Effect of Board Characteristics on Stock Returns of Listed Consumer Goods Companies in Nigeria

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Abstract

A corporate firm's constituted board is expected to be a reliable internal tool to ensure good firm-performance for improved quality earnings. This study assessed the effect of board characteristics on stock-returns of quoted consumer-goods companies in Nigeria. Independent variables used were board-independence, board-size and board-financial-expertise, while the dependent variable was 'stock-returns'. The study adopted ex-post-facto research method; and used a purposive sample-size of sixteen (16) firms selected from a population of the twenty-three (23) consumer-goods companies quoted on the Nigerian Exchange Group (NGX) as at 2020. From the annual financial reports of the selected firms, data were extracted for ten (10) years (2012–2021); and analyses done using multiple regression technique. The study's model had good-fit and diagnostic tests revealed analytical robustness and reliable results. The pooled OLS regression result showed that board-characteristics could predict stock returns' behavior in the consumer-goods sector, since board-independence and board-financial-expertise had positive significant effect on stock-returns, though board-size revealed insignificant effect. Recommendations are: more independent directors should be encouraged on the board, in an attempt to improving monitoring activities that will curb boisterous management behavior; with anticipated possibility of good dividend payments to shareholders; furthermore, the firms' Board of Directors should focus on enhancing capacity to combat discretionary behavior of management activities—inclusion of at least three accounting/financial experts might boost this campaign that will yield improved earnings quality.

Keywords*: Consumer-goods, Board independence, Board size, Financial expertise, Stock Returns, Pooled OLS regression.*

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Background to the Study

A plethora of literature identifies the part played by a board in a corporate firm towards realising the firm's overall goal; hence the firm's Board composition is perceived to be an important determinant when it comes to the study on stock returns. This is because the Board is one of the most reliable tools within the organization that can be used to predict the performance of firm and its reporting capabilities. The Board acts as a governing body for the firm, with the primary goal of protecting the assets of the shareholders, and also by ensuring that the firm's 'management acts on their behalf and that the shareholders get a good return on their investment (ROI) in the company'. This means that a board has unique characteristics or attributes and variables that play a dynamic role in monitoring and controlling managers and thus forms a bridge between company management and shareholders (see McIntyre *et al,* 2007; Bonn *et al.*, 2004; Kiel and Nicholson, 2003). These characteristics make up the board composition—common measures of board composition include the ratio of Independent Non-Executive Directors and Board size (Rashid, 2011), others being Gender, diversity, Age diversity, Board financial expertise, and many more. *Underscoring* this point, Fama and Jensen (1983) specifically referred to an independent board where non-executive directors are able to act as mediators in disputes that occur between managers, oversee policies, and provide advice to management, and by so doing execute a monitoring function in the creation of a firm's good corporate governance. Jiraporn and Ning (2006) reiterated that the strength of the board of directors is indicative of the composition of the board of directors who are independent. More independent board composition can result in enhanced decision making through increased information flows, although this may entail a cost (Sanda, Mukaila and Garba, 2011).

Board size is an attribute that has received a lot of attention by researchers. The agency theory states that Board size is one of the variables that can predict if corporate governance can prevent the tendency of managers to behave in an opportunistic manner (Eisenhardt, 1989). Board financial expertise is another characteristic judged as a good predictor of stock returns variation, when a board has in its composition a member who is literate in financial matters. This means, a board with financial expertise ultimately influences the board's decisions, including dividend policy. Moreso, having financial expertise on the board will keep them from being accused of failure in their watchdog role and will better serve the shareholders' interests.

The present study was an attempt to address multiple gaps through the principal objective of assessing the effect of board characteristics on stock returns of listed consumer goods companies in Nigeria, so as to make important contribution. This was achievable through the following specific objectives: (i) examining the effect of board independence on stock returns of quoted consumer goods companies in Nigeria; (ii) determining the effect of board size on stock returns of quoted consumer goods companies in Nigeria; (iii) ascertaining the effect of board financial expertise on stock returns of quoted consumer goods companies in Nigeria. The specific objectives were transformed into the following hypotheses:

H_01 Board independence has no significant effect on stock returns of quoted consumer goods companies in Nigeria.

H_02 There is no significant effect of Board size on stock returns of quoted consumer goods companies in Nigeria.

H$_0$3   Board financial expertise has no significant effect on stock returns of quoted consumer goods companies in Nigeria.

Conceptualisation
Concept of Board Size
In a corporate setting, Board size indicates the total number of directors on a firm's board inclusive of Chief Executive Officer and Chairman for each accounting year—this will include outside directors, executive directors and non-executive directors, that combine to form the board—a collective body that should act in the best interest of shareholders, when there is the combination of executive and non-executive directors. Carpenter and Westphal (2001) affirmed that a board consists of a team of individuals, who combine their competencies and capabilities that collectively represent the pool of social capital for their firm that is contributed towards executing the governance function.

Debates over the board size have persisted over time. While others think a smaller board is more effective and preferred, others opined that there is credit in having a large board size. On one side, scholars (e.g. Jensen, 1993) argued for smaller boards on grounds of easy co-ordination, that will avoid social loafing and free-riding (Lipton and Lorsch, 1992) associated with big size. Evidently, as the size of the board increases, communication is impaired, and coordination problems manifest that can develop into possible factions and conflicts. Dozie (2003) thus argued on the merit that having a smaller board is "less encumbered with bureaucratic problems", and "more functional and able to provide better financial reporting oversight". Also "a smaller board is more efficient because it enhances fast decision-making and cannot be manipulated by management, and has an effective monitoring capacity (see Singh and Harianto, 1989).

There are also arguments in favour of large board size. One such argument supports that a larger board of directors can ensure that more non-executive directors can better supervise managers; also that a larger board of directors will include more professionals from different fields; this means there will be an embodiment of high-quality board from different backgrounds to improve better decision-making in the firm. Furthermore, Hermalin and Weishbach (2003), maintained that a "larger board improves the bargaining position of the board vis-à-vis the CEO" and thus, "make the board more effective in monitoring the management". Besides, a larger board will also make it easy to create committees to delegate specialised responsibilities. Dalton, Catherine, Alan and Jonathan (1999) posited that "a large board is overcrowded and hence does not give room for each member's input; it is also less organized and unable to reach a decisive conclusion on time". In consenting to this, John and Senbet (1998) asserted that " large boards are less effective and are easily controlled by the CEO and thus it becomes difficult to coordinate, process and tackle strategic problems of a company". Fama and Jensen (1983) however towed their line of argument in conformity with agency theory, and proposed that "the size of an organization's board is based on the scope and complexity of the firms' production process"; thus, by implication, larger and complex process-settings would require larger board size, while smaller ones would require the smaller board size. This study suggests that a board should seek an optimal size—not to be too small,

and not to be too large either, but "large enough to carry out the board's fiduciary and other duties effectively and efficiently"; for many Nigerian firms, a board size of five to nine members seem ideal.

Concept of Board Independence

The issue of Board Independence dominates the management literature for quite a number of past years and it is growing continuously. The 'board of directors' is understood to be a collective body that should act in the best interest of shareholders. But to pursue the shareholders' interest, Sharifah, Syahrina and Julizaerma (2015) professed that the board "requires the combination of executive and non-executive directors". Ensuring board effectiveness is an issue of independence that makes easy the monitoring and strategic roles of the directors; this is best achievable when there is adequate number of the independent directors on board (see Berghe and Baelden, 2005), though this contrasts with the observation made by some authors (e.g. Sahin, Basfirinci and Ozsalih (2011). It is worth reiterating that "non-executive directors on the board will not be able to implement their duties effectively, unless they are independent from management so as to exercise unbiased business judgment. Thus "independent board is one of the variables of the internal corporate governance structure that is expected to affect the investment" (Handriani and Robiyanto, 2019). Shareholders have their trust on Independent directors, who should represent them and help to reduce agency problems.

While this discuss persists, an argument challenging the role of independent non-executive directors' rests on the information asymmetry between executive directors and independent non-executive directors (Rashid, 2011). Executive directors are nested within the company they govern and may therefore have a better understanding of the business than independent non-executive directors and may, in addition, be better able to make useful decisions (Sanda et al., 2011). By contrast, independent non-executive directors may lack day-to-day inside knowledge of the company and therefore may play a reduced control role in the firm (Nicholson and Kiel, 2007; Rashid et al, 2010). Nevertheless, this debate is set to continue, as there are no empirical findings to incline the argument in any particular direction (Rashid, 2011). This current study's working definition is predicated on performance maximisation, which requires that an optimal mix of a firm's executive directors and the independent non-executive directors. This will ensure that there is balance of quality deliberation in favour of protecting shareholders and reducing agency problem.

Concept of Financial Expertise

The term 'expertise' may be viewed as "skillfulness by virtue of processing special knowledge." It is evaluated based on "standards discussing the aptitude to perform a task". The importance of considering the financial expertise criteria for a firm's board is an issued well recognised by many scholars and institutions alike. In Nigeria, the criteria were specified by the 2011 and 2018 SEC Codes, 2006 Post consolidation Central Bank of Nigeria (CBN) code, amongst other codes. *Kirkpatrick* (*2009*) emphasized that *lack* of *financial expertise* on corporate boards was the key responsible factor *in* the 2007-2008 *financial crisis*. Therefore, the presence of more financial expertise on a board ultimately influences the board's decisions, including dividend

policy. The presence of a financial expertise provides confidence in the minds of shareholders that the watchdog role is being upheld and hence the board will better serve their interests. Also, there is a growing body of literature on how "financial expertise on boards improves the board's efficiency" (see Karamanou and Vafeas, 2005; Agrawal and Chadha, 2005; Krishnan, 2005; Beasley, 1996; Dechow et al., 1996; Anderson et al., 2004). Next, having financial expertise, having financial expertise leads to better corporate practices (Krishnan, 2005; Robinson et al., 2012). Furthermore, with financial expertise on board, there is improvement in firm performance (Dionne and Triki, 2005; Francis et al., 2012; Fernandes and Fich, 2013). Therefore, given the significance of financial expertise of board members, there is a need to analyze how the financial expertise on a board affects stock returns, an aspect so important to investors. Generally, companies prefer to have financial experts on the corporate board, but this demand for financial experts on the board increased after the Sarbanes-Oxley Act (SOX) of 2002, among many other global and local scandals. Shareholders will feel more confident with financial expertise on board, as this will guarantee a better quality of earnings.

Concept of Stock Returns
The understanding of *Stock Returns* has been explained by several scholars a common phrase. Soeharto and Violita (2019) simplified it in relation to buying stocks (at lower price) and selling such out such stocks (at a higher price) which yields a profit called return. Stock return is very important as it is the main objective of investment in ordinary shares. Investors, both existing and potential ones' regard return as the fundamental reason for investing in a particular firm. Stock returns can be in form of capital appreciation/depreciation (as obtained in the Nigerian Exchange Group), plus dividend received if any. Stock prices are important metrics of measuring stock market returns. Therefore, the value attached to them matters a lot to both existing and prospective investors in the stock market. Stock market returns are the returns or gains that the investors generate out of the stock market (Lin and Zhan, 2011). On the other hand, one (an investor) who purchases a stock in a company is said to own a portion of the company. This means that the stock represents a claim on the company's assets and earnings. The number of stocks an investor acquires from the company's stocks depicts the percentage take that he holds in the company. So, the more shares the investor acquires, the greater his ownership rights in the company, and that means he becomes one of the many owners (shareholders) of the company and as such has a claim (albeit usually very small) to everything the company owns. The number of stocks owned by the investor tells how much portion he owns, and his share ownership (or shareholding) is represented by a stock certificate, which is a piece of paper that serves as a proof to his ownership. Beni and Alexander (1999) explained that ordinary stocks (representing ownership interest in a corporation) are usually kept electronically, and their certificates are rarely given the shareholder because brokerage firms keep these record electronically (also known as holding shares in street name). Soeharto and Violita (2019) proclaimed that "investors will buy shares when the stock price is undervalued and sell shares when the stock price is overvalued", and this generates profit or the return on his investment; this is accordingly described as stock return. The motive that drives investors to invest funds in shares is a higher rate of return or acquisition of a company. Investors are obviously attracted to stocks that have high returns and will by all means avoid stocks whose returns are uncertain and difficult to forecast.

Theoretical Framework
Arbitrage Pricing Theory
Arbitrage Pricing Theory (APT) developed by Ross (1976) as a Capital Asset Pricing Model (CAPM), is premised on the basis that the stock returns are caused by a specific number of economic variables. The theory further suggests that there are different risks in the economy that cannot be eradicated by sole diversification. It is a one-period model in which every investor believes that the stochastic properties of returns of capital assets are consistent with a factor structure. Ross (1976) argued that if equilibrium prices offer no arbitrage opportunities over static portfolios of the assets, then the expected returns on the assets are approximately linearly related to the factor loadings. Ross' (1976) heuristic argument for the theory is based on the preclusion of arbitrage. Her formal proof showed that the linear pricing relation is a necessary condition for equilibrium in a market where agents maximize certain types of utility. The subsequent work, derives either from the assumption of the preclusion of arbitrage or the equilibrium of utility-maximization. A linear relation between the expected returns and the betas is tantamount to an identification of the stochastic discount factor (SDF).

Basically, at the core of APT is the recognition that only a few systematic factors affect the long-term average returns of financial assets. APT does not deny the myriad factors that influence the daily price variability of individual stocks and bonds, but it focuses on the major forces that move aggregates of assets in large portfolios. By identifying these forces, one can gain an intuitive appreciation of their influence on portfolio returns. The ultimate goal is to acquire a better understanding of portfolio design and performance. The returns on an individual stock in, say, the coming year, will depend on a variety of anticipated and unanticipated events. Anticipated events will be incorporated by investors into their expectations of returns on individual stocks and thus will be incorporated into market prices. Generally, however, most of the return ultimately realized will be the result of unanticipated events. Of course, change itself is anticipated, and investors know that the most unlikely occurrence of all would be the exact realization of the most probable future scenario. But even though it is realized that some unforeseen events will occur, their direction or their magnitude is still unknown. What can be known is the sensitivity of asset returns to these events.

Empirical Review
Handriani and Robiyanto (2019), examined the influence of internal corporate governance structure (Institutional-ownership, independent-board, and board-size) on firm performance in Indonesia. They used a sample size of 293 manufacturing firms listed in the Indonesian Stock Exchange (IDX) covering the period 2010-2015, based on some criteria, among which included the following: the sampled firms must have positive asset growth at each year from 2010-2015, with financial reports and data for five consecutive years. The firms' financial reporting period ended on December 31 each year, and so their shares must have a size and book-to-market value ratio during this time. The data were available in the annual balance sheet of each firm issued in the form of annual reports by IDX. Their research findings suggested that institutional-ownership, board-Independence had a positive impact on Tobin's Q value, while board-size had a non-linear relationship with investment as proxied by investment opportunity set (IOS). The current authors recognised the following strength and

weaknesses: the sample taken had a reasonable size covering a good period of five years. The analytical approach adopted was also strong and appropriate. However, the research was weakened because, firm performance was used as the dependent variable while our study had a focus on stock returns. Moreover, our study focused on consumer goods companies in Nigeria, while their's was on manufacturing firms listed in Indonesia. Thus, their findings are more of academic exercise, and cannot practically be applied for management decision making process in Nigeria.

Rostami, Rostami and Kohansa (2016), investigated the effect of corporate governance components on return on assets and stock return of companies listed in Tehran stock exchange using 469 firm-year observations collected using systematic sampling for a period of seven years. They used 6 internal components of a corporate governance system of ownership concentration, institutional ownership, Board independence, Board size, CEO duality and CEO tenure as independent variables and their effect on return on assets and stock returns, as the firm financial performance evaluation criteria. The control variables of this study were the market value of the equity and the ratio of book value to market value of the equity. The results, which are based on estimated generalized least square method, indicated that there was a significant positive relationship between ownership concentration, board independence, CEO duality and CEO tenure and return on assets. However, there was a significant negative relationship between institutional ownership and Board size and return on assets. Besides there was a significant positive relationship between institutional ownership, Board independence, CEO duality and CEO tenure with stock return; but there was a significant negative relationship between ownership concentration and Board size with stock return. This current study views their study from a weak point dimension, as the study conducted in 2016 has elapsed validity due to the dynamism in stock movement which may not be tenable today. Moreover, the environment in the middle east cannot be compared with that in Nigeria where there is a sharp environmental serenity between the two, as so their study findings may be grossly misleading for decision purpose in Nigeria.

The work of Aloui and Jarboui (2017), involved investigating the relationship between stock return, the outside and the independent directors, using a sample of 89 firms listed on the Tunisian SBF 120 index covering the period 2006 to 2012. The dependent variable in their model was represented by Volatility, which in turn was proxied by the standard deviation of annual stock returns. The study used multiple regression analysis technique to analyse the data. In the case of the independent variables, the chief executive officer (CEO) was used as a dummy variable denoting whether or not the chairman of the board held the position of CEO. 'INDD' represented the independent directors, and measured according to whether the firm appointed independent directors, or the ratio of independent directors was used. 'FD' represented the outside directors, and was measured according to whether the firm appointed outside directors, or used the ratio of outside directors. In addition, the authors also added the following five control variables to the regression model: the certified public accountant referred to the auditor-related variables including the audit opinion and whether the firm had previously switched accounting firms. 'PER' represented firm performance in terms of the relative return. Findings revealed that the outside directors had a positive and significant effect

on the stock return. Moreover, the firm's size and 'ROA' had a negative effect on the stock return volatility, as evidenced in the regression output. On the other hand, the CEO, Audit size and Debt ratio had statistically significant and positive effects on the stock return volatility. The methodology of measurement in this study was strong, but data came from Tunisia where financial environment serenity is high compared to Nigeria. Moreover, the work focused on the entire firm while our work was on board characteristics. Moreso, the period of study of 2006 to 2012 fell short of our own study, since our data sprang up to 2019.

Methodology

This study adopted a descriptive *ex-post-facto* research method and positivist research philosophy for the purpose of addressing the research problem. The population of the study comprised all the twenty-three (23) listed consumer goods firms on the Nigerian Stock Exchange as at 2020. The study used purposive sampling technique to obtain a sample size of sixteen (16) firms listed in the consumer goods sector. This number is arrived at using the criteria that a company must have complete information for the number of years under consideration (2011-2020). The study employed secondary sources for the purpose of data collection. The data was collected from the annual reports of the sampled companies for a period of ten (10) years (2011 to 2020). These firms are public limited companies listed on the Nigerian Stock Exchange. The study employed multiple regression technique as the procedure of analysis with aid of STATA version 13 as a tool of analysis. The data for the study is panel in nature (that is cross-sectional time series data). In order to check for endogeneity, the study used the Hausman specification test. Additional robustness tests adopted in this research include the test for Multicollinearity using the Variance Inflation Factor (VIF) and the Breutsch-Pagan test for heteroscedasticity, to check for the fitness of model and reliability of findings.

Table 1: Measurement of Variables

SN	Variables	Definition	Measurement	Construct Validity/Source
Independent Variables				
1.	BIND	Board Independence	Measured by the proportion of independent non-executive directors on the board to the total number of directors.	Hassan et al. (2020); Fadiri et al. (2020)
2.	BSIZ	Board Size	Measured by the total number of executive and non-executive directors on the board	Gulzar & Zongjun (2011); Tahir et al. (2019).
3.	BEXP	Board Expertise	Measured by the proportion of directors on the board with financial expertise to the total number of directors.	Gray & Nowland (2015).
Dependent Variable				
4.	STR	Stock Returns	Stock price change between current financial year-end (P_t) and the previous financial year-end (P_{t-1}) divided by stock price of previous financial year-end (P_{t-1}); that is $STR_t = \frac{Pt_1 - P_{t-1}}{P_{t-1}}$	Soeharto & Violita (2019); Bala & Idris (2014).

Source: Author's Compilation, 2022.

Model Specification
The linear function linking the dependent variable and the independent variables can be expressed as: STR = f (BIND, BSIZ, BEXP), which translates into an econometric relation of the form:

$$STR_{it} = \beta_{\circ} + \beta_{1}BIND_{it} + \beta_{2}BSIZ_{it} + \beta_{3}BEXP_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (i)$$

Where: $BIND_{it}$ = Board Independence of firm i in year t, $BSIZ_{it}$ = Board Size of firm i in year t, $BEXP_{it}$ = Board Expertise of firm i in year t, $\beta_{\circ}$ = intercept on the STR axis (a constant term representing Stock returns when all variables =0), and ε_{it}=unique errors

Results/Discussions
Descriptive Statistics
The data for the study were sourced from annual report of quoted industrial goods companies in Nigeria, which covers stock returns, board size, board independence and board financial expertise. The descriptive statistics output is used to explained the behaviour of data used for the study, as presented in table 2.

Table 2: Descriptive Statistics

Variables	Obs	Mean	Std Dev	Min	Max
STR	160	63.4326	127.107	12	975
BIND	160	.1778	.0789	.0129	.4285
BSIZ	160	10.5108	2.9014	.5	22
BEXP	160	.1128	.0642	.0129	.5714

Source: Extracted by Author *from* STATA version 13 Output, 2022.
Note: STR=stock returns; BIND = Board Independence; BSIZ = Board Size; BEXP = Board Expertise.

From table 2 it is shown that the mean stock returns stood at 63.4326 with a corresponding standard deviation of 127.107. This shows a wide variation in the stock returns of companies in the industrial goods sector, as substantiated by the value of the minimum and maximum, widely dispersed at 12 and 975 respectively. Also, table 2 indicates that the industrial goods firms in Nigeria had an average of 0.1778 independent directors on the board during the period of the study, with a standard deviation of .0789. This suggests that an average of 17% directors had independent status; this is confirmed by the value of standard deviation shown to be close to the mean. Again, the result in Table 2 shows that the average Board size 10 with a corresponding standard deviation of 2; suggesting that on average the size of the Board was 10. Further, the results showed that the minimum and maximum number of directors stood at 5 and 22 respectively. Again, Table 2 shows that on average, 11% of the board members had financial expertise, as evidenced by the mean value of 0.1128 and the standard deviation of 0.0642; this value of standard deviation which was close to the mean significantly, upheld this claim. The fact that the Board financial expertise had values of for minimum = 0.0129 and maximum = 0 .5714, indicates that the highest proportion of directors with financial expertise in the company stood at 57%.

Correlation Matrix for Board Characteristics and Stock Returns

The Table 3 is an output of Correlation Matrix obtained from STATA 13 software. The table reveals positive correlation between the dependent variable (stock returns) and the explanatory variables board independence, board size and board financial expertise with coefficients of .0778, .0724 and .1469 respectively. This implies that all explanatory variables moved in the same direction with stock returns. According to Gujarati (2004), a correlation coefficient between two independent variables of 0.80 is considered excessive and thus certain measures are required to correct that anomaly in the data. From this study, it can be seen that no correlations between independent variables exceeded this threshold.

Table 3: The Correlation Matrix

Variable	STR	BIND	BSIZ	BEXP
STR	1.0000			
BIND	.0778	1.0000		
BSIZ	.0724	.2502	1.0000	
BEXP	.1469	-.4165	.4143	1.000

Source: Compiled from STATA 13 Output of Annual Reports/Accounts of the sampled firms 2012-2021

Diagnostic Test

To ensure robustness of the study results and inferences, appropriate Diagnostic Tests were conducted, viz the multicollinearity and heteroskedasticity tests. These tests are important to regression estimation in order to satisfy the assumptions of the Ordinary Least Square (OLS) of homoskedasticity and absence of exact correlations among the independent variables in the model.

Table 4: Multicollinearity: Variance Inflation Factors and Tolerance

```
   Variable |    VIF     1/VIF
-------------+----------------------
      BIND |    1.05   0.911500
      BSIZ |    1.07   0.932226
      BEXP |    1.10   0.939652
-------------+----------------------
     Mean |VIF = 1.06
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Source: STATA 13 Output, 2022

Table 4 shows output of of multicollinearity test with values of Variance Inflation Factors (VIF) and Tolerance values. According to Hair, Black, Babin, Anderson, and Tatham (2006), the "common cut-off threshold for VIF is a tolerance of "minimum value of 0.10, which aligns with a VIF value of less than10", for non-multicollinearity. It is shown that the VIF were found to be consistently smaller than 10, while the tolerance values were found to be consistently smaller than 1; this implies absence of multicollinearity, and the data set was thus healthy and the variables reliable.

Test for Heteroscedasticity

This test was conducted to check for equality of variance (that is, whether the variability of error terms was constant or not). The existence of heteroskedasticity signifies that the variation of the residuals or term error is not constant and would affect result output in respect of beta coefficient, coefficient of determination ($R2$) and F-statistic of the study. Heteroskedatiscity was tested using Breusch-Pagan's and Cook-Weisberg Test, and result output is presented thus:

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity

     Ho: Constant variance
     Variables: fitted values of STR
     chi2(1)   = 6.441
     Prob > chi2 = 0.1472

The goodness of fit test (a statistical hypothesis test) shows how sample data fit a distribution from a population with a normal distribution shows Pearson Chi2 value of 6.441 and a corresponding probability of 0.1472. This indicates that the adjustment of the observations problems was well and no errors existed that threatened the general fitness of the model.

Hausman Specification Test:

Considering the fact that the study used panel data, the Hausman specification test was conducted to check whether fixed- or random-effect model was more appropriate for interpretation. The result output is presented as follows:

     Test: Ho: difference in coefficients not systematic
     chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
         = 4.24
     Prob>chi2 = 0.0440

The result of the Hausman test revealed that Chi2 = 4.24 had Prob > chi2 = 0.0440 < 0.05. According to Gujarati (2004), Hausman probability values less than 5% (0.05) favour the fixed effect model while greater than 0.05 are in favour of random effect model. The significant value as reported by the probability of Chi2 indicates that the Hausman test was in favour of the fixed effect model.

Regression Results

Following the Hausman test results, the appropriate regression model for the study was specified as the Fixed Effect Regression. Using Stata13 software, the output result was extracted as shown on Table 5. The table indicates that the aggregate influence of the explanatory variables included in the model were able to explain stock returns up to about 15.33% as indicated by R-squared, while the remaining 84.67% was controlled by other factors that are not included in the model. The F-Statistics value of 42.93, (significant at 1%) shows that the model was fitted and therefore had provided substantial indication that board characteristics had significant impact on stock returns of listed industrial goods firms in Nigeria. Given the individual explanatory variables, the summary of the result in Table 5 shows that board independence had a positive and significant effect on stock returns. This is

based on the evidence of the coefficient which is 0.8554883 (significant at 5%). This means the independent directors had 85.55% influence on the level of returns on stock.

Table 5: Fixed Effect Regression Result
Dependent variable: STR

Variable	Coefficient	t	p-value
BIND	.8554883	3.46	0.001
BSIZ	13.78983	1.21	0.226
BEXP	674.6007	2.27	0.025
R-Square	0.1533		
Adjusted R-Square	0.1351		
F-Statistics	42.93		
Prob > F	0.0005		

Source: Extracted from STATA 13 Output of Analysis of Annual Reports/Accounts of the sampled firms (2012-2021)

Hence, the study rejected the hypothesis, but accepted that "board independence had significant effect on stock returns" of industrial goods companies quoted on Nigerian Exchange Group. This result is in agreement with the findings of Handriani and Robiyanto (2019) and also the findings obtained by Rostami, et al. (2016) in their study. Furthermore, the relationship between Board size and Stock returns can be inferred from Table 5. As shown, Board size had β =13.78983, with p-value = 0.226 (> 0.05), meaning that Board size had positive but insignificant influence on stock returns in the industrial goods sector.

The study also looked at the extent to which Board financial expertise could influence the stock returns of quoted industrial goods companies in Nigeria. Again from Table 5 results have shown that there is a positive and strong statistical relationship between board financial expertise and stock returns (β=674.6007 and p-value = 0.025. By inference, it means the board's high financial expertise had determined a high extent of stock returns. Based on this the study rejected the null hypothesis that "board financial expertise has no significant effect on stock returns", but instead accepted that board financial expertise had positive and significant effect on stock returns.

Conclusion
The concept of the board is derived from the characteristics that play a significant role in monitoring managers and can be described as a bridge between company management and shareholders. To understand the role of the board, it should be recognized that boards consist of a team of individuals, who combine their competencies and capabilities that collectively represent the pool of social capital that can influence the governance function, and create good returns to shareholders. Hence, the main objective of this study was to examine the effect of Board characteristics on stock returns of quoted industrial goods companies in Nigeria. In this study, board independence, board size and board financial expertise were used as predictor variables. The overall regression result judging from the R-squared showed that

board characteristics could be used to predict the behaviour of stock returns in the industrial goods sector.

Based on the findings, the study concluded that the more independent directors on the board, the more the possibility that dividends will be paid to shareholders. Therefore, Board independence is a predictor of stock returns of quoted industrial goods companies in Nigeria. Also, the study concluded that Board size is a determinant of stock returns of quoted industrial goods companies in Nigeria. Hence, the size of the board could be used to predict the behaviour of stock returns. This study thus concluded that the presence of more financial expertise on a Board would ultimately influence the Board's decisions, including dividend policy decisions. After-all, having a financial expertise on the Board will keep them from being accused of failure in their watchdog role and will better serve the shareholders' interests.

Recommendations

Firstly, the Board of Directors of consumer goods firms in Nigeria should increase their monitoring capacity towards discretionary behavior of management activities; this can be achieved by including at least three members on the Board who have expertise on accounting and finance so as to improve companies' earnings quality. Secondly, more independent directors should be encouraged on the board. This is in an attempt to improving monitoring activities that will curb the individual behavior of management. Moreso, there is better possibility that dividends will be paid to shareholders.

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