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- I. Title page
- II. Abstract (150-250 words)
- III. Keywords (3-5)
- IV. Introduction
- V. Literature Review
- VI. Methodology
- VII. Results and Discussion
- VIII. Conclusion and Recommendations
- IX. References (APA 7th Edition)
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BOARD OF DIRECTORS' ATTRIBUTES AND PERFORMANCE OF COMMERCIAL BANKS IN NIGERIA

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ABSTRACT

The study examines the effect of board of director's attributes on performance of commercial banks in Nigeria. This study specifically investigates the role of board size, composition, meeting, nationality and gender in the performance of listed Deposit Money Banks in Nigeria. Using a sample of 14 banks and covering a study period of 11 years from 2013 to 2023, data were extracted from the published annual reports and accounts of the banks and were analysed using multiple regression technique. The findings revealed that board size has a significant positive effect on financial performance while board composition and nationality of the board members have a significant but negative effect on financial performance of the listed commercial banks in Nigeria. The study therefore recommends amongst others that board size should be maintained at an average size of fourteen in order to accommodate other diversity issues on nationality and gender towards optimizing the performance of quoted commercial banks in Nigeria.

1.1 Introduction

Board of director's attributes is viewed as the variation of the age, race, ethnicity, gender, and social/cultural identities among employees within a specific organisation. The financial stability and continuity of banks is believed to be very much dependent on the strength and qualities of the board in term of its size, the level of independence from management and the number of times meetings are held to take maximizing decisions. In addition, the composition of the board of directors in terms of foreign nationals and gender representation on board to a greater extent is believed to account for improved financial performance of the organisation.

Previous researches have a conflicting view about the influence and direction of size and composition of the board on financial performance. Researchers have argued that increased number of board members may lead to too many opinions which may lead to disagreement and hence affect the performance of the organisation, while other researchers are of the opinion that increased number and high number of non-executive of boards are to the advantage of the organisation as this will enable them to take a better

decisions and become a better monitors since the members will be full of different ideas that is capable of moving the organisation to a greater height. It can also be argued that because the non-executive directors do not participate in the day-to-day running of the organization, this gives them the inquisitive ability to know what is happening within the organization in order to safeguard their investment thereby protecting other investors and hence improving the performance of the organisation through the executives.

Regular meetings by the board members could serve as an avenue to resolve grey areas that may affect the performance of the organisation. Therefore, the quality of time spent to deliberate on issues affecting the organization could go a long way in enhancing the performance of the organisation. Also, foreign investors are seen as long-term investors which have significant incentives to monitor the managers in order to protect their wealth and as such are expected to enhance the performance of the organisation. Female directors are believed to be better adherent to ethical codes and standards than their male counterparts. Research on ethics has projected that

women are less likely to engage in unethical behaviour in an organisation to obtain financial rewards.

Banking industry is a sensitive sector whereby activities are said to be carefully monitored and supervised by professional and regulatory bodies to ensure strict adherence to ethical codes and conduct, this may explain why the banking sector has its own code of corporate governance different from others and hence the reason for the focus on the sector.

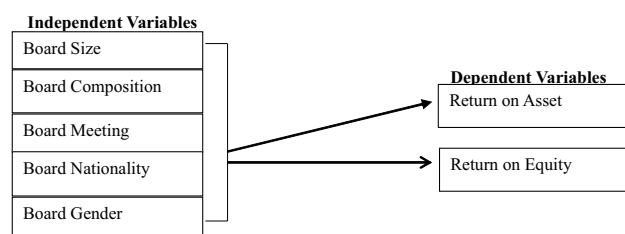
The practical problem that formed the motivation for the research is the tendency for management to embark on self-serving motive rather than the interest of the owners. This suggests that satisfying the interest of the shareholders (owners) is fast becoming a key challenge in the Nigerian corporate setting due to non-alignment of various interests. There are continuous scepticisms in the mind of investors, shareholders and other stakeholders on the ability of their investment to yield higher returns. It is need to examine the influence of board of directors' attributes on financial performance of banks in Nigeria.

Based on the objective, the paper hypothesized that: Board of directors' attributes has no significant effect on financial performance of listed banks in Nigeria.

2.0 Literature Review and Theoretical Framework

This section covers the conceptual framework, empirical review of literature and the theories underpinning the study.

2.1 Conceptual Framework



2.3 Empirical Review on Board Attributes and Financial Performance

Alaryan (2017) explored the role of board characteristics on enhancing financial performance of Jordanian listed companies. The study used the non-financial companies' annual reports for 6 years (2011-2016). The non-financial sector consists of 167 companies; only 139 companies are included in this study due the lack of data during study's period. The result of normality test (comprising the Q-Q plot and detrended Q-Q plot) of the data showed that the data represent a sample of normal population distributed homogeneously. The study used multiple regressions between independent variables (i.e Board composition, Board size, Board leadership structure and Board tenure) with dependent variables (i.e

financial performance). The results revealed that there is a positive role for board size on enhancing financial performance.

Gurusamy (2017) investigated the relationship and impact of corporate governance measures such as board characteristics, audit committee and ownership structure on the financial performance of the selected manufacturing firms listed in Bombay Stock Exchange (BSE). The applied panel data regression analysis to a sample of 357 manufacturing firms listed in BSE during the period (2006-2015). The study found that board size is positively and significantly linked to both the financial performance measures with return on assets (ROA) and Return on Equity (ROE) but the negative and insignificant impact in case of Tobin's Q.

Tonui and Olweny (2018) assess the effect of board characteristics on the financial performance of commercial state corporations in Kenya. The study adopted a descriptive survey design. The population comprised of the all the 31 commercial state corporations in Kenya. Primary data was gathered by use of structured questionnaires and captured through a 5-point likert scale type. Secondary data on the other hand was collected from the financial records of the all the commercial state corporations. The study collected data using drop and pick method. Questionnaires were dropped and picked later to enable the respondents have enough time to respond to the questionnaires which enhanced reliability. Inferential statistics; regression coefficient and bivariate correlation were used to analyze the relationship of the dependent variable and the independent variables. The regression analysis revealed that there was positive and significant relationship between board independence and financial performance of state corporations.

Sarkar and Sarkar (2018) examined the effect of board governance in state-owned and private banks by undertaking a study of commercial banks in India that has both bank groups. Covering a ten-year period from (2003-2012) that witnessed a large number of governance reforms in India, the results of their empirical analysis provided evidence of strong board independence exhibiting a significant positive correlation with the performance of private banks.

Meme (2017) determined the effect of board characteristics on financial performance of manufacturing firms listed at the Nairobi Securities Exchange in Kenya. The study adopted a descriptive search design. The target population for the study was 13 manufacturing firms listed at the Nairobi Securities Exchange in Kenya for the period of 2009 to 2013. The study adopted the Survey Sampling Technique and used secondary data sourced from the listed firms' published annual reports and statistics. Secondary data used was retrieved from

manufacturing firms' websites, Nairobi Securities Exchange websites, Capital Markets Authority Library and Kenyan Investors website. The study utilized both descriptive and inferential statistics to analyze the data. The study estimated a Panel Data Regression Model which was analyzed using Stata 12. The study results indicated that board characteristics in regard to board size, board diversity and board independence has a significant effect on the financial performance of listed manufacturing firms in Kenya. The results also showed that firm attributes has a significant moderation effect on the relationship between board characteristics and financial performance. The research findings showed that board diversity had a significant relationship with financial performance.

Kaur and Vij (2017) investigated the effect of board characteristics on the firm performance. Panel data for 28 listed banks at National Stock Exchange of India between the periods of 2008-2014 was used. Least Square Estimation was used for the analysis. The result revealed that bank boards that meet more frequently have positive effect on their performance. The findings suggested that board characteristics play a vital role in the improvement of corporate governance mechanism for financial institutions. They also found that the size of the board members maintained by the bank has positive but significant impact on their performance.

Kakanda et al. (2017) examined the relationship between board characteristics, risk management disclosure and performance of deposit money banks in Nigeria. Data were extracted from the annual reports and accounts of the 15 banks listed on the Nigerian Stock Exchange (NSE) covering 2012-2016. The study employed Random Effect regression model for the analysis. The study found that board meeting has a significant negative effect on return on assets.

Gemu (2017) investigated the impacts of board meetings, women directors and board independence on Performance of foods and beverages companies in Nigeria from the period of 2007 to 2013. The discretionary accrual was extracted by using modified Jones model. The sample size of the population is nine companies. A correlational research design was used. Multiple regressions were used as a technique of data analysis and result was interpreted using fixed effect regression. The results revealed that the impact of frequency of board meetings on performance was found to be negative and statistically significant.

Müller, Ienciu, Bonaci and Filip (2018) investigated board characteristics best practices in the particular context of European listed companies. The study used econometric regression models to assess the impact of a series of corporate governance board related characteristics on the performance of companies listed on the largest European capital market (London Stock Exchange), for the 2010-2011 period. Results documented best practices through the existence of several significant associations between considered

board characteristics (foreign director) and firm performance. Also, they documented positive association between women director and financial performance of firms listed in European Capital Market.

Ciavarella (2018) explored the relationship between board diversity and firm performance for a sample of companies listed in Italy, France, Germany, Spain and United Kingdom. The study considers different dimensions of diversity which include both demographic (gender, age and nationality diversity) and cognitive or non-observable (diversity in directors' experience and education). The focus of the study was on diversity of both the entire board and its executive members only. The study found that firms foreign directors are more represented have better performance than others.

Koech and Ogollah (2018) investigated the effect of corporate governance on the financial performance of commercial banks in Kenya using a case study of Chase bank. The study employed a descriptive research design embracing the use of structured questionnaires. The questionnaires designed were issued to respondents with an aim to collect information on how the bank was governed. The data was obtained from 69 members of staff, which included the top management team and the relevant department, who were all administered with the questionnaires. The research instrument was then pilot tested for reliability and validity. The analysis was done using descriptive statistics such as mean scores, frequencies and percentage. Pearson correlation technique was used to establish the strength and significance of the relationship of board characteristics and financial performance in commercial banks in Kenya. The study found out that board characteristics positively influenced the financial performance at Chase bank Kenya. It was not clear which of the variables forms the proxy for board characteristics in this study. This has made it difficult to understand the individual impact of the variables of board characteristics.

Kramaric, Aleksic and Pejic-Bach (2018) analyzed the effects of different board characteristics on the insurance companies' performance. The analysis was conducted using dynamic panel model, and covers all insurance companies in Croatia operating in the 2007–2013 period. The main findings suggested that gender diversity at the top positions is not critical for financial success. Specifically, it is established that women acting as presidents of supervisory board deteriorate insurer's performance measured by return on assets (ROA). This is also the case when more women are present in the board of directors.

Lee-Kuen, Sok-Gee and Zainudin (2017) investigated the relationship between gender diversity in a firm's board of directors and financial performance of firms listed on Bursa Malaysia for the period between 2009 and 2013. Using unbalanced panel data analysis, they

tested whether gender diversity in the boardroom may influence the firm's performance, as measured by Tobin's Q. they employed four different proxies for gender diversity (the dummy variable for women, the percentage of women on the board, the Blau index, and the Shannon index) to provide a more comprehensive measure of gender diversity. This study suggested that a higher degree of female representation on the board increases a firm's financial performance. Positive discrimination favouring female boardroom appointment is therefore likely to persist as a feature of the corporate governance landscape in Malaysia.

2.2 Theoretical Framework

Signaling theory in finance is a term used to describe the behavior of two parties that have different information. It states that, corporate financial decisions are signals that are sent by managers to investors so as to shake them up. Signaling theory is useful for describing behavior when two parties (individuals or organizations) have access to different information. Typically, one party, the sender, must choose whether and how to communicate (or signal) that information, and the other party, the receiver, must choose how to interpret the signal. Accordingly, signaling theory holds a prominent position in a variety of management literatures, including strategic management, entrepreneurship, and human resource management. While the use of signaling theory has gained momentum in recent years (Brian, Certo, Ireland, & Reutzel, 2011).

It is expected that, since the shareholders may be interested in the financial performance of the firm

through returns in form of dividend, the board of directors who serve as agent of these shareholders may want to satisfy the needs of the shareholders and also signal good to other potential investors to enable them invest. Therefore, the board of directors tends to pursue value maximizing decision that will enhance the shareholders wealth. This study adopts signalling theory due to its relevance in encouraging more investment that would lead to higher financial performance.

3.0 Methodology

The study adopted ex-post facto design. The approach is quantitative in nature and aligns with positivist paradigm. The population of deposit money banks listed on the Nigerian Stock Exchange as at 31st December, 2023 were fourteen. All the fourteen (14) listed banks were used for the analysis. The study utilizes secondary source of data collection via the annual reports and accounts and the period was eleven (11) years starting from 2013 to 2023. Multiple Regression Technique and Robust Ordinary Least Square were adopted for the study using Stata 13 as the statistical package to estimate.

The model of the study used and its specification are displayed below:

$$ROA_{it} = \beta_{0it} + \beta_1 BS_{it} + \beta_2 BC_{it} + \beta_3 BM_{it} + \beta_4 BN_{it} + \beta_5 BG_{it} + \beta_6 LV_{it} + \beta_7 IR_{it} + \beta_8 FS_{it} + \varepsilon$$

Whereas: ROA = Return on Assets, BS = Board Size, BC = Board Composition, BM = Board Meetings, BN = Board Nationality, BG = Board Gender, LV = Leverage, IR = Interest rate, FS = Bank Size, $\beta_1 - \beta_8$ = Coefficient of explanatory variables, β_0 = Constant or Intercept, ε = Error Term, i = Firm Script ($i = 14$), t = Time Sample ($t = 11$ years)

Table 1: Variables Definition and Measurement

Variables	Nature of Variables	Proxy (ies)	Measurement	Sources
Financial Performance	Dependent	Return on Assets (ROA)	Profit after tax divided total assets.	Chemweno (2016)
Board of Directors	Independent	Board Size	Total number of Directors on Board	Farouk and Shehu (2014)
„	„	Board Composition	Ratio of non-executive director to total number of director	Farouk and Shehu (2014)
„	„	Board Meetings	Number of meetings held by Board of Directors in a year	Garba & Abubakar (2014)
„	„	Board Nationality	Ratio of foreign directors to total number of Directors	Farouk (2018)
		Board Gender	Ratio of Female directors to total number of directors	Farouk (2018)
		Leverage	Total debt to total assets	Frick, & Bermig, (2009)
		Interest Rate	Prevailing interest	Gemert, (2011)
Control Variable				

4.0 Result, Analysis and Discussion

The descriptive statistics is presented in Table 2 showing the minimum, maximum, mean, standard deviation, skewness and kurtosis of the data in respect of the variables used in the study.

Table 2: Descriptive Statistics

Variables	Min	Max	Mean	Std. Dev.	Sktest	Swilk	N
ROA	0.019	9.536	2.121	1.527	0.0000	0.00000	64
BS	5	21	14.18	2.875	0.0078	0.00000	64
BC	0.21	0.88	0.575	0.115	0.0181	0.00894	64
BM	2	12	6.188	2.031	0.0053	0.00019	64
BN	0	0.42	0.041	0.103	0.0000	0.00322	64
GD	0	0.60	0.144	0.111	0.0000	0.00000	64
LV	68.91	97.50	85.13	5.836	0.0019	0.00003	64
IR	15.14	18.99	16.90	0.887	0.0136	0.00000	64
FS	8.028	11.11	9.081	0.581	0.0000	0.00000	64

Source: Stata 13

Return on assets showed a minimum value of 0.019 implying that the performance of the banking sector was at its lowest within the study period which is far less than 1% and when compared with the highest level of performance (9.536). It depicts that return on assets was recorded its maximum value at 9%. The mean value of 2.121 further substantiates that return on assets was low within the study period. Board size has minimum value of five (5) and a maximum value of twenty-four (21) implying that the lowest number of board members within the study period was five (five), while highest number of board members is twenty-one (21). The mean value of about 14.18 implies that on average, all the firms within the banking sector were having fourteen members on their board. The minimum value recorded for board composition is 0.21 and the maximum value is 0.88, which implies that the lowest percentage occupied by the non-executive directors in the firms within the period is 21%, while the maximum proportion occupied by the non-executive director is 88%. On average, the percentage of non-executive directors on board is 0.575, implying that, most of the firms' non-executive directors occupies about 58% of the entire board members, leaving on only 43% for the executive directors.

Board meetings showed minimum and maximum values of two (2) and twelve (12) respectively, which implies that the minimum number of times the board

members met within the year is two times for all the banks, while the maximum number of times the directors met within the year was twelve times. The average number of times the directors met within the year is 6.188 implying that most of the firms' board members met six times in a year. The minimum value for board nationality is 0 and the maximum value is 0.42. The zero value implies that the foreign representation on board of banks with the study period recorded zero percentage implying that there was a bank that does not have foreign director on their board. However, the highest percentage of representation by foreign directors on board is 42%. On overall, board nationality recorded a mean value of 0.041 which indicate that on average; most of the firms have foreign directors occupying about 4% of the seat of board of directors.

The minimum value for gender diversity is 0, while the maximum value is 0.60, which means that within the listed deposit money banks and the study period, there was a bank that did not have any female director on their board, while the highest value implies that there was a bank that had 60% of women representation on the board, while men occupy 40%. The mean value of 0.144 implies that on average the companies have 14% of women directors represented on board for all the banks.

Table 3: Correlation Matrix

	ROA	BS	BC	BM	BN	BG	LV	IR	FS
ROA	1								
BS	0.1224	1							
BC	0.0542	-0.0854	1						
BM	-0.1008	0.1730*	-0.1115	1					
BN	0.0177	-0.2003*	0.3598*	-0.1130	1				
BG	0.1735*	0.4593*	-0.0616	-0.1276	-0.0962	1			
LV	-0.0110	0.1282	-0.0345	0.1622*	-0.0528	-0.0528	1		
IR	-0.0193	-0.0273	-0.0377	-0.1124	0.0585	0.0706	-0.0640	1	
FS	0.0693	-0.0587	0.1049	-0.0644	0.1617*	-0.1323*	0.3544*	0.0858	1

Source: Stata 13

*. Correlation is significant at 0.01 or 0.05 level (2-tailed)

Return on assets is 12% positively correlated with board size which was not significant at 5%. This implies that return on assets and board size has a direct relationship. Board composition has an insignificant and positive relationship with return on assets to the magnitude of 5%. The relationship between board size and return on assets implies movement in same direction and same magnitude. Return on asset was found to have insignificant, but negative relationship with board meetings at the magnitude of 10%. This indicates that return on assets and board meetings moves in opposite direction and at different magnitude. The relationship between board nationality and return on assets is positive and weak. This means that the two variables move in the same direction. Board gender diversity has positive, but insignificant correlation with return on assets at the magnitude of 17%.

4.2 Robustness Test Results

Multicollinearity Test: The Variance Inflation Factor (VIF) and tolerance values are used and were found to be consistently smaller than ten and one respectively, indicating absence of harmful multicollinearity

(Cassey & Anderson, 1999).

Heteroskedasticity Test: A chi-square value of 3.60 which is not significant at 5% was recorded indicating absence of heteroscedsticity and as such confirming the non-violation of one of the assumptions of ordinary least square (OLS) regression. This was the basis upon which the OLS result was adopted and interpreted.

Normality Test of the Residuals: The result showed that the data is tolerably mild as the shape is close to normal which can be referred to as mesokurtic as it is neither skewed to the right nor skewed to the left. The level of peakedness further substantiates the fact that the residuals are normally distributed.

The Hausman Test: The result of chi square values 13.17 and p-values 0.1061 indicates that the random effect regression was also appropriate for adoption.

Panel Effect Test: A chi-square value of 234.98 and a probability value of 0.0000 revealed a panel effect within the study unit. This led to the rejection of the null hypothesis which states that there is no panel effect within the study units. This hence necessitated the estimation and the use of Ordinary Least Square regression.

Table 4: Summary of OLS Regression Result

Table 4: Summary of OLS Regression Result

Variables	Coeffi	T-Stat	Prob
Constant	3.8123	3.58	0.000
BS	0.0302	2.00	0.048
BC	-0.6114	-1.68	0.096
BM	-0.0047	-0.23	0.820
BN	-0.8500	-2.07	0.040
BG	0.1138	0.30	0.768
LV	-0.0112	-1.53	0.129
IR	-0.0274	-0.61	0.540
FS	-0.6028	-8.20	0.000
R ²			0.3676
Adjusted R ²			0.3327
F-Statistics			10.54
Probability			0.0000
Heteroskedasticity Test (Chi ²)			3.60
Heteroskedasticity Test (Probability)			0.0576
Mean VIF			1.18

Source: Stata 13

The R² of 0.3676 gives the proportion of the total variation in the dependent variable as explained by the independent variables. Therefore, all the independent variables used explain the dependent variable by 36.76%. That is, the total variation in financial performance of listed deposit money banks in Nigeria is accounted for by the size of board of directors, its composition in terms of ratio of non-executive

director to total directors, the number of times meetings is held in a year, ratio of foreign nationals on board as directors and the proportion of women director on board of listed deposit money banks in Nigeria.

The F-statistics value of 10.54 which is significant at one percent (1%) indicates that board characteristics

and financial performance model is well fitted. It implies that, when there are any changes in board characteristics of listed deposit money banks in Nigeria; their financial performance is affected directly. The P-value of F-statistics which is significant at a level of 1% implies that there is 99.9 percent probability that the relationship among the variables were not due to mere chance and as such the results from the regression can be relied upon. In addition, it implies that the independent variables reliably predict the dependent variable of the study.

4.3 Test of Hypotheses

The result in respect of board size has a t-value of 2.00 and a coefficient value of 0.0302 which is significant at 5% level. This indicates that board size has positive and significant effect on financial performance of listed deposit money banks in Nigeria. This may be as a result of the argument put forward by previous researchers that larger board members may be more effective because of the coordination and its composition, which in turn adds to strong monitoring. This finding is in line with the study of Alaryan (2017), Kaur and Vij (2017), Basuony, Mohamed and Elbayoumi (2017), Herdjiono and Sari (2017). The finding therefore provides evidence of rejecting null hypothesis one of the studies.

The t-value for board composition was -1.68, while the coefficient value in respect of board composition was -0.6114 which is significant at 10% level. This signifies that board composition has negative and significant effect on financial performance of listed deposit money banks in Nigeria. This finding confirms the assertion in the literature that boards dominated by outsiders or non-executive directors may be ineffective in contributing to the financial performance of banks because they do not partake in the day-to-day activities of the banks as their traditional role is that of monitoring and control of management. This finding is in line with those of Meme (2017), Anis et al. (2017), Basuony, Mohamed and Elbayoumi (2017) and this provide evidence of rejecting null hypothesis two.

Board meetings variable has a t-value of -0.23 and a coefficient value of -0.0047 which is neither significant at 1%, 5% nor 10% level. This shows that board meetings have insignificant but negative effect on financial performance of listed deposit money banks in Nigeria. This may be as a result of the fact that frequent meetings may lead to argument and free riders' problem which negatively affect the overall performance of the banks. This finding is in line with the studies of Kakanda *et al.* (2017), Gemu (2017). The null hypothesis three is failed to be rejected.

The regression results revealed that board nationality as shown in Table 4.3 has a t-value of -2.07 and a coefficient value of -0.8500 which is significant at 5% level. This indicates that board nationality has significant negative effect on financial performance of

listed deposit money banks in Nigeria. This may be as a result the argument that the distance of the foreign directors and the associated cost to attend meetings may have negative effect on the financial performance of the banks due to little contributions owing from less meeting attendance. The finding is contrary to those of Müller, Ienciu, Bonaci and Filip (2018). The null hypothesis four is rejected.

The t-value for gender diversity was 0.30, while the coefficient value is 0.1138 which is not significant at 10%. This shows that gender diversity has insignificant but positive effect on financial performance of listed deposit money banks in Nigeria. This may be as a result of the fact that board gender diversity is expected to enhance the board's ability to monitor top management and because women tend to ask questions that male director may not ask. This finding is in line with those of Kramaric, Aleksic and Pejic-Bach (2018), Müller, Ienciu, Bonaci and Filip (2018). Based on the result, the null hypothesis five is rejected.

5.0 Conclusion and Recommendations

As a result of the findings from the study, the researcher concluded board of directors' attributes is a great driver of financial performance of listed banks in Nigeria. From the findings and conclusions, the following recommendations are made:

- i. The number of board members should be maintained at an average of fourteen (14) for all the banks, if the financial performance must be enhanced and monitoring capacity strengthened.
- ii. The percentage of non-executive director should be maintaining an average of fifty percent (50%) by management in order to serve as better monitors against the executive members and hence encourage high financial performance.
- iii. The management of the firms should reduce the number of times meetings is held by directors in a year to at least six (6) times, to improve the financial performance of the listed deposit money banks in Nigeria.
- iv. Foreign directors' membership on the board should be increased to an average of twenty two percentages (10%) and also made to have interest (share) in the banks' where they serve as board members, this will make them sit up and contribute positively to the banks progress.
- v. The management should consider the inclusion of more women on the board of directors such that at least 15% of women occupy seats on the board.

References

- Alaryan, L. A. (2017). Exploring the role of board characteristics on enhancing financial performance of Jordanian listed companies.

- International Journal of Economics and Finance*, 9(7), 99–105
- Brian, L. C., Certo, S. T., Ireland, R. D. & Reutzel, C. R. (2011). Signaling theory: a review and assessment. *Journal of Management theory*, 37(1), 39-67
- Chemweno, E.C. (2016). Board Characteristics and firm performance: Evidence from Kenya. Submitted in partial fulfilment of the requirement of the Degree of Masters in Business Administration in Strathmore Business School, Nairobi, Strathmore University, Kenya.
- Ciavarella, A. (2018). Board diversity and firm performance across Europe. *Quaderni di finanza Working papers*, 85, 1-29.
- Farouk, M. A. (2018). Board diversity, audit committee and earnings management of listed deposit money banks in Nigeria. A PhD thesis submitted to the school of post graduate studies, Bayero University, Kano.
- Farouk, M. A., & Shehu, U. H. (2014). Board of director's characteristics and performance of listed deposit money banks in Nigeria. *Journal of Finance and Bank Management*, 2(1), 89-105.
- Frick, B., & Bermig, A. (2009). Board size, board composition and firm performance: empirical evidence from Germany. *International Journal of Accounting and Financial Reporting*, 5(2), 178-210
- Garba, T., & Abubakar, B. A. (2014). Corporate board diversity and financial performance of insurance companies in Nigeria: An application of panel data approach. *Asian Economic and Financial Review*, 4(2), 257-277.
- Gemert, P. V. (2011). The relationship between board characteristics and corporate performance. Evidence from the Netherlands. Master thesis Department Accountancy Faculty of Economics and Business Studies Tilburg University.
- Gemu, A. A. (2017). Board characteristics and performance of foods and beverages companies in Nigeria. *International Journal of Advanced Research in Public Policy, Social Development and Enterprise Studies*, 2(2), 185-235
- Gurusamy, P. (2017). Board characteristics, audit committee and ownership structure influence on firm performance of manufacturing firms in India. *International Journal of Business and Economics Research*, 6(4), 73-87
- Kakanda, M. M., Salim, B., & Chandren, S. (2017). Do board characteristics and risk management disclosure have any effect on firm performance? Empirical evidence from deposit money banks in Nigeria. *Business and Economic Horizons*, 13(4), 506-521.
- Kaur, M., & Vij, M. (2017). Board characteristics and firm performance: evidence from banking industry in India. *Asian Journal of Accounting and Governance*, 8, 39–53
- Koech, S., & Ogollah, K. (2018). Effect of corporate governance on the financial performance of commercial banks in Kenya: Case study of chase bank Kenya. *International Journal of Advanced Engineering and Management Research*, 3(2), 176–184
- Kramaric, T. P., Aleksic, A., & Pejic-Bach, M. (2018). Measuring the impact of board characteristics on the performance of Croatian insurance companies. *International Journal of Engineering Business Management*, 10, 1–13
- Lee-Kuen, I. Y., Sok-Gee, C., & Zainudin, R. (2017). Gender diversity and firms' financial performance in Malaysia. *Asian Academy of Management Journal of Accounting and Finance*, 13(1), 41–62.
- Meme, F. K. (2017). Board characteristics and financial performance of manufacturing firms listed at the Nairobi securities exchange in Kenya. Being a research thesis submitted to the school of business, Kenyatta university for the award of degree of Master of Science (finance).
- Müller, V., Ienciu, I., Bonaci, C.G., & Filip, C. I. (2018). Board characteristics best practices and financial performance. Evidence from the European capital market. *Am̃yteatru Economic*, 672-683.
- Sarkar, J., & Sarkar, S. (2018). Bank ownership, board characteristics and performance: evidence from commercial banks in India. *International Journal of Financial Studies*, 6(17), 1-30
- Tonui, S. C., & Olweny, T. (2018). Effect of board characteristics on the financial performance of state corporations in Kenya. *The strategic Journal of Business and Change management*, 5(2), 980–995.

Appendix: Results

```
. xtsum roa roe bs bc bm bn bg lv ir fs
```

Variable		Mean	Std. Dev.	Min	Max	Observations	
roa	overall	2.121393	1.527018	.0194463	9.536408	N =	154
	between		.7121104	1.181887	3.578052	n =	14
	within		1.363021	-1.055808	8.821992	T =	11
roe	overall	10.02127	17.72186	-91.95426	33.11	N =	154
	between		8.32183	-6.881934	24.1515	n =	14
	within		15.79043	-75.05105	45.43127	T =	11
bs	overall	14.18182	2.875305	5	21	N =	154
	between		1.855217	10.27273	17.54545	n =	14
	within		2.247333	5.818182	18.90909	T =	11
bc	overall	.5755195	.1151926	.21	.88	N =	154
	between		.0764963	.4672727	.7118182	n =	14
	within		.0883183	.2855195	.8637013	T =	11
bm	overall	6.188312	2.031676	2	12	N =	154
	between		1.27046	4.454545	8.636364	n =	14
	within		1.618373	1.824675	11.0974	T =	11
bn	overall	.040974	.1039027	0	.42	N =	154
	between		.1048781	0	.3181818	n =	14
	within		.0226996	-.0644805	.1855195	T =	11
bg	overall	.1448052	.1111039	0	.6	N =	154
	between		.0754949	0	.3154545	n =	14
	within		.0837682	-.0606494	.4293507	T =	11
lv	overall	85.13436	5.836914	68.9184	97.5066	N =	154
	between		2.923417	78.71875	89.74236	n =	14
	within		5.107033	69.28142	97.76701	T =	11
ir	overall	16.90507	.8878726	15.14	18.99	N =	154
	between		.0784948	16.72	17.07	n =	14
	within		.8846236	15.05507	19.04779	T =	11
fs	overall	9.081223	.5819344	8.028059	11.1192	N =	154
	between		.4098669	8.563737	10.31655	n =	14
	within		.4261884	8.026973	10.94918	T =	11


```
. sktest roa roe bs bc bm bn bg lv ir fs
```

Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	joint	
				adj chi2(2)	Prob>chi2
roa	154	0.0000	0.0000	40.53	0.0000
roe	154	0.0000	0.0000	.	0.0000
bs	154	0.0026	0.1645	9.70	0.0078
bc	154	0.0112	0.1216	8.03	0.0181
bm	154	0.0008	0.3664	10.47	0.0053
bn	154	0.0000	0.0000	58.86	0.0000
bg	154	0.0000	0.0003	27.20	0.0000
lv	154	0.0002	0.2349	12.53	0.0019
ir	154	0.0350	0.0236	8.59	0.0136
fs	154	0.0000	0.0021	23.46	0.0000

```
. spearman roa roe bs bc bm bn bg lv ir fs, star (0.05)
```

```
(obs=154)
```

	roa	roe	bs	bc	bm	bn	bg	lv
roa	1.0000							
roe	0.6386*	1.0000						
bs	0.1234	0.1530	1.0000					
bc	0.0542	0.0778	-0.0854	1.0000				
bm	-0.1008	-0.1274	0.1730*	-0.1115	1.0000			
bn	0.0177	0.1037	-0.2003*	0.3598*	-0.1130	1.0000		
bg	0.1735*	0.1450	0.4593*	-0.0616	-0.1276	-0.0962	1.0000	
lv	-0.0110	0.3174*	0.1282	-0.0345	0.1622*	-0.0530	-0.0528	1.0000
ir	-0.0193	-0.0917	-0.0273	-0.0377	-0.1124	0.0585	0.0706	-0.0640
fs	0.0693	0.2916*	-0.0587	0.1049	-0.0644	0.1617*	-0.1323	0.3544*

	ir	fs
ir	1.0000	
fs	0.0858	1.0000

```
. reg roa bs bc bm bn bg lv ir fs
```

Source	SS	df	MS			
Model	19.623028	8	2.4528785	Number of obs = 154		
Residual	33.7542865	145	.232788183	F(8, 145) = 10.54		
Total	53.3773146	153	.348871337	Prob > F = 0.0000		
				R-squared = 0.3676		
				Adj R-squared = 0.3327		
				Root MSE = .48248		

roa	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
bs	.0302953	.0151623	2.00	0.048	.0003277	.0602629
bc	-.6114021	.3646926	-1.68	0.096	-1.332202	.1093981
bm	-.0047007	.0205853	-0.23	0.820	-.0453868	.0359855
bn	-.8500445	.4105789	-2.07	0.040	-1.661537	-.0385519
bg	.1138931	.3848812	0.30	0.768	-.646809	.8745953
lv	-.0112658	.0073826	-1.53	0.129	-.0258573	.0033257
ir	-.0274999	.0447438	-0.61	0.540	-.1159342	.0609344
fs	.6028952	.0735673	8.20	0.000	.4574925	.748298
_cons	-3.812366	1.06594	-3.58	0.000	-5.919154	-1.705579

```
. hettest
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of roa

```
chi2(1)      =      3.60
Prob > chi2   =      0.0576
```

```
. vif
```

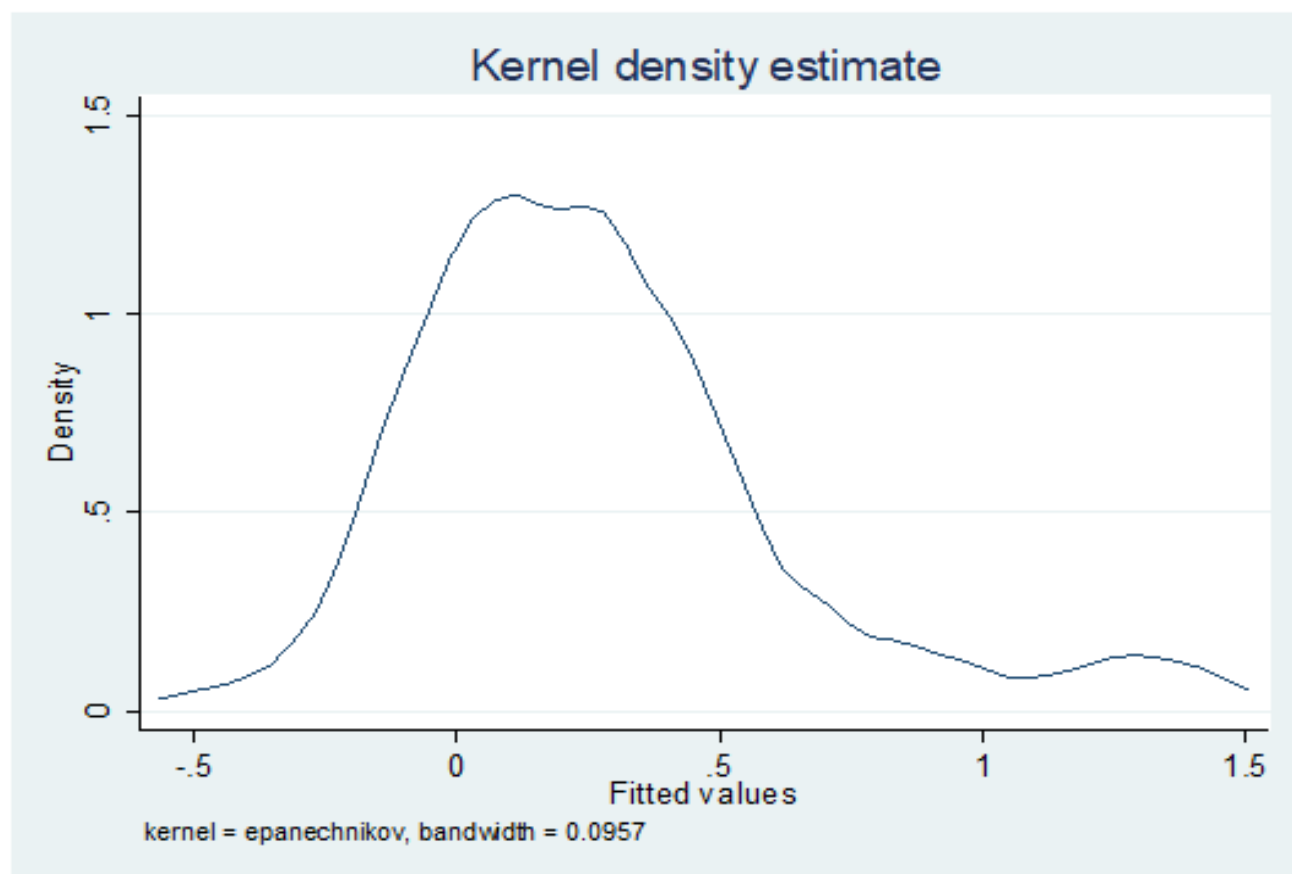
Variable	VIF	1/VIF
bs	1.25	0.800521
lv	1.22	0.819368
fs	1.20	0.830141
bg	1.20	0.832065
bn	1.20	0.836031
bc	1.16	0.862117
bm	1.15	0.869850
ir	1.04	0.964056
Mean VIF	1.18	

```
. reg roa bs bc bm bn bg lv ir fs, robust
```

Linear regression

```
Number of obs =      154
F( 8, 145) =      9.01
Prob > F       =      0.0000
R-squared      =      0.3676
Root MSE      =      .48248
```

roa	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
bs	.0302953	.0095529	3.17	0.002	.0114145	.0491762
bc	-.6114021	.4548698	-1.34	0.181	-1.510434	.2876297
bm	-.0047007	.0200529	-0.23	0.815	-.0443344	.0349331
bn	-.8500445	.2464511	-3.45	0.001	-1.337145	-.3629437
bg	.1138931	.2932106	0.39	0.698	-.4656257	.693412
lv	-.0112658	.005738	-1.96	0.052	-.0226067	.0000752
ir	-.0274999	.0535846	-0.51	0.609	-.1334078	.078408
fs	.6028952	.0869284	6.94	0.000	.4310847	.7747058
_cons	-3.812366	1.241455	-3.07	0.003	-6.266052	-1.358681



```
. xtreg roa bs bc km bn bg lv ir fs, fe
```

Fixed-effects (within) regression
Group variable: id

R-sq: within = 0.1525
between = 0.1407
overall = 0.1150

Number of obs = 154
Number of groups = 14

Obs per group: min = 11
avg = 11.0
max = 11

corr(u_i, Xb) = 0.1543

F(8,132) = 2.97
Prob > F = 0.0043

roa	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
bs	-.0069669	.0091876	-0.76	0.450	-.0251408	.0112071
bc	-.461634	.2198654	-2.10	0.038	-.8965495	-.0267184
bm	-.0299802	.0126409	-2.37	0.019	-.0549852	-.0049752
bn	.1313619	.8850083	0.15	0.882	-1.619272	1.881996
bg	-.2949718	.2479026	-1.19	0.236	-.7853476	.1954039
lv	-.0047782	.0043658	-1.09	0.276	-.0134142	.0038579
ir	.0003313	.0225408	0.01	0.988	-.0442566	.0449192
fs	.1357026	.0515426	2.63	0.009	.0337463	.237659
_cons	.0251937	.5997133	0.04	0.967	-1.161099	1.211486
sigma_u	.53369201					
sigma_e	.23802094					
rho	.83409342	(fraction of variance due to u_i)				

F test that all u_i=0: F(13, 132) = 35.68 Prob > F = 0.0000

```
. est store fixed
```

```
. xtreg roa bs bc bm bn bg lv ir fs, re
```

```
Random-effects GLS regression           Number of obs   =       154
Group variable: id                     Number of groups =        14

R-sq:  within = 0.1493                  Obs per group: min =        11
      between = 0.2771                                     avg  =       11.0
      overall  = 0.1936                                     max  =        11

corr(u_i, X)   = 0 (assumed)            Wald chi2(8)     =       25.30
                                           Prob > chi2       =       0.0014
```

roa	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
bs	-.005102	.0092867	-0.55	0.583	-.0233036	.0130997
bc	-.4715718	.2221489	-2.12	0.034	-.9069757	-.036168
bm	-.0287366	.0127448	-2.25	0.024	-.0537159	-.0037573
bn	-.3090792	.7175731	-0.43	0.667	-1.715497	1.097338
bg	-.2499748	.2482382	-1.01	0.314	-.7365128	.2365632
lv	-.0054475	.0044166	-1.23	0.217	-.014104	.0032089
ir	-.0003368	.0229193	-0.01	0.988	-.0452578	.0445841
fs	.1629306	.0517658	3.15	0.002	.0614714	.2643898
_cons	-.170685	.6191792	-0.28	0.783	-1.384254	1.042884
sigma_u	.43083366					
sigma_e	.23802094					
rho	.76615516	(fraction of variance due to u_i)				

```
. est store random
```

```
. hausman fixed random
```

	Coefficients			
	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
bs	-.0069669	-.005102	-.0018649	.
bc	-.461634	-.4715718	.0099379	.
bm	-.0299802	-.0287366	-.0012436	.
bn	.1313619	-.3090792	.4404411	.5180044
bg	-.2949718	-.2499748	-.044997	.
lv	-.0047782	-.0054475	.0006693	.
ir	.0003313	-.0003368	.0006681	.
fs	.1357026	.1629306	-.027228	.

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

```
chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
        = -42.97    chi2<0 ==> model fitted on these
                    data fails to meet the asymptotic
                    assumptions of the Hausman test;
                    see suest for a generalized test
```

```
. hausman fixed random, sigmamore
```

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fixed	(B) random		
bs	-.0069669	-.005102	-.0018649	.0012162
bc	-.461634	-.4715718	.0099379	.0297776
bm	-.0299802	-.0287366	-.0012436	.0019055
bn	.1313619	-.3090792	.4404411	.5468537
bg	-.2949718	-.2499748	-.044997	.0473696
lv	-.0047782	-.0054475	.0006693	.000549
ir	.0003313	-.0003368	.0006681	.0016498
fs	.1357026	.1629306	-.027228	.0090075

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

```
chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
          = 13.17
Prob>chi2 = 0.1061
```

```
. xttest0
```

Breusch and Pagan Lagrangian multiplier test for random effects

```
roa[id,t] = Xb + u[id] + e[id,t]
```

Estimated results:

	Var	sd = sqrt(Var)
roa	.3488713	.5906533
e	.056654	.2380209
u	.1856176	.4308337

Test: Var(u) = 0

```
chibar2(01) = 234.98
Prob > chibar2 = 0.0000
```