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Effect of Board Diversity on Financial Performance of Information and Communications Technology (ICT) Firms in Nigeria (2016-2020)

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ABSTRACT: *This study examined the Effects of Board Diversity on Financial Performance of Information and Communications (ICT) Firms in Nigeria. The study was prompted by inevitability of board diversity in the large scale organizations like quoted Information and Communications Technology (ICT) firms in Nigeria. Specifically, it focused on determining the effects of board size, board composition, board gender and foreign director on the Financial Performance of Information and Communications (ICT) firms in Nigeria. The study adopted ex-post-facto design using secondary data collected from annual accounts and reports of ICT firms in Nigerian Stock Exchange (NSE) covering seven (7) firms over a period of five years ranging from 2016 to 2020. The selection of 2016 to 2020 was necessitated by the rapid changing ICT business environments which Nigeria is not an exception. In all, there are eight quoted ICT firms in Nigeria but the study focused on the seven quoted ICT firms that have the required data. The ordinary least square panel regression analysis was used for the data analysis applying Generalized Method of Moment (GMM) analysis. E-view version 9 software was used for analysis where necessary. The study found that Board Diversity has mixed effects on financial performance of ICT firms in Nigeria. Specifically, the board size has significant positive effects on financial performance of ICT firms in Nigeria likewise foreign director in board of directors while board composition and board gender have low negative effect on financial performance of ICT firms in Nigeria. Hence, it is safe to conclude that board diversity has mixed effects on financial performance of quoted ICT firms in Nigeria. Although negative effect is insignificant, the positive effect is significant. The study recommended that the firms should increase as much as possible the board size bearing in mind Nigeria corporate governance Code requirement of minimum of five and maximum members based on complexity and scale of operation of the firms. Appointing both gender: male or female into board of directors provided that they are qualified and willing to serve, does not matter. Foreign director in board of directors was found to be positive and contributes significantly to financial performance of the ICT firms in Nigeria possibly by bringing their wealth of knowledge and experiences in the board of directors' roles to their organizations.*

KEY WORDS: board diversity, financial performance, ICT ,firms

INTRODUCTION

Diversity is the degree of individual differences and similarities including race, age, creed, nationality, religion, ethnicity and sexual orientation (Wellner, 2000). Fagbemi, Adedeji,

Maduabum and Okeke (2017) defined diversity as the variety along different aspects such as race, ethnicity, gender, socio-economic status, physical features, religious, beliefs, marriage systems and political ideologies. They added that the diversity has to be managed through understanding, acceptance and respect for each other's beliefs and behaviours.

Nowsdays, the business environment has shown increasingly diversity of top management and employees in terms of age, ethnicity and gender in addition to their diversity in terms of tenure, experience, educational background, and socio-economic status (Ilaboya and Ashafoke 2017). Conventionally, the minority or "lower status" group like women, disables, fewer ethnic groups are marginalized and discriminated in diverse groups and should be protected thereby bringing the promotion of equal opportunity among different groups in the workplace (Ibara, 1993).

Ilaboya and Ashafoke (2017) noted that corporate board diversity is able to bring about a robust wealth of experience, skills, different perspectives and other qualities into a single pool which could promote quality decision making. The selection and retention of top personnel is easier in the multicultural organization than in the monocultural organization (Mazur and Bialostocka, 2010). Hambrick and Mason (1984), revealed that top management heterogeneity has a greater tendency to increase firms' performance. Hence, diversity has become essential for complex, large scale businesses for better and high quality decision making, they also found out that homogeneity in the board of directors is more effective in smaller organizations which are faced with unstructured decision-making process. We therefore argue that if diversity is not managed effectively, then the costs can be high in terms of lost productivity.

ICT stands for "Information and Communication Technology". It refers to technologies that provide access to information through telecommunication (Ratheeswaro, 2018). He noted that ICT includes the internet, wireless networks, cell phones, and other communication mediums' apparently; the firms in Nigeria ICT industries include Airtel Africa PLC, Chams PLC, MTN Nigeria Communications PLC, Omatek Ventures PLC, E-Tranzact International Plc, NCR (NIGERIA) PLC, and CWG PLC.

ICT firms are international organizations providing telecommunication services to different nationals and continents of the world for profit and optimal financial earnings. Improper management of ICT firms would not only affect the business operational performance in terms of quality of services but could cause significant losses and lower the financial earnings of the firms, (Marjan, Hasnah and Aidi, 2016). If the diversity of the board of directors is not properly managed as noted by Fagbami et al, (2017) it may amount to misuse of the valuable resources. Whereas, if the diversity of board of directors is properly managed; it can lead to quality decision making into high financial performance of the quoted ICT firms (Hambrick and Mason, 1984, Gardazi, Hossan and Johari 2020; Onyali, Okoye and Okerekeoti 2018).Being a large scale business, board diversity is inevitable in quoted ICT firms in Nigeria, which amounts to people of different race, different gender, executive directors and non-executive director mix in the board. Therefore, the study investigated the effects of board diversity such as board size, board composition board gender and board nationality on the financial performance of quoted information and communication technologies firms in Nigeria measuring financial performance as the earnings per share (EPS) of the firms.

Objectives of the Study

The general objective of this study is to examine the effects of board diversity on financial performance of quoted Information and Communication Technology (ICT) firms in Nigeria. Specifically, the study was:

i. To determine the effect of board size on financial performance of quoted ICT firms in Nigeria.
ii. To determine the effect of board composition on financial performance of quoted ICT firms in Nigeria
iii. To ascertain the effect of board gender on financial performance of quoted ICT firms in Nigeria
iv. To explore the effect of foreign director on financial performance of quoted ICT firms in Nigeria.

Statement of Hypothesis

The hypotheses are stated on the null thus:

H_{O1}: Board size has no significant effect on the financial performance of quoted ICT firms in Nigeria.

H_{O2}: Board composition has no significant effect on the financial performance of quoted ICT firms in Nigeria.

H_{O3}: Board gender has no significant effect on the financial performance of quoted ICT firms in Nigeria.

H_{O4}: Foreign director has no significant effect on the financial performance of quoted ICT firms in Nigeria.

LITERATURE REVIEW

This section presents a review of literature under the following sub-headings:

Theoretical Review and empirical Review for the study.

Theoretical Review

The separation of ownership and management in public and quoted companies is statutory and comes with some costs known as agency costs like monitoring costs, extra cost of wrong decision and bonding costs (ICAN, 2021). The failure to properly manage board diversity might aggravate the agency costs associated with agency relationship in a given organization. The agency theory is credited to Stephen Ross and Barry Mithnick who worked independently in 1973(Mithnick2019). However, Jensen and Merkling (1976) has been widely cited as the first proponent of the agency theory. In spite of controversial origin of Agency theory, its concepts and assertions are very much relevant in today's business especially where ownership is separated from management. In this study, the board of directors is agent (management) while shareholders are the principal

(ownership). The study adopted agency theory because it is relevant to the subject matter which is how to make board diversity contribute to the effectiveness and efficiency of board of directors in discharging its fiduciary roles to the shareholders.

Empirical Studies

Marjan, Hasnah and Aidi (2016) investigated the relationship between board diversity of ICT investment. Theoretical research design using existing literature was used. It was discovered that Board diversity had positive influence on ICT investment. However, the study adopted a theoretical research design, not empirical in application.

Ilaboya and Asgafoke (2017) examined the relationship between board diversity and firm performance in Nigeria. Cross sectional research design using multiple regression technique and ordinary least square regression (OLS) technique was utilized. A census survey of the Banks quoted on the Nigeria Stock Exchange from 2010-2015 were engaged. It was discovered that Ethinic diversity and gender diversity have negative and significant relationship with firm performance.

Olumide (2018) examined the relationship between the number of women directors and the number of ethnic minority directors on the financial performance. Research design was both quantitative and qualitative in approach. 190 listed on the Nigerian Stock exchange between 2004 and 2013 were engaged. It was discovered that some ethnic groups have a positive and significant relationship with firm performance and that board gender has no significant financial effect on performance.

Nizar, Ahab and Abdel (2021) examined the impact of gender diversity on firm performance in the Palestine. Companies. They employed historical research design, using two stage least square (2SLS). The sample setting was 16 non-financial corporations listed in the Palestine stock Exchange from 2008-2018. It was found that gender diversity has a positive and statistically significant impact on firm performance.

Moreover, Fakile and Ezekiel (2019) examined the effect of board characteristics on financial performance of quoted ICT companies in Nigeria. Expost facto research design using correlation and Multiple Least Squares (OLS) regression analysis were used. The study covered a period of five years from 2013-2017, using ICT companies in Nigeria. It was found that Board independence had significant effect on financial performance.

Model specification

The model formulated for this study is stated thus: Firm financial performance = f(Board Diversity) ……..… equation 1

$EFS = f(\beta_0 + \beta_1 BSIZ_{t-1} + \beta_2 BCOM_{t-1} + \beta_3 BGEN_{t-1} \ \beta_4 FDIR_{t-1} + \beta_5 CSIZ_{t-1} + \beta_6 CAGE_{t-1} + \beta_7 INFR_{t-1} + e_t$…..... equation 2

Where:

β_0 = Constant term (intercept)

β_1 = Co-efficient to be estimated for firm i in period t;
EPS is the measure of the firm financial performance.
Board diversity decomposed into:
Board Size (BSIZ)
Board Composition (BCOM)
Board Gender (BGEN)
Foreign Director (FDIR)
Control variables are:
Company Size (CSIZ)
Company Age (CAGE)
Inflation Rate (INFR)
Stating the model in an explicit stochastic form gives

$EPS = \beta_0 + \beta_1 BSIZ_{t-1} + \beta_2 BCOM_{t-1} + \beta_3 BGEN_{t-1} + \beta_4 FDIR_{t-1} + \beta_5 CSIZ_{t-1} + \beta_6 CAGE_{t-1} + \beta_7 INFR_{t-1} + e_t$ …..... equation 3

All variables are as defined earlier. B_0 is the co-efficient (constant), $\beta_1 - \beta_4$ are parameters of the independent variables to be estimated, $\beta_5 = \beta_7$are parameters of the control variables to ensure precision of the results, e is standard error, t is current period while t – 1 (where i = 1) stands for one year lag period.

Decision rule: Reject the null hypothesis for the alternative if the F-value is less than 5% otherwise accepts it. To achieve uniform, the Natural logarithm of each variable was used in the calculations. Hence, the transformed estimated model was stated thus: $LEPS = \beta_0 + \beta_1 LBSIZ_{t-1} + \beta_2 LBCOM_{t-1} + \beta_3 LBGEN_{t-1} + \beta_4 LFDIR_{t-1} + \beta_5 LCSIZ_{t-1} + \beta_6 LCAGE_{t-1} + \beta_7 LINFR_{t-1} + e_t$ …..... equation 4

Where l stands for logarithm of the variables

METHOD OF DATA ANALYSIS

The study employed regression analysis since it investigated effect of the independent variable board diversity on the quoted ICT firms' financial performance. Therefore, the multivariable regression analysis was used in the data analysis as an appropriate data analysis technique. Additionally, other diagnostic tests that were conducted on the data gathered in the study include Multi-collinearity, Heteroskadasticity and autoregressive Distributed lag model (ARDL). E-view version 9 software was employed for analysis in this study where necessary.

Data Presentation

As stated in earlier, the independent variable of the study is board diversity decomposed into board size, board composition, board gender, foreign director while the dependent variable is financial performance measured as Earning Per Share (EPS). Some control variables were used which includes: company size, company Age and Annual inflation rate in Nigeria, these variables are expressed in different units; Earnings per share and company size are absolute naira values, board size and company age are numeric numbers while board compositions, board gender and annual inflation rate in Nigeria are percentage. To ensure uniformity of expression and for good results from the analysis, the natural logarithm of all the data were determined as shown in table three and used for the data analysis. E-views version 9 was used for the data analysis including the logging of the data.

Table 1: Logarithm of the Data Collected

ABBREVIATION	YEAR	LEPS	LBSIZ	LBCOM	LBGEN	LFDIR	LCSIZ	LCAGE	LINFR
CHAMS	2016	-0.3293	2.0794	4.0629	3.7810	3.3868	15.4401	3.4657	2.8142
	2017	-0.3148	2.4849	4.3004	2.9539	2.3115	15.0221	3.4965	2.8633
	2018	0.0770	2.3026	4.2146	3.1450	2.4940	15.1314	3.5264	2.5718
	2019	0.0198	2.3979	4.2627	3.0445	2.3979	15.1229	3.5553	2.5177
	2020	-0.0677	2.3026	4.3603	2.4940	2.4940	15.0245	3.5835	2.6568
COURT VILLE	2016	0.0100	2.4849	4.0173	3.3418	0.0000	14.9656	2.4849	2.8142
	2017	0.0100	2.1972	3.6507	3.2581	0.0000	14.9806	2.5649	2.8633
	2018	0.0198	2.1972	3.2581	2.6027	0.0000	14.9963	2.6391	2.5718
	2019	0.0392	2.0794	4.0629	2.7272	0.0000	15.0428	2.7081	2.5177
	2020	0.0392	2.0794	4.0629	0.0000	0.0000	15.0501	2.7726	2.6568
CWG	2016	0.0100	2.3026	4.2146	0.0000	2.4940	15.0221	3.2581	2.8142
	2017	-0.4762	2.1972	4.3307	2.6027	0.0000	14.4138	3.2958	2.8633
	2018	0.3988	2.1972	4.3307	0.0000	0.0000	12.5556	3.3322	2.5718
	2019	0.0198	1.9459	4.4347	0.0000	0.0000	12.6981	3.3673	2.5177
	2020	0.1133	1.9459	4.4347	0.0000	0.0000	13.3385	3.4012	2.6568
ETRANZACT	2016	0.1044	2.3979	4.2627	0.0000	0.0000	15.0874	2.6391	2.8142
	2017	0.0488	2.3979	4.2627	0.0000	0.0000	15.0082	2.7081	2.8633
	2018	-0.5596	2.4849	4.4167	2.3115	0.0000	11.9809	2.7726	2.5718
	2019	1.5041	2.3979	4.3944	2.3979	0.0000	12.6336	2.8332	2.5177
	2020	-3.8282	2.3979	4.3944	2.3979	0.0000	-14.2744	2.8904	2.6568
MTNN	2016	2.3437	2.5649	3.5360	2.2332	3.5360	18.2717	2.8332	2.8142
	2017	2.2138	2.7726	4.2146	2.6624	3.9951	18.5970	2.8904	2.8633
	2018	2.7473	2.7081	4.1788	3.1104	3.7810	19.2654	2.9444	2.5718
	2019	2.4060	2.7081	4.3766	3.1104	3.6030	18.8985	2.9957	2.5177
	2020	2.4371	2.7726	4.5468	3.0445	3.3203	19.1249	3.0445	2.6568
NCR	2016	0.4824	2.0794	4.2826	2.7272	3.7810	12.6995	4.2195	2.8142
	2017	0.8838	2.1972	4.1510	3.2581	3.9318	13.0030	4.2341	2.8633
	2018	0.2151	2.0794	4.0629	3.7810	3.3868	13.0337	4.2485	2.5718
	2019	-2.2814	1.9459	4.2146	3.9318	3.5360	-13.1944	4.2627	2.5177
	2020	-1.3083	1.7918	4.3944	3.7136	3.7136	-13.6461	4.2767	2.6568
OMATEK	2016	-0.1740	2.5649	3.9318	2.2332	0.0000	-15.0447	2.9444	2.8142
	2017	-0.3293	2.3979	3.9318	0.0000	0.0000	-14.5092	2.9957	2.8633
	2018	-0.3075	2.3979	3.9318	0.0000	0.0000	14.9293	3.0445	2.5718
	2019	-0.3507	2.0794	4.0629	0.0000	0.0000	15.2674	3.0910	2.5177
	2020	-0.4886	1.7918	4.1109	0.0000	0.0000	15.6279	3.1355	2.6568

Table 2 presents the logarithm of data calculated using e-views 9 by the researcher. This is used for diagnostic test while descriptive statistics of both the untransformed and transformed data were presented and discussed.

DATA ANALYSIS AND RESULTS

The data analysis was done in three parts: Descriptive statistics, Correlation Matrix and Regression Analysis, all computed using E-view version 9.

Descriptive Statistics

Descriptive statistics were calculated both untransformed data and transformed data and presented and discussed thus:

Table 3: Summary of Untransformed Data Descriptive Statistics

	EPS	BSIZ	BCOM	BGEN	FDIR	CSIZ	CAGE	INFR
Mean	-0.032857	9.200000	65.18200	14.69457	13.36143	24495549	27.85714	13.78800
Median	0.020000	9.000000	66.67000	12.50000	0.000000	3256838.	20.00000	13.25000
Maximum	14.60000	15.00000	93.33000	50.00000	53.33000	2.33E+08	71.00000	16.52000
Minimum	-44.98000	5.000000	25.00000	0.000000	0.000000	-3418460.	11.00000	11.40000
Std. Dev.	8.917837	2.687662	14.98785	13.72033	17.79232	59895012	18.30645	2.025069
Skewness	-3.565392	0.549285	-0.683866	0.898372	0.923348	2.490170	1.530533	0.213672
Kurtosis	19.95420	2.651784	3.337080	3.204545	2.321440	7.838007	4.020275	1.379172
Jarque-Bera	493.3441	1.936825	2.893794	4.768932	5.644810	70.30639	15.18283	4.097491
Probability	0.000000	0.379685	0.235299	0.092138	0.059463	0.000000	0.000505	0.128896
Sum	-1.150000	322.0000	2281.370	514.3100	467.6500	8.57E+08	975.0000	482.5800
Sum Sq. Dev.	2703.946	245.6000	7637.610	6400.417	10763.26	1.22E+17	11394.29	139.4308
Observations	35	35	35	35	35	35	35	35

The results of the descriptive statistics is presented in Table 4. The Earnings per share mean is approximately –₦0.03 showing negative financial performance of quoted ICT firm Nigeria between 2016 and 2020, The minimum board size of the quoted ICT firms within the period is 5 member board which is in line the minimum specified by the Nigerian corporative governance code. The existence of female directors is only 14.69% at average of the number of the board members while the remaining 85.31% are male. The 14.69% female inclusion in the board of directors is far below the government affirmative action policy of 35% representation. Obviously, the value indicates that the position of board of directors of quoted ICT firms is still dominated by men compared to women. There are even companies where all the board members are men. The average non-executive directors percentage is 65.18% which shows that majority of board members of the quoted ICT firms are non- executive directors. Foreign directors in the firms is only 13.36% at average showing that the majority of board members of the firm are Nigerians. Many ICT quoted

in Nigerian stock exchange market board members are all Nigerians. The skewness of all the variables is approximately greater than 0.0 showing that none of variable is normally distributed**.**

TABLE 4. Summary of Transformed Data Descriptive Statistics

	LEPS	LBSIZ	LBCOM	LBGEN	LFDIR	LCSIZ	LCAGE	LINFR
Mean	0.152220	2.289227	4.161625	2.102608	1.490371	10.90183	3.213026	2.684771
Median	0.019803	2.302585	4.214643	2.602690	0.000000	14.99627	3.044522	2.656757
Maximum	2.747271	2.772589	4.546799	3.931826	3.995077	19.26539	4.276666	2.863343
Minimum	-3.828207	1.791759	3.258097	0.000000	0.000000	-15.04470	2.484907	2.517696
Std. Dev.	1.275277	0.261396	0.268094	1.414182	1.695737	10.53728	0.521880	0.136193
Skewness	-0.273761	0.032216	-1.505742	-0.648475	0.324642	-1.908120	0.842895	0.143662
Kurtosis	4.975917	2.359210	5.565000	1.826149	1.260790	4.905583	2.763770	1.379847
Jarque-Bera	6.130877	0.604864	22.82038	4.462506	5.026033	26.53429	4.225803	3.948365
Probability	0.046633	0.739019	0.000011	0.107394	0.081023	0.000002	0.120887	0.138875
Sum	5.327708	80.12294	145.6569	73.59129	52.16297	381.5641	112.4559	93.96699
Sum Sq. Dev.	55.29529	2.323146	2.443738	67.99692	97.76787	3775.166	9.260191	0.630649
Observations	35	35	35	35	35	35	35	35

Approximately only board size has become normally distributed while others are still not normally distributed. Therefore, descriptive statistics shows that the observations are not normally distributed both in their untransformed and transformed nature. However, the diagnostic tests calculations were using the logged values in order to ensure uniformity of the units' expression.

Correlation Matrix

Correlation analysis was done to test the multicollinearity of the variables and results presented and discussed as follows:

Table 5: Correlation Matrix: Test for Multicollinearity

	LEPS	LBSIZ	LBCOM	LBGEN	LFDIR	LCSIZ	LCAGE	LINFR
LEPS	1.000000							
LBSIZ	0.535305	1.000000						
LBCOM	-0.059604	0.017465	1.000000					
LBGEN	0.070935	0.129575	-0.059263	1.000000				
LFDIR	0.376659	0.184406	0.144939	0.570917	1.000000			
LCSIZ	0.636531	0.199898	-0.038183	-0.058926	0.093127	1.000000		
LCAGE	-0.201986	-0.475938	0.318513	0.293826	0.603161	-0.247704	1.000000	
LINFR	0.041993	0.194324	-0.178030	-0.022624	0.074537	-0.043683	-0.087351	1.000000

Table 6 shows the correlation matrix of tests for multicollinarity, which explains the degree of closeness among the independent variables. Correlation co-efficient between the independent variables indicate that there is no high degree of correlation existing between one independent variable and another. These shows that the independent variables are free from multi- collinearity problem in each of the model, thus making the regression co-efficient become very reliable in predicting the corresponding dependent variable**.**

Regression Analysis and Hypothesis Testing

The regression analysis are done used three different methods in order to test the consistency of the results. The generalized method of moments of a simple linear series was run. The generalized method of a moments of a panel data series conducted and fully modified least squares was also run with the three methods showing the same, the three results are presented in table 7, 8and 9 respectively. The regression analysis results were used for the hypothesis testing.

Generalized Method of Moments (GMM)-Simple Linear Series

Dependent Variable: LEPS
Method: Generalized Method of Moments
Date: 12/30/21 Time: 15:40

Sample: 1 35

Included observations: 35

Linear estimation with 3 weight updates

Estimation weighting matrix: HAC (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

Standard errors & covariance computed using estimation weighting matrix

Instrument specification: C LBSIZ LBCOM LBGEN LFDIR LCSIZ LCAGE LINFR

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LBSIZ	1.594921	0.520430	3.064622	0.0048
LBCOM	-0.426034	0.440535	-0.967082	0.3418
LBGEN	-0.159424	0.098760	-1.614255	0.1177
LFDIR	0.358916	0.125089	2.869291	0.0077
LCSIZ	0.056289	0.026875	2.094427	0.0454
LCAGE	-0.341013	0.458220	-0.744212	0.4629
LINFR	-0.533228	0.678487	-0.785908	0.4385

R-squared	0.674761	Mean dependent var	0.152220
Adjusted R-squared	0.605068	S.D. dependent var	1.275277
S.E. of regression	0.801431	Sum squared resid	17.98416
Durbin-Watson stat	2.075730	J-statistic	0.032928
Instrument rank	8	Prob(J-statistic)	0.856006

Generalized Method of Moments (GMM)-Panel Data Series

Dependent Variable: LEPS
Method: Panel Generalized Method of Moments
Date: 12/30/21 Time: 12:06
Sample: 2016 2020
Periods included: 5
Cross-sections included: 7
Total panel (balanced) observations: 35
2 SLS instrument weighting matrix
Period SUR (PCSE) standard errors & covariance (d.f. corrected)
Instrument specification: LEPS C LBSIZ LBCOM LBGEN LFDIR

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.333883	3.494538	-0.667866	0.5093
LBSIZ	2.377987	0.823438	2.887877	0.0071
LBCOM	-0.714408	0.646676	-1.104739	0.2781
LBGEN	-0.237167	0.144567	-1.640534	0.1113
LFDIR	0.344961	0.125374	2.751453	0.0100

R-squared	0.423986	Mean dependent var	0.152220
Adjusted R-squared	0.347184	S.D. dependent var	1.275277
S.E. of regression	1.030386	Sum squared resid	31.85085
Durbin-Watson stat	1.733968	J-statistic	30.00000
Instrument rank	6	Prob(J-statistic)	0.000000

Fully Modified Least Squares (FMOLS) (GMM)-Simple Series Data

Dependent Variable: LEPS
Method: Fully Modified Least Squares (FMOLS)
Date: 12/30/21 Time: 14:48
Sample (adjusted): 2 35
Included observations: 34 after adjustments
Cointegrating equation deterministics: C LCSIZ LCAGE LINFR
Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)'

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LBSIZ	2.052108	0.840728	2.440871	0.0218
LBCOM	-0.418787	0.537934	-0.778511	0.4433
LBGEN	-0.225627	0.112100	-2.012738	0.0546
LFDIR	0.369878	0.156719	2.360133	0.0261
C	-0.148196	4.188744	-0.035379	0.9720
LCSIZ	0.056936	0.013325	4.272922	0.0002
LCAGE	-0.287331	0.556755	-0.516081	0.6102
LINFR	-0.908432	0.981180	-0.925857	0.3630

R-squared	0.668124	Mean dependent var	0.166383
Adjusted R-squared	0.578772	S.D. dependent var	1.291659
S.E. of regression	0.838313	Sum squared resid	18.27199
Long-run variance	0.518769		

The three table above shows a consistent results for the four hypotheses formulated for the study as follows:

Hypothesis one

H_{o1}: Board size has no significant effect on the financial performance of the quoted ICT firms in Nigeria

H_{A1}: Board size has significant effect on the financial performance of quoted ICT firms in Nigeria

To test this hypothesis, three prediction methods were used to estimate the regression as shown in tables 7, 8 and 9 above and results were thus:

Table 7, Generalized Method of Moments (GMM) – Simple linear series, the results showed t-statistics value of 3.064622 and the associated probability value of 0.0048 at the 5% (0.05) level of significance. This implies that there is a positive and significant effect of board size on the Earnings per share. Therefore, null hypothesis is rejected and the alternative hypothesis is accepted, Table 8 and Table 9 results are in line with these results as the p-value are less than 5% (0.05) that are 0.0071 and 0.0218 respectively and each of t-statistics value is positive. In summary, it is safe to conclude that the board size has a positive effect on financial performance quoted ICT firms in Nigeria.

Hypothesis two

H_{O2}: Board composition has no significant effect on the financial performance of quoted ICT firms in Nigeria

H_{A2}: Board composition has significant effect on the financial performance of quoted ICT firms in Nigeria

To test this hypothesis, three prediction methods were used to estimate the regression as shown in Tables 7, 8 and 9 above and results were thus:

Table 7 Generalized Method of moments (GMM) – Simple linear series, the results showed t-statistics value of -0.0967082 and the associated probability value of 0.3418 at the 5% (0.05) level of significance. This implies that there is a negative and insignificant effect of board composition on Earnings per share. Therefore, null hypothesis is not rejected rather than alternative hypothesis is dropped – table 8 and table 9 results are consistent with these results as the p-value are greater than 5% (0.05) that are 0.2781 and 0.4433 respectively and each of t-statistics value is negative. In summary, it is safe to conclude that the board composition has a negative but insignificant effect on financial performance of quoted ICT firms in Nigeria.

Hypothesis three

H_{O3}: Board Gender has no significant effect on the financial performance of quoted ICT firms in Nigeria.

H_{A3}: Board gender has significant effect on the financial performance of quoted ICT firms in Nigeria.

To test this hypothesis, three prediction methods were used to estimate the regression as shown in Tables 7, 8 and 9 above and results were thus:

Table 7, Generalized Method of Moments (GMM) – simple linear series, the results how t-statistics value of -1.614255 and the associated probability value of 0.1177 at the 5% (0.05) level of significance. This implies that there is a negative and statistically insignificant effect of board gender on Earnings per share. Hence, the null hypothesis is not rejected rather than the alternative hypothesis is dropped. In the same vein, table 8 and table 9 have t-statistic value of -1.640534 and -2.012738 respectively and probability value of 0.1113 and 0.0546 respectively. In summary, it is safe to conclude there is negative but insignificant effect of board gender on financial performance of quoted ICT firms in Nigeria.

Hypothesis four

H_{O4}: Foreign director has no significant effect on the financial performance of quoted ICT firms in Nigeria.

H_{A4}: Foreign director has significant effect on the financial performance of quoted ICT firms in Nigeria.

To test this hypothesis, three prediction methods were used to estimate the regression as shown in Tables 7, 8 and 9 above and results were thus:

Table 7, Generalized Method of moments (GMM) – Simple linear series, the results show t-statistic value of 2.869291 and probability value of 0.0077 which less than 5% (0.05) level of significance. Hence, the null hypothesis is rejected and the alternative hypothesis is accepted. The results of t-

statistics and p-value of tables 8 and 9 (2.751453 & 2.360133 and 0.0100) concurred with the Table 7 results. In summary, it is safe to conclude that there is a positive and significant of foreign directors on financial performance of quoted ICT firm in Nigeria.

DISCUSSION OF FINDINGS

The empirical results from the regression estimates based on the GMM method could be summarized thus:

Summary of Findings from the Regression Estimates for the Board Diversity effects on the Financial Performance of quoted ICT firms in Nigeria for the period of 5 years, spanning from 2016 to 2020.

S/N	Board diversity variable	Earnings per share as measure of financial performance	Findings
1.	Board size	Positive and significant effect	The board size has a positive and significant effect on the financial performance of quoted ICT firms in Nigeria
2.	Board composition	Negative and insignificant effect	The board composition has a negative but insignificant effect on the financial performance of quoted ICT firms in Nigeria
3.	Board gender	Negative and insignificant effect	Board gender has a negative but insignificant effect on the financial performance of quoted ICT firms in Nigeria
4.	Foreign director	Positive and significant effect	The foreign director in the board of directors has a positive and significant effect on the financial performance of quoted ICT firms in Nigeria.

The Durbin-Watson of 2.075730 and 1.733968 of Generalized Method of Moments (GMM) both as simple linear series and panel data are approximately 2 as shown in table 7 and table 8 indicate that the results are free from serial autocorrelation problem. Looking at the adjusted R-squared and S. E. of regression of the data as simple linear series and panel data as shown in table 7 and table 8 of 60.5% & 0.80 and 34.7% & 1.03 respectively, the data is better analyzed as simple linear series than panel data. Hence, further discussion is based on the data as simple linear series.

As shown in table 10, the result of this study shows that board size has a positive and significant effect on the financial performance of ICT firms in Nigeria. This implies that increase in board size will lead to increase in Earnings per share. This means the number of directors on the board has a synergistic effect on the firm's operation like good decision making and rooms for diverse skills, competencies and experiences, which leads to better financial performance of the ICT firms in Nigeria. This finding is similar to Oyerogba (2016), Kalu (2016), Musa (2019), Onyali and Okerekeoti (2018). Contrarily, Tomitope (2018) found that board size has a significant negative correlation with net profit margin that is financial performance of a firm. However, this is line with the research expectation of mixed outcomes from larger board size.

In the same vein, foreign director in board of directors was found to have significant positive effect on the financial performance of ICT firms in Nigeria. This implies that increase in foreign director as member of corporate board promote firms financial performance. This might be attributable to

the wealth of knowledge and experience the foreign expertise could display. This finding is similar to findings of Joenoes and Rokhim (2019), Otuya, Donwa and Egwere (2017), and Assenga (2021). Equally, this concurred with the expectation of the research, that there is positive correlation between foreign director's number and Earnings per share. Correlation matrix table (table 6) confirm that there are positive correlation between board size, and Earnings per share; and foreign directors and Earning per share.

Board composition and board gender diversity were found to have insignificant negative effect on firm's financial performance. For instance, one percentage increase in the non-executive director brings about 96.7% decrease in Earnings per Share (see table 7).

Musa (2019), Vafeas and Theodorous, (1998) and Weir, Laing and Micknight, (2002) agreed with this findings, however, Connelly and Limpaphayom (2004) and Onyali and Okerekeoti (2018) disagreed with the findings as both found that there is significant positive effect of board composition on firms financial performance. Equally, this finding is contrary to the research expectation.

Odiwo, Chukwuma and Kofordu (2015), Aladejebi (2021), and Ilaboya and Ashafoke (2017) findings are in line with the study found that there is insignificant negative effect of board gender diversity on the firm's financial performance in Nigeria. Though, Tukur and Bilkisu (2014), and Sri (2020) findings are contrary to the study findings, they found that there is significant positive effective of board gender diversity on firms performance.

CONCLUSION AND RECOMMENDATIONS

Summary of Findings

The findings of this study are as follows:

(i) The board size has a significant positive effect on the financial performance of quoted Information and Communications Technology (ICT) firms in Nigeria.

(ii) The board composition has an insignificant negative effect on the financial performance of quoted Information and Communications Technology (ICT) firms in Nigeria.

(iii) The board gender has an insignificant negative effect on the financial performance of quoted Information and Communications Technology (ICT) firms in Nigeria.

(iv) The foreign director in the board of directors has a significant positive effect on the financial performance of quoted Information and Communications Technology (ICT) firms in Nigeria.

Conclusions

Board diversity has mixed effect on the financial performance of quoted information and communication technology (ICT) firms in Nigeria. Some factors of board diversity exercise positive influence in the financial performance of quoted ICT firms in Nigeria, while others exercise weak negative influence in the financial performance of quoted ICT firms in Nigeria. In establishment of board for multi-cultural organization in a complex large scale business environment, it is necessary to consider heterogeneity, which obviously has implication for financial performance. There is need for a shift in the traditional role of women in Nigeria from family caretaking to the multiple roles of pursuing career and family responsibilities. The

percentage of women occupying executive position in the Nigerian workplace remains low suggesting that barriers to their entry to higher level positions may exist. The barriers are hereby unnecessary. Further research may investigate the range of board size and level of expertise of board members most likely to enhance financial performance

Recommendations

The study recommends as following:

(i) Board size of quoted ICT firms should be large relative to the firm's complexity and scale of operation.

(ii) The number of non- executive directors in the board of directors should be relatively small in order to reduce bureaucracy and chances of including inexperience persons in the board.

(iii) The number of female directors in a board is immaterial, rather than what is important is the wealth of knowledge and competency of the board members and not their genders per se.

(iv) The member of foreign directors in the board of directors in quoted ICT firms should be increased in order to bring professional skills and expertise to boost the managerial capacity and capital accessibility of the ICT firms in Nigeria.

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