Capital Structure and Financial Performance of Listed Commercial Banks in Nigeria: The moderating effect of board diligence

Abstract

Capital structure decision is an essential managerial decision as it shows how well an entity can harness available resources to achieve desirable results. This study examined the relationship between capital structure decision and corporate financial performance (CFP) of deposit money banks (DMBs) listed on the Nigerian Stock Exchange, using the ex post facto research design and data from of thirteen (13) DMBs over the period 2010 to 2018. Multiple regression analysis was used to analyse the data gathered with the aid of EViews10 statistical software. The results revealed a negative and insignificant relationship between debt ratio and return on assets (ROA), a negative and insignificant relationship between debt ratio and net profit margin (NPM), and a positive and significant relationship between equity ratio and ROA. It further revealed a positive and significant relationship between equity ratio and NPM. Firm size had a significant, positive relationship with firm performance, while firm age was negatively related to both ROA and NPM. Overall, study showed that the relationship between debt and CFP is negative though statistically insignificant, whereas the relationship between equity and CFP is positive and statistically significant. The results of this study suggest that banks in Nigeria should adopt Modified Pecking Order Theory in their financing decisions.

Keywords: Capital structure, debt ratio, equity ratio, firm size, age, board diligence

1. Introduction

With the changing business environment, businesses and corporate entities strive to attain the level of performance needed for survival and growth. Performance may be viewed as an entity's ability to obtain and use resources in such ways that will engender and secure competitive advantage. The needed level of performance can only be achieved with the right business strategies. Companies, especially DMBs in their strategic plans, put together the resources available at their deposal for enhanced corporate financial performance (CFP). A company operating in a good level of performance gain the confidence of owners and prospective investors. A key strategic decision to be taken by the management of DMBs is the capital structure (CS) decision on the right choice of financing for the company's operation. Finance as the life wire of an organization, requires adequate strategic decision for effective and efficient utilization for the achievement of predetermined organizational goals.

CS decision is an essential managerial decision as it affects the entity's exposure to risk and return [1].. The choice of an entity's CS is essentially a financial problem and it is addressed by considering the type of risk exposure the entity has and the nature of its returns. A good CS will decrease cost of capital which will in turn raise the value of the company. A firm may be financed financed through equity capital, debt capital, or a mix of debt and equity. CS decisions often motivate the search for an optimal combination of debt and equity in financing the operations of an entity. Allahham [2] has argued that optimum CS decision enables banks to operate successfully. The issue of debt/ equity in a firm's CS decisions, the mix of the two forms of financing, the optimal CS of a firm, drivers of this optimum number, and the impact of this number on firm performance, have been the subject of a large and increasing volume of studies [3,4,5].

Bank performance in Nigeria is still an issue of concern as one of the largest banks in the country had its board dissolved by the Central Bank of Nigeria for reasons not unconnected with poor performance [6]. Some prior studies on the relationship between CS and CFP of Nigerian banks focussed mainly on debt capital, and reported inconsistent findings on how CS is associated with various measures of corporate performance [7,8], possibly because some of the studies did not control for variables that can influence the research results. This study fills this gap by controlling for firm size and age in a regression of CFP on CS components.

2. Literature Review

The study investigated the relationship between CS components (debt capital, equity capital) and performance measures (ROA, NPM), while controlling for firm size and the age of the firm. The key concepts in the study and the conceptual framework guiding the study are presented below. The theoretical framework, empirical review and hypotheses of the study are presented in this section.

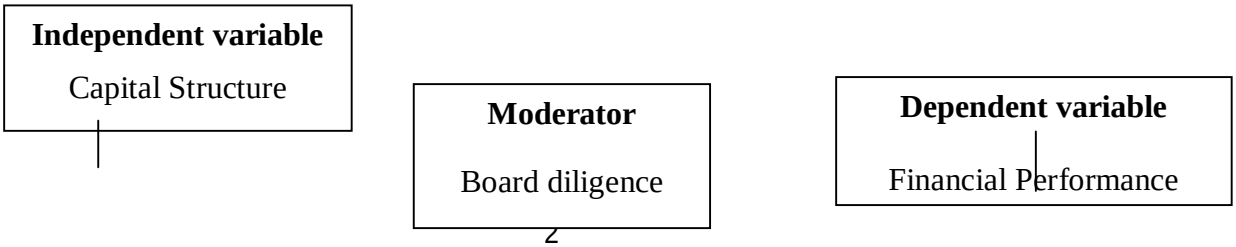
2.1 Concept of Capital Structure

CS is a mix of debt and equity finance used to fund an entity's operation. A company's CS generally shows all the components of capital that provided the finance of an entity. A good mix of the components will provide a fillip for optimal financing and business survival. The components may be classified in different ways. Capital structure may be classified into internal equity, external equity and debt capital. The first component arises from retained earnings; the second is obtained from issue of shares, while the third derives from borrowings obtained through debt instruments issued to the public. The proportion of each of these components has enormous impact on the performance of the firm. CS decision is one of the most challenging and problematic issues faced in business operation; it is a crucial decision firms must make to sustain survival and achieve growth.

2.2 Concept of Corporate Financial Performance

CFP is an indicator of wellbeing of corporate organizations. CFP refers to how the financial goals of a firm have been met in a given period. To achieve desirable targets, a firm must deploy available resources in such manner that will result n competitive advantage and produce various dimensions of growth. Such achievement may flow from the ability of a firm to generate fresh strategies that support sustainable performance. Iswatia and Anshoria [27] argued that an entity's ability to obtain and effectively utilize its scarce resources will produce competitive advantage. Following prior Nigerian studies, in this study, CFP is measured by return on assets and net profit margin [9,10].

A schematic diagramme of the variables in this study is presented below.



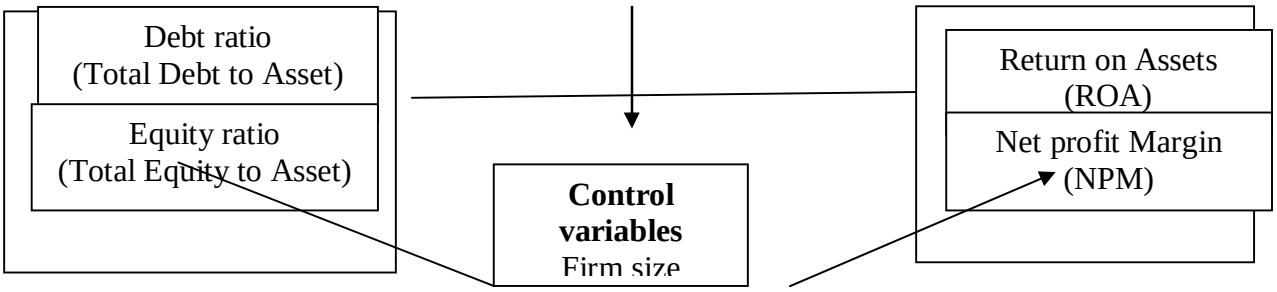


Figure 1: Conceptual Framework of capital structure and financial performance taking into account two extraneous variables – size and age – and a moderator, board diligence

Source: Adapted from conceptual models illustrated in [11].

The proposed relationships between the concepts are presented in the following null hypotheses:

$H_0$1 There is no significant relationship between debt ratio (DR) and ROA of DMBs in Nigeria.
$H_0$2 There is no significant relationship between equity ratio (ER) and ROA of DMBs in Nigeria.
$H_0$3 There is no significant relationship between debt ratio (DR) and NPM of DMBs in Nigeria.
$H_0$4 There is no significant relationship between equity ratio (ER) and NPM of DMBs in Nigeria.
$H_0$5 Board diligence does not significantly moderate the relationship between debt ratio (DR) and ROA of banks in Nigeria.
$H_0$6 Board diligence does not significantly moderate the relationship between equity ratio (ER) and ROA of banks in Nigeria.
$H_0$7 Board diligence does not significantly moderate the relationship between debt ratio (DR) and NPM of banks in Nigeria.
$H_0$8 Board diligence does not significantly moderate the relationship between equity ratio (ER) and NPM of banks in Nigeria.

2.3 Theoretical framework

There are theories on how firms behave with regard to CS decisions. One such theory is pecking order theory (POT), which predicts that an organisational CS decisions follow an order. Under the theory, entities would finance activities from internal sources instead of external sources. If internal sources are unavailable or inadequate, then the entity will resort to external sources, and would prefer debt finance to equity finance. In other words, entities would source for finance, first from retained earnings, next from debt, before considering equity. POT was proposed by [12], based on results from the analysis of data obtained from large US firms. However, the applicability of the theory to large firms or small firms has been a matter of argument and controversy [13].

The modified version of the theory, modified pecking order theory (MPOT) was proposed by [28]. The MPOT predicts that in the case of external financing, entities would prefer equity to debt. The reasoning behind the MPOT is not far-fetched as debts attract costs that may not be attractive to firms operating in poor economic circumstances. This study relies on the MPOT to explain the relationship between the capital structure and the performance of DMBs in Nigeria.

Another theory that is relevant to this study is the agency theory which involves the relationship between an agent and the principal on whose behalf the agent acts. Given the prevalence of self interest, the interest of the principal may not coincide with that of the agent whose interest may

vitiate the realisation of long-term entity objectives. Jensen and Meckling [14] proposed that a principal may incur costs to avert the adverse consequences associated with the agent's self-interest activities. Board members usually act on behalf of organisational stakeholders to realise the visions of the entity. When board members are also equity holders, it is likely that their interest will coincide with that of the owners of the entity and this will have a positive impact on firm performance.

2.4 Empirical Review

The association between capital structure and the performance of firms is a subject that has attracted many scholars who have raised a large volume of literature on CS decisions and CFP. Cheema et al. [15] examined how CS decisions and CFP association is affected religious orientation, using firms categorized into Sharia-compliant and non-Sharia compliant, between 2009 and 2015 from Pakistan. Analysis of the data using descriptive statistics and multiple regression method showed that CS differs between the two categories, and CS decisions affect CFP significantly in non-compliant firms, but insignificantly in Sharia-based firms. This finding does not suggest that non-Sharia firms pursue lesser managerial excellence. Optimal CS decisions should favourably impact CFP. Insignificant impact of CS decisions may suggest the need to review existing capital structure for better performance.

Hamid et al. [16] examined CS decisions' effect on the CFP of non-financial firms in Saudi Arabia, based on data from 2004-2012 of seventy four (74) firms selected as the sample for the study. Results of analysis revealed that CS decisions affect CFP significantly, especially when as ROA. The effect of firm size on CFP depended on whether CFP was measured using ROE or ROA. With ROE as measure o CFP, the firm size effect was significant, but when ROA is the measure of CFP, an insignificant effect was recorded.

Al-Taani [3] examined the relationship between CS and CFP using data from 45 Jordanian firms in the years 2005-2009. Results from regression analysis revealed a negative, insignificant relationship between CS and CFP, suggesting that Jordanian firms in the study should revisit their Cs decisions to enhance CFP. A similar study in Malaysia by [17] analysed data of non-financial firms for the period 2005 – 2016. Results of the analysis revealed a reverse relationship between CS and CFP, and an inverted U-shaped relation between CS decisions and CFP. This suggests that the relationship between CS decisions and CFP is neither one-sided, nor linear.

A related study by [18] examined the relationship between CS and CFP using twenty-five Sri-Lankan firms, and data covering 2008-2012. Descriptive and other statistical analysis were conducted using the data. Results revealed that CS decisions are not significantly associated with key measures of CFP (such ROE and ROA). Ashraf et al. [19] also examined how CS decisions impact CFP in Pakistan using data from eighteen firms over the period 2006-2015. The results revealed that debt ratio has significant, negative relationship with CFP measures (ROA, ROE).

A number of studies have been conducted in Nigeria on the relationship between CS and CFP with mixed results. One such study [4], which used data from financial and non-financial firms, found that equity capital had an insignificant effect on CFP, while debt had a negative, significant effect on CFP. The results of this study may have been affected by the lumping of different sectors of the economy. Results from [8] showed that the effect of debt capital on CFP of manufacturing firms differed from the effect on the CFP of banks. The study reported that total debt ratio had a negative significant effect on the CFP of banks, contradicting [7] who reported that the same ratio had a significant, positive effect on the CFP of banks in Nigeria. Given this contradiction, together with the fact hat a number of recent studies on the effect of CS decisions on the CFP of banks in Nigeria focus on debt capital, giving little attention to equity

capital [7.8], there is need for further study especially within the context of POT and MPOT. Some Nigerian studies on CS decisions and CFP of banks did not control for other variables that affect CFP [5,20] This study overcomes this limitation by introducing two extraneous variables, size and age, as control variables. Some prior studies suggest that these variables matter in leverage and CFP [21,22,23].

The relationship between board diligence (BD) and CFP has been examined by a number of studies. Altass [24] examined the relationship based on data from Saudi firms in the materials sector. CFP was measured using ROA and ROE, while BD was measured by number of board meetings, and the data collected was analysed using regression analysis. The results however showed that BD did not actually improve CFP of the firms investigated; in fact, the frequency of board meetings was negatively associated with CFP. This finding is surprising and should question the essence of board meetings, if their frequency will not positively impact board performance. This finding confirms an earlier study by Vefeas [25] which reported that board meeting frequency (BMF) is associated with depressed market valuation. In other words, investors negatively value firms with high BMF. However, in years with abnormally high BMF, CFP improved especially for firms that were performing poorly before, and those firms with loose corporate controls. The study also noted that BD was associated with ownership characteristics.

3. Methodology

3.1 Research Design

This study used the ex post facto research design with a population of thirteen (13) DMBs in Nigeria as listed in the Nigeria Stock Exchange in 2021. The entire population was used as the sample size of the study using the census approach. Data for the study covered the period, 2010 to 2018, and this should give rise to 117 firm-year observations. However, Jaiz Bank Plc did not have a complete set of data for the period, resulting in 111 observations. Multiple regression analysis was used to test the formulated hypotheses with the aid of EViews10 statistical software for the first four hypotheses. The last four hypotheses which included board diligence (as a moderator) was analysed using multiple regression with Newey-West robust standard errors to take care of the effect of heteroscedasticity and autocorrelation, using STATA 12 software. To determine the effect of the moderator, the study used moderated regression analysis, with interaction terms for the moderator and ROA, and NPM. The coefficients from these interaction terms were used to determine the effect of the moderator. Two control variables, firm size and firm age were included in each model.

3.2 Model specification

Panel Regression Model

CFP= f(DR+ ER+ FMS+ AGE+ μ

ROA= f(DR+ ER+ FMS+ AGE+ μ

NPM= f(DR+ ER+ FMS+ AGE+ μ

Therefore, the models for the study are:

$ROA_{it} = \alpha_0 + \alpha_1 DR_{it} + \alpha_2 ER_{it} + \alpha_3 FMS_{it} + \alpha_4 AGE_{it} + \varepsilon_{it}$ ----------(1)

$NPM_{it} = \alpha_0 + \alpha_1 DR_{it} + \alpha_2 ER_{it} + \alpha_3 FMS_{it} + \alpha_4 AGE_{it} + \varepsilon_{it}$ ----------(2)

$ROA_{it} = \alpha_0 + \alpha_1 DR_{it} + \alpha_2 ER_{it} + \alpha_3 BD_{it} + \alpha_4 DR*BD_{it} + \alpha_5 ER*BD_{it} + \alpha_6 FMS_{it} + \alpha_7 AGE_{it} + \varepsilon_{it}$ ....(3)

$NPM_{it} = \alpha_0 + \alpha_1 DR_{it} + \alpha_2 ER_{it} + \alpha_3 BD_{it} + \alpha_4 DR*BD_{it} + \alpha_5 ER*BD_{it} + \alpha_6 FMS_{it} + \alpha_7 AGE_{it} + \varepsilon_{it}$ ....(4)

Where
CFP = corporate financial performance
ROA = return on assets
NPM = net profit margin
DR = debt ratio
ER = equity ratio
BD = board diligence (moderating variable)
DR*BD = interaction term for DR and BD
ER*BD = interaction term for RR and BD
FMS = firm size (control variable)
Age = age of the firm (control variable).

3.3 Operational Definition of variables

Total Debt to Asset: It's the total debt of an organization divided by its total asset. It expressed as;

$$DR = \frac{\text{Total Debt}}{\text{Total Assets}} * 100$$

Total Equity to Asset: It's the total equity of an organization divided by its total asset. It expressed as;

$$ER = \frac{\text{Total Equity}}{\text{Total Assets}} * 100$$

Return on Assets (ROA): It is measured in terms of the efficiency level a company in assets utilization to achieve the desired profit. It is calculated as; as

$$ROA = \frac{\text{Profit Before Tax}}{\text{Total Assets}} * 100$$

Net Profit Margin (NPM): Net profit margin is proxy by the percentage of profit a company produces from total revenue. It is expressed as;

$$\text{Net Profit margin} = \frac{\text{Profit After Tax}}{\text{Total Revenue}} * 100$$

Firm Size (FMS): It is measured as the natural logarithm of the total asset of the company as stated in the financial statement.
Age: It is the number of years the bank has been in existence since the date of incorporation
Board diligence: The number of board meetings

4. Results and discussion

4.1 Descriptive Statistics

The descriptive statistics for this study is presented in Table 1. The mean of debt ratio (DR) is 33.8, suggesting that debt capital is approximately 34 per cent the total assets of banks. Compared with equity ratio (ER) which is about 23 per cent, DR is far greater, suggesting that debt capital is substantially more than equity capital in the banking industry. This fact is confirmed by the maximum value of DR, which is more than thrice, the value of ER. The greater use of debt in preference for equity in Nigerian's banking industry supports the pecking order theory (POT).

Table 1: Descriptive Statistics

	DR	ER	NPM	ROA	FMS	BD
Mean	33.87822	23.10399	19.50091	2.303983	20.52714	6.054
Median	11.88893	14.70164	14.54347	1.721949	20.64013	6.13

Maximum	733.3610	212.8836	103.5582	28.28784	22.83032	16
Minimum	0.000000	-154.7496	-125.1865	-13.22184	17.77897	1
Std. Dev.	74.03959	40.29670	28.27120	4.279128	1.232232	2.275
Sum	3760.482	2564.543	2164.601	255.7422	2278.512	672
Observations	111	111	111	111	111	111

Source: Output from EViews 10

The minimum and maximum value of ROA and NPM suggests a wide range in bank profitability with some banks recording losses while others recorded such profits that resulted in huge margins. Board diligence (BD) had a very low minimum value of one; suggesting that in at one bank, the board of directors had only one meeting in a year. The maximum of 16 suggests a high frequency of board meetings in one bank. If such meetings do not contribute to sound operating decisions, the bank will suffer financial drain in hosting such multiple meetings. The mean value of 6 appears reasonable.

4.2 Bivariate correlations

The Pearson correlations between the variables in the study are presented in Table 2. Debt capital (DR) and equity capital (ER) are significantly and positively associated, suggesting that disparate characteristics of the firm may affect the levels of debt ratio and equity ratio of the firm. The correlation between DR and ROA is not significant. The correlation between DR and NPM is similarly not significant. Also, the correlation between DR and each of the control variables is not significant. The poor relationship between debt capital (DR) and measures of financial performance suggests that although banks have used more of debt than equity, there is evidence to rely less on debt financing.

The relationship between equity capital (ER) and ROA is positive and significant, $r(107) = .53$, $p < .01$. Similarly, ER and NPM were moderately positively correlated, $r(107) = .39$, $p < .001$. The correlation between equity capital (ER) and firm size (FMS) was negative but significant, suggesting that larger firms rely less on equity. Similarly, the correlation between ER and age was negative and significant, suggesting that as firms age, they use more of debt capital, possibly to investors' ownership interest.

Table 2 Bivariate Correlations

		DR	ER	ROA	NPM	FMS	AGE
DR	Corr	1	.220*	0.116	-0.071	0.013	-0.058
	sign.		0.020	0.225	0.461	0.892	0.545
ER	Corr	.220*	1	.528**	.387**	-.404**	-.315**
	sign.	0.020		0.000	0.000	0.000	0.001
ROA	Corr	0.116	.528**	1	.716**	-0.16	-.351**
	sign.	0.225	0.000		0.000	0.093	0.000
NPM	Corr	-0.071	.387**	.716**	1	-0.147	-.366**
	sign.	0.461	0.000	0.000		0.124	0.000
FMS	Corr	0.013	-.404**	-0.16	-0.147	1	.195*
	sign.	0.892	0	0.093	0.124		0.040
AGE	Corr	-0.058	-.315**	-.351**	-.366**	.195*	1
	sign.	0.545	0.001	0.000	0.000	0.040	
	N	111	111	111	111	111	111

** significant at 0.05; ** significant at 0.01
Source: Pearson correlation of the variables of the study

4.3 Multivariate Analysis

4.3.1 Results from the regression analysis of model 1

Results from the regression analysis of model 1 are presented in Table 3. Model 1 addresses the relationship between ROA and the independent variables, and it is stated as follows:

$ROA_{it} = \alpha_0 + \alpha_1 DR_{it} + \alpha_2 ER_{it} + \alpha_3 FMS_{it} + \alpha_4 AGE_{it} + \varepsilon_{it}$

Table 3 Regression Results (Model 1)

Variable	Coeff	Std. Error	t-Statistic	Prob.
DR	-0.000147	0.004729	-0.031162	0.9752
ER	0.050676	0.008887	5.702102	0.0000
FMS	0.140274	0.041074	3.415173	0.0009
AGE	-0.045890	0.018191	-2.522650	0.0131

R2	0.320939
Adjusted R2	0.301900
Durbin-Watson stat	1.491163
Dep. variable	ROA

Source: Output from EViews 10.

Table 3 shows that the independent variables explained 32% of the variations in ROA. The coefficient on debt ratio is negative and insignificant, indicating that the relationship between debt capital (DR) and financial performance (ROA) is not statistically significant. Accordingly, there is insufficient evidence to reject hypothesis 1 which states that there is no significant relationship between ER and the ROA of DMBs in Nigeria. Unlike DR, the coefficient of equity capital (ER) is positive and statistically significant, suggesting that there is a positive significant relationship between ER and ROA. With this result, hypothesis 2, which proposes an insignificant relationship between ER and ROA cannot be sustained.

4.3.2 Results from the regression analysis of model 2

Table 4 presents the results of regression of DR, ER, and control variables on NPM. The analysis is based on model 2 as follows: $NPM_{it} = \alpha_0 + \alpha_1 DR_{it} + \alpha_2 ER_{it} + \alpha_3 FMS_{it} + \alpha_4 AGE_{it} + \varepsilon_{it}$

Table 4: Regression results (Model 2)

Variable	Coeff	Std. Error	t-Statistic	Prob.
DR	-0.063887	0.032990	-1.936567	0.0554
ER	0.255667	0.061998	4.123817	0.0001
FMS	1.483358	0.286532	5.176935	0.0000
AGE	-0.389493	0.126904	-3.069196	0.0027

R2	0.242903
Adjusted R2	0.221676
Durbin-Watson stat	2.184713

Dependent var.	NPM

Source: Output from EViews 10.

As with model 1, the coefficient on debt equity (DR) is negative and statistically insignificant, suggesting that the relationship between debt equity (DR) and financial performance (NPM) is not significant. Accordingly, hypothesis 3 which proposes that there is no significant relationship between DR and NPM is upheld, as there is insufficient evidence to reject the null hypothesis. Similar to Model 1, the coefficient on equity capital (ER) in Table 4 is positive and statistically significant, suggesting a positive and significant relationship between equity capital (ER) and financial performance (NPM). Thus, hypothesis 4, which states that the relationship between ER and NPM is not statistically significant, cannot be sustained.

4.3.3 Results from the regression analysis of model 3

Results from the regression analysis of model 3 are presented in Table 5. Model 3 addresses the relationship between ROA and the independent variables, with BD as moderator. The model is stated as follows:

$ROA_{it} = \alpha_0 + \alpha_1 DR_{it} + \alpha_2 ER_{it} + \alpha_3 BD_{it} + \alpha_4 DR*BD_{it} + \alpha_5 ER*BD_{it} + \alpha_6 FMS_{it} + \alpha_7 AGE_{it} + \varepsilon_{it}$

Table 5 Regression results (models 3).

ROA	Coefficient	Newey-West Std. Err	t	P>|t|
DR	-.031	.023	-1.36	0.176
ER	-.11	.037	-3.19	0.002
BD	-.655	.210	-3.12	0.002
DR*BD	.002	.003	0.68	0.496
ER*BD	.033	.007	4.54	0.000
FMS	.661	.331	2.00	0.048
AGE	-.048	.022	-2.19	0.031
CONS	-6.72	6.83	-0.98	0.327
Summary				
R2	0.270			
F value	5.73			
Prob > F	0.0041			

Source: Output of regression analysis from STATA 10

Table 5 shows the regression of ROA on independent variables. The Table shows that the independent variables explained 27% of the variations in ROA. The coefficient on the interaction term for debt ratio and board diligence (DR*BD) is positive but insignificant, indicating that the moderating effect of BD on the relationship between debt capital (DR) and financial performance (ROA) is not statistically significant. Accordingly, there is insufficient evidence to reject hypothesis 5 which states that BD does not significantly moderate the relationship between ER and the ROA of DMBs in Nigeria.

The Table also shows that the coefficient on the interaction term for equity ratio and board diligence (ER*BD) is positive and statistically significant, indicating that the moderating effect of BD on the relationship between equity capital (ER) and financial performance (ROA) is statistically significant. Accordingly, there is insufficient evidence to support hypothesis 6 which

states that BD does not significantly moderate the relationship between ER and the ROA of DMBs in Nigeria.

4.3.4 Results from the regression analysis of model 4

Results from the regression analysis of model 4 are presented in Table 6. Model 4 addresses the relationship between NPM and the independent variables, with BD as moderator. The model is stated as follows:

$NPM_{it} = \alpha_0 + \alpha_1 DR_{it} + \alpha_2 ER_{it} + \alpha_3 BD_{it} + \alpha_4 DR*BD_{it} + \alpha_5 ER*BD_{it} + \alpha_6 FMS_{it} + \alpha_7 AGE_{it} + \varepsilon_{it}$

Table 6 Regression results (models 4)

NPM	Coefficient	Newey-West Std. Err	t	P>|t|
DR	-.146	.219	-0.67	0.505
ER	-.237	.200	-1.19	0.238
BD	-2.17	2.05	-1.06	0.291
DR*BD	.005	.026	0.21	0.837
ER*BD	.094	.037	2.50	0.014
FMS	2.46	2.16	1.14	0.257
AGE	-.399	.147	-2.72	0.008
CONS	-6.66	40.7	-0.16	0.872
Summary				
R2	0.220			
F value	4.83			
Prob > F	0.0001			

Source: Output from regression analysis from STATA 10

Table 6 shows the regression of NPM on independent variables. The Table shows that the independent variables explained 22% of the variations in NPM. The coefficient on the interaction term for debt ratio and board diligence (DR*BD) is positive but insignificant, indicating that the moderating effect of BD on the relationship between debt capital (DR) and financial performance (NPM) is not statistically significant. Accordingly, there is insufficient evidence to reject hypothesis 7 which states that BD does not significantly moderate the relationship between ER and the NPM of DMBs in Nigeria.

The Table also shows that as regards HO_8 the coefficient on the interaction term for equity ratio and board diligence (ER*BD) is positive and statistically significant, indicating that the moderating effect of BD on the relationship between equity capital (ER) and financial performance (NPM) is statistically significant. Accordingly, there is insufficient evidence to support hypothesis 8 which states that BD does not significantly moderate the relationship between ER and the NPM of DMBs in Nigeria.

5. Discussion of findings

In the first two regression models, the relationship between debt capital (DR) and financial performance (measured by ROA or NPM) is not statistically significant in DMBs in Nigeria. Prior studies on the relationship between these variables, using data from DMBs in Nigeria, provide contradictory evidence, possibly because of differences in the time period covered, or failure to account for control variables in the study [5,7,8,20]. Olaniyi et al. [26] found that the effect of capital structure on firm performance is period-related and dependent on the performance proxy used. Some prior studies [3,18], using data from foreign countries, reported an insignificant relationship between CS and ROA and other measures of financial performance.

These results agree with the result of this study which found a negative insignificant relation between debt capital and financial performance (ROA, NPM). This finding of the current study indicates that high debt proportion in the capital structure of a bank may not favourably affect the financial fortunes of the firm. This is possibly due to the interest element and repayment burden that comes with debt capital.

In the first two regression models, the relationship between equity capital (ER) and financial performance, measured by either ROA or NPM, is positive and significant. This result is not consistent with [4] whose results showed that equity capital has an insignificant effect on financial performance. The result of that study may be due to the fact that the study used data from financial and other sectors. Differences between sectors affect the relationship between capital structure and firm performance. The result of the current study may be explained by the fact the equity capital does not possess the constraints associated with debt capital.

In the third regression, board diligence (BD) did not moderate the relationship between debt capital and financial performance. This is in consonance with Vefeas [25] who found that BD did not positively impact financial performance. In the last regression, however, BD significantly and positively moderated the relationship between equity capital and financial performance. What this means is that board members are interested in securing their investments, and their activities positively impact the financial performance of the organisation.

6. Conclusion and recommendations

Banks in Nigeria use more of debt capital than equity capital. This is consistent with Pecking Order Theory (POT) which proposes that in using external financing, entities should prefer debt to equity. Results of this study, however, suggest that equity capital will help banks more than debt capital, and this is consistent with the modified version of POT, which prescribes the use of equity in preference over debt if firms seek external financing. The recommendation that flows from this study's findings is that DMBs in Nigeria should strive to switch from higher proportion of debt capital to an increased proportion of equity capital in their capital structure. Such switch supports Modified Pecking Order Theory and would lead to optimal capital structure. The study also shows that board diligence positively moderates the relationship between equity capital and firm performance. This means that the board fulfils its agency role in ensuring that the wealth of shareholders are protected.

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