

# Board Characteristics and Capital Structure of the Nigerian Deposit Money Banks

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## ABSTRACT

*This study examined the relationship between board characteristics and capital structure of the Deposit Money Banks (DMBs) in Nigeria. This study employed secondary data. Data were sourced from the annual reports of 12 listed DMBs in the Nigeria, from 2006 to 2020. In analysing the data, the study explored multiple regression analysis by using independent variables, including board size, board independence and frequency of board meetings in measuring board characteristics while capital structure is proxied using leverage. The report found that board characteristics have a significant effect on capital structure decisions. Specifically, board independence and board size were negatively and significantly related to leverage. Further investigation found that while liquidity risk had a negative effect on capital structure, firm size and return on asset had positive and significant effect. The results of the study indicated that having sound corporate governance processes makes funding mechanisms better since they put DMBs in a stronger position to get external funding. It is clear, from this study, that corporate governance mechanisms influence the financing decisions of Nigerian Deposit Money Banks.*

**Keywords:** Board Characteristics, Capital structure, board size, board independence, board meetings, Deposit Money Banks

**JEL Classification code:** G32

## 1. Introduction

Finance is a necessity for every profit-oriented organization that has been established throughout the entire globe banks inclusive. Finance is seen as an organizational heart that pumps blood into the system. The capital structure of an entity is made up of the equity, debt or combination of both financing sources used by organizations. Tarus and Ayabei (2016) stated that an organization may choose to use debt financing or equity financing. In a dynamic environment, board becomes very important for smooth functioning of organisations. The capital structure will both be impacted by the board's decisions and also show what future actions the firms should take and is tasked with monitoring management. According to Balasundaram and Priya (2013), capital structure explored by an entity especially the Deposit Money Banks to finance its operations is a mixture of equity and debt. The challenging task of determining the ideal capital structure must be taken on by the company's board of directors.

The Nigerian banking sector has had recurring financial crises over the past two decades. In response, the sector has undergone a number of reforms, the most recent of which was the recapitalization and consolidation reform, which was implemented in 2004 and also reform

on the need to address global financial crisis (2010-2012). The crisis among many other things is due to weak corporate governance mechanisms. Corporate governance has been found to affect firms' capital structure decisions in previous studies (Tanui & Tenai, 2022). The health of the financial sector is crucial in any economy as its failure can disrupt economic growth and development of any nation. (Ogundele *et al*, 2020). The company's board of directors has come under heavy fire for the company's failure and the loss of shareholder wealth (Priya & Nimalathan, 2013). The effect of board characteristics and capital structure on business performance and value were investigated in prior studies on this topic (Ramadhan, Pratiwi & Adams, 2022; Balasundaram, & Priya, 2013). Some of the explanations for this failure include the board characteristics and capital structure. For managers and financial providers of the company, choosing the right choice for the company's financial services is crucial. It is on this note that this study will be examining the relationship that exists between board characteristics and capital structure of the Deposit Money Banks in Nigeria.

## **2. Literature Review and Hypotheses Development**

### **2.1 Theoretical Underpinning**

#### **2.1.1 Agency Theory**

Jensen and Meckling, 1976, stated that the foundation of agency theory is the idea that executives are opportunistic and prioritize their own interests over those of the company's shareholders. Agency theory stated that when control and ownership are separated, the interest of the agent and the principal are at conflict. The theory holds that everyone is motivated to pursue their own interests. This imbalance of interests leads to conflicts between the management and shareholders, which boosts agency costs. The requirement to oversee management through the addition of a layer of scrutinizing in the board of directors is one of the biggest expenses faced by shareholders (Fama and Jensen, 1983). Managers may prioritize their own interests at the expense of shareholders due to the separation of control and ownership, which creates an agency problem (Fama & Jensen, 1983). Board is expected to perform different functions, for example monitoring of management to mitigate agency cost. There are many ways to reduce the cost of agencies that fall under the agency theory. Capital structure is one of these possibilities. According to the notion, selecting the right capital structure could help in lowering this cost (Jensen, 1986).

#### **2.1.2 Pecking Order Theory**

The pecking order theory was initially put forth by Myers and Majluf in 1984. According to the pecking order theory, the company chooses its capital structure in accordance with its preferences. Internal finance, which is regarded as the retained earnings, seems to be the first choice for financing, followed by debt and equity. According to Myers and Majluf (1984), businesses should employ internal funding first. If this is still insufficient, they should turn to debt financing from outside sources and only issue fresh equity as a last resort. For instance, pecking order theory proposes that profit-making organizations fund their assets first with retained earnings before turning to debt. The entity will only contemplate using external resources, such as debt, if internal sources of funding were insufficient. In the last resort, the entity will try to finance itself by issuing additional shares. A company gives the market a good indication that it intend to explore future profit as a source of investments when it finances itself domestically with external debts, which has a lower risk. Alternatively, when businesses consistently issue fresh equity, it suggests that the stock price is overvalued.

## 2.2 Conceptual Review

### 2.2.1 Board Size

The board is tasked with managing the company and its operations and is seen as a key constituent of the corporate governance framework for ensuring that the interest of shareholders and management are aligned. Federo *et al.* (2020) divided functions of the board into three primary categories: resource allocation, oversight and strategic participation. Lipton and Lorsch (1992) stated that board size and capital structure have been displayed to be highly associated. According to Berger *et al.* (1997), companies with a larger board of directors have lower debt ratios or leverage. They believe that larger corporate boards will exert greater pressure on managers to use less leverage to boost company performance. Jensen (1986) counters that larger boards are more common in companies with high leverage or debt ratios.

The literature findings on the relationship between board size and capital structure are conflicting. Giving to some studies (Berger *et al.*, 1997; Meah, 2019), the board size has a negative effect on capital structure because a larger board limits managers' ability to make decisions and prefers to include more equity in the company's capital than debt, which leads to less leverage and a lower risk of future default. However, some research has shown that larger boards prefer higher debt levels (Gill *et al.*, 2012;). they contend that a large number of directors on the board enable better oversight of company operations, which raises the firm's credibility and financial stability in the eyes of debtholders, leading to a greater inflow of debt for the company. According to Feng *et al.* (2020), large boards tend to adopt a high debt strategy through strict oversight in a bid to increase the firm's value. We, therefore; hypothesize that:

*Hypothesis 1: Larger board size is positively related to firm's leverage level*

### 2.2.2 Board Independence

The independence of the Board is a different aspect that has an effect on organizations because it is their responsibility to oversee, promote management transparency, and make wise decisions. Previous studies had considered the relationship between capital structure and independence of the board, but the findings were mixed. Board independence and capital structure had a positive and significant relationship, as demonstrated by Njuguna and Obwogi (2015). This implies that a company's capital structure increases along with an increase in the number of independent directors. Heng *et al.* (2012) found that top companies with a high debt policy often have more independent directors on their boards. Alternatively, Wen *et al.* (2002) reported a negative relationship between the two variables and claimed that managers choose to use less leverage as a result of improved governance measures. We contend that the presence of independent directors on the board boosts the confidence of the debt provider and results in increased debt availability for the company because of strict and independent monitoring. We, therefore; hypothesize that:

*Hypothesis 2: Greater proportion of independent directors on board is positively related the firm's leverage level*

### 2.2.3 Frequency of Board Meetings

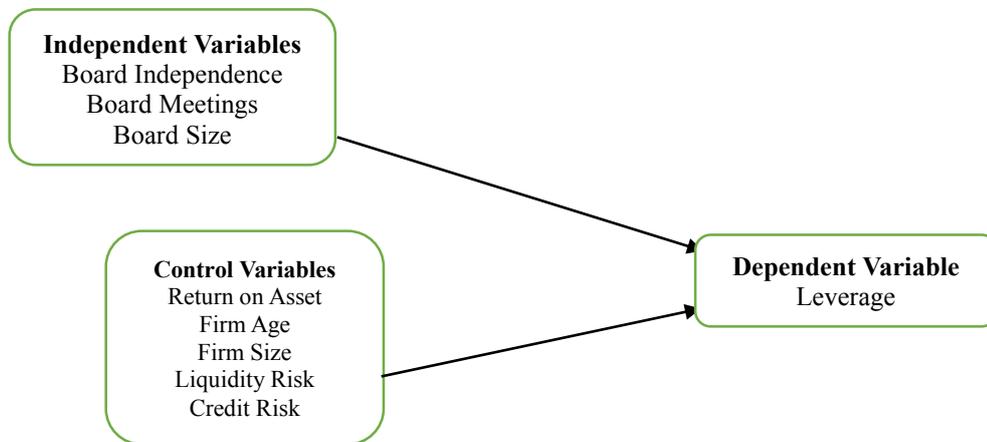
Lipton and Lorsch (1992) investigated the frequency and length of board meetings. They think this time would be better spent concentrating on important issues, as this would increase the efficiency of corporate boards. Taiwanese businessess performance was shown to be impacted by board meeting attendance (Chou, Chung & Yin 2013). According to Evans and Weir

(1995), there is a considerable relationship between the frequency of board meetings and company performance. Meeting frequently may indicate that the board will gain a better grasp of the entity and the nature of the business, which will assist the shareholders through greater control and oversight of the management team. This ultimately enhances and strengthens the firm's strategy.

*Hypothesis 3: Frequency of board meetings is positively related to the firm's leverage level*

**Conceptual Framework**

The proposed conceptual model was developed as a result of the literature review. For the relationships with capital structure, three independent variables and five control variables are used.



**Figure 1: Conceptual Framework showing interaction between Board characteristics and financial performance**

Source: Authors' Design 2022

**3. METHODOLOGY**

This paper mainly focused on Nigeria's listed Deposit Money Banks (DMBs). 22 DMBs that are currently listed on the Nigerian Exchange Group make up the study's sample. Twelve Deposit Money Banks (DMBs) whose stocks were traded on the stock market during the sample period were chosen for this study making use purposive sampling technique. Appropriate data were readily available. Data for the years 2006 to 2020 were taken from the Nigeria Stock Exchange factbook and the audited financial accounts of the chosen DMBs.

**3.1 Model Specification and Measurement of Variable**

Investigation on the effect of board characteristics on capital structure used multiple regression analysis. On the basis of earlier research (Tarus and Ayabei (2016), Amin *et al.* (2022)), we construct the relationship below.

$$Capital\ Structure = f(Board\ Characteristics, Control\ Variables)$$

$$Lev_{it} = \beta_1 BMT_{it} + \beta_2 BIN_{it} + \beta_3 BSZ_{it} + \beta_4 CRR_{it} + \beta_5 ROA_{it} + \beta_6 FSZ_{it} + \beta_7 AGE_{it} + \beta_8 LQR_{it} + \epsilon_{it} \dots\dots\dots (i)$$

**Table 1: Measurement of Variables**

Variables	Variable Definition	Sources
<b>Dependent Variable</b>		
<b>Capital Structure</b>	Capital Structure is given as total debt divided by total equity plus total debt.	Chow <i>et al.</i> (2018), Amin <i>et al</i> 2022
<b>Independent Variables</b>		
<b>Board Characteristics Variables</b>		
<b>Board Meetings (BMT)</b>	How many regularly scheduled meetings the Board of Directors holds each fiscal year.	Chin & Zakaria (2017) & Thakolwiroj & Sithipolvanichgul (2021)
<b>Board Independence (BIN)</b>	The percentage of non-executive directors to the board's total number of directors.	Tarus, & Ayabei (2016), Amin <i>et al</i> 2022,
<b>Board Size (BSZ)</b>	Number of board members in total.	Tarus and Ayabei (2016), Amin <i>et al</i> (2022).
<b>Controls Variables</b>		
<b>Credit Risk (CRR)</b>	This is the ratio of the amount of non-performing loans in a bank's loan portfolio.	Shubita (2018)
<b>Return on Asset (ROA)</b>	It reveals bank's ability in achieving return on its assets in generating profit.	Tarus and Ayabei (2016), Amin <i>et al</i> (2022)
<b>Firm Size (FSZ)</b>	It is measured as a logarithm of the banks' total asset	Amin <i>et al</i> 2022, Tarus and Ayabei (2016)
<b>Age (AGE)</b>	The duration of time since the business' incorporation	Amin <i>et al</i> 2022, Tarus and Ayabei (2016)
<b>Liquidity Risk (LQR)</b>	It is the ratio that evaluate the overall liquidity of a bank in relation to total asset.	Sadiq <i>et al</i> (2021)

**Authors' Computation 2022**

**4. Data Analysis and Discussion of Findings**

**4.1 Descriptive Statistics**

Table 4.1 presents the findings of the descriptive statistics of the variables investigated in achieving the objective. The descriptive statistics used were the mean, median, minimum, maximum, kurtosis, skewness and among others. The board independence (BIN) showed a mean value = 0.572 and median = 0.571. The descriptive result indicated that selected Nigerian Deposit Money Banks (DMBs) have average board independence of 0.572. This depicts that the percentage of non-executive directors in the board is 57 percent and this are fairly above 50 percent.

The result indicated that the average Board Size (BSZ) showed the mean of 14.03, median of 14.00. The standard deviation showed the deviation from the sample mean and it reveals a value of 2.745 %. The table also revealed that the directors have an average meeting of about approximately seven meetings in a year, with a minimum of 3 meetings and maximum of 16 meetings in a year. The mean value of the Leverage (LEV) is 81.8 percent, the standard deviation showed the deviation from the sample mean and it shows a value of 0.167%. Furthermore, the table also showed the information in respect of the age of the sampled DMBs over the period. The average age of companies operating in the sector is 46.15 year and median of 29 years.

**Table 2: Descriptive Statistics**

	LEV	BIN	BMT	BSZ	CRR	ROA	LQR	AGE	FSZ
Mean	0.818	0.572	6.652	14.03	0.117	0.015	0.173	46.149	14.030
Median	0.853	0.571	6.000	14.00	0.055	0.017	0.130	29.000	14.000
Maximum	0.990	91.66	16.000	25.00	0.748	0.105	1.484	125.000	25.000
Minimum	0.001	0.181	3.000	7.00	0.006	-0.415	0.000	1.000	7.000
Std. Dev.	0.167	0.118	2.746	2.745	0.154	0.044	0.202	33.178	2.745
Skewness	-4.10	0.407	1.291	0.157	2.515	-5.821	3.796	0.910	0.158
Kurtosis	-20.1	4.430	4.194	4.047	9.266	53.796	21.181	2.703	4.048
Jarque-Bera	2491.2	18.622	55.325	8.333	446.65	19576.370	2798.212	23.681	8.333
Probability	0.000	0.000	0.000	0.015	0.000	0.000	0.000	0.000	0.016

**Source: Author computation (2022)**

## 4.2 Test of Variables

### 4.2.1 Correlation Matrix & Variance Inflation Factor

The essence of carrying out the correlation analysis prior to model estimation is to identify the degree of correlation among independent variables of the model. The presence of high correlation among the explanatory variables can lead to biased inference of the t-value and also violate the assumptions of no multicollinearity of the least square model. The correlation analysis in Table 3 exhibited the extent of multicollinearity among the regressors of Equation 1. The result showed that the highest pairwise correlation was between the Return on Asset (ROA) and Board Meeting (BMT) with a pairwise correlation  $r = 0.380$  at probability value of 0.0000, which is significant at 1 per cent level of significance. The highest pairwise correlation statistics revealed a less likelihood of the problem of multicollinearity, less than 0.8 is the correlation between the variables. As a result, it shown that the data do not potentially have a multicollinearity problem.

The Variance Inflation Factor (VIF) values in Table 4 were similarly less than 10. VIF can identify multicollinearity, and a result of 10 or higher indicates a multicollinearity issue (Field, 2014). The threshold for VIF values was suggested by Field (2005) and Hair et al. (2006) to be 10. There is no evidence of multicollinearity because all of the variables utilized in this study, including the control variables, range from 1.196 to 1.498.

**Table 3: Correlation Matrix**

Probability	BIN	BMT	FSZ	CRR	BSZ	ROA	LQR	AGE
BIN	1.000							
	-----							
BMT	-0.008	1.000						
	0.917	-----						
FSZ	-0.102	0.107	1.000					
	0.196	0.175	-----					
CRR	-0.258	-0.004	-0.292	1.000				
	0.001	0.956	0.000	-----				
BSZ	-0.271	0.025	0.359	-0.272	1.000			
	0.001	0.754	0.000	0.000	-----			
ROA	0.108	-0.380	0.207	-0.226	0.271	1.000		
	0.172	0.000	0.008	0.004	0.001	-----		
LQR	0.364	-0.162	-0.258	-0.120	-0.201	0.131	1.000	
	0.000	0.038	0.001	0.127	0.010	0.096	-----	
AGE	0.155	0.166	0.229	-0.099	0.099	-0.138	-0.111	1.000
	0.048	0.035	0.003	0.211	0.210	0.079	0.159	-----

**Source: Author Computation (2022)**

**Table 4 Variance Inflation Factors**

Variable	Centered VIF
AGE	1.195654
FSZ	1.405608
BIN	1.498013
BMT	1.251231
BSZ	1.41157
CRR	1.32742
LQR	1.292175
ROA	1.429557
C	NA

**Source: Authors' Computation (2022)**

### 4.3 Hausman Test

The Hausman (1978) test was explored to determine if fixed effects or random effects models were more appropriate. Table 5 showed the outcome of the Hausman Test. The p-value was significant in each case ( $p < 05$ ); hence a fixed effects model was applied. To generate the results, the panel data regression was done in Eviews using fixed effects.

**Table 5: Hausman Test**

Correlated Random Effects - Hausman Test			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	42.0348	8	0

**Source: Authors' computation (2022)**

### 4.3 Board Characteristics and Capital Structure

Before the regression analysis, tests were conducted. First, we used a correlation matrix and Variance Inflation Factors (VIF) to check for the presence of multicollinearity. When two or more predictor variables have a high degree of correlation, multicollinearity occurs. R-squared was 67.2% and Adjusted R-squared was 62.9%, as shown in Table 6. This could mean that the independent variables account for 62.9% of the capital structure. Additionally, the F-test and p-value show the model's fitness ( $p < 0.05$ ).

In order to exercise their independent judgment, directors are considered to be free from any business or other relationships and independent of management. This is known as board independence. The study found a negative and significant relationship between board independence and leverage. This may be attributable to concern about their reputation as effective and independent decision makers, which might result in opting for lower levels of leverage to avoid severe agency costs particularly bankruptcy costs Tarus and Ayabei (2016). The study observed that the coefficient ( $\beta$ ) of the board independence was -0.504, while the p-value was 0.000; meaning that there is a negative significance effect with the leverage. The result is consistent with Wen *et al* (2002) and Anderson *et al.* (2004). As a result, the cost of debt financing is lower the more independent the directors are, as they have stricter control over the management team's decisions on debt financing than other directors with less independence do. Thus, by reducing debt financing, the management team will take a risk (Anderson *et al.*, 2004)

This study likewise revealed the board size had negative significant effect on capital structure. For board size, the coefficient ( $\beta$ ) revealed -0.637 and the p-value was 0.000, which is less than 0.05, depicting that board size have impact on the management team's decision with respect to capital structure. Because of the significant negative relationship between board size and capital structure, larger boards should pursue a low debt strategy. In order to improve company performance, the boards frequently urge management to use more equity capital. The result is consistent with Meah, (2019) and Thakolwiroj & Sithipolvanichgul (2021). They argued that the larger board reduces the decision-making power of managers and prefer to include more equity in firm's capital than debt, resulting in low leverage and reduced default risk in future. Berger *et al* (1997) also find that firms with larger board membership have low leverage or debt ratio.

Moreover, the coefficient ( $\beta$ ) of board meetings was -0.004, whereas the p-value of the frequency of board meetings was 0.3661, which is more than 0.05. It is inferred that there is no relationship between the frequency of board meetings and capital structure. This result is consistent with those made by Naseem, Xiaoming, Riaz, and Rehman (2017) as well as Thakolwiroj and Sithipolvanichgul (2021). Also, Priya and Nimalathan (2013) reported that

board meeting is not related to firm capital structure decision.

The study included control variables in the analysis, especially those that were known to have an impact on capital structure; variables such as Firm Size, Firm Age, Return on Asset, Credit Risk and Liquidity Risk. Firm size was controlled because previous study have found firm size to be positively related to leverage ( Nwachukwu and Mohammed, 2012). We found that the coefficient ( $\beta$ ) of firm size was 0.0766 and the p-value of firm size was 0.012, which is less than 0.05. This means it was positively related to capital structure at the significance level of 5%. The result is also consistent with Thakolwiroj & Sithipolvanichgul (2021). Large firms may use more leverage in their capital structure because of the availability of tangible assets to secure debts to exercise economies of scale, to obtain better knowledge about markets and to employ better managers (Driffield *et al.*, 2007). Larger firms are also known to have lower financial distress costs, are less likely to go bankrupt and are more transparent in the reporting of their financial affairs.

The age of the firm was also controlled. The result showed that the coefficient ( $\beta$ ) of age was -0.003 and the p-value was 0.577, which is more than 0.05. Also, liquidity Risk contributes negatively significantly to leverage having t value as -0.451 and p-value lesser than 0.05. Consistent with previous studies, the study also controlled for firm performance using Return on Asset as proxy, because of strong indications of its effect on capital structure. The result showed that the coefficient ( $\beta$ ) of Return on Asset was 0.541 and the p-value was 0.047, which is less than 0.05. This means it was positively related to capital structure at the significance level of 5%.

**Table 6: Random Effect**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BIN	-0.409	0.095	-4.300	0.000
BMT	-0.003	0.004	-0.813	0.418
FSZ	0.029	0.011	2.634	0.009
AGE	0.000	0.000	0.254	0.800
CRR	0.058	0.032	1.853	0.066
BSZ	-0.258	0.129	-1.996	0.048
ROA	0.317	0.255	1.245	0.215
LQR	-0.592	0.054	-10.859	0.000
C	0.875	0.266	3.290	0.001
R-squared	0.5727	Mean dependent var		0.8284
Adjusted R-squared	0.5505	S.D. dependent var		0.2000
S.E. of regression	0.1341	Sum squared resid		2.7688
F-statistic	25.8021	Durbin-Watson stat		0.9617
Prob(F-statistic)	0			

Source: Author Computation (2022)

**Table 7: Fixed Effects**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.491	0.448	1.096	0.275
BIN	-0.504	0.113	-4.477	0.000
BMT	-0.004	0.004	-0.907	0.366
FSZ	0.077	0.030	2.550	0.012
AGE	-0.003	0.005	-0.559	0.577
CRR	0.005	0.034	0.144	0.886
BSZ	-0.637	0.169	-3.756	0.000
ROA	0.541	0.270	2.004	0.047
LQR	-0.451	0.074	-6.064	0.000
Effects Specification				
<b>Cross-section fixed (dummy variables)</b>				
R-squared	0.672	Mean dependent var		0.828
Adjusted R-squared	0.629	S.D. dependent var		0.200
S.E. of regression	0.122	Akaike info criterion		-1.257
Sum squared resid	2.123	Schwarz criterion		-0.878
Log likelihood	122.484	Hannan-Quinn criter.		-1.103
F-statistic	15.442	Durbin-Watson stat		1.146
Prob(F-statistic)	0			

**Source: Authors' Computation (2022)**

## 5. Conclusions and Recommendations

The study sought to examine the effect of board characteristics on capital structure of Deposit Money Banks (DMBs) in Nigeria. The study based on panel data analysis on the time period from 2006 to 2020. Before the regression analysis, tests were performed. First, we tested for the presence of multicollinearity using correlation matrix and Variance Inflation Factors (VIF).

The data were analyzed by using the fixed affect model and random affect model in conducting detailed panel data analysis. The robustness of the results was statistically checked through Hausman specification test. The current study used financial leverage to represent capital structure in its relationship with both board size, board independence and board meeting as as the independent variable while the control variables are Firm age, Firm Size, Leverage, Credit Risk and Liquidity Risk. This study revealed that Board Independence and Board Size had negative and significant relationship at 5% level of significance while Firm Size had negative and significant relationship at 5% level of significance. Based on analysis and discussion, it's concluded that board size has significant effect on capital structure of the Deposit Money Banks in Nigeria. The empirical results revealed that board size and board independence are statistically significant and negative association with capital structure. This study result indicates that Nigerian DMBs pursue low debt policy with a large board size. Based on the conclusion the study recommended that the presence of proper corporate governance mechanisms leads to better funding mechanisms as it ensures that the DMBs is in a better position to obtain external funding. This helps the company in managing risks better and respond to emergency activities promptly.

The study also recommends that Nigerian DMBs should select required number of board with the right mix of expertise and diversity who will be able to monitor the management and

banks' capital structure decision making. Therefore, achieving good governance helps a company to improve its business policies to stakeholders in the global market space.

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