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THE MODERATING EFFECT OF COVID-19 ON CORPORATE GOVERNANCE MECHANISMS AND FINANCIAL PERFORMANCE OF LISTED INDUSTRIAL GOODS FIRMS IN NIGERIA

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Abstract

The study investigates the relationship between corporate governance mechanisms and financial performance of listed industrial goods firm quoted on the Nigerian exchange group. The study further explored the extent to which COVID 19 pandemic moderates the relationship between corporate governance mechanisms and financial performance of listed industrial goods firms in Nigeria. Population consists of all the 13 listed firms quoted on the Nigerian Exchange Group covering the period 2014- 2023. The data used in the study was collected from the audited annual report of the 13 listed industrial goods firms in Nigerian Exchange Group and panel regression was used to analyse the data. Findings from the study shows that the correlation between performance and the interactive effect of COVID-19 on these governance variables are weak, thus, indicating minimal direct influence. The study also found a very weak negative association between ROA and board size. This implies that both board size and financial performance are moving in opposite direction. Similarly, a positive relationship was found between board gender diversity and financial performance, suggesting that having women on board is beneficial for financial performance of listed industrial goods firms in Nigeria. Meanwhile, the study found a negative association between board meeting frequency and financial performance. However, the result shows a positive correlation between board risk committee and financial performance which implies that firms with board risk committee tend to do better. Based on the findings of the study, it is recommended that management of listed industrial goods firms should increase the level of female participation on the board of directors, while also ensuring an improve quality of board size. Similarly, management should not only consider increasing the number of meetings held per year, but should ensure the quality of the meetings held.

Keywords: corporate governance mechanisms, covid-19, financial performance, listed industrial goods firms, Nigeria

1. Introduction

The novel and deadly corona virus, COVID-19, that has occurred globally, including Nigeria and the adoption of serious policies by different government regarding social distancing, stay at home orders, community quarantine and so on has had a serious

impact on various sectors of the economy, especially on companies listed on the stock market of a country. Among the devastating firms were the industrial goods firms that produce cement, paints, glasses, packaging materials and other essential goods that drive infrastructure and development. Understanding how these firms performed financially before, during and after the pandemic and the role corporate governance played is crucial for policy makers, investors, stakeholders, and business owners or leaders.

This study examines the relationship between corporate governance mechanisms such as board size, board gender diversity, board meeting frequency and the presence of board risk committee, and financial performance of 13 listed industrial goods firms in Nigeria between 2014 and 2023. It also assessed how COVID-19 moderates these relationships.

The subject of financial performance has overtime received significant attention from scholars of various areas of business and strategic management. it has also been the primary concern of business practitioners in all types of organization since financial performance has implication to organizations health and ultimately its survival. Financial performance which is the focus of this study, measures the result of a firm's strategies, policies and operation in monetary terms which are subsumed in return on asset and return on equity of firms.

Performance in an organization is a description of the level of implementation of a program, policy, activity in realizing the goals, objectives, mission and vision of an organizations strategic plan (Aryadi *et al*, 2020). Performance of a firm can be measured through financial indicators, such as profitability, growth, and liquidity, and nonfinancial indicators such as corporate governance. Profitability which is one of the measures of financial performance indicators of a firm is a vital concern to all groups who have direct or indirect interest in the firm.

Corporate governance which is a nonfinancial indicator focuses on the normative framework which includes both the rules by which company operates and additional sources drawn from the legal system, judicial system and financial market. Corporate governance is the system by which companies are directed, controlled, and managed in the best interest of both owners and investors with a view to increasing shareholders value and meeting the expectation of other stakeholders.

A variety of mechanisms are used by stakeholders to ensure that management compliant are addressed with the stated goals of the organization. These mechanisms are the specific attributes within the organization that are capable of influencing the firm's financial performance decisions. These mechanisms may include but not limited to board size, board gender diversity, board meeting frequency and board risk committee within the preview of this study.

With the fatal blow of COVID 19 pandemic to the global economy, which has the potential to affect the corporate governance system. So far, few studies have been conducted on the impact of the pandemic on the association between corporate governance mechanisms and financial performance and the research gap in this regard is strongly found in the literature (Khatib & Nour, 2021; El-chaarani *et a*l., 2022). This study intends to fill the research gap to contribute to the research literature in this filed.

Most of the financial crises during the last decades and in recent times that have globally affected the economy, such as the global financial crises in 2007, Collapse of Dick Smith in 2016-a retail company in Austria, Theranos health care center, USA in 2018, FTX 2022-a crypto currency exchange in Bahamas, were caused by managerial mis-behavior, including financial manipulation, conflict of interest, a dis-functional board of directors, weak risk management ,and numerous loan to insiders.

Considering the crises caused by COVID-19 neither originated from the wrong behavior of firms nor the weakness of the control systems, this study aims to explore, if the mechanisms of corporate governance (such as board size, board gender diversity, board meeting frequency and board risk committee) can be an obstacle to preventing this systematic risk in an imaginary economy like Nigeria, particularly its industrial goods firms.

Furthermore, most previous studies on the nexus between corporate governance and financial performance are conducted on banks (Damilola et al., 2018, Ahmad & Ismail, 2022); insurance companies (Dandago, 2013); manufacturing companies (Ademola et al.,2016); non-financial sector (Muhammad & Buhari, 2019; Omokhudus, 2016; Bamikole, 2018). Based on the studies reviewed, limited attention has been given to industrial goods firms in Nigeria.

Previous studies did not centre on board risk committee as provided for by part B, principle 17 of the Nigerian code of corporate governance 2018, which state that, companies should have an outstanding committee known as the board risk committee apart from audit committee in curtailing the level of risk by companies. However, this study has widened the scope by considering some significant variables of corporate governance mechanisms on financial performance.

The introduction of a moderating variable such as COVID-19 on the relationship between corporate governance mechanisms and financial performance of industrial goods firms in Nigeria, to the best of the researcher's knowledge, few studies have been conducted to that effect. Thus, this study has made an attempt to fill such gap. Additionally, it is pertinent to note that, the result of the studies conducted in developed and developing countries may not be applicable to the industrial goods firms in Nigeria, simply because the socioeconomic and political environment in which these firms operate differs in terms of regulations, operations and supervision.

There have been several empirical studies on the link between mechanisms of corporate governance and financial performance of firms from various viewpoint in various environments utilizing a variety of variables of interest (Olayinka et al., 2022; Abu & Bamedele, 2022; Aryadi, *et al*., 2020; Ehiedu, *et al.*, 2022; Etale et al., 2020). In Nigeria, several studies were also conducted such as Ofulu *et al.* (2020), Alhassan et al (2022), Abubakar et al (2020), Oyedekun et al (2019), Dandago and Benjami (2013).

Furthermore, some studies show that corporate governance has a favorable influence on financial performance, such as Bebchuk et al. (2004), Haniffa and Hudiab (2006), Black et al. (2007). While others show that corporate governance has a detrimental impact on financial success (Chidambaran et al., 2006; Aksu & Kosedag, 2006; Riu *et al.*, 2002).

In light of the above, a thorough examination of the moderating effect of COVID 19 on the relationship between corporate governance mechanisms and financial performance of listed industrial goods firms in Nigeria remains significant.

2. Literature Review

Conceptual Framework

Explained variable of the study is financial performance which is the key variable. Changes in the explained variable are explained by board size, board gender diversity board meeting frequency and board risk committee. Figure 1 presents the link between the variables.

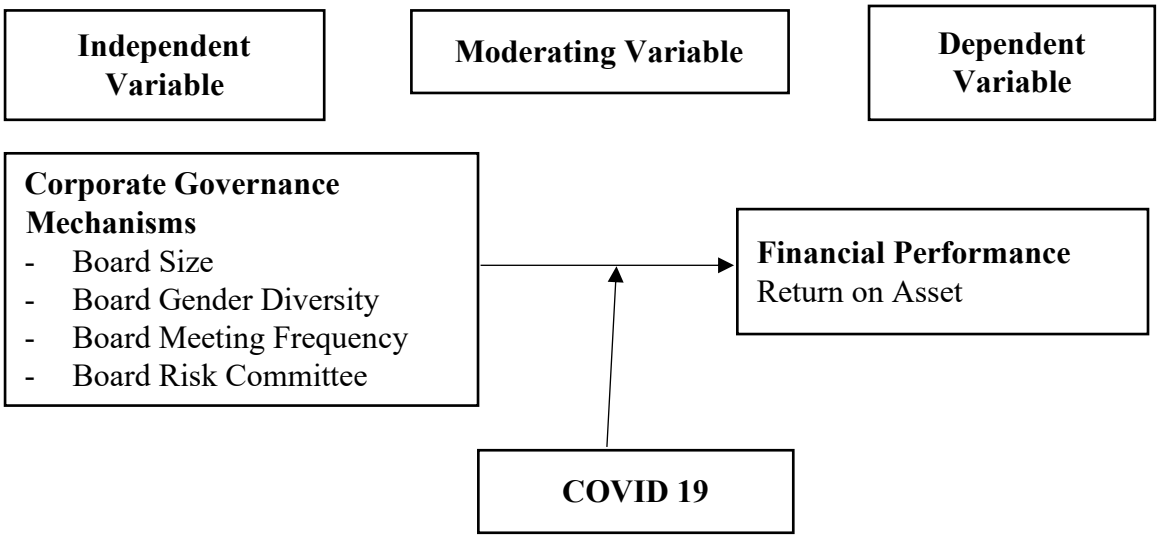


Figure 1: Schematic Diagram of Conceptual Framework
Source: Researcher's Compilation, 2025

Empirical Review

Ugwu *et al.* (2019) investigated the influence of corporate governance on the performance of companies registered on the Nigerian exchange group. The study employed exploratory research design to examine a total of 8 firms listed on the NGX. A purposive sampling technique was use to take sample out of the total population. Data were extracted from the annual reports of these firms from 2006 to 2017. Panel regression was used to analyze data, board size, board composition, audit committee size and board independent were examine against return on assets. The result of the study shows a positive and significant effects of board size on performance of manufacturing firms in Nigeria. The study recommended that, there should be concerted effort towards improving monitoring potentials to ensure that firms comply with the relevant provision of the Nigerian corporate governance codes.

Pompei (2022) investigated the impact of board characteristics on the financial performance of firms operating in the energy industry during COVID 19. The study chooses board meeting, board size, board independence and CEO status as independent variable, while ROA and ROE is used as measures for financial performance. The study collected data from Refinitiv Eikon database and includes a sample of 359 companies operating in the energy industry for the period of 2018 -2021. The regression model on the

selected samples was run using the SPSS program. The study presented a mixed result on the impact of board characteristics on financial performance of companies operating in the energy industry. The result shows that, board meeting negatively correlate with ROE but positively relates with ROA. Much credence was not giving to pre-COVID- 19, this study intends to fill such gap.

Ahmad and Ismail (2022) investigated the impact of risk committee on financial performance of UK financial institutions. The focus of the research was to examine whether risk committee have a fundamental influence on financial performance. A sample of all listed financial institutions in the FTSE 100 INDEX from 2010-2014 was taken to undertake the research. The result of the study indicates a negative relationship between risk committee and financial performance. It shows that the lesser the risk committee, the better the performance.

Sabo (2018) investigated the impact of corporate board gender diversity on the financial performance of listed building material companies in Nigeria. The study used a sample of nine (9) companies out of a total population of twelve (12). The study adopted the multivariate regression to analyze the data. The result of the study disclose that board gender diversity has negative and insignificant impact on financial performance. The study recommends that, the listed building material companies in Nigeria should appoint more than one female in the board of directors.

Contrarily, Oba and Fodio (2012) empirically findings did not align with the findings of Sabo (2018). The research investigated the predicting power of a boards gender mix on financial performance in Nigeria using a cross-sectional data analysis. Financial performance was measured by ROE, while female director presence and proportion of female directors were proxies for gender diversity. The study recommended the need to streak the gender balance in the board of directors.

Nguyen (2021) investigated the effect of COVID-19 pandemic on the financial performance of Vietnam logistics enterprises. The study used a sample of 114 out of a total population of 140 logistic companies in Vietnam. The study adopted the Wilcoxon signed rank test to evaluate the difference in the financial criteria before and during COVID-19. The result of the study disclosed a negative and significant impact of COVID-19 on logistic companies in Vietnam. The study therefore, recommend that logistic companies should cut unnecessary coast and negotiate payment terms, reduce employees working hours and wages. The study did not mention the theories that underpinned the study.

Theoretical Framework

Agency Theory

The agency theory is a business and management theory often used to explain the supervisory role of the board of director in the relationship between the principal and their agents. The agency theory pioneers, Jensen and Meckline (1976) explain the contractual relationship between the owners (shareholders) and agent (management), which is aimed at carrying out an action or service on behalf of the owners regarding interest related to decision making.

The principals are the shareholders while the agents are the executives and managers of the firms. Under this theory, the principal (shareholders) appoint and delegate the running of the company to the agent (executives and managers) on the expectation that the agent act in the best interest of the principal. On the contrary and due to information asymmetry, the agent may not necessarily make decisions or act in the best interest of the

principal, thus leading to agency problem (Jensen and Meckline 2004). There is the need to protect the interest of the shareholder in order to maximize agency problem. This may be done by monitoring the activities of the CEO and management through an effective board of directors.

Stakeholders Theory

The theory addresses the observed gap created by omission found in the agency theory which identifies shareholders as the only interest group of a corporate entity. Stakeholders are the people that have the power to ensure the better ness of the corporation. It includes not only the people with financial benefits but also includes the government officials, workers, consumers, members of the general public as well as various communities. In general stakeholders are any group or people who have the ability to influence or be affected by the success of an organization's goals (Freeman, 2004).

For this study, Agency theory and Stakeholders theory were used to underpinned the study. The agency theory was used to explain the relationship between board size and financial performance, and the relationship between board meeting frequency and financial performance. Meanwhile, Stakeholders theory was used to explain the relationship between board gender diversity and financial performance, and between board risk committee and financial performance respectively.

3. Methodology

The study was quantitative in nature and a correlational research design was adopted in examining the relationship between corporate governance mechanisms and financial performance of listed industrial goods firms in Nigeria. The study population consist of all the 13 listed industrial goods firms in Nigerian Exchange Group for the period under review 2014 – 2023.

The study utilizes the secondary source of data collection and data was collected and extracted from the audited and published annual report of the listed industrial goods firms on the Nigerian exchange group from 2014 – 2023. Panel data and generalize least square (GLS) regression model was the technique used because it reduces the bias that might occur.

Model Specification

$FP = F (BZ, BGD, BMF, BRC)$ ……...(i)

$FP = \beta_0 + \beta 1BZ_{it} + \beta 2BGD + \beta 3BMF + \beta 4BRC + E$ …… (ii)

$FP_{it} = \beta_0 + \beta_1 BZ_{it} + \beta_2 BGD_{it} + \beta_3 BMF_{it} + \beta_4 BRC_{it} + COVID\ 19_{it} + E_{it}$ ---------- (iii)

$FP_{it} = \beta_{0it} + \beta_1 BZ_{it} + \beta_2 BGD_{it} + \beta_3 BMF_{it} + \beta_4 BRC_{it} + COVID\ 19 + \beta_5 (BZ*COVID\ 19) + \beta_6 (BGD*COVID\ 19) + \beta_7 (BMF*COVID\ 19) + \beta_8 (BRC*COVID\ 19) + E_{it}$ ……(iv)

Where: FP- Financial Performance; IV_1- IV_9 = Independent variables; β_0- Constant; B_{1-5} = Direct relationship; B_6- β_9- Interactive variables; BZ- Board Size; BGD- Board Gender Diversity; BMF- Board Meeting Frequency; BRC- Board Risk Committee; COVID 19 - Corona virus pandemic.

Table 1
Variable Measurement

S/N	Variables	Acronym	Measurement	Types	Source(s)
1.	Financial Performance	ROA	Return on Asset is measured by PAT divide by the sum of a Total asset	Dependent Variables	Hossein et al, (2023).
2	Board Size	BZ	Total number of directors serving on the company's board of Directors	Independent Variables	Ajale & Adesanya (2019)
3	Board Gender Diversity	BGD	Total number of Female Directors serving on the Board of Directors of the Company	Independent Variables	Muhammad et al (2022)
4.	Board Meeting Frequency	BMF	Number of meeting held in a year by the board	Independent Variable	Augustine and Juliet (2020)
5	Board Risk Committee	BRC	Number of directors appointed to serve on the risk committee of a firm in a particular point in time	Independent Variable	Almustapha (2023) Aisha (2023)
6	Corona virus	COVID 19	This is a dummy variable that equals one when it is during the covid-19 pandemic and if the time is related to before the corona virus crisis, it equal to zero.	Moderating variables	Zimon and Tarriga (2021), Almustapha (2023), Hossein et al (2023).

Source: Compiled by Author (2025)

4. Results and Discussion

Descriptive Statistics

Table 2

Summary of Descriptive Results

Variables	Obs	Mean	Std. Dev.	Min	Max
ROA	130	0.059	0.185	-0.882	0.7034
BSIZE	130	8.431	3.150	4.000	18.000
BGD	130	1.600	1.588	0.000	6.000
BMF	130	4.892	1.136	3.000	8.000
BRC	130	2.669	2.785	0.000	9.000
COVID 19	130	0.469	0.501	0.000	1.000

Source: Researcher's Computation from STATA Output, (2025)

Table 2. above, shows the result of the descriptive statistics which presents the number of observations, mean values, standard deviations, minimum and maximum values of the data used in the study. The dependent variable, financial performance proxied by Return on Asset (ROA) has a mean value of 0.059 with a standard deviation of 0.185. This means that on average ROA which measures the level of return on the investments made by listed industrial goods firms stood at 0.059.

This result indicates that for every one-naira (₦1) investment made by the listed industrial goods firms in Nigeria, there is an average of 5.90% return on that investment during the period under study. The result indicates a high level of deviation from the mean value of financial performance recorded within the period of the study. The dispersion is further buttress by the values of the minimum and maximum mean which stood at -0.882 and 0.703 respectively. This figures also implies that some of the listed industrial goods firms reported financial losses within the period and the least of which stood at -0.882 and maximum earnings of 0.703 on every one-naira (₦1) investment made during the period of the study.

Also, the result of the descriptive statistics shows that the average value in relation to board size of the listed industrial firms in Nigeria is 8 with a standard deviation of 3.150. This shows that on average, the board size of the industrial goods firms within the period under study is 8 board of directors. The standard deviation of 3.15 indicates some variations in the board size among firms, reflecting differences in firm size of companies.

The table further revealed the minimum and maximum values which stood at 4 and 18 respectively. Which shows that the minimum board size of the industrial goods firms in Nigeria is 4 directors and a maximum of 18 directors on the board of the firms. This diversity in board composition suggests varying governance structures, which may impact decision-making processes and overall governance quality. Larger boards could potentially offer a wider range of expertise and perspectives, enhancing oversight capabilities; however, they may also face challenges related to slower decision-making, as suggested in prior literature.

Furthermore, board gender diversity reflects a mean value of 2 with a standard deviation of 1.588. This means that on average board gender of the listed industrial goods firms in Nigeria is two (2) female directors. The average number of female directors (2) suggests that women are underrepresented on the board of listed industrial goods firms in Nigeria.

The high standard deviation relate to the mean, indicates significant variation in the board gender diversity among the firms. The minimum and maximum values in respect to board gender stood at 0 and 6 respectively. This also shows that some industrial goods firms do not have any female director on their board. While some have about 6 female directors on their board of directors within the period.

More so, board meeting frequency has a mean of 4.892 with a standard deviation of 1.136. This means that on average, the board of directors of the listed industrial goods firms in Nigeria held meetings at least five (5) times per annum. The low standard deviation as shown in the result indicates that firms generally adhere to a standard schedule for board meetings. The table further shows the values of the minimum and maximum mean which stood at 3 and 8 respectively. This figures also implies that the least number of meetings held by the board of the listed industrial goods firms in Nigeria is three (3) meetings, while some have maximum of eight (8) meetings per annum within the period of the study.

Additionally, board risk committee has a mean of 2.669 with a standard deviation of 2.785. This means that, on average, the risk committee of the listed industrial goods firms in Nigeria in the sample have approximately 3 members. The result suggest that risk committee are relatively small, allowing the members to focus on the efficient risk management.

The size of the risk committee varies significantly around the mean with a standard deviation that is almost as large as the mean itself. This indicate that there are considerable variations in risk committee size among firms, with some having small committee and others having larger ones.

The inclusion of the COVID-19 binary variable, with a mean of 0.469 and standard deviation of 0.501, provides a temporal dimension to the analysis, distinguishing between pre pandemic and pandemic periods. The values 0 and 1 indicate whether the observations were recorded before or during the COVID-19 pandemic, respectively. The result suggests that COVID 19 had significant impact on nearly half of the sample firms. Whereas, the standard deviation indicates a roughly even split, suggesting that COVID 19 impact varied widely across firms in the industrial goods sector.

Correlation Analysis

Table 3

Correlation Matrix of Dependent and Independent Variables

Variable	FP	BSIZE	BGD	BMF	BRC	COVID 19
FP	1.000					
BSIZE	-0.103	1.000				
BGD	0.138	-0.074	1.000			
BMF	-0.229	0.285	-0.283	1.000		
BRC	0.221	-0.003	-0.132	-0.159	1.000	
COVID 19	-0.241	0.385	-0.185	0.237	0.227	1.000

Sources: Researcher's Computation from STATA Output, (2025)

It should be noted that the value of correlation coefficient ranges from 0-1 through 0 to -1.0. The coefficient 1.0 on the matrix (diagonal) indicates that a variable has a perfect and strong positive linear relationship with itself, while -1.0 indicates the presence of a perfect negative association. In other words, 0.000- 0.10 indicates negligeable relationship, 0.10-0.30 depicts weak relationship, 0.30-.050 depicts moderate relationship and 0.50-1.00 depicts strong relationship (Cohen, 1988).

The table shows that there is a moderate, weak and very weak correlation between the dependent variable and the independent variables and among the independent variables themselves. However, the values suggest that there is no possibility of existence of multicollinearity which is high correlation between variable. But whether multicollinearity exists or not cannot be said with precision until after multicollinearity has been conducted using Variance Inflation Factor (VIF).

From the correlation matrix above, it can be seen that the value of board size and financial performance is -0.103 which shows that there is a very weak and negative correlation between board size and financial performance of listed industrial goods firms in Nigeria. This means that as BSIZE increases the financial performance of listed industrial goods firms in Nigeria tends to slightly decreases.

For Board Gender (BGD) and financial performance it can be seen that there is positive and weak correlation of 0.138 between them, which signifies that as BGD increases, the financial performance of the listed industrial goods firms in Nigeria tends to increase slightly.

The relationship is not strong, but there is slight tendency for firms with more divers' board (in terms of gender) to perform better financially.

For Board Meeting Frequency (BMF) and financial performance it can be seen that the correlation coefficient -0.229 which shows that there is a weak negative correlation between BMF and the financial performance of listed industrial goods firms in Nigeria. The findings suggest that smaller boards are more effective in monitoring and advising management, resulting to better performance.

Furthermore, Board Risk Committee (BRC) is positively correlated with financial performance of listed industrial goods firms in Nigeria as shown by the correlation

coefficient of 0.221 which suggests a weak relationship between them. Also, COVID 19 has a weak and negative correlation with financial performance of listed industrial goods firms in Nigeria with a correlation coefficient of -0.241. Which means that COVID 19 pandemic had a negative impact on performance with firms experiencing decline in profitability during the period. Firms may have faced challenges such as supply chain disruption, reduced demand or increased cost leading to decreased profitability.

Additionally, the matrix shows that BGD, and BRC have negative correlation with BSIZE, while BMF and COVID 19 have a positive correlation with BSIZE with correlation coefficients of 0.074, -0.003, 0.285, and 0.385 respectively. It can also be seen from the table that BMF, BRC, and COVID 19 have negative correlation with BGD as shown by the coefficients of -0.283, -0.132, and -0.185 respectively.

Also, it was shown that BRC has a negative correlation with BMF as revealed by the coefficient of -0.159. While, COVID 19 has a positive correlation with BMF with a correlation coefficient of 0.237. Finally, COVID 19 has a positive correlation with BRC with a correlation coefficient of 0.227.

Diagnostic Test

The study conducted a diagnostic analysis to maintain an unbiased parameter. The Husman specification test was conducted to choose between the Random and Fixed effect model with a p- value of 0.819. The Shapiro–Wilk test revealed that the p- value is not significant (0.106). Therefore, the null hypothesis that the residuals are normally distributed across the model is not rejected.

According to the Gauss- Markov theorem, normality of data and residual distribution are not necessary for obtaining the Best Linear Unbiased Estimate (BLUE) as long as the sample size is large or greater than 15 observations. Therefore, as the observation size increases, the normality of the residual is not needed. As such, the result of the findings of this study can be said to fulfill the assumptions of panel regression as the observation is 130.

The heteroskedasticity test using Modified Group Wise showed a significant p-value of 0.000 which is significant at 1% indicating the absence of homoscedasticity. To this end the study ran the Generalized Least Square (GLS) regression Model following Gujarati (2004) recommendation.

Table 4

Summary of GLS Regression Result

FP	Coef	St. Err	t-value	p-value
BSIZE	0.038	0.223	-0.17	0.864
BGD	0.244	0.123	1.98	0.047
BMF	-0.429	0.695	-0.62	0.538
BRC	1.832	0.592	3.10	0.002
COVID 19	-3.226	1.181	-2.73	0.006
BSIZECOVID19	-2.753	0.674	-4.08	0.000
BGDCOVID19	-0.865	0.407	-2.13	0.034
BMFCOVID19	-1.159	0.375	-3.09	0.002
BRCCOVID19	-1.424	0.343	-4.15	0.000
Cons	11.691	0.443	26.41	0.000

Prob> Chi^2	0.000	Wald chi^2 (9)	61.79
No Obs	130		
Panel	Homoscedastic		
Autocorrelation	no autocorrelation		

Source: Author's Computation from STATA Output, (2025)

From Table 4., the Wald Chi^2 is 61.79 and its associated p-value is 0.000 which by implication is statistically significant at 1%. This p-value less than 0.05 is small enough and it confirmed the fitness of the model for the study. It also implies that, there is a 99.9% probability that the relationship among the variables is not due to mere chance. Furthermore, it was revealed from Table 4. that the heteroskedasticity problem in the panel random model and the autocorrelation was corrected with the GLS estimate.

Discussion of Findings

In accordance with the tests conducted using the data and the results obtained from the regression model, this study established a significant relationship between the board attributes and financial performance of the listed industrial goods firms in Nigeria. From the findings, R2(coefficient of determinant), jointly influence the financial performance of listed industrial goods firms in Nigeria during the period under study. Basically, the findings of the study are discussed under two subheadings such as: findings regarding direct relationship and the moderating effects.

Direct Relationship

Under this subheading, the findings pertaining to the direct effect of board attributes such as: BSIZE, BGD, BMF and BRC on the financial performance of listed industrial goods firms in Nigeria are discussed.

Board size and financial performance

The above regression result in Table 4. shows that BSIZE has a coefficient of -0.038, t-value of 0.17 and a p-value of 0.864 which is negative and not significant. By implication, this signifies that there is no evidence that BSIZE has a significant effect on the financial performance of listed industrial goods firms in Nigeria. This could be due to the fact that large boards although may have more diverse perspectives but could lead to challenges in decision-making and coordination, diminishing potential benefits. The finding contradicts the agency theory which posited that large board size will enhance the performance of the firms through their oversight functions leading to high financial performance of the firm.

Board gender and financial performance

Conversely, table 4. shows that BGD has the coefficient of 0.244, t-value of 1.98 and a p-value of 0.047 which is significant at 5%. This by implication means that there is enough evidence beyond reasonable doubt that BGD has a positive and significant effect on the financial performance of listed industrial goods firms in Nigeria. This further means that having more women on board is beneficial to performance of listed industrial goods firms in Nigeria. This could be as a result of the fact that a gender-diverse board brings a variety of viewpoints and experiences, leading to better decision-making and innovative

solutions that can enhance performance. Also, women on the boards may promote more effective oversight and governance practices, which can lead to improve risk management and accountability.

Board meeting frequency and financial performance

Similarly, from Table 4. it can be observed that the coefficient of BMF is -0.428, t-value of -0.62 and a p-value of 0.538 which is negative and not significant. The result reveals negative coefficient, which means BMF decreases the financial performance of listed industrial goods firms in Nigeria. Also, it has no significant effect on the financial performance of listed industrial goods firms in Nigeria. And this could be that most of the issues discussed during the meetings of the board might not be issues that will have significant effect on the financial performance of the firms.

Board risk committee and financial performance

The regression result above shows that BRC has the coefficient of 1.832, t-value of 3.10 and a p value of 0.002 which is positive and statistically significant at 1%. By implication, this means that there is sufficient evidence beyond reasonable doubt that BRC has a significant effect on the financial performance of listed industrial goods firms in Nigeria.

This further means that, the presence of board risk committee is likely to enhance risk management practices, leading to better financial performance. This could be due to the fact that board risk committee with large directors will have diverse skill, experiences and expertise to control and manage the risk of the firms leading to improve financial performance. Firms should therefore consider establishing or strengthens this committee. The result is in line with the corporate governance guideline which established that firms should have an outstanding risk committee composed of not less than three director all of whom should be nonexecutive directors.

COVID 19 and Financial Performance

Table 4. shows that COVID 19 has the coefficient of -3.226, t-value of -2.73 and a p-value of 0.006 which is negative and statistically significant at 1%. By implication, this means that there is sufficient evidence beyond reasonable doubt that COVID 19 has a significant effect on the financial performance of listed industrial goods firms in Nigeria. This further means that presence of COVID 19 Pandemic significantly reduce the financial performance of listed industrial goods firms in Nigeria by 32.26%. This could be due to the negative effect of the COVID 19 pandemic on the economy which affected distribution, productions, consumers and operations of every sectors of the economy all of the globe.

Moderating relationship

The findings pertaining to the moderating effect of COVID 19 on the relationship between board attributes such as: BSIZE, BGD, BMF and BRC on the financial performance of listed industrial goods firms in Nigeria are discussed.

Moderating effect of COVID-19 on the Relationship Between Board Size and Financial Performance

The regression results in Table 4. shows that the moderating effect of COVID 19 on the relationship between BSIZE and financial performance has a coefficient of -2.753, t-value of -4.08 and a pvalue of 0.000 which is negative and statistically significant at 1%. By implication, this means that COVID 19 have a moderating effect on the relationship between BSIZE and financial performance of listed industrial goods firms in Nigeria.

The negative moderating effect means that, in the presence of COVID 19, the impact of BSIZE on financial performance becomes less significant or pronounced. However, previous studies in this field provide conflicting results on the relationship between BSIZE and financial performance of firms. For instance, the studies of Obemeata and Ugbogbo (2023), Ugwu, et al (2019), Yang, Liang and Chu (2021) found a positive significant relationship between BSIZE and financial performance.

While the study of Gideom et al. (2017), found no relationship between BSIZE and financial performance of firms. These mixed findings in results of the prior researchers in this field necessitated moderation. From the result it was revealed that COVID 19 negatively influence the efficiency and effectiveness of the board on the financial performance of the listed industrial goods firms in Nigeria within the period of the study.

Moderating effect COVID 19 on the relationship between board gender and financial performance

The regression result in table 4. shows that moderating effect of COVID 19 on the relationship between BGD and financial performance has the coefficient of -0.865, t-value of -2.13 and a pvalue of 0.034 which is negative and statistically significant at 5%. By implication, this means that COVID 19 has a moderating effect on the relationship between BGD and financial performance of listed industrial goods firms in Nigeria.

Previous studies in this field provide conflicting results on the relationship between BGD and financial performance of firms. For instance, the study of Ntim (2015), found a positive significant relationship between BGD and firms' financial performance. While the study of Sabo (2018), found no relationship between BGD and financial performance of firms. Hence, this mixed findings in results of the prior researchers in this field necessitated moderation.

From the result it was revealed that COVID 19 negatively influence the efficiency and effectiveness of the board on the financial performance of the listed industrial goods firms in Nigeria within the period of the study.

Moderating effect of COVID 19 on the Relationship Between Board Meeting Frequency and Financial Performance

The regression result in table 4. shows that the moderating effect of COVID 19 on the relationship between BMF and financial performance has the coefficient of -1.159, t-value of -3.09 and a p-value of 0.002 which is negative and statistically significant at 1%. By implication, this means that COVID 19 has a moderating effect on the relationship between BMF and financial performance of listed industrial goods firms in Nigeria, also this relationship depict decrease in the financial performance of listed industrial goods firms in Nigeria within the period of the study.

Previous studies in this field provide conflicting results between the relationship between BMF and financial performance of listed firms. For instance, the works of Damilola et al (2018), Le et al. (2018), found a positive significant relationship between BMF and financial performance. While the work of Pompei (2022), found no relationship between BMF and financial performance of listed firms. These varied results in works of the extant researchers in this area called for moderation. From the result it was revealed that COVID 19 negatively influence the efficiency and effectiveness of the board on the

financial performance of the listed industrial goods firms in Nigeria within the period of the study.

Moderating effect of COVID 19 on the relationship between board risk committee and financial performance

The regression result in table 4. shows that the moderating effect of COVID 19 on the relationship between BRC and financial performance has the coefficient of -1.424, t-value of -4.15 and a pvalue of 0.000 which is negative and statistically significant at 1%. By implication, this means that COVID 19 has a moderating effect on the relationship between BRC and financial performance of listed industrial goods firms in Nigeria.

Previous studies in this field provide conflicting results between the relationship between BRC and financial performance of firms. For instance, the works of Nkechi and Andrew (2022), Raymond, et al, (2019), found significant relationship between BRC and financial performance of firms. Whereas the study of Ibrahim, et al, (2020), found no relationship between BRC and financial performance of firms. This mixed findings in results of the prior researchers in this field necessitated moderation. From the result it was revealed that COVID 19 negatively influence the efficiency and effectiveness of the board on the financial performance of the listed industrial goods firms in Nigeria within the period of the study.

5. Conclusion and Recommendations

In view of the results and findings, the study concludes as thus:

That board gender, board risk committee and COVID 19 have significant effect on the financial performance of listed industrial goods firms in Nigeria. This means that increase in board gender, board risk committee and COVID 19 will influence the financial performance of listed industrial goods firms in Nigeria. Thus, the study concluded that, the financial performance of listed industrial goods firms in Nigeria is significantly influence by board gender, board risk committee and COVID 19.

Board size and board meeting frequency have no significant impact on the financial performance of listed industrial goods firms in Nigeria. Therefore, the study concluded that board size and board meeting frequency do not influence the financial performance of listed industrial goods firms in Nigeria.

Additionally, the study established that COVID 19 has a negative and significant moderating role on the relationship between board size, board gender, board meeting frequency, board risk committee and financial performance of listed industrial goods firms in Nigeria. Hence, the study concluded that COVID 19 moderate the relationship between these board attributes and financial performance of listed industrial goods firms in Nigeria.

From the findings and conclusions of the research, the study recommends that:

i. The management of the listed industrial goods firms in Nigeria should prioritize board diversity, including gender diversity, to leverage the benefits of diverse board. This can be achieved through merit- based appointments and creativity on inclusive board culture. This recommendation is as a result of the positive and significant effect of board gender on the financial performance of listed industrial goods firms in Nigeria.
ii. Also, firms without risk committee should consider establishing a risk committee due to the fact that risk committee help in mitigating the risk associated with business operations. This recommendation is due to the positive and significant

effect of board risk committee on the financial performance of listed industrial goods firms in Nigeria.

iii. Lastly, the management of the listed industrial goods firms in Nigeria should put in place measures that will help to curtail the negative effect of pandemic like COVID 19 in the future so as to maintain a reasonable level of their financial performance. This recommendation is made as a result of the negative and significant effect of the COVID 19 pandemic on the effectiveness of the board and the financial performance of the firms within the period of the study.

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