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Effect of Board Characteristics on Financial Performance of Listed Healthcare Firms in Nigeria

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Abstract
Purpose: This study was conducted to investigate the relationship between board characteristics and the financial performance of listed healthcare firms in Nigeria.
Research methodology: The study, which covered a seven-year period from 2015-2021, made use of secondary data sourced from published annual reports and accounts of five purposively selected companies on the Nigerian Stock Exchange. Data analysis was done by means of descriptive statistics, a correlation matrix, and some diagnostic tests using STATA 13.
Results: The findings show that board characteristics consisting of board size, board independence, board gender diversity, and board meetings have a negative, non-significant relationship with performance. This study concludes that board size should be increased, the number of non-executive members of the board should be increased with members having vast knowledge and competency in governance, the number of women on the board should be increased, and frequent and necessary board meetings should be encouraged and possibly regulated in order not to create room for waste of resources and time.
Limitations: The study's main limitations are that it did not use other financial-based measurements for financial performance, used incomplete data, and used a small sample size.
Contribution: The results of the study, based on the findings, will assist firms in the recommendation of the board size number and how its effectiveness should be increased and sustained. The study also contributes to other extant literature, as not many studies have been conducted in this area of the healthcare firms listed on the Nigerian Stock Exchange.
Keywords: *Board independence, Board meeting frequency, Board gender diversity, Healthcare firms, Financial performance*
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1. Introduction

Board characteristics are important mechanisms for monitoring, controlling, and advising the management of firms and corporations running business affairs for the benefit of shareholders and the long-term success of the firm or corporation. Board distinctiveness is particularly important to healthcare firms in Nigeria because of the records of financial malfeasance, corporate fraudulent activities, and dubious business practices that have an adverse effect on investor confidence. In accordance with agency theory, the separation of business ownership and control often leads to a disagreement in the drive for managerial benefits as opposed to owner interests (Jensen & Meckling,

1976), and monitoring management decisions becomes necessary for the members of the board of directors in order to protect shareholders' interests (Fama & Jensen, 1983). Therefore, on behalf of shareholders, the board of directors' effectiveness in monitoring and advising corporate management, providing supervision, and exercising control depend on a number of factors, which include but are not limited to the responsibility of the board members, the presence of an independent non-executive director on the board, the frequency of board meetings, the presence of women on the board, and their consequent effect on firm performance.

Rosenstein and Wyatt (1990) observed that board characteristics are very important because of the plethora of corporate financial failures and fraudulent business practices that have had negative effects on investor confidence. With the failure of Enron in 2001 and WorldCom in 2002 in the United States, which also was ongoing with the disaster in the Nigerian financial sector, and recently in the year 2020, Wirecard's failure due to fraudulent activities among others, the subject of corporate governance has been brought to the forefront with various regulations and reforms (Benvolio & Ironkwe, 2022). Some scholars argued that weak corporate governance was one of the reasons that led to the collapse of many businesses and financial companies around the world (Sanni, Enebi, & Kanwai, 2020). Therefore, the need arises to look at the effect of board characteristics on the financial performance of the listed healthcare firms in Nigeria, considering how significant healthcare firms are to the Nigerian economy and the enormity of the essential services they offer.

The number of board members and the composition of the board fulfill a fundamental responsibility toward reaching the mandate of the board of directors. In achieving this, importance should be placed on how effective and proficient the board's capabilities are and how they contribute to the growth and profitability of the firm. The capability of board members to effectively control and monitor the management and mitigate agency problems is to a great extent dependent on board independence (Kalyanaraman & Altuwaijri, 2016). Board composition and its associated link with firm performance have attracted great attention around the world, and the Nigerian financial situation is deemed more critical owing to the fact that developing nations are often characterized by weak corporate governance institutions and almost non-effective policies, especially now that foreign direct investments are sought to increase and develop significant capacity for investing in Nigerian healthcare firms.

1.1 Statement of the problem

Several studies reveal that not many authors, especially Nigerian authors, have been able to show the prevailing use of financial-based measures of firm performance, which include but are not limited to ROA, EPS, ROE, etc., and market-based measures (mostly Tobin's Q) in relation to the board of directors' characteristics of the healthcare firms listed in Nigeria. To close up these gaps, this study evaluates, ascertains, measures, and also identifies the effect of the selected board of director characteristics on firm financial performance measures (ROA) of listed healthcare firms in Nigeria. The main objective of the study is to examine the effect of board characteristics on the firm financial performance of listed healthcare firms in Nigeria, and the specific objectives are: (i) evaluate the effect of board size on the financial performance of listed healthcare firms in Nigeria; (ii) determine the effect of board independence on the financial performance of listed healthcare firms in Nigeria; (iii) identify the effect of board gender diversity on the financial performance of listed healthcare firms in Nigeria; and (iv) ascertain the effect of board meetings on the financial performance of listed healthcare firms in Nigeria.

1.2 Research Hypotheses

The following hypotheses are formulated in null form for the study:

Ho_1: Board size has no significant effect on the financial performance of listed healthcare firms in Nigeria.

Ho_2: Board independence has no significant effect on the financial performance of listed healthcare firms in Nigeria.

Ho_3: Board gender diversity has no significant effect on the financial performance of listed healthcare firms in Nigeria.

H_{O4}: Board meetings have no significant effect on the financial performance of listed healthcare firms in Nigeria.

1.3 Conceptual Framework

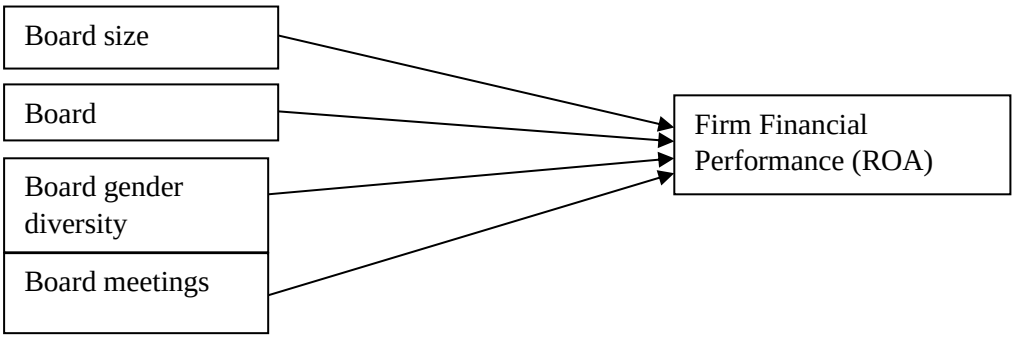

Figure 1: The Framework of the Study

1.3.1 Board Characteristics

Board characteristics refer to the governing apparatus that guides corporate firm governance, given their direct link to managers and shareholders (Hafez, 2017). Board characteristics increase the prospect that owners of funds would be able to monitor, control, and supervise the activities of the managers either through voting on crucial matters or through the board of directors, which would safeguard shareholders' investment (Ibrahim, Che-Ahmad, Johl, & Rahman, 2016). In this study, board characteristics that were considered included board size, board independence, board gender diversity, and board meetings.

1.3.2 Board Size

The total number of executive and non-executive directors on the board of the organization is referred to as the board size. The idea of the board is derived from the characteristics or incentives variable, which is significant in advising, overseeing, and managing management and can be seen as a link between shareholders and corporate management (McIntyre, Murphy, & Mitchell, 2007). Knowing that boards are made up of a collection of people who combine their skills and knowledge to represent the pool of money their company contributes to carrying out governance functions can help you understand the board's responsibilities (Westphal & Milton, 2000). The board of directors refers to the body responsible for making decisions at the company, and it has the duty to protect and maximize shareholders' wealth, manage the firm financial performance, and evaluate management effectiveness. For the purpose of this study, board size is the total number of directors on the boards of firms in any given year.

1.3.3 Board Independence

Board independence refers to a state where all or a portion of a board of directors have no affiliation with the company other than that of being directors. Directors are typically chosen because they have a wide range of expertise and the necessary skills. There are assertions that businesses with a significant proportion of outside directors on their boards perform better and make better judgments than boards with a majority of insiders. According to Fama and Jensen (1983), non-executive directors can be seen as having professional skills because they have significant roles to play in the successful resolution of agency issues in a company. As a result, their presence on the board can result in more efficient and effective decision-making. Thus, according to Huang (2010), independent directors primarily serve as the internal oversight mechanism that makes sure businesses are appropriately managed by corporate management while also improving business performance.

1.3.4 Board Gender Diversity

A crucial component of corporate governance is the proportion of female board members (Carter, Simkins, & Simpson, 2003). Board diversity improves the firm's long-term financial performance by increasing ingenuity in decision-making processes. Due to their unique skill sets, life experiences, and

complementary knowledge, the women directors who sit on the boards of these companies contribute to diversity by improving the information that the board provides to the management. Women directors typically avoid risk and weigh the benefits of various stakeholders before making decisions (Onyekwere & Babangida, 2022). Diverse female directors from various backgrounds also give the organization access to crucial resources, increasing the organization's total capacity. According to Smith, Smith, and Verner (2006), having a properly balanced representation of men and women on the board improves the board's ability to precisely and objectively oversee and supervise management. A larger board offers more options for gender diversity on the board and for the effective participation of the women board members. For the purposes of this study, the percentage of female directors present on the boards of the studied healthcare organizations will be referred to as board gender diversity.

1.3.5 Board Meetings

Board meetings are utilized as an important board attribute and a gauge of the frequency of board activity (Vafeas, 1999). Directors of boards with frequent and regular meetings are more likely to carry out their responsibilities in line with shareholders' interests. While board meetings give directors additional time to debate the company's mission, establish strategy, and oversee management, they also come with a variety of expenditures, including managerial time, travel expenses, and directors' fees (Vafeas, 1999). Firms' boards that meet frequently for structured, purposeful meetings and make decisions and choices always get results in a solid financial performance mandate, an increase in capacity for extensive and varied consultations, and effective management expansion. Board meetings promote board effectiveness, result in agreements amongst board members, and are almost always used to provide crucial information to all members.

1.3.6 Firm Performance

Financial performance is the measurement of the company's business activities and results in financial terms. Causholli, De Martinis, Hay, and Knechel (2010) defined financial performance as how capable a firm is of using assets from its business to generate revenues. Obonyo (2017) also considered financial performance as an appraisal of the profitability and financial strength of any business. For the purpose of this study, "firm performance" can be defined as a measure of the degree to which a firm uses its assets to generate revenues and sustain a competitive market value.

2. Literature Review

2.1 Theoretical Review

2.1.1 Agency Theory

The link between the principals and the agents is explained by the agency theory. The background for the use of agency theory is the separation of ownership and management in modern businesses. Modern businesses are owned by a variety of shareholders who are not actively involved in the day-to-day operations of their businesses. In these situations, a representative is chosen to oversee the business' regular activities. The possibility of conflicts of interest between agents and principals is increased by the separation of ownership and control, which results in costs for resolving these conflicts (Jensen & Meckling, 1976). The most important tenet of agency theory is that managers typically pursue their own interests and are driven by personal gain, not by the interests of the company. Therefore, ensuring that managers follow the interests of shareholders as well as their own is the primary challenge suggested by agency theory. The study is anchored on the agency theory because the monitoring roles of the board of directors are occasioned by the separation of ownership and control that typifies corporations (that is, the agency relationship).

2.2 Empirical Review

Nwankwo and Uguru (2022), in their study on the impact of board characteristics on the profitability of listed service firms in Nigeria, examined the impact of board characteristics on the profitability of listed service firms. It concentrated on figuring out how board gender, the board size, and board composition affected the profitability of listed service firms in Nigeria. The ex-post facto methodology was utilized in the study to gather secondary data from the annual reports and financial statements of a chosen group of service companies listed on the Nigerian Stock Exchange (NSE) over

a ten-year period (2011 to 2020). The Generalized Method of Moment (GMM) analysis was applied to the data using ordinary least square panel regression analysis. The study found that board characteristics have strong effects on the listed service firms' profitability. In particular, board gender has a significant negative impact on the profitability of listed service firms, whereas board size and board composition have considerable significant positive effects. According to the report, the boards of the companies should grow as much as possible while still adhering to the minimum of five and maximum of fifteen member requirements of the corporate governance code of the Nigeria Securities and Exchange Commission. If they are qualified and willing to serve, both genders (men and women) should be selected for the board of directors. However, while choosing the final board size, it is always advisable to take into account the best board size in relation to the firm's operational scale and regulatory requirements.

Musah and Adutwumwaa (2021), in their study on the effect of corporate governance on the financial performance of rural banks in Ghana, examined the influence of various corporate governance structures such as board size, board independence, board gender diversity, and CEO duality on the financial performance of rural banks in Ghana. The study collected secondary data from the annual reports of 30 rural banks for a 10 –year period from 2010 to 2019, which was then analyzed using descriptive statistics, a correlation matrix, and regression analysis. Their result shows a positive but statistically insignificant association between CEO duality and ROA and ROE, and a positive association between board size and ROA and ROE, as ROA was statistically insignificant. Also, board independence has a significant association with performance, and gender diversity has a negative statistically significant association with ROA and ROE. Their study recommended that rural banks should separate the CEO and board Chairperson and that rural banks have a significant proportion of their board members as non-executive directors.

Simionescu, Gherghina, Tawil, and Sheikha (2021), in their study, "Does board gender diversity affect firm performance?" investigated the effect of board gender diversity on firms' using a sample of Standard & Poor's 500 indexes seventy-one (71) companies from the information technology sector for the period covering 2009 to 2020. Data were analyzed using descriptive statistics, while pooled ordinary least squares (OLS) were used to test hypotheses after diagnostic tests. Through panel data, the findings show a positive effect of the number and percentage of women on corporate boards on both measures of company performance (ROA and PER). The results show no relationship between board gender diversity and ROA but a favorable effect of the number and percentage of women on board on PER after analyzing the fixed effects and random effects. In light of their findings, they proposed that governments and market regulators set gender quotas for women on boards in order to promote productivity, creativity, and innovation.

Fakile and Adigbole (2019), in their study on the effect of board characteristics on the financial performance of quoted Information Communication and Technology companies in Nigeria, argued that an effective board of directors is said to be the solution to all of an organization's issues. For a period of five (5) years, from 2013 to 2017, their study empirically studied the impact of board features on the financial performance of listed Information, Communication, and Technology (ICT) companies in Nigeria. Multiple regression, correlation, and descriptive statistics to analyze the data and were used to examine the association between board qualities and financial success based on the seven (7) listed ICT companies. Only board independence, it was found, is significantly and favorably related to return on equity. Board size and gender diversity were also found to be insignificant and negatively related to firm performance. The study concludes that board independence has a significant impact on the financial performance of quoted information communication and technology companies in Nigeria. The study recommended that a strong and mandatory corporate governance mechanism should be put in place to ensure that the board of directors consists mostly of members that are independent of the firm, both directly and indirectly. Gambo, Bello, and Rimamshung (2018), in their study on the effect of board size, board composition, and board meetings on the financial performance of listed consumer goods in Nigeria examined the effect of board meetings, the board size, and board composition on the financial performance of publicly traded consumer goods in Nigeria, throughout the ten-year period from 2006 to 2015. The study's research design and sampling method are the expo

factor research design and the purposive sampling methodology (filter). The study's target population consists of ten (10) out of Nigeria's twenty (20) publicly traded consumer goods companies. Regression, correlation, and descriptive statistics were used to analyze the data. The findings of the study show that board size is negatively significant, board composition is positively significant, and board meetings are negatively insignificant. They concluded that smaller boards size are more effective than larger boards and that a good proportion of board composition is a good factor to enhance the ROA of listed consumer goods companies in Nigeria, and frequent board meetings have a negative effect on the ROA of listed consumer goods companies in Nigeria because they limit the chances for external directors to conduct meaningful oversight over management. The study recommended that a lesser board size should be used in listed consumer goods companies in Nigeria to improve their return on asset (ROA), listed consumer goods companies should continue to maintain a good percentage of independent directors and should discourage unnecessary board meetings to allow the board of directors perform other oversight function on the management so as to enhance the financial performance of listed consumer goods companies in Nigeria.

Kutum (2015), in his study on board characteristics and business performance: evidence from Palestine, examined the connection between board features and return on assets. Regression analysis was used to analyze the data as the study examined businesses listed on the Palestine Exchange. Findings from the study show that the study discovered only one association, which was between the age of the organization/year of incorporation and the business's Return on Assets, after examining the independence of the board, board meetings, the board size, board expertise, company size, and year of incorporation. The study came to the conclusion that a firm's ability to analyze the genuine link with Return on Assets will depend on a number of factors, including board independence, board meetings, the board size, board expertise, company size, and year of incorporation.

2.3 Gap in Literature

Major parts of the related study made by Nigerian authors on the relationship between board characteristics and firm financial performance have for the most part focused on manufacturing companies, the Information Communication Technology sectors and the financial/banking sector (Aifuwa & Saidu, 2020; Benvolio & Ironkwe, 2022; Ilaboya & Ashafoke, 2017; Onyekwere & Babangida, 2022; Owolabi, Banisaye, & Efuntade, 2021), leaving out the healthcare sector and its importance on the Nigerian economy. By examining the correlations between board features (board size, board independence, board gender diversity, and board meetings) and the financial performance of listed healthcare companies in Nigeria using ROA as an indicator, this study seeks to fill a vacuum in the literature.

3. Research Methodology

The research design adopted for this study is the ex-post facto research design, while the purposive sampling technique was used to ensure that companies with adequate data within the selected years were selected in order to have a balanced panel. The study used only listed healthcare companies that met the following criteria: the availability of a consistent data set over the period, and that the companies were not involved in any mergers during the study period. The hypotheses used data obtained from historical data in the annual reports and accounts of the listed healthcare firms. The study utilizes secondary data from companies' annual reports, and the Nigeria Stock Exchange Market Fact Book, as they are more reliable, The study period is between 2015 and 2021. The dependent variable in the study is financial performance proxied by Return on Assets, while the independent variable is board characteristics proxied by board size, board independence, board gender diversity, and board meetings. The population of the study is seven (7) healthcare firms listed on the Nigerian Stock Exchange as of 2021, which includes: Ekocorp Plc., Fidson Healthcare Plc., GlaxoSmithKline Consumer Nig. Plc., May and Baker Nig. Plc., Morrison Industries Plc., Neimeth International Plc., Pharmadeko Plc., However two (2) of the companies, Ekocorp Plc. and Pharmadeko Plc., were excluded owing to deficient data for the seven-year period, out of which only five companies were chosen.

The panel regression model (Random Effect) was used with the aid of Stata 13 to determine and analyze the effect of board characteristics on the financial performance of listed healthcare companies in terms of profitability. The independent variables considered are proxied by board size, board independence, board gender diversity, and board meetings, while the dependent variable is proxied by Return on Assets (ROA). The study involves multiple independent variables across sections, so the Hausman test was used to select the most suitable model between fixed and random effects to determine this relationship (Hakim & Shimko, 1995).

	Acronyms	**Measurement**	**Authority**
Performance	ROA	Net profit divided by total assets	Causholli et al. (2010); Thomsen and Pedersen (2000); Abakah (2020)
Board size	BDSZ	Total number of board members	McIntyre et al. (2007); Onyali and Okerekeoti (2018)
Board Independence	BIND	Divide the total number of non-executive directors by the total number of directors on the board	Fama and Jensen (1983); Ogbechie & Koufopoulos, 2010
Board Gender Diversity	BGDV	Divide the number of women by the total number of board members	Carter et al. (2003)
Board Meetings	BMT	measured the summation of the proportion of the meeting's attendance by each member to the total meetings held by the firm annually	Vafeas (1999)

The empirical result is thus shown below based on the following regression model:

$$\mathrm{ROA_{it}} = \beta_0 + \beta_1 \mathrm{BDSZ_{it}} + \beta_2 \mathrm{BIND_{it}} + \beta_3 \mathrm{BGDV_{it}} + \beta_4 \mathrm{BMT_{it}} + \mathrm{e_{it}}$$

β = constant
β_1, β_2, β_3 and β_4= estimated parameters
ROA= Return on Asset (Financial Performance proxy)
BDSZ = Board Size
BIND= Board independence
BGDV= Board gender diversity
BMT= Board meeting
i = represents the firm
t = represents the time/year
e = the error term

4. Results and Discussions

Descriptive statistics, correlation matrices, diagnostic tests such as the test for multicollinearity, the test for heteroskedasticity, and the test for normality, the Hausman specification test, and regression analysis were used to display and analyze the data that were gathered for the study.

4.1 Descriptive Statistics

The table below shows the descriptive statistics of the model, which summarizes the mean, the minimum and maximum values, and the standard deviation of the variables.

Table 1. Summary of Descriptive Statistics

	Obs	Mean	Std. Dev	Min	Max
ROA	35	.17741	.1619	.01	.7
BSZE	35	9.0285	1.706	5	13
BIND	35	.4542	.1291	.3	.7
BGDV	35	.2228	.0877	.1	.4
BMT	35	3.5142	.8530	2	5

Source: Output from Stata 13

Table 1 above presents the descriptive statistics of the variables for the listed Nigerian healthcare companies. ROA has a mean value of .1774, indicating that the sampled firms performed reasonably well. The minimum and maximum values of .01 and .7 indicate that performance during the period was low since it recorded a higher standard deviation of .1691.

The table also shows that board size has a minimum and maximum value of 5 and 13 respectively with a mean value of 9.0285 and a standard deviation of 1.7061, which reveals that board size varies widely across sample firms.

The results show that board independence indicates a mean of .4548 which is 45.48% of total board members with a minimum and maximum value of .3 and .7, respectively. This indicates that the level of independence of the boards of the sampled firms is considerably low.

Furthermore, the mean value of board gender diversity is .2228, which is about 22.23%, with a standard deviation of .087 and a minimum and maximum value of .1 and .4, respectively. This indicates that the number of women on the boards of the sampled firms was generally low. The table also shows that board meetings with a standard deviation of .8530 and a mean value of 3.514, with a minimum and maximum value of 2 and 5, respectively, indicate that the sampled firms' board meeting frequency was generally low.

4.2 Correlation Matrix

Table 2 below shows the test for multicollinearity and relationships between the different variables in the study, as well as the findings of the correlation analysis of dependent and independent variables.

Table 2. Correlation matrix

	ROA	BSZE	BIND	BGDV	BMT
ROA	1.0000				
BSZE	0.2462	1.0000			
BIND	-0.3757	-0.5813	1.0000		
BGDV	-0.3042	-0.0831	-0.0089	1.0000	
BMT	-0.3563	-0.2529	-0.2464	0.5850	1.0000

Source: Output from Stata 13

The table above shows a positive, non-significant relationship between ROA and board size, from the coefficient of 0.2462, implying that as board size increases, firm performance (ROA) increases. The relationship between ROA and board independence, board gender diversity, and board meetings, with coefficients of -0.3042, -0.3757, and -0.3563, respectively, shows a negative, non-significant relationship, indicating that as board independence, board gender diversity, and board meetings increase, firm performance reduces. The correlation analysis demonstrates that the multicollinearity assumption has not been broken since factors are less than the benchmark of 0.8, in line with Hair, Anderson, Tatham, and Black (1998).

4.3 Diagnostic Test

4.3.1 Variance Inflation Factor

The table below presents the result of another collinearity test using the variance inflation factor which would imply the presence of multicollinearity if the VIF is higher than 10.

Table 3. Variance Inflation Factors

Variable	VIF	1/VIF
BSZE	1.54	0.6486
BIND	1.59	0.6305
BGDV	1.58	0.6322
BMT	1.70	0.5893

Source: Output from Stata 13

From Table 3 above, the Variance Inflation Factor (VIF) was carried out to test for multicollinearity issues. As observed, tolerance values are consistently less than 1, and the VIF values are less than 10. This shows the absence of multicollinearity among the independent variables.

4.3.2 Test for Heteroskedasticity

The test was conducted to show the stability of the residual variance in the model using the Breusch-Pagan/ Cook test for heteroskedasticity.

Table 4. Test for Heteroskedasticity

Breusch – Pagan / Cook – Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of ROA
Chi^2 (1) = 7.35
Prob > chi^2 = 0.0067

Source: Output from Stata 13

Table 4 above shows the Hettest test result for heteroskedasticity with a p-value of 0.0067, indicating that the null hypothesis, which states that there is no constant variance, is rejected.

4.3.3 Test for Normality of Data

The test was conducted to determine whether a data set is symmetrical with a p-value higher than 0.05, or asymmetrical (abnormally) distributed with a p-value lower than 0.05 around the expected mean.

Table 5. Test for Normality

Variable	Obs	W	V	z	Prob>z
ROA	35	0.8316	6.009	3.743	0.0000
BSZE	35	0.9875	0.444	-1.693	0.9547
BIND	35	0.9440	1.997	1.443	0.0744
BGDV	35	0.9739	0.931	-0.150	0.5595
BMT	35	0.9573	1.523	0.879	0.1898

Source: Output from Stata 13

Table 5 above presents the result from the Shapiro-Wilk data normality test, which determines whether a data set is symmetrical (normal) with p-values higher than 0.05 or asymmetrical (abnormal) with a p-value lower than 0.05. It further reveals that ROA with a p-value of 0.00009 is lower than 0.05. This shows that it is asymmetrical as it significantly deviates from a normal distribution, while board size with a p-value of 0.9547, board independence with a p-value of 0.0744, board gender diversity with a p-value of 0.5595, and board meetings with a p-value of 0.1898, all greater than 0.05 and indicates a normal distribution.

4.3.4 Hausman Specification Test

Table 6. Hausman Specification Test

Chi^2 (4)	4.86
Prob>chi^2	0.3023

Source: Output from Stata 13

From table 6 above, the Hausman test statistics p-value is 30.2% (0.3023), as shown because it exceeds the 5% (0.05) specified level of significance, which suggests that the p-value is not significant. As a result, the null hypothesis was not rejected. As a result, it may be said that the random effect model is ideal for prediction.

4.3.5 Regression Analysis

Table 7. Regression Result

Variable	Coefficient	t-statistics	Prob.
BSZE	-.0010	-0.06	0.953
BIND	-.4358	-1.75	0.080
BGDV	-.4167	-1.13	0.257
BMT	-.0267	-0.68	0.494
_CONS	.5734	2.06	0.039
R^2	0.2475		
Wald chi^2	9.87		
Prob>chi^2	0.042		

Source: Output from Stata 13.

From the table above, findings show that the R^2 of the model is 0.2475, indicating that 24.7% of the changes in firm financial performance (ROA) of listed healthcare firms can be explained by the board characteristics while the remaining 75.3% of the variations can be explained by other variables not considered. From the results, it can be observed that none of the independent variables are statistically significant. The probability of F-statistics is 0.0428, which is less than 0.05, indicating that the model is fit and appropriate.

4.3.6 Test of Hypotheses

The results revealed that the board size has a negative effect on the company's financial performance but is not statistically significant, with a coefficient of the regression of -.00109, a t-statistic of -0.06, and a p-value of 0.953 being larger than 0.05. Even if the outcome is not statistically significant, a negative effect demonstrates that board size lowers a firm financial performance. From the coefficients of the regression as shown in table 8, board independence is -.43856, the t-statistics of -1.75, and the p-value is 0.080, which are higher than 0.05. This shows a negative association between board independence and financial performance.

The effect of board gender diversity is negatively insignificant to financial performance. The coefficient is -.4167 with a t-statistic of –1.13 and a p-value of 0.257, which is higher than 0.05, and this indicates that the presence of women on the board reduces the financial performance of listed healthcare firms.

The result on board meetings is negatively non-significant to financial performance, with a coefficient of -0.02677, a t-statistic of -0.68, and a p-value of 0.494, which is higher than 0.05, indicating that board meeting frequency reduces the financial performance of listed Healthcare firms.

Table 8. Summary of Hypotheses Test

Hypotheses		Decision
H_{O1} Board size has no significant effect on firm performance.	Negative, non-significant	Accept null

H_{O2} Board independence has no significant effect on firm performance.	Negative, non-significant	Accept null
H_{O3} Board gender diversity has no significant effect on firm performance.	Negative, non-significant	Accept null
H_{O4} Board meetings have no significant effect on firm performance.	Negative, non-significant	Accept null

Source: Researcher's compilation

4.4 Discussion of Findings

The results of this study show a negative and non-significant association between board size and financial performance. A negative relationship indicates that financial performance declines as the size of the board increases. The results of Okiro (2006), who discovered no connection between board size and financial performance, are in agreement with those of this study. This contradicts the conclusions of Fama and Jensen (1983) and Yermack (1996). As a result, the study accepts the null hypothesis that board size has no discernible impact on healthcare organizations' financial performance. The results of this study show that board independence has a negative and statistically insignificant impact on financial success. A negative relationship indicates that the board's independence has not enhanced financial success according to Baysinger and Butler (1985), Rosenstein and Wyatt (1990). Although Bhagat and Black (1999), Yermack (1996), and Hermalin and Weisbach (1991) did not find a connection between board independence and financial performance, they did find a negative correlation. Because not all independent directors are actually independent, there may be a negative correlation between board independence and listed company performance. Another explanation would be that the corporate governance code of conduct does not apply to the appointment procedure or the role of independent directors in Nigeria. Another explanation could be that insiders are the best directors since they know the company better than outsiders and must thus rely on them when making decisions. The research of Abdullah, Mohamad, and Mokhtar (2011) supports this finding of a negative correlation between board independence and listed firm performance. Board gender diversity (BGD) was also found to be insignificant and negatively related to firm performance, implying that increasing gender diversity will result in a decrease in Return on Assets (ROA). Thus, the study did not reject the null hypothesis that board gender diversity has no significant effect on the financial performance of healthcare. This finding is in agreement with the finding of Letting (2011), who found that there was no significant relationship between gender diversity and financial performance, and that (Rafinda, Rafinda, Witiastuti, Suroso, & Trinugroho, 2018). The non-significant negative effect of gender diversity on financial performance is in agreement with the result of Owolabi et al. (2021), who found the same non-significant result using a sample of Nigerian manufacturing firms in their study. This finding, however, is inconsistent with that of Priya and Nimalathasan (2013) and of Assenga, Aly, and Hussainey (2018), who maintained that gender diversity has an effect on financial performance.

Board meeting which has a negatively non-significant coefficient indicate that board meetings lead to a fall in the performance of listed healthcare companies in Nigeria. The result shows evidence to accept the null hypothesis that firm board meetings have no significant impact on the ROA of healthcare companies listed in Nigeria. This finding is consistent with Jensen (1993) who stated that "daily tasks continue to consume the majority of the board's meeting time, limiting the chances for external directors to conduct meaningful oversight over management" and that the board should not be overly active because board activity represents a reaction to the adverse performance. The finding is also consistent with empirical studies that found a negative impact of board meetings on financial performance, such as Danoshana and Ravivathani (2019) and García-Sánchez (2010).

5. Conclusion

Based on the results of the data analysis and discussion, the study concludes that the effect of board characteristics on the firm performance of listed healthcare firms in Nigeria is more pronounced. The relationship between board size, board independence, board gender diversity, board meetings, and the financial performance of firms is negatively non-significant.

Based on the findings, this study recommends that board size and effectiveness should be increased and sustained. Non-executive members of boards should be increased across boards based on competencies, experience, and on a sound knowledge of governance principles. Increased women's inclusion and participation on boards should be encouraged to increase decision-making. The frequency of the board meetings should be increased so that meaningful and resourceful ideas and the oversight of the board over management will enhance the ROA of listed healthcare companies.

5.1 Limitations

The study has the following limitations: a includes smaller sample size; consideration of only firms in the healthcare industry; the use of only Return of Asset (ROA) as a proxy for firm performance; and incomplete data from annual returns of firms.

5.2 Further Researches

Further research can be carried out by considering the use of Return on Equity, Earnings per Share, etc as a financial-based measure of performance and the use of market-based measures of firm performance as well.

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