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BOARD COGNITIVE DIVERSITY AND FIRM PERFORMANCE NEXUS: EVIDENCE FROM NIGERIA

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Abstract

Purpose of the study: This study examined the influence of board cognitive diversity on firm performance in Nigeria. The researchers investigated consumer goods firms listed in the Nigeria Stock Exchange from 2013 to 2018.

Methodology: This research is hinged on the positivist research philosophy; and the deductive research approach. The study adopted the multi-method quantitative research design. Data was hand-collected from the annual financial statements and firms' websites of consumer goods firms. The researchers measured board cognitive diversity by educational level diversity, education background diversity, and professional member diversity; while performance was measured via financial performance (ROA) and market performance (Tobin's Q). Panel least squares were used to estimate the model of the study.

Main Findings*:* Results from the panel least squares regression revealed mixed findings on the nexus between the proxies of board cognitive diversity and firm performance in Nigeria. Specifically, we found that education level diversity and professional member diversity of board members positively and significantly affects market performance. In contrast, the educational background diversity of the board negatively and significantly affects the market performance of consumer goods firms in Nigeria. Furthermore, we found no evidence on the nexus between educational level diversity; educational background diversity; professional membership diversity of board members, and financial performance of firms investigated.

Implications/Applications: The researchers concluded that board cognitive diversity partially influences firm performance in Nigeria. The study recommended that firms in Nigeria, specifically consumer goods firms, should encourage more representation of board directors with a postgraduate degree. This is because they have advanced knowledge and expertise to improve the firm's performance.

Novelty/Originality of this study: This is pioneer research to investigate the influence of board cognitive diversity on firm performance in Nigeria.

Keywords: *Education Level Diversity, Education Background Diversity, Professional Membership Diversity, ROA, Tobin's Board Cognitive Diversity.*

INTRODUCTION

In this present dispensation, the performance of firms plays a pivotal role in their survival and going concern status. This is due to the fact of the current health crisis (coronavirus pandemic) that is ravaging the world's populace, and her economy has hit the inevitable (Aifuwa et al., 2020). Businesses and governments across the globe had felt the negative impact of the invisible enemy, which has caused an economic downturn in nations across the globe (Musa & Aifuwa, 2020). Kwaltommai et al. (2019) echo that performance does not only improves the market value of a firm but also leads to growth in the industrial sectors and the economy of the nation. Therefore, it is pertinent that business practitioners, government, and regulatory agencies do the needful as regards operational policy to protect the going concern status of businesses.

In Nigeria, the consumer goods firms, also known as Fast Moving Consumer Goods Sector (FCMG), have experienced lots of challenges in the last four years due to recession. Key players in this sector have had a fair share of the aftermath of the 2016 economic recession, despite the pronouncement of the National Bureau of Statistics (NBS) the nation was out of recession (Adekoya, 2018). Consumer goods firms' performances have been severely affected by inflation and the slow recovery of the nation's economy from recession. This has weakened the consumer purchasing powers, which resulted in Consumer goods firm to reduce the prices of goods. This, would, in turn, reduce their profit, and further hurt the economy of the nation in the form of unemployment or underemployment.

In the face of this poor performance in consumer goods firms, the board has to initiate organisational revolution and ease processes that support the organisational mission (Bart & Bontis, 2003). Thus, the boards of directors' cognitive abilities are highly needed to place the firms on a path of improved performance. This is because the success of an organisation depends mainly on the board (Aifuwa & Embele, 2019). Furthermore, World Bank's (2016) report sounded that good corporate

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governance practice reduces borrowing costs, adds values to the firm, and improves risk management, which eventually leads to sustainable growth and improved firm performance.

In literature, board cognitive diversity or attributes includes educational level, educational background, and functional experience, and tenure (Dedunu & Anuradha, 2020). Researchers have empirically investigated the impact of board cognitive diversity on firm performance and have found inconsistent evidence. For example, on the nexus between board educational level diversity and financial performance, Bin Khidmat et al. (2020) found a positive association, Tejerina-Gaite, and Fernández-Temprano (2020) found a negative relationship, while Wellalage and Locke (2013) found no relationship. Likewise, the nexus between board educational level diversity and market performance, Ngo et al. (2019) found a positive relationship, Khan (2018) and Wellalage and Locke (2013) found a negative association, while Bin Khidmat et al. (2020) and Hassan and Marimuthu (2017) found no association. Secondly, there is a dearth in the literature on the impact of board educational background diversity, professional membership diversity on firm performance (Kent Baker et al., 2020). Thirdly, to the best of the researchers' knowledge, no study in Nigeria has critically examined the influence of board cognitive diversity on firm performance. Therefore, these gaps identified in the literature motivated the study.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Firm performance

Aifuwa et al. (2020) and Aifuwa (2020) theoretically define firm performance as the ability of a firm to maximize profit and at the same time satisfy the need of diverse stakeholders of the firm. Flowing from this definition, we can deduce that firm performance could be financial or non-financial. Also, in contemporary times, the financial performance of the firms has been acknowledged by users of financial reports as the best indicator to ascertaining the going concern status of a firm. Santos and Brito (2012) assert that financial performance could be determined by profitability, growth, and market value. Profitability demonstrates the ability of a firm to yield return; growth measures the past ability of a firm to increase its size; while market value evaluates the external expectation of the future performance of the firm. Lassala et al., (2017) noted that the two widely recognised category of financial performance measures is accounting-based measures and market-based measures. The selection of the appropriate measures to assess corporate performance is dependent on the type of organisation that is evaluated and the objectives to be achieved through that evaluation (Kwaghfan, 2015).

Lassala et al. (2017) highlighted some arguments surrounding the efficiency of these measures. The accounting-based measures are considered to be better measures for financial performance than market-based measures, but it can be more easily manipulated. Additionally, the accounting measure shows what is happening in the company(López et al., 2007). The market-based measures present the future expectations of profitability, although they are influenced by different macro-economic factors (Griffin & Mahon, 1997). Busch and Friede (2018) noted that other researchers (Margolis et al., 2009; Orlitzky et al., 2003) concluded based on empirical shreds of evidence that accounting-based measures have a stronger relationship with corporate social performance than the market based financial measures. Aggarwal (2013) maintains that accounting-based measures are derived from audited financial statements that are more authentic and reliable than the market-based measures like share price and stock returns. The accounting-based measures are historical. They include measures such as return on shares (ROS), return on asset (ROA), return on earnings (ROE), and earnings before interest, taxes, depreciation, and amortisation (EBITDA) (Ching et al., 2017). Other commonly used accounting-based measures return on capital employed (ROCE), return on sales (ROS), net operating income, and net income (Galant & Cadez, 2017).

The market-based measures are influenced by speculation and market perceptions and thus considered to be noisier. Galant and Cadez (2017) however, objected that although accounting-based measures for companies are easily assessable and relatively comparable. Market-based measures include earnings per share (EPS), dividend per share (DPS), dividend yield, market value-added, Tobin's q, and stock price volatility (Santos & Brito, 2012). Other commonly used market-based measures are stock returns, market value, and changes in stock returns (Galant & Cadez, 2017); price-earnings ratio, and others. Therefore, for this study, we used both account-based measure – return on assets and the market-based measure – Tobin's Q.

Board cognitive diversity

Different scholars from different disciplines have defined the concept of cognitive diversity. Miller (1990) define cognitive diversity as the variation in the belief on the cause and effect relationship and the variations in preferences on various goals of organisations. In a more precise form, Miller et al. (1998) defined cognitive diversity as differences in beliefs and preferences held by top executive members in a firm. Reynolds and Lewis (2017) as the variation in perspectives or information processing styles of individuals, which could be influenced by personality, socio-economic background, experience, functional background, and educational background. Perusing through the above definitions, we defined board cognitive diversity as the differences in board members' beliefs and preferences, due to their education, work experience, and tenure heterogeneity in solving the board problems.

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The decision-making function of the board highly necessitated the need for cognitive diversity among her members. In line with the Upper Echelon theory, a cognitive divers board would improve the performance of a firm (Hambrick & Mason, 1984). Hülsheger et al. (2009) and (Van Knippenberg & Schippers, 2007) noted that cognitive diversity in the board focuses on education, work experience, and tenure amongst members. Dahlin et al. (2005) asserted that cognitive diversity provides a broader spectrum of knowledge, skill, and expertise for the board to effectively and efficiently handle complex situations that could add value to the firm.

In spite of the theoretical predictions and assertions, there is still an argument as to whether or not cognitive diversity affects the performance of firms. In line with the traditional Agency theory, researchers have argued that cognitive diversity would positively affect the performance of an organization (Cox & Blake, 1991; Kilduff et al., 2000; Ngo et al., 2019; Pelled et al., 1999). For instance, Cox and Blake (1991); Kilduff et al. (2000) noted that it would improve team problem-solving effectiveness; Amabile et al. (1996) sounded that it leads to creativity and innovation

Contrary to the above argument, scholars have argued that cognitive diversity negatively affects firm performance (Daft & Lengel, 1986; Glick et al., 1993). They based their argument on the fact of teams coordinating ability. When team members' perception is significantly different, there would be friction and incompatibility of ideas in the team or board. Dahlin et al. (2005); Knight et al. (1999); Weber and Camerer (2003) re-echoed that board would not have the ability to coordinate and accomplish the task effectively and efficiently if team members expectation and beliefs are incompatible. Daft and Lengel (1986) further argued that cognitive diversity would lead to communication failure on a strategic issue, due to differentiation in language, perception, and image to the community with each other. To this end, our study would examine the impact of board cognitive diversity on firm performance. In this study, the researchers' proxy cognitive diversity as education level, background (education), and professional background diversity (work experience).

Education Level Diversity and Firm performance

Education level diversity in the boardroom improves boards' members thinking ability and capacity to finding a solution to problems that may arise in an organisation. In line with the Resource Base View, Barney (1991) posit that education level diversity is one of the significant resources that contribute to firms' strategic decision. Furthermore, Katmon et al. (2019) opined that education level diversity significantly helps the board in generating other ideas on strategic issues. Diversity in the level of education improves the boards' ability and proficiency in processing information and recognising new business opportunities (Aifuwa et al., 2020; Hsu et al., 2013). In the sphere of the capital market and trade, Nielsen and Huse (2010) echoed that education level diversity in the boardroom improves board members' social connection and affinity with other market participants.

However, despite the above positive assertions of the impact of education level diversity and firm performance, there exists a condition of inconclusive findings in the empirical literature. For, example on financial performance, Bin Khidmat et al. (2020) found a positive association, Tejerina-Gaite and Fernández-Temprano (2020) found a negative relationship, while Wellalage and Locke (2013) found no relationship. Also, on market performance, Ngo et al. (2019) found a positive relationship, Wellalage and Locke (2013) and Khan (2018) found a negative association, while Bin Khidmat et al. (2020) and Hassan and Marimuthu (2017) found no association. Therefore, we hypothesize that:

Ho_{1a}: *Board member education level diversity has no significant impact on firms' financial performance.*

Ho_{1b}: *Board member education level diversity has no significant impact on firms' market performance.*

Education background diversity and Firm Performance

A board with individual members of diverse educational background are equipped with a wealth of intellects, cognitive abilities, and attitudes, which can improve firm performance. Barroso-Castro et al. (2017) echoed that educational background in the boardroom improves board members' ability to generate and share new insights amongst themselves. Vo and Phanboards') sounded that boards effectiveness would increase when the board members are from a diverse educational background. Khan et al. (2019) posited that diversity in the boards' educational background stimulates divergent ideas, skills, and how judgment is taken and appraised on social interests and practices of the firm. Clark and Maggitti (2012) note that it is a valuable resource and also a catalyst for strategic decision-making on corporate social responsibility disclosure. Therefore, differences in education background such as business, management, sciences, art, law and engineering, and a host of other disciplines would promote a firm's performance. However, it is unfortunate that in literature, little or nothing has been said on the impact of the board's educational background on a firm's performance. Although, Dedunu and Anuradha (2020) investigated the impact of board diversity on firm performance through board meetings on listed manufacturing companies listed in Sri Lanka and found that board education background diversity negatively affects firm performance (market performance). Also, in the Nigerian context, there is paucity in the literature on the nexus between board education background diversity and firm performance. Therefore, to fill this gap, we hypothesize that;

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Ho$_{2a}$: *Board member education background diversity has no significant effect on firms' financial performance.*

Ho$_{2b}$: *Board member education background diversity has no significant effect on firms' market performance.*

Professional membership diversity in the board room and firm performance

Professional bodies and institutions are established for regulatory purposes. Their role is to decide, maintain, and regulate the ethics of practice and conduct of professionals in their respective professions. In Nigeria, there are diverse professional bodies. Professions bodies like the Institute of Chartered Accountant of Nigeria (ICAN), Association of National Accountants of Nigeria (ANAN), Chartered Institute of Taxation of Nigeria (CITN) (for the accounting profession), Council for the Regulation of Engineering in Nigeria (COREN) (for engineering profession), Chartered Institute of Bankers of Nigeria (CIBN) (for banking profession), Medical and Delta Council of Nigeria (MDCON) (for medical profession), and a host of others. A board with members having diverse professional qualification would bring value to the board and could improve the firm's performance. However, to the best of the researcher's knowledge, no study has investigated the nexus between board member professional membership diversity and firm performance. Therefore, we hypothesize that;

Ho$_{3a}$: *Board member professional membership diversity has no significant influence on firms' financial performance.*

Ho$_{3b}$: *Board member professional membership diversity has no significant influence on firms' market performance.*

Control variables

We introduced Board Size and firm size to control the effect the regressor has on the regress and any change in these variables would invalidate the correlation of dependent variables (DV) to the independent variable (IV), thus skewing the results (Studenmund, 2014).

MATERIAL AND METHODS

Theoretical Framework

We anchored our study on the Upper Echelon Theory of (Hambrick & Mason, 1984) to explain the effect of board cognitive diversity on the performance of listed consumer goods firms. The theory explains a correlation between the organisational outcome and managerial background attributes. Hambrick and Mason (1984) asserted that organisational performance mirrors the values and cognitive bases of powerful actors in the organisation. In this study, the power actors are the board of directors, and their managerial attributes like cognitive diversity, educational level, background, and professional background (work experience diversity) affect the firm's performance.

Education level is a fundamental criterion in selecting managers and leaders in an organisation. A board with members of a high educational level is associated with better performance. Bertrand and Schoar (2003);

Cheng et al. (2010); Jalbert et al. (2002) submitted that board members with a graduate degree are associated with better performance, profitability, and increased operational efficiency. On education level diversity, researchers have established either positive and negative relationship between board educational level diversity and firm performance (financial and market performance) (Bin Khidmat et al., 2020; Khan, 2018; Ngo et al., 2019; Tejerina-Gaite & Fernández-Temprano, 2020; Wellalage & Locke, 2013). Therefore, we expect a functional relationship to be;

$$FPER = f(BEL) \quad \text{(i)}$$

A board with a member of a diverse educational background would improve board members' ability to generate and share new insights amongst themselves (Barroso-Castro et al., 2017). Board members from a different educational background, like a business, management, sciences, art, law and engineering, and a host of other disciplines would promote firm performance. An improved strategic decision is taken when a board member has divergent ideas, skills, and how judgment. Therefore, we expect a functional relationship to be;

$$FPER = f(BEB) \quad \text{(ii)}$$

Flowing from the backdrop of education background diversity, professional membership diversity of board members on the board would enhance the performance of the board to improving the performance of the firm. Profession bodies like ICAN, ANAN, CITN, COREN, CIBN and a host of other, role is to decide, maintain, and regulate the ethics of practice and conduct of professionals in their respective profession. This significantly improves the firm's performance; thus, we envisage a functional relationship of;

$$FPER = f(PEB) \quad \text{(iii)}$$

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Model Specification

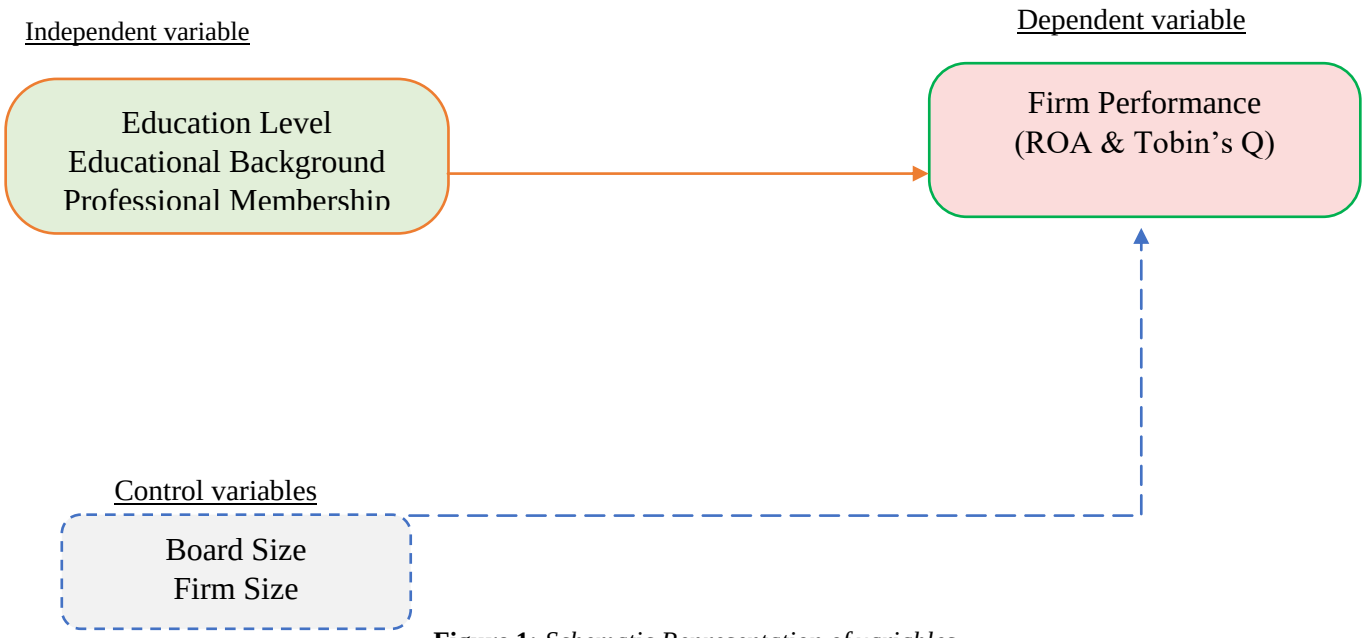


Figure 1: *Schematic Representation of variables*

Source: Authors' schemata, 2020

Against the backdrop of the above framework, we collect equations one, two, and three in a functional relationship as

$$FPER = f(BEL; BEB; PEB) \quad \text{(iv)}$$

Integrating the control variables of board size and firm size that may cause variation in the dependent variable of firm performance, equation four is modified as:

$$FPER = f(BEL; BEB; PEB, BSZE, FSZE) \quad \text{(vi)}$$

In econometric form:

Acknowledging both the financial and market performance of a firm, we specified our model as;

$$FPER_{ROAit} = \beta_0 + \beta_1 BEL_{it} + \beta_2 BEB_{it} + \beta_3 PEB_{it} + \beta_4 BZSE_{it} + \beta_5 FSZE_{it} + \varepsilon_{it} \quad \text{(vii)}$$

$$FPER_{TobinsQit} = \beta_0 + \beta_1 BEL_{it} + \beta_2 BEB_{it} + \beta_3 PEB_{it} + \beta_4 BZSE_{it} + \beta_5 FSZE_{it} + \varepsilon_{it} \quad \text{(viii)}$$

Where

$FPER_{ROA}$ = Financial performance;

$FPER_{TobinsQ}$ = Market performance;

β_0 = Constant;

BEL = Board member education level diversity;

BEB = Board member educational background diversity;

PEB = Board member professional membership diversity

BSZE = Board Size;

FSZE = Firm Size.

$\beta_1, \beta_2 \beta_3$ = Coefficient of explanatory variables

ε = Standard error

i = Cross sectional (Companies)

t = Time Series

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A priori expectations in with extant literature to be $\beta_1, \beta_2, \beta_3 > 0$

Table 1: Measure of variables

Variable	Type	Measurement	Supporting Scholars
Firm Performance	Dependent Variables	Return on asset (profit before interest and tax divided by total asset)	Aifuwa et al. (2020); Ujunwa (2012).
		Tobin's Q (ratio of the market capitalization plus total debt divided by the total asset of the company)	Karaca and Eksi (2011); Wahla et al. (2012)
Board Member Education Level (BEL)	Independent Variable	Total numbers of board members with a Postgraduate degree divided by the total number of directors.	Ngo et al. (2019); Vo and Phan (2013)
Board Member Educational Background (BEB)	Independent Variable	Blue index of broad educational background diversity, with six categories: HR and accountancy, banking and finance, economics, engineering, law, and others.	Blau (1977)
Board Member Professional Membership (PEB)		Blue index of broad professional membership background diversity, with six categories: ICAN, CIBN, COREN, ICEN, NIM, and others.	Blau (1977)
Board Size (BSZE)	Control Variable	Total number of directors sitting on the board	Adeniyi and Fadipe (2018)
Firm Size (FSZE)	Control Variable	Natural logarithm of total assets	Aifuwa and Embele (2019); Musa and Aifuwa (2020)

Source: Authors' Compilation, 2020

Research Design

Inclined on the positivist research philosophy; and the deductive research approach, we adopted the multi-method quantitative research design. The rationale for the adoption of the multi-method quantitative research design because it examined the relationships between variables measured numerically and analysed using a range of statistical and graphical techniques (Thornhill et al., 2009).

Method of Data Collection and Analysis

The population comprises manufacturing firms in the Nigerian Stock Exchange. The target population of the study was the consumer goods firms on the Nigerian Stock Exchange as of December 2013.

We conveniently selected seventeen (17) of the twenty (20) listed consumer goods firms in Nigeria. The rationale for this was because of the availability of data. Data for the variables of the study were hand-collected from the annual financial statements and firms' websites. We considered six (6) years from 2013-2018. The period selected was selected to know the recent happenings in the consumer goods sector. Descriptive and inferential statistics were used to analyse data. The Panel Least Squares was used to test hypotheses stated. The rationale for this was because the data include properties of time-series and cross-sectional data (Aifuwa & Okojie, 2015; Studenmund, 2014).

DATA PRESENTATION, ANALYSIS, AND DISCUSSION OF FINDINGS

In this section, we described the data used in the variables of the study.

Table 2: *Descriptive Statistics*

Variables	Mean	Minimum	Maximum	Std. Dev	Observation
ROA	0.096652	-2.360000	3.330000	0.440282	102
TOBINS Q	-0.057925	-15.99000	4.278000	2.831006	102
BEL	0.462088	0.000000	1.000000	0.299226	102
BEB	0.698438	0.34588	0.80000	0.043781	102
PEB	0.562745	0.25475	0.80000	0.045816	102
BSZE	9.911765	4.000000	15.00000	2.768647	102
FSZE	7.535407	4.758056	8.916817	0.911470	102

Source: Authors' Computation, 2020

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Table 2 presents the summary statistics about the sampled listed Consumer goods firms over the study period. The mean of firm performance as proxied by both ROA and Tobin's Q stood at 0.097 and -0.088, respectively. The lowest and highest value of ROA were -2.36 and 3.33, while Tobin's Q was -15.99 and 4.278 respectively. However, both proxies - ROA and Tobin's Q standard deviation did not exhibit considerable clustering around the mean. The mean value of the directors' with postgraduate education, directors with diverse educational backgrounds, and directors with diverse professional membership stood at about 46%, 69%, and 56%, respectively. Also, all independent variables' standard deviation exhibited significant clustering around the mean. Lastly, the control variables, Board size, and firm size mean stood at about ten directors on the board and ₦7,535,407,000. The minimum and a maximum number of directors sitting on the board were 4 and 15 directors, respectively. While the lowest and highest firm size observed was ₦4,758,056,000 and ₦8,916,817,000. Also, the standard deviation for both board size and firm size exhibited significant clustering around the mean.

Table 3: *Correlation Matrix*

	ROA	TOBINS Q	BEL	BEB	PEB	BSZE	FSZE
ROA	1.000						
TOBIN'S Q	0.355**	1.000					
BEL	0.101	0.162	1.000				
BEB	0.040	-0.068	0.567**	1.000			
PEB	0.101	0.136	0.563**	0.154**	1.000		
BSZE	-0.010	0.170*	0.185*	0.132	0.184*	1.000	
FSZE	0.152	0.699**	0.329**	0.382**	0.520**	0.314**	1.000

** Significant at both 5%*

*** Significant at both 10% and 5%,*

Source: Authors' Computation, 2020

The linearity of variables (correlation matrix) as presented in Table 3 show that the variables exhibited both positive and negative relationship. For example, board education level diversity and ROA (0.101) and board size and ROA (-0.010). Also, as seen in the matrix, the strength of the relationship between variables measured by the Pearson product-moment correlation showed that the association between the variables is relatively small and were below the threshold of 0.80, suggesting the absence of the problem of multicollinearity in the predictor variables (Studenmund, 2014).

Multivariate Analysis

We present the result of the Hausman test and the Panel Least Squares Regression in this section. Hypotheses of the study were tested at 5% level of significance (that is, if p-value < 0.05 reject **Ho**, else do otherwise) (Aifuwa & Okojie, 2015).

Table 4: *Hausman test of effect specification (model one)*

Correlated Random Effects - Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	92.135526	5	0.0000

Source: Authors' Computation, 2020

Table 5: *Hausman test of effect specification (model two)*

Correlated Random Effects - Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	208.41115	4	0.0000

Source: Authors' Computation, 2020

The tables 4 and 5 above shows the result of the Hausman test for both model one and model two in the study, HM (5) = 92.136, p = 0.0001 and HM (4) = 208.411, p = 0.0001, respectively. Leaning on this result, we ignored the random effect model at 5%, therefore accepted the fixed effect models of the panel least squares the regression.

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Table 6: *Inferential Statistics – Balanced panel least square (fixed effects regression)*

Variables	ROA		Tobin's Q	
	Coefficient	Standard Error	Coefficient	Standard Error
Constant	1.234**	0.530	-14.669**	1.576
Educational level diversity	-0.009	0.173	1.429**	0.694
Education background diversity	0.282	0.376	-7.080**	1.361
Professional membership diversity	0.036	0.341	3.310**	1.361
Board size	-0.005	0.016	-0.070	0.064
Firm size	0.098**	0.025	2.393**	0.231
Adjusted R-squared	0.127		0.645	
S.E. of regression	0.411		1.687	
F-statistic	3.450**		37.673**	

**significant at 5 percent level;

Source: Authors' Computation, 2020

Table 6 above revealed the results of the panel least squares regression for both models of the study. On the financial performance (ROA) model, board cognitive diversity had a significant impact on the financial performance of consumer goods firms across periods investigated, F-statistic = 3.450, $p < 0.05$. Furthermore, the adjusted R-Squared stood at 0.127; that is 12.7% of the systematic variation in the dependent variable is caused by the explanatory variable used in the study. While about 87.3% of the variations are caused by other variables not included in the model but were adequately captured by the standard error of the regression, SE = 0.411.

However, board educational level diversity, educational background diversity and professional membership diversity had no significant effect on financial performance of listed consumer goods firms, $\beta_1 = -0.009$; SE = 0.173, $p > 0.05$; $\beta_2 = -0.282$; SE = 0.376, $p > 0.05$; $\beta_3 = 0.036$; SE = 0.341, $p > 0.05$, respectively. In line with this result, we failed to reject the null hypothesis raised in the study that educational level, educational background, and professional member diversity do not have a significant impact on the financial performance of consumer goods firms. Our result is consistent with the findings of Wellalage and Locke (2013) who found no relationship on the nexus between board education level diversity and financial performance. However, our finding was not consistent with the works of Bin Khidmat et al. (2020) who found a positive association between board education level diversity and financial performance of a firm, and (Tejerina-Gaite & Fernández-Temprano, 2020). They found a negative relationship between board education level diversity and financial performance of a firm. This result failed to supports the Upper Echelon theory that the board education level diversity would translate to improved financial performance of firms.

On the market performance (ROA) model, board cognitive diversity also had a significant effect on the market performance of consumer goods firms across periods investigated, F-statistic = 37.673, $p < 0.05$. The adjusted R-Squared stood at 0.645; that is about 64.5% of the systematic variation in the dependent variable is caused by the explanatory variable used in the study. At the same time, about 35.5% of the variations are caused by other variables not included in the model but were adequately captured by the standard error of the regression, SE = 1.687.

Furthermore, board educational level diversity had a positive and significant relationship on the market performance of consumer goods firms in Nigeria over the period investigated, $\beta_1 = 1.429$; SE = 0.694, $p < 0.05$. This implies that board educational level diversity positively affects the market performance of consumer goods firms; thus, an increase in board educational level diversity would increase market performance by 1.429. This finding is consistent with the works of Ngo et al. (2019) found a positive relationship between board education level diversity and market performance of a firm. However sharply deviates from the works of Wellalage and Locke (2013) and Khan (2018) who found a negative association between both variables, and also the work of Bin Khidmat et al. (2020) and Hassan and Marimuthu (2017). They found no association between board education level diversity and market performance. Our finding supports the Upper Echelon theory that organisational performance is mirrored by the cognitive bases of powerful actors in the organisation.

Contrary to the result above, board educational background diversity had a negative relationship on the market performance of consumer goods firm, $\beta_2 = -7.080$; SE = 1.361, $p < 0.05$. The researchers failed to reject the null hypothesis stated in the study that board educational background diversity had no impact on market performance. This result implies that an increase in board educational background diversity would reduce market performance by -7.080. Our result supports the Upper Echelon theory that board cognitive attributes affect a firm's performance; thus, a correlation exists. Our finding is in tandem with the findings of Dedunu and Anuradha (2020) also found that board education background diversity negatively affects firms' market performance.

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Professional membership diversity (a proxy for work experience) had a positive and significant relationship on the market performance of consumer goods firm, $\beta_3 = 3.310$; SE = 1.361, $p < 0.05$. The researchers failed to reject the null hypothesis stated in the study that board professional membership diversity had no impact on market performance. This result implies that an increase in board professional membership diversity would increase market performance by 3.310. This result supports the theoretical perspective of (Hambrick & Mason, 1984) Upper Echelon theory.

Lastly, the controls variable introduced evidenced mixed evidences. Board size was found to be negative but insignificantly related to financial performance and market performance of firms investigated, $\beta_{4a} = -0.005$, SE = 0.016, $p > 0.05$; $\beta_{4b} = -0.070$, SE = 0.064, $p > 0.05$, respectively. While, firm size was positively and significantly associated to financial performance and market performance of firms, $\beta_{5a} = 0.098$, SE = 0.025, $p < 0.05$; $\beta_{5b} = 2.393$, SE = 0.231, $p < 0.05$, respectively.

CONCLUSION AND RECOMMENDATIONS

The broad objective of this study was to investigate the influence of board cognitive diversity on firm performance. Specifically, the study examined the impact of board education level and background diversity, and board professional membership (a proxy for functional work experience) diversity on the performance of listed consumer goods firms in Nigeria. Descriptive statistics and inferential statistics were used to summarise the date and draw inference on the population studied. The result from the inferential statistic evidenced mixed findings on the nexus between the measures of board cognitive diversity and firm performance, thus, partially supported the theoretical framework of the study. In line with the results of the study, the study concluded that board cognitive diversity partially affects firm performance. Hence based on the findings, we, therefore, recommend that;

1. Firms should encourage more representation of board directors with a postgraduate degree because they have advanced knowledge and expertise to improve firms' performance.
2. Education background diversity of board members should be encouraged by firms in order to sustain the level of performance attained.
3. Also, board with diverse professional membership backgrounds should be highly welcomed to the board, because they have the technical skills to pilot the affairs of the board effectively or efficiently.

LIMITATIONS AND STUDY FORWARD

This study is subject to some limitations. First, we only studied listed consumer goods firms in the manufacturing industry, thereby ignoring the unlisted consumer goods firm. In line with this limitation, we investigated only listed consumer goods firm, ignoring other listed firms in the Nigeria Stock exchange to arrive at a valid generalization accurately. Thus, generalization should be made with caution. Secondly, the period studied – 2014-2018 may not accurately capture the subject of the study. This study recommends that future research should capture unlisted consumer goods firms, and other listed firms in the Nigerian stock exchange, and the period of study should be increased.

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AUTHORS CONTRIBUTION

All the authors of this work contributed greatly to the actualization of this paper. From the stage of literature review; sourcing of data for analysis; data analysis and interpretation, referencing of the manuscript.

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