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BOARD COMPOSITION AND QUOTED DEPOSIT MONEY BANKS PROFITABILITY IN NIGERIA

Joseph Benvolio and Micah, L.C

Depart of accounting, Faculty of Management Sciences, University of Port Harcourt, Choba, Port Harcourt.

Corresponding author: *Joseph Benvolio
Email: benvolio.joseph@uniport.edu.ng

ABSTRACT

The study evaluated the influence of board composition and profitability of deposit money banks in Nigeria over the period of 2010 - 2019. The study employed secondary data gotten from annual financial reports of 14 sampled quoted manufacturing firms. The study employed the panel stationarity test, panel regression, panel cointegration, error correction modeling, and causality. In the long run, the study observes that the board composition of the various deposit money bank is moderate and imbalanced; this can be seen from the lopsided and adverse relationship it has on the various measures of profitability despite its significant implications on them. This is most noticeable as it was observed that the board size and board independence are adversely related to firm profitability and show a negative and significant relationship to the return on assets and firm market value while displaying a positive and significant relationship with return on equity. Board member gender shows a positive and significant relationship with return on assets and firm market value while showing negatively and insignificantly relate to return on equity. Conclusively, it can be seen that overall, the level of board composition is mediocre and the significance level of the employed dimensions of board composition shows that quoted deposit money banks in Nigeria have better profitability in terms of their return on equity than in view of their return on assets and firm market value. Also, the study recommends that policymakers need to provide adequate regulation on the determination of corporate governance of the directors of listed companies; this will reduce the negative effect of ownership concentration for directors and the overbearing influence of directors in annual general meetings.

KEYWORDS

Board Composition, Profitability, Return on Assets, Board Size, Board Independence, Quoted Deposit Money Banks.

Introduction

Profitability in banking can be defined as it is ability to general profit. A profit can also be defined as what is left from revenue generated by a business after paying all the expenses including producing a product and other expenses incurred when running a business (Nwaiwu & Amah 2020). Li., Pincas, and Rayo, (2021) indicated that there exist varying ways of analyzing a business. However, the primary focus of the research is profitability ratios, which is the process of measuring the organization's potential in generating revenue which is higher than expenses incurred (Nwaiwu & Joseph, 2021). In a market where there is competition, business owners need to come with means of achieving a satisfactory level of profit. Increased profitability in a business is determined by the manager's ability to choose financial strategies which are working and those which need improvement. Therefore, understanding the primary features in a business which will influence profitability help managers to come up with strategies for their organizations (Brown & Mark, 2021). The primary objective of every business is to maximize profits or as a way of reducing exposure to risks. Some of the ratios used in measuring profits include return on asset and return on equity (Hassan etal, 2011; Nwaiwu & Amah, 2020; Nwaiwu & Joseph, 2021). Return on equity is the ratio of net profit and the total equity generated from shareholders' investments. The ratio depends on the financial leverage, profit margin and speed assets (Yermack, 2021). Also, the returns on assets help in determining the profitability of the investment assets. Yermack (2021), and Best (2021) indicated that return on asset is essential in understanding the efficiency of the company management when it comes to generation of resources in the organization.

Effective board's composition practices are essential ingredients in achieving and maintaining public trust and confidence in the financial system. They are critical to proper functioning as they determine the performance of the banking sector of the economy in any country of the world. Poor corporate governance may lead to ineffective boards, which eventually may contribute to bank failures (Eissa., Ebrahim., Mosab., Amgad, & Nabil,2021).Also, poor boards could in turn lead to a run on the bank unemployment, fraudulent activities, questionable dealings that may result to negative impact on the economy (Ogbechie & Koufopoulos, 2018). The scenario concerning board composition as a corporate governance mechanism has generated debatable issues and continued to receive considerable attention in recent times from academics, market participants, professionals, and regulators. This is because theories regarding financial performance providing a conflict views as what constitute performance measurement, while at the same time the empirical evidence is inconclusive. However, the relationship between board composition and financial performance of banking industry has been the most studied aspect among all board investigations (Orji, 2015). This study assumed that a company's financial performance is mainly determined by board composition.

The banking sector is central to the economic growth of any country's economy, since it influences the level of money stocks through the ability to create deposits and liabilities. The financial systems have been recognized to play an important role in economic development and this can be traced back to the era of Goldsmith (Orji, 2015), which shows that the financial sector of the economy would be a catalyst of economic growth if developed. The benefits derived from a healthy and developed financial system would be accruable to savings mobilization and efficient financial intermediation roles (Horvath & Spirollari, 2019). Therefore, the failure of this sector affects the entire economy of any nation. The current financial crisis in the banking sector of Nigerian economy which has been credited to the abuse of corporate governance practices is identified as one of the factors responsible

for the failure of many deposit money banks in Nigeria. The financial health and performance of deposit money banks are important for the economic growth of Nigeria. Ogbechie and Koufopoulos (2010), noted that banks play three crucial roles to the development of any nation.

Firstly, banks have an overwhelmingly dominant position in the financial systems of developing economies, and are extremely important engines of economic growth. Secondly, banks in these developing economies are typically one of the most important sources of finance for the majority of firms. Also, banks in developing countries are the main depository for the economy's savings and provide the means for payment. Therefore, the banking industry in Nigeria has a significant role to play in the development of the country's economy. Banks have been the main sources of financing in the Nigerian financial market and bank loans were the predominant sources of debt financing in the economy (Central Bank of Nigeria Annual Report, 2006).Board composition is particularly important in the Nigerian banking industry because a number of financial failures, frauds, and questionable business practices had adversely affected investors' confidence. As a result, there is need to examine the impact of board composition and financial performance of deposit money banks in Nigeria. According to agency theory, the separation of ownership and control leads to a divergence in the pursuit of managerial interests versus owner's interests Daily and Dalton, (2014), and thus monitoring managerial decisions becomes essential for the board of directors in order to protect shareholders' interests Hermalin and Weisbach (2018). Boards are expected to formulate corporate policy, approve strategic plans, and authorize the sale of additional securities. They are also expected to hire, advise, compensate, and, if necessary remove management, arrange for succession and determine the size of boards and nominate new members subject to approval by shareholders (Mohamed et al., 2016). Therefore, the effectiveness of board of directors in monitoring managers and exercising control on behalf of shareholders depends on a number of factors: (i) the role of Executive director on board (ii) the impact of Independent Non-executive directors on board iii) the impact of foreign directors on board (iv) the effect of Women director on board and (v) that of Grey director on board. Board composition simply refers to size, division of labour between the board chair and the CEO, its composition and diversity. Composition of board refers to the distinction between inside and outside directors, and this is traditionally shown as the percentage of outside directors on the board (Hassen etal, 2016). Vianney, Iravo and Namusonge, (2020) categorized board composition into inside directors, affiliate directors and outside directors. Inside directors are those directors that are also managers and/or current officers in the firm while outside directors are non-manager directors. Among the outside directors, there are directors who are affiliate (grey), and others that are independent (Non- executive). Affiliate (grey) directors are non-employee directors with personal or business relationship with the company while independent directors are those that have neither personal nor business relationships with the company. Although inside and outside directors have their respective merits and demerits, many authors favour outside dominated boards Al-Homaidi et al., (2019).

Outside directors provide superior performance benefits to the firm as a result of their independence from firm's management (Kiel, 2003). They can increase the element of independence and objectivity in board's strategic decision-making as well as providing independent supervision of the company's management (Fama & Jensen, 1983), hence making the board's oversight function more effective. Over the years, different variables have been used to measure corporate performance.

Corporate performance can be measured using long-term market performance measures and other performance measures that are non-market-oriented measures or short-term measures. Some examples of these measures include Market Value Added (MVA), Economic Value Added (EVA), cash flow growth, earnings per share (EPS) growth, asset growth, dividend growth, return on equity, return on investment and gross profit margin (Fama & Jensen, 1983). In their study, Alam and Akhtar (2017) used Return on Equity (ROE) and Return On Assets (ROA) as proxies for corporate performance in Belgian companies. Market-to-book ratio was utilized on firms in Hong Kong (Chen., Cheung., Stouraitis & Wong, 2005). In their study, Judge, Naoumova and Koutzevoi (2019) used a series of indicators including financial profitability, customer satisfaction, product/service quality, capacity utilization and process improvements to assess firm performance. For the purpose of this study, ROE, ROI and GPM are used to measure firms' financial performance. However, a number of studies have been conducted on board composition and profitability in the banking industry at different times in developed, as well as developing countries, most of which are well documented in accounting and finance literature. Studies have examined the impact of executive directors, board structure, board size, board independence on financial performance. Some of these studies include: Akpan and Amran (2014); Bathula (2018); Al-Homaidi, et al., (2020). These studies, however, did not consider the elements of grey and foreign directors in their studies. In Nigeria, only few studies are embarked upon in this area of board composition and profitability of financial sector in Nigerian economy. For example, Kapoor and Goel (2017), whose work centred on the impact of board structure on corporate financial performance in Nigeria, while that of Akpan and Amran (2014) bordered on board characteristics and company performance. None of these studies considered the elements of board size, board independence, board member gender and board composition and return on equity (ROE), return on investment and gross profit margin in their studies.

Theoretical Framework and Hypotheses Development

In contrast with Agency theory, Stewardship theory argued that any observed superiority in shareholder returns from Chief Executive Officer (CEO) duality was not a spurious effect of greater financial incentives among CEO-chairs than among independent chairs. Regarding the role of the CEO, they are assisted by the structures to attain superior performance by their corporations to the extent that the CEO exercises complete authority over the corporation and that their role will be unambiguous and unchallenged. As the power and authority are concentrated in one person who means CEO is also chair of the board, there will not be a room for doubt as to who has authority or responsibility over a particular matter. Likewise, corporate leadership will be expected to be clearer and more consistent both for subordinate managers and for other members of the corporate board. The organization has benefits of choosing unity of direction and of strong command and control. According to the proponents of the stewardship theory, they focus not on motivation of the CEO, but rather facilitative, empowering structure. CEO and chair role, CEO duality will assure effectiveness and produce superior return for shareholder (Donaldson and Davis, 2015). It is argued that stewardship theory claims, good stewards of the resources entrusted to managers since they are essentially trustworthy individuals. Additionally, superior corporate performance is linked to a majority of inside directors since they are working to maximize shareholders' long term profit.

This is due to the fact that inside directors understand the business they govern better than outside directors and as a result they can make more effective and efficient decision making. Similarly, CEO duality is considered as a positive leading force towards better corporate performance, because there

is quite clear company leadership. Underlying this rationale is the assertion that since managers are naturally trustworthy there will be no major agency costs. Proponents of stewardship theory argue that, for fear of putting at risk their reputation, senior executives will not get benefit at the shareholders' expense (Kiel, 2003).

While the opponents argued that, the relationship between the directors and shareholder is like it was between agent and principal. Besides an agent will act with self-interest and cannot be expected to behave in a manner assumed in the stewardship theory (Kiel, 2003). According to the stewardship theory, executive directors are stewards whose behaviour is linked to the interest of shareholders and they are to be viewed as being loyal to the firm and aiming to achieve good performance.

Therefore, executive directors are trustworthy and should be given full authority and responsibility to manage the company's resources to the interest of shareholders (Akpan & Amram, 2014). The major similarity between the stewardship theory and agency theory is in their fundamental assumption that the company must be managed by executives on behalf and for the interest of shareholders. Another important assumption of stewardship theory, which complements agency theory, is that executive directors have the tendency to develop their skills, knowledge, and expertise in order to enhance their reputation, and since effective and successful decisions required better knowledge and expertise; therefore, this can mitigate agency cost (Donaldson & Davis 2015). On the other hand, despite that both theories have common fundamental assumption that is shareholder focus; however, the stewardship theory differs from the agency theory in some assumptions. For instance, while agency theory assumes that executive directors are driven by self-interest, the stewardship theory assumes that executive directors are not motivated not only by their self-interest, but also by their personal identification with the objectives of the corporation

Profitability

Profitability as a financial goal of every firm is used to expand the firm, and or to provide a cushion for future slow periods. Profitability helps a firm to ensure, its solvency, for owners to invest in the future. A firm can go out of business, if it incurs loses and become insolvent (Jackling & Johl, 2009). Profit is generally created only when a company operates effectively. Management's operating effectiveness is proven if the company can prosper, obtain funding, and reward the suppliers of its funds (Hamidu & Aliyu,2015). Inter firm comparisons of profitability are comparisons of accounting profit among firms, and indicate the extent that different accounting methods are employed by firms or industries. Such comparisons are of questionable legitimacy and accuracy, since the accounting profitability of an industry is most unlikely that identical accounting policies can apply equally throughout all firms.

In measuring accounting profit and making inter firm comparisons, it is important to view carefully the aggregated figures for an industry's profitability and necessary to be reasonably sure of the accounting conversation or policy and bases adopted Bohren and Strom (2010) Financial performance, measures of profitability and market value, and others, are considered as indicators of how well the firm satisfies its owners and shareholders. The ultimate goal for most firms is to increase their financial performance, particularly for public firms in shareholder value Hamidu & Aliyh (2015),and the aim of performance measurement systems is to provide operational control and to provide external financial reporting (Nwaiwu & Joseph, 2021). Having the problem associated with operationalizing value maximization, it is surprising that companies tend to continue with familiar approaches to performance measurement that rely upon accepted accounting principles. While

opponents of traditional financial measures deny the use of accounting based measures of performance, in practice the differences between cash flow, economic profit, and accounting profit indicators of performance evaluation are narrowed Nwaiwu and Amah (2020). Generally financial statement of a firm contains the information needed to make decisions regarding a business. Many business' owners use their financial statements as requirements for creditors, bankers, or tax preparers only, but they are much more than that as such financial statement can give key information needed on the financial condition and the operation of a business (Li., Pincus & Rayo, 2021). The three following indicators of accounting profitability of a firm are used. Return on Equity, Profit Margin and Return on Capital Employed.

Board Composition

Board of director literature suggests that board composition can impact organizational performance. In this study, four conceptual board composition drivers are developed to explain the factors' impacting on firm's performance. They are: board size, board independence, and board member gender and board competency. Board composition refers to the distinction between inside and outside directors, and this is traditionally measured as the percentage of outside directors on the board. Gambo., Bello and Rimanshung (2018), composition may be easily differential into inside directors, affiliated directors, and outside directors. This distinction is derived from the extent of their participation in firm management. Inside directors are those directors that are also managers and/or current officers in the firm while outside directors are non-manager directors. Among the outside directors (also known as external or non-executive directors), there are directors who are affiliated, and others that are independent. Affiliated directors are non-employee directors with personal or business relationship with the company while independent directors are those that have neither personal non business relationship with the company. Although inside and outside directors have their respective merits and demerits, most authors favour boards that are dominated by outside directors (Rafinda., Refinda., Witiastuti., Suroso & Trinugroho, 2018). It is argued that outside directors provide superior performance benefits to the firm as a result of their independence from firm's management (Nwaiwu & Joseph, 2021). They can bring to the board a wealth of knowledge and experience, which the company's own management may not possess. They can increase the element of independent supervision of the company's management.

Empirical Review

Many studies have been conducted by various researchers on the impact of board compositions and profitability (using different measure of performance) in different part of the world. It can therefore be deduced that there exists a relationship between board composition and profitability as well as board size and firm market value. Some of these studies include studies conducted in both developed and developing economies.

Brown and Mark (2021). This study investigates the impact of board composition and ownership structure on firm performance. For the present study, a sample of 20 listed financial firms has been taken from Pakistan Stock Exchange (PSX), for which secondary data for the period of 2007 to 2016 was collected from annual reports of each bank and financial statement analysis of State bank of Pakistan.

The firm performance is taken as a dependent variable, which is measured by Return on Asset and Net Interest Margin while Board Composition and Ownership Structure is taken as independent

variables. Moreover, Firm Size, Liquidity, Age and Growth is taken as control variables. The empirical results indicate that the Board Size, Board Independence, Gender, Insider Ownership, Liquidity, And Age have no significant impact on firm performance while the finding of Managerial Ownership, Firm Size have a significant impact on firm performance and growth result show a negative impact on firm performance. Furthermore, Board Independence, Gender, Managerial Ownership, Insider Ownership, Firm Size, Growth & Liquidity have no significant impact on firm performance despite that Board Size and Age have a significant impact on firm performance as measured by Jackling and Johl (2009).

Nwaiwu and Joseph (2021) examined the impact of board composition and board size on the market value of listed industrial goods companies in Nigeria. Ex-post factor research design was used, and data was collected from annual reports and account of the sampled companies for the period from 2010 - 2019. The ordinary least square, fixed and random effects regression techniques were applied on the panel data collated to estimate the models. The study documents significant positive effect of board size on the market value of the companies and insignificant but negative effect of board composition on the market value of the companies. In effect, the result suggests that board size plays important role in determining the market value of the firms. These findings are consistent with the agency theory of corporate governance which suggests higher number of members on board. It is recommended that the size of the board of firms in the sector should not be less than 9 members so as to enhance value.

Alam and Akhter (2017) examined the relationship between corporate attributes of the board and market value of firms in Nigerian chemical and paints industry. The results of the study revealed that board size has insignificant and negative impact on market value of equity. This implies that higher number of directors on the board decreases the market value of equity.

Veklenko (2016) examined the impact of board composition on firm's performance in continental Europe. The findings reveal that board composition is positively significant with firm performance but board size has negative and insignificant impact on firms' performance. This finding is similar to the works of Muchemwa and Padia (2016) who examined the impact of board composition, board size on financial performance of Johannesburg stock exchange companies from 2006 to 2012. The result shows that board size and board composition have no significant impact on the performance measures in the South African context. More so, Al-Homaidi, etal (2020) investigated the effect of board size on firm financial performance of listed firms in Nairobi security exchange for the period of ten years 2006 to 2015. The study reported a significant positive effect of board size on firm financial performance. Implying that board size has effect on the market value of a firm.

Bathula (2018) also examined the effect of board size and board composition on firm performance in Nigerian petroleum marketing industry for a period of ten years from 2004 to 2014. The results reveal that board size is negatively related to return on equity while the relationship between board compositions and returns on equity is positive but insignificant. This finding also supports the works of Nwaiwu and Joseph(2019). The study investigated the effects of board size, board composition and board meetings on the financial performance of listed companies in Nigeria for the period of ten years from 2006 - 2015.

The results of the study shows that board size is negatively related with financial performance but board composition has positive significant relationship with the financial performance of consumer goods companies in Nigeria. The findings support the work of Judge etal (2019) who found that board size has a positive but insignificant impact on market value of listed Deposit Money Banks (DMBs) in Nigeria while board composition has significant impact on market value of listed DMBs in Nigeria.

Table 1: Webometric Analysis of Empirical Literature Review

Authors/Year	Country	Topic	Statistical Tools	Findings
Ozurumba, (2021).	Nigeria.	This study examines the impact of board composition and board size on the market value of listed industrial goods companies in Nigeria.	Ex-post factor research design was used and data was collected from annual reports and account of the sampled companies for the period from 2010 to 2019. The ordinary least square, fixed and random effects regression techniques were applied on the panel data collated to estimate the models.	The result suggests that board size plays important role in determining the market value of the firms. These findings are consistent with the agency theory of corporate governance which suggests higher number of members on board.
Grygorii (2021).	Nigeria	The study aims to evaluate the influence of international supervisory board experts on firm financial performance, based on the impact of international experts' characteristics,	The Generalized Least Squares (GLS) regression model with a random effect is employed to test the hypotheses.	The findings strongly suggest that the presence of supervisory board members with an outside perspective and international experience may exert a positive impact on companies' operational outcomes.
Wadesango et al.; (2020)	*Zimbabwe*	*This study sought to investigate the effects of corporate governance on the financial performance of commercial banks in a turbulent economic and political environment.*	*Secondary data was collected from the annual reports of the 5 commercial banks. The data was gathered exclusively by analyzing the annual reports of the commercial banks for the period 2010 to 2017 and the data was analyzed using EViews 08.*	*The study found that the employed measures of corporate governance were significant predictors of financial performance of commercial banks in Zimbabwe. The board size, board composition, the subcommittees and leverage were found to be significant in explaining the profitability of commercial banks in Zimbabwe in both periods (stable and turbulent environments). Based on the findings, another study encompassing all corporate governance tenets in different*

				environments should be conducted to assess the full impact of the environment on corporate governance and performance of banks.
Balios And Zaroulea (2020).	Spain	This study aims to explore whether and how specific corporate governance and internal audit determinants affect the profitability of businesses in the countries internationally called P.I.G.S.	The survey data covers the period 2011-2016. Statistical analysis was based on a panel data regression model.	this study finds that internal managers are more suitable to perform the duties of the audit committee effectively, that there is a positive effect in profitability by increasing the Board Size with new members and that frequent meetings of the boards entail additional costs that outweigh any benefits. In addition, there is evidence that firms' profitability may behave differently in countries with similar macroeconomic and cultural characteristics and for specific examined periods.
Farhan, Tabash, AlMaqtari, & Yahya, (2020).	India	board composition and financial performance	Within this study we investigated using econometric regression models the impact of 9 corporate governance characteristics regarding board composition on the contemporaneous and next year's performance (measured as ROA) using a sample comprised of the constituents of FTSE100 between 2010 and 2011.	found that board independence and the proportion of foreign directors in the total number of directors (as characteristics of corporate board composition) have a significant strong positive impact on firm performance (both contemporaneous and subsequent).
Muhammad et al., (2020).	Pakistan	This study investigates the impact of board composition and ownership structure on firm performance.	Secondary data for the period of 2007 to 2016 was collected from annual reports of each bank and financial statement analysis of State bank of Pakistan. The least squares regression model is used for analysing the data.	The empirical results indicate that the Board Size, Board Independence, Gender, Insider Ownership, Liquidity, And Age have no significant impact on firm performance while the finding of Managerial Ownership, Firm Size have a significant impact on firm performance and growth result show a negative impact on firm performance. Furthermore, Board

				Independence, Gender, Managerial Ownership, Insider Ownership, Firm Size, Growth & Liquidity have no significant impact on firm performance despite that Board Size and Age have a significant impact on firm performance as measured by Jackling and Johl (2009), Majumdar (1997).
Faozi Almaqtari, Ali Yahya (2019).	Indian	The current study aims to assess the effect of board of directors' composition on the profitability of Indian pharmaceutical companies	The analysis is based on 82 companies, analyzed over ten years, from 2008 to 2017. The least squares regression model is used for analysing the data.	The findings reveal that board of directors' composition as measured by the percentage of independent board members negatively and significantly affects firm's profitability measured by ROA. On the other hand, board of directors' composition positively and significantly affects profitability measured by Tobin Q. Furthermore, firms' size and age positively and significantly impact profitability. This topic is largely neglected by researchers of Indian origin at home and abroad.
Fiona & Jain (2019)	Nigeria	this study was to establish the effect of corporate governance on profitability	The study adopted a descriptive research design. The target population was 200 employees of Genghis Capital Limited. A stratified random sampling was used to select the sample. The sample size of the study was 107 employees. The study used questionnaires, containing both open ended and closed ended questions to obtain primary data.	The findings reveal that board of directors' composition as measured by the percentage of independent board members negatively and significantly affects firm's profitability measured by ROA.
Onuorah et al.; (2019).	Nigeria	This study examined how corporate board composition (CBC) measures and diversity index affect the performance of some Nigerian Deposit	Using both time series and cross sectional data of audited reports of the banks understudied. Panel data was sourced from the Nigeria Stock Exchange fact book.	The study revealed a linear relationship between CBC measures and performance of the banks studied. Furthermore, it showed that Directors' Competence was

		Money Banks (NDMBs).	Data obtained was also regressed via the use of E-views statistical tool.	a paramount determinant of board effectiveness. This implied that; knowledge, skills, and abilities acquired by directors are critical for board effectiveness in the Nigerian banking industry. It was found that the board diversity measures adopted in this study had a significant impact on the Return on Owners' Equity (ROE).
Ajibade & Richard (2019)	Nigeria	The present study aims to focus on the link amid board independence and financial performance of Deposit Money Banks as well as providing a comparative view by focusing on Nigeria and Canada	The panel data methodology is widely recommended for it is useful when data is a blend of time-series and cross-sectional features. The study applied secondary data extracted from annual financial statements of Deposit Money Banks quoted on the Nigerian Stock Market and in the Canadian stock market between the ten years period of 2008 and 2017.	From the findings, it is revealed that there exists a significant relationship between board independence and profitability of deposit money banks in Nigeria and Canada. Empirical results obtained reveal that audit committee independence promoted financial performance of the deposit money banks in Nigeria while in Canada it was positive and insignificant.

Research questions and Hypotheses Development

A lot of empirical studies have been conducted between board composition and quoted deposit money banks profitability in developed and less developing countries. The follow research questions (RQ) were tested in the study as thus:

RQ_1: What is the relationship between board size and quoted deposit money banks return on assets in Nigeria?

RQ_2: How does board independence relate to quoted deposit money banks return on asset in Nigeria.

RQ_3: What is the relationship between board member gender and quoted deposit money banks return on asset in Nigeria.

In line with the research questions stated above, the following hypotheses stated in the null form were tested.

H_{01}: There is no significant relationship between board size and quoted deposit money banks return on asset in Nigeria.

H_{02}: Board independence does not significantly relate to quoted deposit money banks return on asset in Nigeria.

H_{03}: There is no significant relationship between quoted deposit money banks board member gender in Nigeria.

Methodology

This section shows the methodology adopted in study. This empirical study adopted panel longitudinal and cross-sectional design. The data were obtained from the annual reports and account of the sampled listed deposit money banks in Nigerian Stock Exchange Group Fact Book.

Model Specification

The research constructed three econometric models as basis to ascertain the degree of relationship between the explanatory variables and the dependent variables in the study. The criterion variables are represented by Return on Assets, Return on Equity and Firm Market Value clearly stated in the models and compared or matched against the independent variables; Board Size, Board Independence and Board Member Gender to enhance the probe into a likely or unlikely relationship between both metrics. The functional representation of the models is summarized below.

ROA = *f* (BOS, BOI, BOG) ……. i

ROE = *f* (BOS, BOI, BOG) ……..……. ii

FMV = *f* (BOS, BOI, BOG) ……..…….. iii

For the purpose of estimation, the models are restated econometrically to incorporate the error terms, as follows:

$ROAit = \alpha 0 + \alpha_1 BOS + \alpha_2 BOI + \alpha_3 BOG + uit$…… …….. iv

The apriori expectation is that there is a positive relation between board size and return on assets.

$ROEit = \alpha 0 + \alpha_1 BOS + \alpha_2 BOI + \alpha_3 BOG + uit$ ……. v

The apriori expectation is that there is a positive relation between board size and return on equity.

$FMVit = \alpha 0 + \alpha_1 BOS + \alpha_2 BOI + \alpha_3 BOG + uit$ ……. vi

On the other hand, the apriori expectation is that there is a positive relationship between board size and return on investment

Where:

ROA = Return on Assets for period of time

ROE = Return on Equity for period of time

FMV = Firm Market Value for period of time

BOS = Board Size for period of time

BOI = Board Independent for period of time

BOG = Board Member Gender for period of time

I = Number of banks for period of time

t = Period covered in the investigation for period of time

α_0 = Constant regression coefficients for period of time

α_{1-3} = coefficient of slopes for period of time

u = Residual error of the regression the explanatory variables (BOS, BOI, BOG) and of intercepts (α_{1-3}) and the residual error of the regression (u) for period of time

Apriori Expectation

The apriori expectation is that there is a positive relationship between board composition and profitability. In summary, $\beta_1 - \beta_3 > 0$

Data Analysis

The study embraced the balance panel data analysis technique, which takes into account the pooled cross sectional and time series data set comprising observations, precisely from the selected quoted deposit money banks over the ten years period 2011-2020. Other statistical applied are ordinary least square regression analysis, descriptive statistics, Hausman specification test, Likelihood ratio test, Breuch-Pegan (Cook-Weisberg test for Heteroskedasticity with the aid of E-view version 11.

Empirical Results and Discussion

The empirical results obtained from the output results are stated as thus:

Descriptive Statistics of Data

Aggregating the Quoted deposit money banks in Nigeria, the descriptive statistics of the various economies are presented as follows;

Table 2: Return on assets (ROA), Board size (BOS), Board independence (BOI), Board member gender (BOG), of selected deposit money banks in Nigeria over the period of 2010 - 2020.

	ROA	BOS	BOI	BOG
Mean	0.081948	6.227273	0.935065	1.279221
Median	0.040000	6.000000	1.000000	1.000000
Maximum	1.240000	7.000000	1.000000	2.000000
Minimum	0.010000	5.000000	0.000000	1.000000
Std. Dev.	0.153039	0.478597	0.247215	0.450080
Skewness	4.958760	0.556135	-3.531210	0.984268
Kurtosis	30.81334	2.918495	13.46944	1.968783
Jarque-Bera	5594.942	7.980961	1023.375	31.68896
Probability	0.000000	0.018491	0.000000	0.000000
Sum	12.62000	959.0000	144.0000	197.0000
Sum Sq. Dev.	3.583416	35.04545	9.350649	30.99351
Observations	154	154	154	154

Panel Stationarity Test

Within the panel unit root-testing framework, there are two generations of tests. The first generation of tests assumes that cross-section units are cross-sectionally independent; whereas the second generation of panel unit root tests relaxes this assumption and allows for cross-sectional dependence.

In this context, we summarize the first and second generation of panel unit root tests that are often used in panel studies. The summary is presented as follows;

Table 3: Panel Stationarity Test Summary of Employed Variables at Level (0)

Variable		Levin, Lin & Chu t*	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square	Decision
ROA	Stat	-2.72081	-4.78852	114.601	95.1732	Stationary at Level (0)
	Prob	(0.0033)	(0.0052)	(0.0011)	(0.0044)	
BOS	Prob	0.11373	3.54888	63.1462	79.0582	Presence of Unit Root at Level (0)
		(0.5453)	(0.9998)	(0.9859)	(0.7884)	
BOI	Stat	-3.30726	-2.49991	130.758	179.786	Stationary at Level (0)
		(0.0056)	(0.0062)	(0.0021)	(0.0000)	
BOG	Prob	1.72476	3.98066	45.0934	51.6896	Presence of Unit Root at Level (0)
		(0.9577)	(1.0000)	(1.0000)	(0.9996)	

The study employs the summary stationarity test of Levin, Lin and Chu, Im, Pesaran and Shin W-stat, ADF - Fisher Chi-square, and PP - Fisher Chi-square. The summary statistics values of the employed variables at their respective probability levels are used as a yardstick to determine the presence or absence of unit root in the panel trends. The probability values shows that; only Return on assets (ROA), Return on equity (ROE), Board independence (BOI) This shows that they could be used at level for estimation purposes. As for Board size (BOS), and Board member gender (BOG), there is no significant stationary trend in this data. In light of this, the study proceeds to estimate stationarity at first level (1).

Table 4. Panel Stationarity Test Summary of Employed Variables AT First Difference (1)

Variable		Levin, Lin & Chu t*	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square	Decision
D(ROA)	Stat	-	-	-	-	-
	Prob					
D(BOS)	Stat Prob	-10.8537 (0.0000)	-14.0820	375.297	627.057	Stationary at First Difference (1)
			(0.000)	(0.0000)	(0.0000)	
D(BOI)	Stat Prob	-	-	-	-	-
D(BOG)	Stat Prob	-12.6097	-14.6909	386.760	677.962	Stationary at First Difference (1)
		(0.0000)	(0.0000)	(0.0000)	(0.0000)	

Due to the lack of stationarity at level in terms of return on assets and Board size (BOS), and Board member gender (BOG), there stationarity test is estimated at the first difference. The above variables showed statistically significant stationarity level at first difference. This therefore shows that the employed variables are seen to have trends that are suitable for estimation purposes. In light of the

observation of stationarity test at level and first differencing which shows a fractional integration among the variables, the study therefore proceeds to employ the Panel ARDL test (Nkoro& Uko, 2016) Although, the undertaking of the Panel ARDL requires the determination of the optimal model for the ARDL test. To do this, the study would determine the optimal model between the fixed effect, random effect and pooled effects using the; Likelihood Ratio Test, Hausman Specification Test, and the Hausman Specification Test output.

Data Analysis

To determine the best model to employ in the ARDL model, the study proceeds to evaluate various shorten model and select the best, upon which other models will be built. In light of this, the study presents the following;

Pooled Effects regression

To evaluate for joint influence of employed variables on the criterion, the table above which represents the pooled effect shows that;

Return on assets (ROA)

Table 5 Pooled Effects Regression – Return on assets (ROA).

Dependent Variable: ROA
Method: Panel Least Squares
Date: 10/11/21 Time: 23:29
Sample: 2010 2019
Periods included: 10
Cross-sections included: 15
Total panel (unbalanced) observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	26.60042	1.036296	25.66876	0.0000
BOS	-0.170042	0.032978	-5.156227	0.0000
BOI	0.005589	0.019726	0.283316	0.7770
BOG	-0.042513	0.019582	-2.171040	0.0301
R-squared	0.271732	Mean dependent var		22.02354
Adjusted R-squared	0.668171	S.D. dependent var		14.69053
S.E. of regression	13.39845	Akaike info criterion		8.033275
Sum squared resid	208780.0	Schwarz criterion		8.059266
Log likelihood	-4689.449	Hannan-Quinn criter.		8.043078
F-statistic	48.22689	Durbin-Watson stat		0.048603
Prob(F-statistic)	0.000000			

From the pooled effect as presented in Table 5 above, it can be seen that Board size (BOS), Board member gender (BOG) showed negative effect on the return on assets which is against our apriori expectation. All employed predictor variables had significant influence on Return on assets (ROA), with the exception of Board independence (BOI). This therefore shows consequential effect of the various board composition operations in the selected Deposit money banks. The model is seen to be generally dysfunctional as the R-squared is very low (0.271732 i.e. 27.17%). The f-statistics is significant based on its probability level of 0.00000 which is less than the 0.05 significance level, but the Durbin Watson test shows presence of positive serial correlation based on its statistical value of 0.048603. We therefore proceed to other models.

Fixed Effect Model

The study proceeds to evaluate the Fixed Effect Model in the following tables below as follows.

Return on assets (ROA)

Table 6. Fixed Effects Regression – Return on assets (ROA)

Dependent Variable: ROA
Method: Panel Least Squares
Date: 10/11/21 Time: 23:29
Sample: 2010 2019
Periods included: 10
Cross-sections included: 15
Total panel (unbalanced) observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	21.86610	0.783297	27.91545	0.0000
BOS	-0.120013	0.030949	-3.877773	0.0001
BOI	0.007074	0.012230	0.578449	0.5631
BOG	0.031314	0.017189	1.821765	0.0688

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.894223	Mean dependent var	22.02354
Adjusted R-squared	0.889591	S.D. dependent var	14.69053
S.E. of regression	4.881356	Akaike info criterion	6.050553
Sum squared resid	26663.12	Schwarz criterion	6.267144
Log likelihood	-3486.548	Hannan-Quinn criter.	6.132247
F-statistic	193.0574	Durbin-Watson stat	1.657389
Prob(F-statistic)	0.000000		

Similar to the pooled model, Table 6 above shows that the fixed effect contravenes the a priori expectation in the light of the negative effect of Board size (BOS) on the Return on assets (ROA). Overall, this model appears richer than the pooled effect model, as the predictor variables jointly account for up to 89.42% of variation in Return on assets (ROA) followed by the significant f statistics value of 0.00000 which is lower than the 5% (0.05) significant level. The Durbin Watson statistics value of 1.657389 is substantially within acceptable range and within the negative autocorrelation realm. We further proceed to the Random effect to check for the common mean value of employed variables and their influence on the criterion variable.

Random Effects Model

The random effect model is carried out below as follows;

Return on assets (ROA)

Table 7 Random Effects Regression – Return on assets (ROA)

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 10/11/21 Time: 23:30
Sample: 2010 2019
Periods included: 10
Cross-sections included: 15

Total panel (unbalanced) observations: 150
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	22.06792	2.120869	10.40513	0.0000
BOS	-0.125483	0.030031	-4.178482	0.0000
BOI	0.006721	0.012134	0.553896	0.5798
BOG	0.029003	0.016920	1.714102	0.0868

Effects Specification

	S.D.	Rho
Cross-section random	13.25521	0.8806
Idiosyncratic random	4.881356	0.1194

Weighted Statistics

R-squared	0.098430	Mean dependent var	1.587064
Adjusted R-squared	0.094554	S.D. dependent var	5.126357
S.E. of regression	4.877993	Sum squared resid	27673.37
F-statistic	25.39446	Durbin-Watson stat	0.344666
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.124013	Mean dependent var	22.02354
Sum squared resid	220808.3	Durbin-Watson stat	0.043196

The random effect similarly shows poor viability of its model as seen from the R-Squared output of 0.098430 i.e. 9.8430, followed by the low Durbin Watson statistics value of 0.043196. The idiosyncratic random Rho shows a value of 0.1194. This value is observed to be relatively low and as such shows a disconnect between employed variables and their inherent residuals. And it is discovered that Board size (BOS) shows a negative effect on Return on assets (ROA).

Diagnostic test

The need therefore arises to determine which of the model is most efficient i.e. whether the pooled, random or fixed effect.

Likelihood Ratio Test

To compare the pooled regression model with the fixed effects model. The null hypothesis favors the pooled model i.e. Unobserved sectional differences are not significant.

Return on assets (ROA)

Table 8 Likelihood ratio test – Return on assets (ROA).

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	173.706728	(44,1119)	0.0000
Cross-section Chi-square	2405.801671	44	0.0000

The above likelihood ratio test which shows the predominance between the pooled and fixed effect is seen to show a cross-section F-statistics of 173.706728 at a probability level of 0.0000 which is seen to be below the 0.05 significance level. This leads to the rejection of the null hypothesis (the null hypothesis supports the pooled model). The alternate hypothesis which is accepted favors the fixed

effect. The study therefore upholds the fixed effect over the pooled effect. We therefore proceed to evaluate the better model between the fixed and random model.

Hausman Specification Test

To compare the random effect model with the fixed test model. The null hypothesis favours the random effects model i.e. z_i are uncorrelated with the explanatory variables (Its null hypothesis is that the random effects model is appropriate while the alternative hypothesis is the fixed effects model is appropriate).

Return on assets (ROA)

Table 9 Hausman Specification Test output for model – Return on assets (ROA)

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.399680	5	0.0086
Cross-section random effects test comparisons:			

Drawing from Table 9 above, the Hausman specification test output via its cross section random chi square statistics of 8.399680 at a probability level of 0.0086 leads to the rejection of the null hypothesis (the null hypothesis supports the random effect). The alternate hypothesis thus upholds the effect of the fixed model. Therefore, the validity of empirical output of the fixed model stands and is binding on employed variables in the short run.

Panel ARDL/ Bound Test

Return on assets (ROA)

Table 10: Panel ARDL/ Bound Test output for model – Return on assets (ROA)

Dependent Variable: D(ROA)
Method: ARDL
Date: 10/11/21 Time: 06:35
Sample: 2010 2019
Included observations: 150
Dependent lags: 1 (Fixed)
Dynamic regressors (1 lag, fixed): BOSBOIBOG FSZ
Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
COINTEQ01	-0.187876	0.030285	-6.203680	0.0000
D(BOS)	-0.169541	0.055767	-3.040196	0.0024
D(BOI)	-0.003385	0.000881	-3.841571	0.0001
D(BOG)	0.078729	0.035797	2.199287	0.0281
	Short Run Equation			
BOS	0.113525	0.110718	1.025349	0.3055
BOI	0.017840	0.012276	1.453201	0.1464
BOG	-0.144174	0.102137	-1.411582	0.1584
AFE	0.001733	0.013769	0.125881	0.8999
FSZ	-0.300345	0.495747	-0.605844	0.5448
C	2.970814	0.700104	4.243392	0.0000

Mean dependent var	-0.215142	S.D. dependent var	2.829468
S.E. of regression	2.536609	Akaike info criterion	3.695936
Sum squared resid	5758.775	Schwarz criterion	4.882856
Log likelihood	-1886.275	Hannan-Quinn criter.	4.143617

*Note: p-values and any subsequent tests do not account for model selection.

From the above ARDL output in table 4.29, it can be observed that, in the short run, only the board member gender (BOG) and Firm Size (FSZ) had negative influence on return on assets, while all other variables showed positive influence which is in line with the apriori expectation. In the short run, all employed indices of board composition are seen to have no significant influence on Return on assets. In the long run, Board size (BOS) and board independence show negative coefficient values of -0.169541and -0.003385 fails the apriori expectation test as a result of their negative influence on Return on assets (ROA), while all other variables showed positive influence on the return on assets. All variables show significant long run influence on Return on assets (ROA). This shows a large level of influence on the level of board composition on their economies.

Test of Hypothesis

H_{01}: There is no significant relationship between Board size and Return on assets in selected Quoted deposit money banks in Nigeria.

From the Pane ARDL/Bounds test in Table 10, the Panel Bounds Test, it can be observed that Board size showed a negative coefficient value of -0.169541 and a t-statistics value of -3.040196 which is seen to be greater than the standard tabulated value of ± 1.98/2. This is also confirmed by the probability value of 0.0024, which can be observed to be less than the 0.05(5%) significance level. This therefore, leads to the rejection of the null hypothesis and the acceptance of the alternate hypothesis that, there is a significant relationship between Board size and Return on assets in selected Quoted deposit money banks in Nigeria. This empirical is in disagreement with empirical works of Farham., Jobash., Almaqtari & Yahya (2020) and aggress with the work of Bohren and Strom (2010) in Bangladesh.

H_{02}: Board independence has no significant relationship with Return on assets of selected Quoted deposit money banks in Nigeria.

From Table 10, the Panel Bounds Test shows that Board independence showed a negative coefficient value of -0.003385 and a t-statistics value of -3.841571 which is seen to be greater than the standard tabulated value of ± 1.98/2. This is also confirmed by the probability value of 0.0001, which can be observed to be less than the 0.05(5%) significance level. This, therefore, leads to the rejection of the null hypothesis and the acceptance of the alternate hypothesis that, Board independence has a significant relationship with Return on assets of selected Quoted deposit money banks in Nigeria. This empirical result is in agreement with previous work of Best (2021) in Nigeria.

H_{03}: Board member gender shows no statistically significant relationship with the Return on assets of selected Quoted deposit money banks in Nigeria.

Board member gender shows a positive coefficient value of 0.078729 and a t-statistics value of 2.199287 which is seen to be greater than the standard tabulated value of ± 1.98/2. This is also confirmed by the probability value of 0.0281, which can be observed to be less than the 0.05(5%) significance level. This therefore, leads to the rejection of the null hypothesis and the acceptance of the

alternate hypothesis that, Board member gender shows a statistically significant relationship with the Return on assets of selected Quoted deposit money banks in Nigeria. This empirical result is in a strong agreement with the study Jackling and Johl (2009) in Ghana.

Conclusion and Recommendations

Conclusively, it can be seen overall that the level of board composition is mediocre and the significance level of the employed dimensions of board composition shows that Quoted deposit money banks in Nigeria have better financial information quality in terms of their return on equity reported than in view of their return on assets.

In light of the observed findings, the study recommends that;

i. Due to the negative influence of Board independence, first should prune the size of active auditors and shouldn't compensate quality with quantity.
ii. The management of quoted deposit money banks in Nigeria should, as a legal mandate, provide a "statement of the quality of its earnings" arrived at using acceptable and uniform criteria and make assertions that the earnings of the company have not been manipulated (managed) during the period. Management should be responsible for making an assertion about the company's quality of earnings, vis–a–vis the presently required financial statement assertions.

Limitation and Suggestion for Further Studies

This empirical study investigated the relationship between board composition and firm performance of quoted commercial banks in Nigeria, using sub-variables like board size, board independence, board member gender and return on assets spanning from 2011-2021. Further comparative empirical studies should be conducted between Nigeria and Ghana, using different variables and spanning from 2018-2021.

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