**Table 4.5**  
**Hausman test**

	Model 1	Model2
Chi2	7.87	11.03
P-value	0.2478	0.4405

**Source:** STATA (14.2) output based on study data

Table 4.5 presents the result of Hausman test which indicate that model 1 has a chi2 statistic of 7.87 and P-value of 0.2478. On the other hand, model 2 has a chi2 statistic of 11.03 with a P-value of 0.4405. Thus, the random effect model is preferable to the fixed effect model and was subsequently interpreted.

**Table 4.6**  
**GLS Regression Results (Panel Corrected S.E.)**

Model 1 (Direct relationship)			Model 2 (Moderated relationship)	
Variable	COEF.	P-Value	COEF.	P-Value
BIND	-0.088	0.007***	-0.140	0.000***
BSIZ	-0.199	0.012***	-0.132	0.101
BGEN	0.005	0.769	-0.033	0.211
BEXP	0.101	0.013***	0.000	0.989
RMC	0.012	0.013***	0.013	0.023***
BIND*RMC			0.289	0.043**
BSIZ*RMC			-0.350	0.015***
BGEN*RMC			0.224	0.104
BEXP*RMC			0.514	0.039**
PROF	0.575	0.000***	0.541	0.001***
LEV	0.056	0.468	0.046	0.562
Constant	0.774	0.001***	0.755	0.002***
R <sup>2</sup> :				
Within		0.0532		0.0792
Between		0.5553		0.6225
Overall		0.2844		0.3314
Wald Chi2		37.27		58.42
Prob.>Chi2		0.0000***		0.0000***
Hausman		7.87		11.03
Prob.>Chi2		0.2478		0.4405

**Source:** Author's Compilation from STATA 14.2 outputs

\*, \*\*, \*\*\* indicates statistical significance at 10%, 5% and 1% respectively.

Table 4.6 presents the results of the regression estimates of the study. Model 1 revealed that the overall coefficient of determination R<sup>2</sup>, has a value of 0.2844, which implies that the independent variables of the study jointly explained about 28.44% of total variations in the dependent variable while the remaining 71.56% were accounted for by other factors not captured in the model. In addition, the F-statistic value of 37.27 which is significant at the 1% level (from p-value of 0.0000), indicates the fitness and validity of the estimated model.

Results of Model 1 in Table 4.6 shows that board independence (BIND) has a coefficient value of -0.088 and a p-value of 0.007. This indicates that board independence has a significant negative effect on the survival of listed manufacturing firms in Nigeria. This points to the fact that the presence of independent directors on the board does not automatically guarantee good governance system. It may be possible that some independent directors were appointed to just fulfill the minimum regulatory requirements. This result in tandem with Darrat et al. (2016), Nwaobia et al. (2019), Abdeljawad and Masri (2020), It however contradicts those of Nongnit et al. (2012), Iwasaki (2013), Williams and Shaibu (2020), and Akinuoye and Onuoha (2021).

The results of Model 1 further revealed that board size (BSIZ) has a coefficient value of -0.199 and a p-value of 0.012. This means that board size has a significant negative effect on the survival of listed manufacturing firms in Nigeria. This implies that large board is detrimental to the survival of listed manufacturing firms in Nigeria, as it can lead to increased conflicts or a lack of strategic alignment within the organization. This result is consistent with Hapsari (2018), Abdeljawad and Masri (2020). However, it is in contrast to Akinnuoye and Onuoha (2021).

Furthermore, Table 4.6 indicates that board gender diversity has a positive but insignificant relationship with EMS, from a coefficient value of 0.005 and p-value of 0.769 respectively. This implies that the presence of female directors on the boards of listed manufacturing firms in Nigeria has no effect on the probability of their survival. This outcome is in line with the prior studies of Hapsari (2018), David and Okenwa (2021) but contradicts Nick et al. (2013), Igor and Steve (2018), Abdeljawad and Masri (2020).

From the results of model 1 in Table 4.6, it can be established that board expertise has a positive and significant relationship with firm survival as demonstrated by the coefficient and p-value of 0.101 and 0.013 respectively. This means that the higher the educational qualifications of board members, the better the decisions made by such a board. Hence, education helps in the betterment of the entire board and the quality of its decisions in running the firm. The finding is in consonant with Ujunwa (2012), Akpan and Amran (2014), but contrary to Abu and Ibrahim (2022).

Similarly, Table 4.6 indicates that risk management committee (RMC) not only has a positive and significant effect on survival, it also moderates the relationship between boards attributes and survival of listed manufacturing firms in Nigeria. From Table 4.6, the coefficients for interactions of BIND\*RMC, BGEN\*RMC, and BEXP\*RMC are positive and significant, except for BGEN\*RMC that was insignificant. On the other hand, the coefficient of BSIZ\*RMC is negative and significant. On the overall, the results of the interactive terms indicate that risk management committee (RMC) has significant moderating effect on the relationship between board attributes and the survival of listed manufacturing firms in Nigeria. Finally, results in Table 4.6 reveal that profitability displayed a positive and significant association with survival, while leverage was found to exert no effect on the survival of listed manufacturing firms in Nigeria. This points to the fact that long-term success and sustainability of the firms is dependent to a large extent on their profitability rather than the financial structure.

## 5.0 Conclusion and Recommendations

The study investigates the moderating effect of risk management committee on the relationship between board attributes and survival of listed manufacturing firms in Nigeria. The study found that board independence and board size have negative and significant effect on the survival of listed manufacturing firms. While board expertise has significant positive effect, board gender diversity has positive but insignificant effect on the survival of listed manufacturing firms in Nigeria. Regarding the moderating relationship, risk management committee was not only positive and significantly associated with survival, it also moderates the relationship between board attributes and survival of listed manufacturing firms in Nigeria. In conclusion, board attributes play a crucial role in firm survival while risk management committee reinforces the relationship between board attributes and the survival of listed manufacturing firms in Nigeria.

In line with the findings, the study recommends that the shareholders of listed manufacturing firms in Nigeria should ensure that the board of directors maintains a balance between independent and non-independent directors. In addition, the shareholders of listed manufacturing firms in Nigeria should consider reducing the size of their boards to a more manageable and effective number. Similarly, when





appointing board members, the shareholders of listed manufacturing firms in Nigeria should prioritize qualifications, skills, and experience.

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