Innovations

Corporate Board Diversity and Firm Performance of Companies Quoted on the Nigerian Consumer Goods Sector

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Abstract: *Businesses today increasingly operate within a dynamic and competitive environment, where optimality in performance and greater efficiency is expedient. Corporations requires a board with diversity of skills, attributes and features that promotes the development and enforcement of shared knowledge for increased adaptability and organizational advancement. Corporate board diversity encourages skills heterogeneity, thereby deepening corporate talent pool and enhancing corporate leadership. It broadens teams preferences to provide for a more representation of varied perspectives and approaches brought to bear on the board. Corporate board diversity also births a positive environment for consultative inputs and insights which synergistically resolves into higher level outcomes and results suitable for organizational gains. Board cognitive diversity has been adjudged as the core strategic value creation resource of any organization which promotes competitiveness. In addition, foreign directorship/ diversity engenders firms exposure to external opportunities such as foreign markets, low cost of capital etc. Tenure diversity ensures an average board tenure for members of the board so that policies and objectives can be achieved without encumbrances from management. Also, an age diverse board promises flexibility and is critical in strengthening boards strategic decision making trajectory. The study population comprised of 18 companies quoted on the Nigerian consumer goods sector. Result from the panel OLS regression analysis (fixed effect estimator)revealed that there exist a positive and significant relationship between board cognitive diversity (BCD) foreign directorship/diversity (FD), tenure diversity (TD), age diversity (AD) and firm performance (ROA). The study recommended that firms should continuously appraise and reappraise the constitution of their board as it remains instrumental to the long term growth potential of any organization.*

Keywords: *Corporate board diversity, Cognitive diversity, Foreign diversity, Tenure diversity, Age diversity, Return on Assets (ROA)*

1. Introduction

The corporate financial crisis that enveloped the globe have necessitated the need and importance of diversity in corporate boards.Corporate boards constitute the most influential actors and initiators determining strategydirectionanddecision-makinginherentinanystructuralposition thus, the composition and constituents of firms boards remains a critical element upon which the attainment and advancement of firms performance hinges. Also, globalization and internalization of trade have further deepened the essence of contemporary diversity in corporate boards to garner capacity suitable for optimizing firm resources that can guarantee and promote sustained and enhanced firm performance, thereby instituting/restoring investor confidence and mitigating the impact of severe financial losses experienced by investors due to the extant corporate failures. Corporate board diversity encompasses the simulation and distribution of unique and varied perspectives, skills, attributes, characteristics and features which account for divergence in attitudes and opinions in relation to strategy direction and decision making within the board. As opined by Onyekwere & Babangida (2021) & Williams & Oreilly, (1998) These underpins that greater diversity inspires complex relationships amongst people with diverse sets of contacts, skills information and experience thus widening and distending their capacity for novel and intricate decision making. In addition, corporate board diversity due to board differences may often rouse debates and insights about the appropriateness of a current strategy, allowing for an in-depth and greater range of strategic alternatives and collectively better evaluating the feasibility of such alternatives. Similarly, diversity in corporate rooms has also been credited with myriads and multiple positive outcomes for enhanced organizational performance, it culminates into better and enhanced utilization of talents and broad understanding of the market place suitable for sustained growth and development.(Yuan, Shang, Yu & Yu, 2024; Westphal & Milton, 2000) In addition, Pitcher & Smith (2021)& Carpenter,(2002) espoused that diversity encourages a pool of high quality resources at the boards disposal to better advise management. The board as a corporate governance mechanism ensures the protection of the stakes or interests of business owners and other stakeholders. This oversight and monitoring function is pivotal to the success and survival of firms or corporations. The board in ensuring the fulfillment of monitoring roles as well as supervising top management duties in terms of impacting strategic planning requires unique abilities and capabilities. (Berglof,2011; & VanDenBerghe, 2009) Board monitoring and advisory functions will be more robust and impactful if the board utilizes the different and unique attributes which aligns and adapts to the firms core objective of profit maximization. These functions of the board of directors can only be made feasible and achievable through an unbridled annexure of distinctive features of the board of directors. Corporate board diversity encourages the combined

effect of different sources of diversity which affects the attainment of the consensus necessary for the well-functioning of a board, more so than any individual dimension. It encourages a pool of higher quality resources at the boards disposal to better advise management.(Okafor & Okegbe, 2023; Kusumastati, Siregar, Martani & Adhariani,2022)

The 2Ist century business environment which is multifaceted, complex and dynamic requires boards that can re-engineer firms strategies, procedures and processes to meet competition and achieve creativity, innovation and competitive advantages.These firms competitive strides emanates from corporate boards diverse cognitive prowess/abilitythat are based on the boards broad knowledge base, expertise and experience which are core value creation resource that is inimitable. Likewise, foreign directorship/diversity constitute a revered board resource that provides valuable advice and assistance through its intangible asset pool of enhanced know how especially with major foreign operations or aspirations to expand internationally. It embodies the ability to arbitrage institutional restrictions like tax provisions and codes, financial regulations, lower input cost and cost savings in production, marketing and manufacturing, improved technology and favourable government policies are the varied opportunities accruing to firms with foreign directors on the board (Ali, Rehman, Yuan Ahmad & Ali, 2021; Chebri & Bahoussa; 2020 and Adams, Hermalin & Weisbach, 2010).

There have been an increasing concern about the optimal tenure length amidst changing board tenure regulations and policies. Li & Wahid (2018) argued that directors knowledge of the firm increases overtime enabling them to perform their roles more efficiently. Vafeas,(2003); Musteen, Barker & Baeten,(2006) added that long board tenures enables directors to be more routine in their decision making. Alternatively, short tenures improves the capacity for proper monitoring of boards, because rotation promotes the permeation/infusion of new members and therefore, different attitudes and views on certain situation or decisions(Tuggle, Schnatterly & Johnson, 2010) The board tenure diversity proponents emphasize that an optimal board tenure is one where firms retains diversity in terms of both long and short tenured directors, buttressing that such firms have an advantage of benefitting from both knowledge continuity and independence which are crucial to high quality corporate decisions(Ma, Ge & Zhao, 2024) Additionally, firms with diverse director tenure serves as checks and balances on each other, thus enhancing the monitoring of firms decisions. Such heterogeneous and independent groups would reach decisions that result in extreme outcomes, reduce and enhance organizational performance (Bernile, Bhagwat & Yonker, 2018) In the same vein, age diversity of corporate board members is an important element of corporate firms. It offers boards a blend of enhanced capabilities, resources and connections, leading to improved business growth opportunities. Age diversity on the board equally promises proficiency in several areas thereby

strengthening firms operations. Lastly, to achieve sustained board strategic functions for enhanced firm performance, corporate board diversity should be considered fundamental.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 Corporate Board Diversity

Corporate board diversity has been described as the hub of corporate governance that explains the composition of the board and the combination of the different qualities, characteristics and features of individual members in relation to decision-making and other processes within the board (Rahayu & Diah,2022) Also, Marc, Patrick & Carolin Van (2014) & Boone, Casares Field & Raheja (2007) opined that corporate board diversity represents a significant corporate governance mechanism established in order to realize efficient management and monitoring within corporate organizations. They added that corporate board diversity are resources that brings on more varied ideals, initiatives and notions that would encourage formidable sessions. In addition, Hasfi & Turgut (2012) explained corporate board diversity as a framework desired by customers and other stakeholders as a demonstration of managements sensitivity to stakeholders preference, aspirations and concerns. Furthermore, Adams & Daniel (2007) views corporate board diversity as a group of diverse individuals who have different biases and prejudices and whose behavior is affected by social constraints and power relations. In like manner, Erhardt,Werbel & Shrader,(2003) proposed that board diversity entails dissimilarities in board attributes, these organizational level features are related to board's formal structures that forms part of the diversity in boards elements.

2.1.2 Cognitive Diversity

Cognitive diversity encompasses corporate boards varied skills, competencies, ideas as well as sophisticated talent pool deployed to improve organizational efficiency and effectiveness Herrmann & Datta ,(2005) explained cognitive diversity as a firms value creation resource that facilitates adaptation to innovation and competitiveness through access to vital information that guides corporate strategy decisions. Camelo, Fernandez-Alles & Hernandez (2010) added that boards cognitive diversity enhances information exchange amongst board members which helps bridge the gap caused by impaired communication due to board size and a high degree of heterogeneity. The cognitive diversity proponents and advocates have equally posited that cognitive diversity features among group members are considerable corporate assets which shapes the quality of deliberations that goes on in the board room (Hagendorff & Keasey 2010) Corporate boards aggregate competencies represent high cognitive abilities of board of directors which

are pivotal as firms face heightened demands for more contemporary expertise and solutions geared towards organizational productivity, efficiency and effectiveness. Diverse boards portends diverse strategic skills and competencies which are critical elements of cognitive diversity and good corporate governance that underscores a background for attaining higher performance and profitability.Cognitive diversity promotes and permeates cognitive complexity, which is associated with a boards capacity to confront uncertainty in the business environment and make decisions suitable to stimulate renewal and change in corporations and organizations. Alberti, Zaitul, Puttri & Ilona,(2023) claimed that cognitive complexity can be inferred from boards knowledge base, experience and expertise. Therefore, a more cognitive diverse board would be sensitive to the need for innovation and changes that are adapted to industry/ sector trends to enhance competitiveness and market share. A cognitively diverse board is susceptible to faster information processing, tolerance of ambiguity, receptive to ideas and possess a base of knowledge and competences necessary for exploring business opportunities and evaluating growth potentials.

2.1.3 Foreign Diversity/Directorship

Foreign diversity/directorship refers to the percentage of independent foreign directors on the board to the total members on the board of corporate organizations and firms. They represent an important composition of corporate boards with international affiliation and background. Foreign diversity/ directorship aid firms gain foray into international markets for expansion purposes and represent diverse shareholder interest thus expanding its control role for countries with stronger shareholder rights. Setiawan &Aslam,(2018) opined that foreign directors provide feasible strategic forecast and future plans as well as business connections which up-scales a firms strategic positioning to meet governance standards and practices. Estelyi & Nisar (2016) espoused that foreign diversity helps firm manage external dependent relationships by minimizing environmental uncertainty and transaction costs that may be connected to external dependencies thus, protecting firms long term survival.

2.1.4 Tenure Diversity

Board members tenure diversity constitute the length of time directors hold directorship positions in firms. Board of directors tenure diversity is an important variable in evaluating the directors performance and contribution to corporate financial performance. Kosnik (1990) asserts that director's tenure influences the organization's stakeholders-related strategies and implementation. Several view exist as to the optimal tenure period to maximize board functions for organizational benefits. Long-tenured boards have been said could lead to entrenchment and stifle objectivity of corporate boards

while, at the same time, their long stay may represent assets to any organization. Tenure diversity is a firms internal resource that improves firm's competitive advantages and performance.Organizations with tenure diverse boards perform better than those with homogeneous board tenures. Li et al (2018) espoused that board tenure diversity is essential to superior firm performance, as the heterogeneity of such boards tenures is hinged on the diverse opinions and perspectives harnessed.

2.1.5 Age Diversity

Age is a diversity measure that identifies levels of cognition, knowledge and valueswhich individuals at different levels possess. Age diversity can be referred to as the acceptance of all age groups in a corporation's board. It can also be viewed as the acceptance of employees of different ages within an organizations space and environment. Each generation brings its own unique skill sets to the business environment, while younger employeesmay leverage technology, flexibility and risk taking ability thereby endorsing transformation and developmental strides within organizations. While older directors may have rich experience and robust networks that help companies capitalize their valuable resources (Chukwuka, Okegbe, Amahalu & Obi, 2022)

2.2 Theoretical Framework

2.2.1 Resource-Based View Theory

This theory was propounded by Barney(1991),The theory holds that a firm's sustained competitive advantage is based on its strategic resources that are valuable, rare, inimitable and non-substitutable. The capacity of firms to create or acquire these resources affects their performance and competitiveness over their competitors. The capacity of firms to create or acquire these resources affects their performance and competitiveness over their competitors. The diverse nature of corporate boards allows the leverage for a cross-breed of unique capacities and capabilities enabling efficiency and effectiveness in board functions.

2.2.2UpperEchelon Theory

This theory was propounded by Hambrick & Mason (1984), the theory explains the relationship between managerial attributes or characteristics and organizational outcomes. Itposits that firms performance is based onexecutive/strategic resources and leadership which mirrors the features, values and cognitivebases of top management. Corporate board diversity reflects the composition of an optimal board whose characteristics serve as surrogates for the boards operational efficiency. The theory viewsmanagementscognitiveorientations, expertise, perceptionsands kills asstrategic pathways which affects boards decisions in organizations. Board of directors serves as the fulcrumupon which organizational performancelies,

thus, strategy and policy direction hinges on the composition of such boards.

2.3Empirical Review

Khalaf (2022) examined the impact of board diversity on the performance of Jordan banks. Data were sourced from the Amman Stock Exchange and the formal websites of 13 banks for the period 2005-2020. Fixed and random effect models were utilized for the study statistics. The result revealed that board size(BS), board cognitive diversity (BCD) and foreign directorship/diversity (FD) are significantly and positively related with performance.The study however recommended that the larger the size of the board, the better the performance since more knowledgeable / experienced directors would be included in the decision making process thereby advancing the banks know-how.

Boadi and Osarfo(2019) assessed the impact of board cognitive diversity on the performance of banks in Ghana.Panel data regression and system generalized methods ofmoments (GMM) models were adopted.28 banks spanning 2001-2016 constituted the study sample.The findings showed that cognitive diversity of board members is significantly and positively correlated to banks financialperformance(measured byreturnonassets(ROA),returnonequity(ROE)andprofitbeforetax(PBIT)).Thestudyaddedthatcognitivediversityofboardmembersinenhancingperformancecannotbeoveremphasized. Corporate board cognitive abilities are the fulcrum upon which thedepthofboardstrategiesrevolves.Boardsoperationalunderpiningwilldependslargelyontheboardsabilitytounderstandthecontemporarybusinessenvironment and descend appropriate policy measures which would drive the firms performance maximally.

Kusumastati, Siregar, Martani and Adhariani (2022) investigated corporate board diversity and performance of Indonesian firms.The study is based on a comprehensive set of diversity variables of cognitive, tenure, age and gender diversity.Multiple regression analysis was deployed for the study sample of companies listed on the Indonesian stock exchange from 2014-2018.Findings from the study revealed that board diversity does not moderate the relationship with company performance.These implies that board attributes of cognitive, tenure, age and gender diversity have negative and adverse relationship withcompany performance.

Mukhibad, Setiawan, Aryani and Falikhatun,(2024) examined board cognitive diversity and profitability of Islamic banks in Southeast Asia. The study explained the impact of board cognitive diversity and two profitability indices of return on assets (ROA) and return on equity (ROE) The study sample

comprised of 37 Islamic banks for the period (2010-2019) Data were analysed using two-step system generalized moment method (2SYS-GMM). The findings showed that board cognitive diversity positively affects profitability. The study further recommended that corporate governance regulators should make frantic effort in ensuring that sound cognitive profile or status should remain a prerequisite for corporate board membership.

Odero and Egessa (2023) focused on board foreign and cognitive diversity and organizational performance in Kenya. Qualitative research approach was adopted for the period 2010-2022. The study findings revealed that both foreign and cognitive diversity influences firm performance significantly. The study recommended that foreign and cognitive diversity facilitates extension into international markets and high sales growth zones.

Abderahmane and Mounir(2023) focused on the effect of board diversity on firm performance of Malaysian listed non-financial companies. Multiple regression statistical technique was used in data collection for the period 2017-2020.The results showed that age diversity was significantly and positively associated with market based Tobin's Q but was significantly associated with performance based ROA. While board cognitive diversity showed an inverse/negative correlation with both Tobin's Q and ROA.

Zakaria, Nindito, Nasution, Khairunnisa, & Siregar(2021) looked at the extent board diversity affects company value. The study examined the extent corporate board diversity provides higher level management with a better monitoring system that impacts firm value. Panel data regression was used in analyzing a sample of 62 manufacturing companies listed on the Indonesian Stock Exchange for the period spanning 2015-2019. Company size and leverage were used as control variables. The results show that age, cognitive and foreign diversity have a significant and positive effect on company value.

Mojambo,Tulung and Saerang (2020) assessed the influence of top management team characteristics towards Indonesian Banks Performance during the digital era. The study gave insights into top management teams proficiency in navigating firm perceived challenges as well as providing a structure that aided banks seamless migration from manual to digital operations.Panel data regression, random effect general least square (REGLS), breusch-pagan lagrange multiplier (LM) were used to test the study population of 120 banks with a sample of 32. The results show that cognitive and age diversity impacts significantly banks return on assets (ROA) and capital adequacy ratio (CAR)

Issa, Yousef, Bakry,Hanaysha and Sahyouni (2021) evaluated corporate board

diversity impact on banks performance in MENA countries.Panel data analysis and system generalized method of moments estimation approach were used on a sample of 80 banks for the period 2011-2018. Additional robustness tests of ordinary least squares and fixed and random effect techniques were explored. The empirical findings indicate a significant relationship between board diversity proxies and financial performance.Foreign and cognitive diversity were found to have a significant positive effect on banks performance.The study recommended that foreign and cognitive diversity continuously offer boards greater analytical thinking and information processing abilities. The heterogeneity of corporate boards helps firms adopt best strategies that result in improving financial performance.

Fernandez-Temprano and Tejerina-Gaite(2020) investigated board diversity and firm performance of Spanish non-financial firms. Fixed and random effect statistics were deployed for the analysis which covered a period from 2005-2015. Findings from the results revealed that foreign and age diversity had a significant and positive effect on firm performance measured by ROA and market- to -book equity ratio(MTB) On the contrary, cognitive diversity had a negative/ inverse effect on performance. The study further recommended that rigorous analysis on board room attributes should be performed to aid regulators gain adequate insights before making policy recommendations about the requirements of a standard board.

Alharbi(2024)examined board diversity on bank stability: The impact of cultural openness to diversity. The paper explored how diversity in the board of directors with the mediating effect of cultural openness impacts financial performance.The study sample comprised of 14 countries for the period 2007-2017. The results showed that cognitive and gender diversity consistently promotes high bank stability within countries that are adept with diversity practices.

Musa, Ibrahim and Success (2022) assessed agency theory and corporate governance: A comparative study of board diversity and financial performance in Nigeria.Data for the study were collected from the annual reports of the sampleddeposit money banks and manufacturing enterprises in Nigeria and the Nigerian Exchange group for the period 2015-2020. The findings reveal that foreign, age and gender diversity impacts firms return on assets(ROA) positively but has little or no impact onreturn on equity (ROE)

Shehata (2022) examined the correlation between board national diversity and dividend policy of listed Egyptian firms.The study explored whether foreign nationals on the board improves dividend yield of Egyptian listed companies. The study sample comprised of 50 top listed firms.Panel data regression was

used for the analysis for a 10 year period (2005-2014). The findings depicts a significant and positive relationship between board national diversity and dividend yield.

Magnanelli, Paolucci& Pirolo (2021) investigated the association between diversity in boardrooms and firm performance: the role of tenure and educational attainment of board members.The study explored the multi-level random effect model in analyzing the data of 187 listed firms with the European area for a 9 year period, 2010-2018. The study outcome high lights a significant and positive relationship between tenure diversity and firm performance. On the other hand, cognitive diversity showed no evidence indicating a positive effect on firm performance.

Ullah, Zeb,Khan and Xiao (2020) examined board diversity and investment efficiency relationship in China. The study categorized four dimensions of board diversity, relation oriented diversity (age and gender) and task oriented diversity (cognitive and tenure) Panel data analysis was used to examine the board diversity- investment efficiency relationship in Chinese listed firms during the period,(2003-2018).The findings of the study are robust indicating that relation and task oriented diversity of the board curbs investment inefficiency by discouraging sub-optimal (over or under investment)

Ujunwa,Nwakoby and Ugbam, (2012) explored the impact of corporate board diversity on the financial performance of Nigerian quoted firms. Fixed effect generalized least square and random effect regression analysis was deployed in examiningthe relationship between the independent and outcome variables of 122 firms for the period 1991-2008. The results showed that foreign directorship and ethnic diversity were positive in predicting firm performance measured as profit before interest and tax (PBIT)while gender diversity was negatively linked with firm performance.

Aifuwa, Musa, Gold and Usman, (2020) examined the nexus between board cognitive diversity and firm performance of selected consumergoods companies in Nigeria.The studyadopted the multi-method quantitative research design. Data for the study were obtained from the annual financial statements and websites of the selected companies for the period 2013-2018. Panel least square regression analysis was deployed. Results from the analysis revealed that board cognitive diversity positively and significantly impacts firm performance.The study recommended that firms in Nigeria, specifically consumer goods firms should encourage more representation of board members with cognate abilities, this is because they have broad/advanced knowledge and expertise to improve firm performance.

Mazzotta, Bronzetti and Baldini (2017) investigated the effect of board diversity on the performance of firms listed on the Italian financial sector. The sample data constituteda set of 177 firm year observations spanning 2011-2014. Board diversity was decomposed into foreign directorship/diversity, interlocking and gender diversity. Firm size, age and leverage were control variables. The findings posit that foreign directorship/diversity and interlocking directorship revealed a significant and positive relationship with firm performance, Gender diversity showed no effect on performance.

Li, and Wahid (2018) assessed the impact of director tenure diversity on board effectiveness. The conditional logit model estimation was used for the analysis for the period 2000-2012. The findings depicts that tenure diverse boards demonstratesignificantly higher management performance/turnover sensitivity and are less likely to experience management misappropriation and earnings misstatement.

Ji,Peng, Sun and Xu (2020) examined board tenure diversity, and firm risk across countries. The study surveyed the impact of board tenure diversity on firm risk in 37 countries. The study sample constituted a large global panel data of 86,696 firm year observations of 12,935 firms across 37 countries from World scope data and Thompson Reuters data base for the period 1999-2017. The findings indicates that board tenure diversity has a negative effect on firm risk, supporting the idea that tenure-diverse boards will make more moderate firm decisions resulting in lower volatility.

Talalweh and Obaid (2024) studied the impact of diversity of board members on the financial performance of Lebanese and Syrian banks comparatively. The study adopted a quantitative approach,panel data regression analysis, inferential and descriptive statistics were explored to analyze the data generated from the banks annual reports for a 10 year period, 2010-2019. The findings reveal that cognitive and age diversity positively impacts financial performance of banks while gender diversity had an inverse relationship.

3.0 Methodology

The study adopted an ex-post facto research. Secondary data fromannual published financial statements and accounts were used. The study population comprised ofI8 out of the 21companies quoted on the Nigerian consumer goods sector for the period 2013-2023. The data collected were analyzed using descriptive statistics, correlation tests, panel data regression and fixed and random effect estimation models and methods. Hausman specification test was utilized in determiningthe appropriateness and correlation of themodelto agiven panel set. The hypotheses formulated were tested at a 5% level of significance (Mbu-Ogar, et al, 2023)

4.0 Data Analysis/ Results

Table 4.1

Descriptive Statistics

	ROA	BCD	FD	TD	AD
Mean	0.311061	1.584566	0.876595	0.721061	0.761813
Median	0.210000	1.490000	0.905000	0.700000	0.720000
Maximum	8.800000	2.000000	0.992000	0.980000	6.640000
Minimum	0.100000	1.130000	0.606000	0.600000	0.600000
Std. Dev.	0.758434	0.314689	0.094419	0.066453	0.423974
Skewness	9.897657	0.095395	-0.882316	0.904457	13.56081
Kurtosis	102.6938	1.173809	2.937885	4.229048	188.5189
Jarque-Bera	85228.36	27.81383	25.72174	39.45755	290011.0
Probability	0.000000	0.000001	0.000003	0.000000	0.000000
Sum	61.59000	313.7440	173.5658	142.7700	150.8390
Sum Sq. Dev.	113.3189	19.50872	1.756236	0.869965	35.41146
Observations	198	198	198	198	198

Source: Researcher's Estimation (2024). * denote significant at 1%

The descriptive statistics of the study variables is shown in Table 4.1. For the descriptive statistics each variable is examined based on its mean, standard deviation, maximum and minimum values, skewness and kurtosis. The descriptive statistics displayed in Table 4.1 shows that return on assets (ROA), has a positive mean value of 0.31, indicating that, on average, majority of the companies in the sample recorded a return on assets of about 31 per cent. The standard deviation of 0.76 and the range from a minimum of 0.10 to a maximum of 8.8 suggest wide variability in profitability across the firms. For the predictor variables, the mean ranges from 1.58, 0.88,0.72 and 0.76 for BCD, FD, FD& TD.The data set has a greater number of large values as depicted in the positive values of skewness for all the variables in the series, indicating that the distribution is positively skewed, except FD. The general guideline states that a skewness value between −1 and +1 is considered excellent, but a value between −2 and +2 is generally considered acceptable. As can be gleaned from the result in Table 4.1, the values of skewness for all the variables are either less than +1 for BCD and TD, less than -1 for FD, but greater than +1 for ROA and AD.The values of kurtosis for all the variables are positive and greater

than 2 for all the variables except BCD, indicating that the distribution is moderate. The Jarque-Bera test shows that all the variables are normally distributed within the period of analysis, since their probability values are less than 0,05.

Table4.2
Correlation Matrix of Dependent and Independent Variables
Correlation Matrix

	ROA	**BCD**	**FD**	**TD**	**AD**
ROA	1				
BCD	-0.080276	1			
FD	-0.026802	-0.015109	1		
TD	-0.016175	0.199847	0.062197	1	
AD	0.008345	-0.041608	0.042117	0.000450	1

Source: EVIEWS output, 2024

Note: ROA is return on assets; BCDis boardcognitive diversity; FD is foreign diversity/dictatorship; TD is tenue diversity; and AD is age diversity.

Table 4.2 explains the result of the correlation analysis which shows that the highest correlation between the explanatory variables is 0.19 and this exists between board cognitive diversity (BCD) and tenue diversity (TD). The simple correlation standard states that collinearity between variables should not be considered harmful until it exceeds 0.8 or 0.9 margin.Thus, the study variables reveals no traces of collinearity or multicollinearity.

Multicollinearity was diagnosed in order to ensure that there is no multicollinearity among the independent and variables. The results are presented in table 4.3 below:

Table 4.3
Results of Multicollinearity Test

Variables	VIF	Tolerance
BCD	1.044219	0.031199
FD	1.006374	0.334005
TD	1.046277	0.701004
AD	1.003504	0.016518
Mean VIF	1.025	

Source: EVIEWS output, 2024

Based on the results from table 4.3, it is obvious that the tolerance value for this study is in the range of 0.031199 to 0.701004, however, values for BCD and AD are within the threshold while FD and TD values are above the threshold of

0.10. While the highest VIF value is 1.04, which is less than the threshold value of 10, (Gujarati & Porter, 2009). Since all of the VIF values are below 10, there is no evidence of the existence of multicollinearity between the variables of the study. Thus, the independent variables of the study are not affected by multicollinearity and so a standard interpretation of the regression coefficient can be made.

Test of Hypotheses

To achieve the study objectives, the pooled ordinary least square regression (OLS) was employed. This is in line with the study model.

Dependent variable: Return on assets (ROA)

Table 4.4:Pooled Panel Regression Results

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
BCD	0.94724	0.036632	2.585826	0.0416
FD	0.228056	0.101221	2.253050	0.0466
TD	0.919794	0.337260	2.727254	0.0212
AD	0.811052	0.328521	2.468798	0.0316
C	0.796833	0.780001	1.021580	0.3083
R-squared	0.607270	Mean dependent var		0.311061
Adjusted R-squared	0.593304	S.D. dependent var		0.758434
F-statistic	10.35336	Durbin-Watson stat		1.620892
Prob(F-statistic)	0.000485			

Source: EVIEWS output, 2024

Table 4.4 shows the results of the study variables using pooled panel OLS regression estimator. The variables coefficient, p-values, R-squared, Adjusted R-squard, F statistics and Durbin Watson statistics are explained.

Dependent variable: Return on assets (ROA)

Table 4.5:Fixed Effect Regression Results

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
BCD	0.919637	0.341644	2.691799	0.0066
FD	0.834437	0.372131	2.242320	0.0341
TD	0.599518	0.243348	2.463624	0.0260
AD	0.659268	0.140673	4.686528	0.0001
C	-0.386140	1.186199	-0.325527	0.7452
R-squared	0.638166	Mean dependent var		0.311061
Adjusted R-squared	0.612779	S.D. dependent var		0.758434

F-statistic	9.858469	Durbin-Watson stat	1.641352
Prob(F-statistic)	0.003206		

Source: EVIEWS output, 2024

Table 4.5 shows the fixed effect regression result of the relationship between the independent variable BCD, FD, TD and AD and return on assets(ROA)

Dependent variable: Return on assets (ROA)

Table 4.6:Random Effect Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BCD	0.496226	0.175500	2.827498	0.0019
FD	-0.195712	0.574729	-0.340530	0.7338
TD	0.009966	0.835638	0.011926	0.9905
AD	0.611060	0.128327	4.761741	0.0004
C	0.777943	0.777734	1.000268	0.3184
R-squared	0.607291	Mean dependent var		0.262324
Adjusted R-squared	0.573283	S.D. dependent var		0.752203
S.E. of regression	0.757182	Sum squared resid		110.6517
F-statistic	9.354373	Durbin-Watson stat		1.717748
Prob(F-statistic)	0.0010780			

Source: EVIEWS output, 2024

Table 4.6 shows the association between the study variables using the random effect regression model. It explains the extent to which a statistical indexerror term is not correlated with the predictors that allow time-invariant variables to be part of a studies variables

Dependent variable: Return on assets (ROA)

Table 4.7:Summary Regression Estimates for OLS, Fixed Effect and Random Effect

Variables	**Pooled OLS Model**		**Fixed Effect Model**		**Random Effect Model**	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
BCD	0.94724	0.0416	0.919637	0.0066	0.496226	0.0019
FD	0.228056	0.0466	0.834437	0.0341	-0.195712	0.7338
TD	0.919794	0.0212	0.599518	0.0260	0.009966	0.9905
AD	0.811052	0.0316	0.659268	0.0001	0.611060	0.0004
Constant	0.796833	0.3083	-0.386140	0.7452	0.777943	0.3184

R-squared: 0.638166; R-Squared Adjusted: 0.612779; Durbin-Watson: 1.641352
F-stat.: 9.858469(Prob. 0.003206).

Source:EVIEWS output, 2024

The summary of the pooled OLS, fixed effect and random effect regression results are shown in table 4.7. The fixed effects model assumes that the effect of unchanging unmeasured variables can be captured by time-invariant individual-specific variables and may affect the predictor or outcome variables, thus is the need to control for this. Fixed effect removes the effect of those time-invariant characteristics so that the net effect of the independent variables on the dependent variable can be assessed. While random effects assumes that an entity's error term is not correlated with the predictors that allow time-invariant variables to play a role as explanatory variables. From the result in table 4.4, under the pooled OLS results, it shows that board cognitive diversity (BCD), foreign diversity (FD), tenure diversity (TD) and age diversity (AD) are positively related with return on assets (ROA). This implies that a 1% increase in these variables will lead to 0.94%, 0.22%, 0.91 and 0.81% rise in ROA respectively. The p-values indicate that all the variables are statistically significant since 0.0416, 0.0466, 0.0212 and 0.0316 are less than 0.05, respectively. On the other hand, fixed effect results showed that all the variables were positively related with the dependent variable, ROA. Hence, a 1%increase in cognitive diversity, foreign diversity, tenure diversity and age diversity will lead to 0.91%, 0.83%, 0.59% and 0.65% increase in return on assets, respectively. The p-values revealed that all the variables are statistically significant since 0.0066, 0.0341, 0.0260 and 0.0001 are less than 0.05, respectively.The random effect results shows that board cognitive diversity (BCD) and age diversity (AD)are positively related with return on assets, while tenure diversity (TD) ROA relationship is positive but not significant (0.009966, p-v0.9905)However, foreign diversity (FD) has an inverse or negative relationshipwith return on assets (ROA). Hence, a 1% increase in BCD, TD and AD will lead to 0.49%, 0.009 and 0.61% increase on ROA respectively but a 1 percent increase in foreign diversity will decrease ROA by 0.19%. The p-values show that BCD and AD are statistically significant with values of 0.0019 and 0.0004 while FD and TD are not statistically significant with p-values of 0.7338 and 0.9905, respectively.

Table 4.8: Hausman Test Result

	Coefficients		
Variables	Fixed	Random	Difference
BCD	0.134508	-0.194724	0.080019
FD	-3.29763	-0.228056	0.718720
TD	0.641335	0.019794	0.131604
AD	0.054432	0.011052	0.002008
Chi^2	13.68		
Prob.	0.0097		

Source: EVIEWS output, 2024

To decide between the fixed or random effects models, the study performed the Hausman specification test in order to make an appropriate decision between the fixed and random effect regression models. This test is necessary, considering that there exist a trade-off between the efficiency of the random effect and the consistency of the fixed effects approach. The test also determines whether the estimates of the coefficient, taken as a group is significantly different in the two regressions. The Hausman test is used to ascertain whether the unique error term is correlated with the regressors. The Fixed effect aligns with the alternative hypothesis which states that the entity's error term is correlated with the regressors, while random effects explores the null hypothesis stating that the entity's error term is not correlated with the regressors. Therefore, the results from random effect and fixed effect revealed that F-statistics are significant in all scenarios. But the Hausman specification test considered fixed effect regression as the most appropriate estimator because the Hausman test result is statistically significant at 5% implying that the assumptions of the fixed effect approach is not violated and therefore fixed effect regression is more suitable for this study. This can be confirmed from the Chi-square value of 13.68 and a P-value of 0.0097.

From the fixed effect regression results in table 4.4, the R-squared value of 0.638166 and the value of R-squared adjusted of 0.612779 indicates that about 63%variation in return on assets (ROA) is explained by the predictors-board cognitive diversity (BCD), foreign diversity (FD), tenure diversity (TD) and age diversity (AD) while about 36% indicate variations in ROA not explained in the model. The F-statistic of about 9.858469 shows that all the variables in the model presents a good fit. The Durbin-Watson (D-W) statistic of 1.641352

indicates the absence of autocorrelation and serial correlations. Therefore, the results can be relied upon for forecasting and policy simulations.

5.0 Summary of Findings, Conclusion and Recommendation

The result of the study indicates that all proxies of the of independent variable corporate board diversity decomposed into board cognitive diversity, foreign diversity/ directorship, tenure diversity and age diversity are veritable components in achieving firm performance. Several extant studies aligns with this submission Mukhibad, Setiawan, Aryani & Falikhatun (2024), Alharbi (2024) Boadi & Osarfo (2019),Odero & Egessa (2023),Ujunwa, Nwakoby & Ugbam(2012),Ji,Peng, Sun, & Xu (2020), Aifuwa, Musa,Gold & Usman, (2020) and Talalweh & Obaid (2024). To ensure corporate boards are well structured to meet and brace up with the expectations of fund providers (shareholders and other stakeholders), regulators should ensure adherence to established provisions or requirements promoting functional boards. Corporate boards are the drivers of firms strategy direction hence, if their composition is not robust, the actualization of firms long term objective may be in doubt. Also, to achieve optimal efficiency on the board, the diversity of corporate board members must be scrutinized. Firms should continuously appraise and reappraise the constitution of their board as it remains instrumental to the long term growth potential of any organization.

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