

EFFECT OF BOARD DIVERSITY ON BORROWING COST OF LISTED CONGLOMERATES IN NIGERIA

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Abstract: This study ascertained the effect of Board Diversity on Borrowing Cost of listed Conglomerates in Nigeria from 2010-2019. Specifically, the study determined the effect of Gender Diversity, Age Diversity and Geographical Diversity on Borrowing Cost. Purposive sampling technique was employed to select all the six (6) listed conglomerates in Nigeria. Panel data were used in this study, which were obtained from the annual reports and accounts of sample firms for the periods 2010-2019. *Ex-Post Facto* research design was employed. Inferential statistics using Pearson correlation coefficient and Panel least square regression analysis were applied to test the hypotheses of the study. The results showed that Gender Diversity, Age Diversity and Geographical Diversity exerts a significant positive effect on Borrowing Cost respectively at 5% level of significance. This study recommended among others that there should be a robust and creative market for solutions that will create opportunities for younger directors to advance in leadership roles within the corporate institutions and to enhance firms' ability to comply with risk oversight objectives.

Keywords: Age Diversity, Gender Diversity, Geographical Diversity, Borrowing Costs

I. Introduction

Board diversity has gained considerable academic, political, and media attention at both national and global levels in recent years. Researchers, policymakers, and practitioners suggest that well-structured boardrooms enhance the performance and organizational policymaking for all companies (Li, Terjesen & Umans, 2020). Board diversity can assist firms in gaining different information and wider exposure to the environment from suppliers, customers, policymakers, as well as social groups and competitors. Moreover, board diversity enhances board independence and decision-making quality as it takes the views of underrepresented groups into account. Board diversity represents an important corporate governance structure in order to realize efficient and effective management and monitoring within companies. Thereby, the consideration of diversity when selecting the board of directors is essential to companies. The board of directors is usually a form of control mechanism used by organizations internally to control the appointment, supervision and remuneration of top management in institutions besides strategy formulation (Gallego-Álvarez & Pucheta-Martínez, 2020).

Borrowing costs are interest and other costs that an entity incurs in connection with the borrowing of funds (IAS 23). In today's economic globalization, many national and international businesses have the opportunity to establish a capital partnership with another company or be economically active worldwide. Therefore, companies should have reliable financial statements to help external users make the right investment decisions. The likelihood of unreliable and nontransparent financial statements poses a risk to investors in terms of which business information to trust. Corporate investment decisions are one of the financial management decisions made by the board of directors on behalf of the company's real owners (the shareholders). These decisions may be undertaken for either investment or disinvestment. The sole purpose of these decisions is to enhance the corporation's net wealth, ensuring an increase in the value of shares in the market, subsequently, shareholders' wealth increases. In the contemporary global era, it is urged that board diversity yields elevated decision-making, heightened vision,

distinctive ideas, and creative marketing within diverse consumers. Being the decision-making group, corporate boards are the focal point of firms' decisions (Amahalu & Ezechukwu, 2020). Companies' operations' success is gauged by structure, caliber, and other corporate board's tactical characteristics comprising the directors. Therefore, the board's composition in terms of diversity is one of the significant issues being confronted globally by modern corporate stakeholders. This study may have been timely to establish what effect board diversity would have on borrowing cost with specific focus on the conglomerates in Nigeria. This study comes against the backdrop of evidence that diversity in boardrooms can add value to the firm by creating better client relationships, risk and audit management.

II. Statement of the Problem

Board members have a wide range of skills and expertise as a collective to best guide the business. However, diverse individuals also have different preferences and values that may frustrate the decision-making process. Not only might diverse directors have troubles communicating and getting along, but they may also disagree on what the pressing problems of the firm are, and on which policies optimize the firm's objectives. Differences in preferences between directors could create conflicts within the boardroom, decrease the directors' effort and engagement, and lead to unpredictable decisions (Ezechukwu & Amahalu, 2019). Thus, if these effects prevail, the performance of firms with diverse boards may be highly variable.

Researchers have raised concern about the poor performance and productivity of Nigeria conglomerates. Conglomerates have seen their bottom line crumble as a result of the macroeconomic challenges prevailing in the country such as high cost of debt (leverage) which has led to high operational cost. This reflects a number of challenges faced by conglomerates such as higher costs of imported inputs, high exchange rate, and higher energy costs among others. In view of the economic challenges faced by conglomerates, the characteristics of firms are affected negatively such as increase in cost of debt (leverage) due to high interest rate and foreign exchange rate, and this will increase the operating cost and thereby pose threat to reduction in sales growth over time and thus reduce the liquidity position of the conglomerates. This will therefore affect the growth or size of the companies in Nigeria. The mixed results and divergent opinions on previous studies on the effect of board diversity on financial performance have been inconclusive. For instance Karavitis, Kokas and Tsoukas (2021); Aladejebi (2021); Hapompwe, Mulenga, Siwale and Kukano (2020); Amahalu, Egolum and Obi. (2019): found a positive relationship between board diversity on financial performance. Tauhid, Lasisi, Gambo, Okpanachi and Mustapha (2020); Ecowas. Omojolaibi, Oladipupo and Okudo. (2019) documented a negative relationship between board diversity on financial performance, while, Chan and Heang (2020); Abiahu, Egbunike, Udeh, Egbunike & Amahalu (2019) reported a non-significant relationship between board diversity on financial performance, thereby creating a gap in knowledge which this study tends to fill.

III. Objectives of the Study

The main objective of this study is to determine the effect of Board Diversity on Borrowing Cost of Listed Conglomerates in Nigeria.

The specific objectives are to;

- i. Ascertain the effect of Gender Diversity on Borrowing Cost of listed Conglomerates in Nigeria.
- ii. Evaluate the effect of Age Diversity on Borrowing Cost of listed Conglomerates in Nigeria.
- iii. Determine the effect of Geographic Diversity on Borrowing Cost of listed Conglomerates in Nigeria.

IV. Research Hypotheses

In line with the objectives of the study, the following null hypotheses were formulated:

Ho₁: Gender Diversity has no significant effect on Borrowing Cost of listed Conglomerates in Nigeria.

Ho₂: Age Diversity has no significant effect on Borrowing Cost of listed Conglomerates in Nigeria.

Ho₃: Geographic Diversity has no significant effect on Borrowing Cost of listed Conglomerates in Nigeria.

V. Review of Related Literature

Board Diversity

Diversity means having a range of many people that are different from each other. Factors like age, race, gender, educational background and professional qualifications of the directors make the board less homogenous. Board diversity aims to cultivate a broad spectrum of demographic attributes and characteristics in the boardroom. A simple and common measure to promote heterogeneity in the boardroom commonly known as gender diversity is to

include female representation on the board (Padilla-Angulo, 2020). Diversity takes various forms in a boardroom and can be broadly categorised into the following elements: Skills, expertise and experience. Having the optimal mix of skills, expertise and experience is paramount to ensure that the Board as a collective is equipped to guide the business and strategy of the company. Boardroom diversity covers age, background, gender and ethnicity as well as skills and experience (Amahalu, Okoye, Obi & Iliemena, 2019). When a board of directors exhibits diversity, it is taken to mean that the board is a mixture of both male and female directors. Traditionally as is shown by researchers boards are predominately made up of male directors with a distinct minority of female directors

VI. Gender Diversity

Gender diversity is equitable or fair representation of people of different genders. It most commonly refers to an equitable ratio of men and women (Cook, 2021). Gender diversity refers to the extent to which a person's gender identity, role, or expression differs from the cultural norms prescribed for people of a particular sex (Lungeanu & Zajac, 2019).

Gender diversity benefits all businesses because it provides them with a wider talent pool. Having a variety of talents in business can provide a vast difference to productivity and your bottom line (Ezechukwu & Amahalu, 2017). Men and women have different viewpoints, ideas and insights which allows for better problem solving and an increase in business performance. These differences can also help increase innovation and creativity and help businesses to seize new opportunities and challenge gender stereotypes.

VII. Age Diversity

Age diversity is the acceptance of all ages in the work environment. Age diversity is an acceptance of different ages in a professional environment. Companies can take measures to adjust to an aging population and prevent ageism in the workplace (Amahalu, & Obi, 2020). Age diversity is the ability to accept all different types of ages within a business environment (Cordeiro, Profumo & Tutore, 2020). Age diversity improves employee turnover rates, meaning more skilled and experienced employees at your business. Employees age 55 and older also contribute to lower employee turnover and tend to be loyal workers. An age diverse workplace means a variety of experiences and points of view. Different perspectives can become a source of innovation. By pulling the various strengths of all your employees together, a company will foster creative and forward-thinking ideas (Hassan, Elamer, Sobhan & Fletcher, 2020). Each generation brings its own unique skillsets to your business. For example, while younger employees may have a tighter grasp on technology, older workers may have strong interpersonal skills. Combining these talents in an age diverse workplace strengthens a company as a whole

VIII. Geographical Diversity

Diversity refers to the difference and variety of people, animals or things that inhabit or coexist in a given area. However, that set of natural or artificial elements that differ from one another by size, color, texture, origin, chemical composition and uses, and make up a sector or region, have one feature in common. When all these elements coexist within the same geographic space, relatively small or delimited and differentiated from others, then this multiplicity of factors or elements happens to be called geographical diversity (Kafka, 2021). The geographical diversity is the set of physical, human and cultural elements, differentiated from each other, that converge in the same relatively small geographic space that is part of the same zone, region or country (Amahalu, & Obi, 2020). Diversity is expressed in the various physical characteristics of a region or space, such as climate, vegetation, fauna, bodies of water, existing types of relief and landscape, among others (Elsharkawy, Paterson & Sherif, 2018).

IX. Borrowing Costs

Borrowing costs are interest and other costs that an entity incurs in connection with the borrowing of funds. Borrowing cost can be defined as interest and other costs incurred by an enterprise in relation to the borrowing of funds. Borrowing costs refer to the expense of taking out loan expenses like interest payments incurred from a loan or any other kind of borrowing (Okegbe, Eneh, & Amahalu, 2019). Borrowing Costs requires that borrowing costs are directly attributable to the acquisition, construction or production of a 'qualifying asset' (one that necessarily takes a substantial period of time to get ready for its intended use or sale) are included in the **cost** of the asset (IAS 23). The standard accounting treatment for borrowing costs is that each borrowing cost should be expensed in the specific period in which they were incurred (IAS 23).

Gender Diversity and Borrowing Costs

The broad thrust of the empirical evidence supports the argument that board characteristics affect firm performance either in a direct or in an indirect way through the board's actions (Fan, Jiang, Zhang & Zhou, 2019). To begin with the mix of men and women on the board, the direct link is achieved primarily via a reduction of agency costs. Specifically, Bufarwa, Elamer, Ntim, and AlHares (2020) showed that gender-diverse boards make firms more transparent by increasing the disclosure of firm-specific information by managers and by providing incentives for the collection of private information by investors. Fakoya and Nakeng (2019) argue that compared with men, women possess many favourable traits in value judgment, risk attitude, and decision-making. Several studies document a positive relationship between gender diversity on the board and corporate performance (see, for example, Hassan, Elamer, Sobhan & Fletcher, 2020; Pucheta-Martínez, Bel-Oms & Nekhili, 2019; Eneh, Okegbe & Amahalu, 2019; Omojolaibi, Okudo & Shojobi, 2019). On the other hand, other researchers conclude that gender diversity in the boardroom does not necessarily improve firm outcomes (Okudo & Ndubuisi, 2021; Tingbani, Chithambo, Tauringana & Papanikolaou, 2020; Nadeem, Gyapong & Ahmed, 2020;).

Age Diversity and Borrowing Costs

Age diversity is a shared phenomenon that is present in nearly all groupings, such as families, higher institutions, sport teams, and work or team groups with members of varying ages. Workforce is unique in its generational diversity, which presents new challenges to organizations attempting to attract, retain, manage, and motivate quality employees. Each generation believes that its strengths are unique and they do not enhance those of other generations (Yu, College, Lenard, College, York & College, 2017). Where age diversity is practiced, the benefits accrue both to the organization and the employees. Having an age diverse environment produces and creates better working relationships and enhances social cohesion for all. For instance, it is assumed by people that older individuals are flexible, reluctant to change and underperform (Khatib, Abdullah, Kabara, Hazaea & Rajoo, 2020; Rafinda, Rafinda, Witiastuti, Suroso & Trinugroho, 2018).). In spite of the prevalence of the negative age stereotype against older people, younger employees are not left out as they are assumed to lack patience, social competence and experiences (Delgado-Piña, Rodríguez-Ruiz, Rodríguez-Duarte & Sastre-Castillo, 2020; Egolum, Amahalu & Obi, 2019).

Geographical Diversity and Borrowing Costs

The effect of foreign ownership on company performance may differ between countries. Large shareholders always have strong incentives to monitor management that can alleviate agency problems and increase firm performance (Amahalu Abiahu, Obi & Nweze, 2018). Foreign ownership enables technological innovation, efficiency and reduction in business risk (Iren & Tee, 2018), access to resources, capital markets, and management expertise (Orazalin, 2019). The studies examining the separate effects of foreign corporate ownership and institutional investors on firm performance focus on the degree of the fragmentation of each type of ownership, where less fragmented foreign corporate ownership creates stronger incentives for these investors to monitor the firms where they invest, so firms are more efficient, superior in technology, and better in managerial expertise (Okudo, Omojolaibi & Oladele, 2021; Owen & Temesvary 2019). However, foreign institutional investors who invest in firms that offer superior market returns have better instruments to monitor managers, so they can improve the performance of the firms where they invest despite their ownership is more fragmented (Kusi, Gyeke-Dako, Agbloyor & Darku, 2018; Amahalu, Abiahu, Nweze & Obi, 2017)

X. Theoretical Review

The Agency Theory

The agency relationship as depicted by Jensen and Meckling (1976) argues that in firms where equity is widely held, managerial actions tend to depart from the requirements of shareholders which are to maximize their wealth, this creates the agency problem. The theory holds the proposition that in the presence of information asymmetry, agent actions may end up hurting the owners. The concern is that the principal cannot check that the agent is acting properly and to his greatest advantage. According to Moussa (2019), office issues can be sorted out with regards to a businessman or manager who raises monies for entrepreneurs to put them into favorable use. Nevertheless, by what means can the financiers make certain that once they sink their assets they will get everything again from the manager? Jensen and Meckling (1976) explained how entrepreneurs in publicly listed companies bring about expenses in checking and holding managers to the best interest of shareholders.

XI. Empirical Review

Padilla-Angulo (2020) used US freight railroads, which underwent enforced restructuring due to increased competition following deregulation, to study the impact of board diversity on strategic change, where board diversity was measured from a stakeholder perspective. CEO human capital was also taken into account. By analyzing with panel data methodology a sample including 15 US Class I railroads covering a 20-year period from 1984 to 2004 and representing more than 90% of the railroad market, with a total of 190 observations, it was found that strategic decisions are significantly influenced by both board composition and CEO human capital, but that boards exercise more influence in determining firms strategies. The study found significant differences in the way directors influenced restructuring decisions depending on their stakeholder status.

Karavitis, Kokas and Tsoukas (2021) examined the relationship between female board representation and the cost of lending, using a dataset of 13,714 loans from 386 banks matched with 2,432 non-financial firms from 1999 to 2013. The study found that firms with female directors command lower loan spreads. In addition, female independent directors have a stronger impact on lowering spreads compared to female directors' other attributes. However, as firms build relationships with their lenders this effect becomes less potent. Finally, when firm-level heterogeneity was introduced, it was documented that changes in gender diversity exert a stronger impact on the cost of lending in the case of bank-dependent firms, especially for relationship borrowers.

Aladejebi (2021) empirically evidenced the role played by board characteristics (skills, diversity, structure, independence) in supporting risk management disclosure and shaping the financial performance of European companies operating in the financial services sector. The study used data from Thomson Reuters Eikon database in 2020 for the last fiscal year 2019 (FY0) on a longitudinal sample of 144 companies with the head offices in Europe (25 countries). Following an empirical approach based on structural equation modelling (SEM) and network analysis through Gaussian graphical models (GGMs), the study outlined the decisive importance of an optimal board size, enhanced management skills, upward gender diversity (encompassed by women participation on board management), and structure (mainly a two-tier type, one management board, and a distinctive supervisory board) as fundamentals of risk management strategies, leading to improved financial achievements and a higher profitability for the analyzed companies.

XII. Methodology

Research Design

The research design employed in this study is the *ex-post facto* research design.

Population of the Study

The population of this study would consist of the six (6) conglomerates listed on the floor of the Nigerian Stock Exchange (NSE) from 2010 to 31st December 2019. The conglomerates include: A.G. Leventis Nigeria Plc; Chellarams Plc; John Holt Plc; SCOA Nigeria Plc; Transnational Corporation of Nigeria Plc; UACN Plc.

Sample Size and Sampling Method

Purposive sampling method was adopted to choose the six (6) conglomerates which would serve as the sample size of this study. The criteria for selection was based on the conglomerates whose stocks were actively traded for the study period (2010-2019).

Source of Data

Primarily, this study made use of secondary data. The data were sourced from publications of the Nigerian stock exchange (NSE), fact books and the annual report and accounts of the sampled quoted conglomerates.

3.5 Operationalisation of Variables

Table 1 Variable Description

Variable	Proxies	Acronym	Measurement
Independent Variable (Board Diversity)			
	Gender Diversity	GEND	Number of Female Director Total Directors on the Board
	Age Diversity	AGED	0 and 1 dichotomy for younger and older directors. AGED was coded 0 if the directors (younger) are in their fifties; otherwise, AGED was coded 1 for older directors (2014 Board Practices Report)
	Geographic Diversity	GEOD	Number of Foreign Director

			Total Directors on the Board
Dependent Variable			
	Borrowing Cost	BORC	Interest on Borrowing
Control Variables			
	Investment Decisions	INVD	$\frac{\text{Net Current Assets}}{\text{Total Assets}}$
	Board Independence	BIND	Log (Number of Independence Directors)

Empirical Model

The study considered the following specifications:

$$\text{Borrowing Cost}_{i,t} = \beta_0 + \beta_1 \text{Board Diversity}_{i,t} + \sum \beta_i \text{Controls}_{i,t} + \mu_{i,t}$$

Thus, the specific constructs for the model are:

$$\text{BORC}_{it} = \beta_0 + \beta_1 \text{GEND}_{it} + \beta_2 \text{INVD}_{it} + \beta_3 \text{BIND}_{it} + \mu_{it} \quad \text{Model 1}$$

$$\text{BORC}_{it} = \beta_0 + \beta_1 \text{AGED}_{it} + \beta_2 \text{INVD}_{it} + \beta_3 \text{BIND}_{it} + \mu_{it} \quad \text{Model 2}$$

$$\text{BORC}_{it} = \beta_0 + \beta_1 \text{GEOD}_{it} + \beta_2 \text{INVD}_{it} + \beta_3 \text{BIND}_{it} + \mu_{it} \quad \text{Model 3}$$

Where:

β_0 = Constant term (intercept)

β_{it} = Coefficients of Board Diversity to be estimated for conglomerate i in period t

μ_{it} = Error term/unexplained variable(s) of conglomerate i in period t

BORC_{it} = Borrowing Cost of conglomerate i in period t

GEND_{it} = Gender Diversity of conglomerate i in period t

AGED_{it} = Age Diversity of conglomerate i in period t

GEOD_{it} = Geographic Diversity of conglomerate i in period t

INVD_{it} = Investment Decision of conglomerate i in period t

BIND_{it} = Board Independence of conglomerate i in period t

XIII. Data Presentation And Analysis

Data Analysis

Table 2: Pearson Correlation Matrix

	BORC	GEND	AGED	GEOD	INVD	BIND
BORC	1.0000	0.1679	0.3628	-0.4923	-0.0393	0.1318
GEND	0.1679	1.0000	0.0396	-0.0506	0.1882	0.1657
AGED	0.3628	0.0396	1.0000	-0.1917	0.3489	0.4404
GEOD	-0.4923	-0.0506	-0.1917	1.0000	-0.4762	-0.2764
INVD	-0.0393	0.1882	0.3489	-0.4762	1.0000	0.7181
BIND	0.1318	0.1657	0.4404	-0.2764	0.7181	1.0000

Source: E-Views 10.0 Correlation Output, 2021

The correlation result in table 4.1 indicates that there is a positive relationship between GEND (0.1679), AGED (0.3628) and BORC. On the other hand BORC negatively relates with GEOD and INVD at coefficient factors of -0.4923 and -0.0393 respectively.

Test of Hypotheses

Test of Hypothesis 1

H₀: Gender Diversity has no significant effect on Borrowing Cost of listed Conglomerates in Nigeria.

H₁: Gender Diversity has significant effect on Borrowing Cost of listed Conglomerates in Nigeria

Table 3: Panel Least Square Regression Analysis testing the relationship between GEND, INVD, BIND and BORC

Dependent Variable: BORC

Method: Panel Least Squares

Date: 05/09/21 Time: 07:12

Sample: 2010 2019

Periods included: 10

Cross-sections included: 6

Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.035686	0.024066	6.482801	0.0000
GEND	0.248818	0.089216	2.788922	0.0072
INVD	0.306114	0.089034	3.438179	0.0011
BIND	0.035008	0.057568	5.608117	0.0000
R-squared	0.784670	Mean dependent var		0.043000
Adjusted R-squared	0.772994	S.D. dependent var		0.018886
S.E. of regression	0.022129	Akaike info criterion		-4.494663
Sum squared resid	0.002938	Schwarz criterion		-4.373629
Log likelihood	26.47332	Hannan-Quinn criter.		-4.627437
F-statistic	33.85005	Durbin-Watson stat		1.960885
Prob(F-statistic)	0.000000			

Source: E-Views 10.0, Regression Output 2021

Interpretation of Regression Analysis

The value of Adjusted R-squared in table 3 showed that 77.3% of the total variation in dependent variable (BORC) is explained by independent variables (GEND, INVD and BIND) to the determination of BORC while the remaining 22.7% is caused by other explanatory factors outside this model and this is captured by the error term. The coefficient result shows that GEND ($\beta_1 = 0.248818$); INVD ($\beta_2 = 0.306114$) and BIND ($\beta_3 = 0.035008$) are positively related with BORC. The probability value of the slope coefficients indicate that $P(x_1 = 0.0072 < 0.05$; $x_2 = 0.0011 < 0.05$; $x_3 = 0.0000 < 0.05$). This implies that BORC has a significant positive relationship with GEND, INVD and BIND. The overall performance of the model is satisfactory as shown by Prob(F-statistics) = 0.000000.

The regression equation is:

$$\text{BORC} = 0.035686 + 0.248818\text{GEND} + 0.306114\text{INVD} + 0.035008\text{BIND} + \mu$$

The implication is that, for there to be a unit/one naira increase in BORC there will be 0.248818 units increase in gender diversity; 0.306114 units increase in investment decision and 0.035008 units increase in board independence. Since the result of the Prob(F-statistic) of 0.000000 is less than the critical value of 5% significance level, leading to the conclusion that Gender Diversity has a significant positive effect on Borrowing Cost of listed Conglomerates in Nigeria at 5% significant level, hence, H_1 is accepted.

Test of Hypothesis II

H_{02} : Age Diversity has no significant effect on Borrowing Cost of listed Conglomerates in Nigeria.

H_2 : Age Diversity has significant effect on Borrowing Cost of listed Conglomerates in Nigeria.

Table 4: Panel Least Square Regression Analysis testing the relationship between AGED, INVD, BIND and BORC

Dependent Variable: BORC

Method: Panel Least Squares

Date: 05/09/21 Time: 07:14

Sample: 2010 2019

Periods included: 10

Cross-sections included: 6

Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.411091	0.096119	4.276895	0.0001
AGED	0.075759	0.029672	2.553176	0.0134
INVD	0.296292	0.103346	2.866979	0.0058

BIND	0.106944	0.043485	2.459333	0.0170
R-squared	0.807207	Mean dependent var		0.077286
Adjusted R-squared	0.745979	S.D. dependent var		0.130837
S.E. of regression	0.133811	Akaike info criterion		-1.120439
Sum squared resid	1.002699	Schwarz criterion		-0.980816
Log likelihood	37.61317	Hannan-Quinn criter.		-1.065825
F-statistic	31.35501	Durbin-Watson stat		1.616036
Prob(F-statistic)	0.000000			

Source: E-Views 10.0, Regression Output 2021

Interpretation of Regression Analysis

The value of Adjusted R-squared in table 4 showed that 74.6% of the total variation in dependent variable (BORC) is explained by independent variables (AGED, INVD and BIND) to the determination of BORC while the remaining 25.4% is caused by other explanatory factors outside this model and this is captured by the error term. The coefficient result shows that AGED ($\beta_1 = 0.075759$); INVD ($\beta_2 = 0.296292$) and BIND ($\beta_3 = 0.106944$) are positively related with BORC. The probability value of the slope coefficients indicate that $P(x_1=0.0134 < 0.05$; $x_2=0.0058 < 0.05$; $x_3=0.0170 < 0.05$). This implies that BORC has a significant positive relationship with AGED, INVD and BIND. The Durbin-Watson figure of 1.616036 indicates the absence of autocorrelation in the regression model. The overall performance of the model is satisfactory as shown by Prob(F-statistics) = 0.000000.

The regression equation is:

$$\text{BORC} = 0.411091 + 0.075759\text{AGED} + 0.296292\text{INVD} + 0.106944\text{BIND} + \mu$$

The implication is that, for there to be a unit/one naira increase in BORC there will be 0.075759 units increase in age diversity; 0.296292 units increase in investment decision and 0.106944 units increase in board independence. Since the result of the Prob(F-statistic) of 0.000000 is less than the critical value of 5% significance level, leading to the conclusion that Age Diversity has a significant positive effect on Borrowing Cost of listed Conglomerates in Nigeria at 5% significant level, hence, H_1 is accepted.

Test of Hypothesis III

H₀₃: Geographic Diversity has no significant effect on Borrowing Cost of listed Conglomerates in Nigeria.

H₃: Geographic Diversity has significant effect on Borrowing Cost of listed Conglomerates in Nigeria.

Table 5: Panel Least Square Regression Analysis testing the relationship between GEOD, INVD, BIND and BORC

Dependent Variable: BORC
 Method: Panel Least Squares
 Date: 05/09/21 Time: 07:16
 Sample: 2010 2019
 Periods included: 10
 Cross-sections included: 6
 Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.333074	0.058109	5.731843	0.0000
GEOD	0.296811	0.079192	3.748011	0.0004
INVD	0.279697	0.062840	4.450963	0.0000
BIND	0.136562	0.035333	3.865025	0.0003
R-squared	0.764195	Mean dependent var		0.077286
Adjusted R-squared	0.713063	S.D. dependent var		0.130837
S.E. of regression	0.129914	Akaike info criterion		-1.179555
Sum squared resid	0.945142	Schwarz criterion		-1.039932
Log likelihood	39.38664	Hannan-Quinn criter.		-1.124940
F-statistic	37.80516	Durbin-Watson stat		1.589574
Prob(F-statistic)	0.000000			

Source: E-Views 10.0, Regression Output 2021

Interpretation of Regression Analysis

The value of Adjusted R-squared in table 5 showed that 71.3% of the total variation in dependent variable (BORC) is explained by independent variables (GEOD, INVD and BIND) to the determination of BORC while the remaining 28.7% is caused by other explanatory factors outside this model and this is captured by the error term. The coefficient result shows that GEOD ($\beta_1 = 0.296811$); INVD ($\beta_2 = 0.279697$) and BIND ($\beta_3 = 0.136562$) are positively related with BORC. The probability value of the slope coefficients indicate that $P(x_1=0.0004 < 0.05$; $x_2=0.0000 < 0.05$; $x_3=0.0003 < 0.05$). This implies that BORC has a significant positive relationship with GEOD, INVD and BIND. The overall performance of the model is satisfactory as shown by $\text{Prob}(F\text{-statistics}) = 0.000000$.

The regression equation is:

$$\text{BORC} = 0.333074 + 0.296811\text{GEOD} + 0.279697\text{INVD} + 0.136562\text{BIND} + \mu$$

The implication is that, for there to be a unit/one naira increase in BORC there will be 0.296811 units increase in geographical diversity; 0.279697 units increase in investment decision and 0.136562 units increase in board independence. Since the result of the $\text{Prob}(F\text{-statistic})$ of 0.000000 is less than the critical value of 5% significance level, leading to the conclusion that Geographical Diversity has a significant positive effect on Borrowing Cost of listed Conglomerates in Nigeria at 5% significant level, hence, H_1 is accepted.

XIV. Findings, Conclusion And Recommendations

Summary of Findings

Based on the result the following summary of findings was provided:

- i. Gender Diversity has a significant positive effect on Borrowing Cost of listed Conglomerates in Nigeria at 5% significant level.
- ii. Age Diversity has a significant positive effect on Borrowing Cost of listed Conglomerates in Nigeria at 5% significant level.
- iii. Geographical Diversity has a significant positive effect on Borrowing Cost of listed Conglomerates in Nigeria at 5% significant level

XV. Conclusion

This study assessed the effect of Board Diversity on Borrowing Cost of listed conglomerates in Nigeria from 2010-2019 periods. Panel data were sourced from the annual reports and accounts of the sampled firms. Inferential statistics using correlation analysis and panel least square regression were employed via E-Views 10.0 statistical software. As disaggregated components, Gender Diversity, Age Diversity and Geographical Diversity exerted a significant positive effect on Borrowing Cost of listed conglomerates in Nigeria at 5% level of significance respectively.

Recommendations

Against the backdrop of the findings, the following recommendations were advanced:

- i. Since the involvement of women in corporate boardroom affects firms' performance, Nigerian government should encourage women to participate actively in corporations in order to promote organizational costs control.
- ii. There should be a robust and creative market for solutions that will create opportunities for younger directors to advance in leadership roles within the corporate institutions and to enhance firms' ability to comply with risk oversight objectives.
- iii. Firms should be able to identify the trade-offs of geographical diversity in order to increase their performance and values.

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