IJO -INTERNATIONAL JOURNAL OF BUSINESS MANAGEMENT

(E:ISSN 2811-2504) (P.ISSN: 2384-5961) Dr. Vincent Nwani*

https://ijojournals.com/ *Volume 08 || Issue 08|| August, 2025 ||*

"Moderating and Interacting Effects of Management Team Characteristics on Financial Performance"

Moderating and Interacting Effects of Management Team Characteristics on Financial Performance

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Abstract

This study investigated the influence of the management team characteristics on corporate governance mechanisms in predicting the financial performance of banks in Nigeria. The study employed dynamic panel models to examine the influence of four board attributes (size, independence, diligence, and diversity), management team characteristics (size and diversity), and two control variables (firm size and firm age) on financial performance, measured by the cost of capital, liquidity, and return on assets. These variables were selected and included in models based on the postulates of the agency theory and human capital theory.

The data series collected on each variable were sourced from the annual audited accounts and reports of 12 purposively selected listed banks over the years 2011 to 2023. The data were then analyzed using descriptive tools such as mean and standard deviation and panel regression techniques. The study employed the generalized method of moments (GMM) technique to estimate panel regression models after testing for normality, multicollinearity, heteroscedasticity and endogeneity problems.

The panel regression results on the relationship between management team characteristics and financial performance showed that management team size had a significant positive effect on cost of capital and liquidity. Again, management team size had a significant positive effect on cost of capital while both size and diversity of management team had a significant positive and negative effect, respectively on liquidity. Moreover, the way the board attributes affected financial performance changed over the size and diversity of management team. Management team size played a moderating role in increasing the negative effect of board independence on liquidity, with negative net effect in modulating the effect of board size on cost of capital and positive net effect in moderating the effect of board diligence on return on assets. Similarly, management team diversity significantly increased the negative effect of board diversity on cost of capital, increasing the negative effect of board diligence on liquidity, and made board independence to have a significant negative effect on return on assets, with a positive net effect from the relevance of management team diversity modulating the effect of board size and board diversity on liquidity.

The study concluded that effective corporate governance practices, coupled with a diverse sizeable management team, are pivotal in driving positive financial outcomes for listed

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banks in Nigeria. Its implications for the financial objectives of the banks, oversight function of the board of directors, and regulations were highlighted.

Key Words: Moderating, Interacting, Management Team, Corporate Governance, Financial Performance

1. Introduction

The Nigerian banking sector has undergone a series of remarkable reforms and changes, ranging from the length and breadth of financial instruments used to the number of banks listed on the Nigerian Exchange Group (NGX), regulatory and supervisory frameworks as well as the overall macroeconomic environment within which they operate (Central Bank of Nigeria, 2017). Due to the series of reforms and policy changes including capitalization and mergers and acquisitions that have taken place, there are currently 18 deposit money banks operating as commercial banks in Nigeria, while only 12 of them were listed on the Nigerian Exchange Group (NGX) as at December, 2023.

Managers of listed banks in Nigeria are faced with the problem of how to maximize performance. Therefore, they seek to maximize the benefits of corporate governance and maintain critical knowledge about quality management teams that can be used to moderate the influence of corporate governance on the financial performance of their banks. The implication for social change includes the potential to provide significant knowledge to managers conducive to minimizing agency problems; a significant understanding of the role of the management team in moderating the relationship between corporate governance mechanisms and financial performance; and appreciation of the need for a good and efficient management team in effective implementation of the board of directors' policies on corporate governance in their day-to-day managerial activities for maximizing financial performance of listed banks in Nigeria.

Empirical reviews on the efficacy of human capital on financial performance established mixed and inconclusive results. Some of the studies found statistically significant positive effect, some found significant negative impacts while some others found no significant effect. These findings were made despite the multifarious measures used as proxies for human capital, and financial performance of companies in various sectors and countries. It was noted that most of these studies employed financial metrics on operating efficiency to measure financial performance and none of them used other measures such as liquidity, return to shareholders/assets and reduced cost of capital. This further showed the need for more studies on human capital-financial performance nexus, especially on banks.

Balaboniene & Vecerskiere (2015) believed that financial measures of firm performance do not generate a balanced image about the critical factors relating to a firm, the perspectives of all users of information and material processes as well as its learning and growth drive. These

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financial performance measures include return on equity (ROE), return on assets (ROA), return on sales (ROS), profit growth, revenue growth, return on capital employed (ROI) and market value added (MVA). Using any of these measures in this study will not show the implications of corporate governance and human capital on other critical areas of banks such as liquidity position and cost of capital.

The concept of management team started with influential thought by Peter Sticker, Alfred Chandler and Philip Selznick. The concept identified that management was first meant in a book to 'concept of corporation', which explains that management team are a set of the corporate charged with the responsibility to ensure corporation meet objectives to enable growth and development of the corporate (Drucker, 1964). Another major contribution highlights the importance of harnessing both skilled and unskilled labour aiming at ensuring objectives are set and met efficiently and effectively (Barutcugil, 2013). The philosophy of business has undergone changes over time shifting from meeting basic needs as identified by Adam smith to a more robust and complex embodiment of demands to attend to. There now exists a need to grow market share, improve customer base, expand business ideas, and increase managerial values. Hence, the management team is now charged with a whole lot of duties which requires strategic thinking to dominate the competitors and remain prime in the minds of customers (Mutercimler, 2011).

Thus, this study seeks to examine the influence of management team characteristics on the financial performance of banks in Nigeria by shading light to the efficacy of management team characteristics (size, and gender diversity) in predicting financial performance. Apart from this introductory section, the rest of this paper is organized into five sections. Section two covers literature review, section three explains the methodology, and section four presents the results while session five concludes with action points.

2. Literature Review

2.1 Theoretical/Conceptual Framework

Agency theory and human capital theory form the theoretical bedrock of this study. Jensen & Meckling (1976) used agency theory to offer explanations on the behaviour of a firm based on the premise that managers, who are agents of business owners or shareholders, are driven by their self-interests, which can contradict the interests of the shareholders. Effective monitoring of the managers to align the interests of the managers and that of shareholders was therefore recommended. One of the mechanisms suggested to reduce the agency problem was compliance with the principles of corporate governance with mechanisms such as board characteristics (size, diligence, independence, and experience of board members), ownership structure, and audit committee composition.

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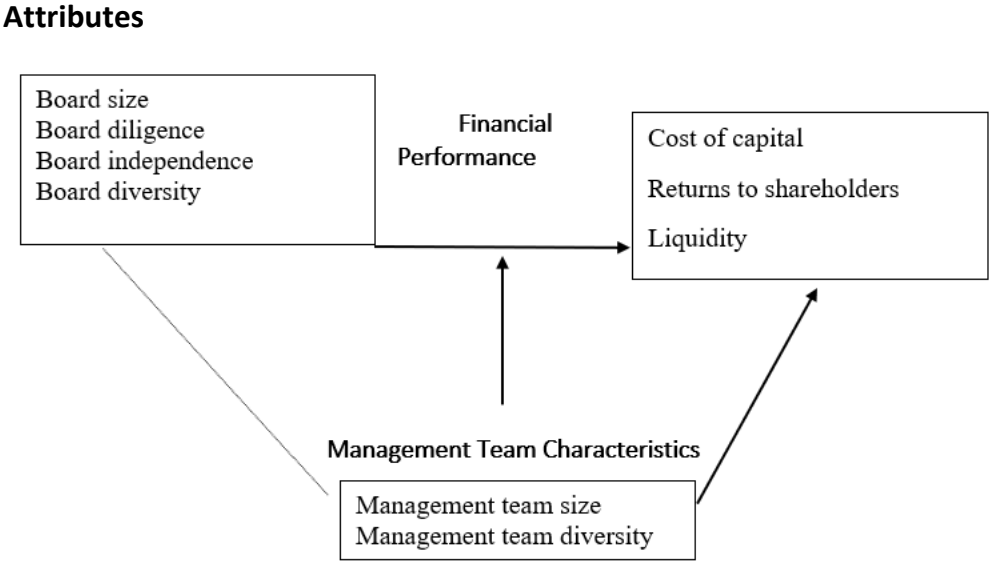
The human capital theory, set out by Schultz (1961), developed by Becker (1964), and later by Mincer (1974) was used to challenge economists' assumption that the growth of physical capital was paramount to economic success. The theory posits that people's learning capacities are of comparable value with other resources involved in production activities (Lucas, 1990). The theory also suggests that when employees undergo education and training, they can increase their skill level; they are more productive and can justify higher earnings both at the individual and organizational levels. This means that human capital has an important role to play in the creation of competitive advantage and that individuals, corporations, and society derive economic benefits from investment in people (Sweetland, 1996).

As applied to this study, the theories hold that we should expect the management team, measured by management size and management diversity to predict financial performance. This is because a capable and committed management team would provide knowledge, skills, and expertise in analyzing problems and implementing policies developed by the Board to enhance financial performance. Figure 1 is a graphical depiction of agency theory (corporate governance) and human capital theory (management team) as they relate to financial performance.

Figure 1: Conceptual model of Agency and Human capital theories as they relate to financial performance



2.2 Management Team

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Chandler (1940) identified coordination of entity's activities as an aspect of management team duty, stating its importance for an entity to conduct over all check for both present and future plan and ensure all that is required are in place to meet set goals. Chandler (1962) also argued that it is imperative for business to have long term goals and should as well have a segment of employee to guarantee the incubation and hatching of these goals by coordinating the effort of every bracket of employee into meeting the set goals through receipt of feedback and adopting possible correction to effect changes.

Drucker (1964) also highlights that the management team would create more impact if they are charged with the responsibility of setting, disseminating and monitoring goals which are to be integrated into all level of the business. He also identified that the purpose of this is to ensure that Creation and satisfaction of consumer need is the sole purpose of the existence of any entity, hence to achieve this, durable steps must be taken to ensure no stone is left unturned.

Generally, management is a science and, at the same time, an art, which uses some scientific tools such as mathematical process, logic and statistics to achieve its goals and objectives. There are sometimes where management faces problems, which it might be difficult to resolve through scientific tools but with the aid of management experience, intuition and other individual judgment of the management team. It is therefore worthy of note that management is more of art than science (Taiwo and Agwu, 2016).

According to Pilbeam (2010), management was described as the social processes which involves responsibility in achieving effective economic planning and in regulating and moderating the activities of an organization in achieving stated goals or tasks, the responsibility entails but not limited to 1) decision and judgment in ascertaining plans and in applying data to monitor and control organization performance and progress against activities; and 2) the supervision, guidance, motivation and integration of the employees in carrying out the activities of the business.

Handy (2000) identified some key elements of Management which include: planning, responsibility, motivation, decision making, co-ordination, control and authority. Many organizations both at the top and lower levels of the organizational hierarchy adopted effective management teams to manage and coordinate the affairs of their business activities (Overfield, 2016). Wageman & Hackman (2010) also defined management team as a set of individuals, each with a personal attribute of leading and controlling part of the business department or unit and interdependent in order to offer overall leadership roles for the organization as a whole.

Management teams are expected to set overall objectives important decisions, strategies for the organization. The team is expected to offer solution to problems facing the organization, discuss issues, provide useful advice to one another and take charge of ongoing processes in an organization. They should also ensure that all departments and units in the organization allied and interact with one another effectively (Bang & Overland, 2009). An effective and efficient management team offers and ensures positive contributions to value

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creation process of an enterprise, it establishes added value to what a manager could achieve if he or she works in isolation. This means that the management team has a greater influence on organizational performance (Bang & Thomas, 2017).

Management team is effective because it achieves acceptable outcomes in the following three areas; individual well-being and growth, task performance, and team viability (Wageman, et al., 2008). Management teams should as much as possible based on the following: the accomplishment of task results that represent added value to the organization, easing learning, development, and growth that represent added value to individual team members, and encouraging collective psychological states that develop the team's capacity to work interdependently in the future and it shows the added value for the of the management team (Overfield, 2016).

Bang & Thomas (2017) identified the conditions necessary to achieve management team effectiveness, the study pointed out five input factors which include team reinforcing rewarding system, a clearly stated team purpose, appropriate team tasks, moderate size of the team, and a balanced team composition.

2.3 The Role of Management Team in Organizations

While examining role of managers in organizations in the Republic of Armenia, Tovmasyan (2017) found that management team comprised top level employees of an organization with relevant skills set to achieve firm's objectives. The author also posited that the management team comprises of line managers or directors who carry out the operational plans of the organization. Zubanov (2017) also reviewed the role of management teams in business success using Serbian companies, where it was critically demonstrated that management team selection is not primarily based on skill set, professional competence, and innovation rather selection was premised on other biased political stands.

This view negates Tovmasyan's (2017) standpoint. The author considered one hundred and sixty respondents across nineteen business firms with those who have been in active service in public companies with about twenty of service. His findings further revealed that the place of management teams in relation to firm's performance cannot be jettisoned, by stressing that despite the inherent flaws in the selection process, activities of mangers in terms coordinating innovation and enhancing departmental goal attainment, which culminates into overall better performance cannot be misplaced. The wealth of experiences gathered by managers has positioned them to have a sense of collective responsibility.

Obiefuna (2014) considered the role of top management in business organizations, he concluded that appreciable difference exists in management structures, systems, and processes across organizations which has widened the gap in the performance of various firms. He

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asserted that these differences are essential tools relevant to examine the impact of management team effort commensurable with the firm's performance and effectiveness in these areas would mean higher returns when properly harnessed.

Aboramadan (2020) identified five roles of management teams in an organization; Manager-leader plays the role of leadership in an organization especially when they lead groups within the organization. Manager – Leader Managers play the role of leadership in organizations especially when they lead groups within the organizations. The role of a leader is to influence members of the team to set goals and ensure goal attainment. Manager – controller: control has to do a measurement of performance and take corrective. Manager – Administrator: the administrative manager also plays a control function, he is expected to face and solve personal conflicts. Manager – Planner, the planner manager has a role in the future and present performances of the company. The Entrepreneur Manager is said to be a risk taker and does not have the intention of extrapolating the present internal dynamics of a firm into the future.

Wageman, Nunes, Burruss & Hackman (2008) concluded that there are three main roles that the management team perform which include: performance of task, team viability and well-being and growth. Taiwo & Agwu (2016) examined the roles of top management in banks and the study identified roles such as the determination of policies and the overall plans of the bank, provision of leadership and advisory roles for the entire bank, approval and authorization to incur capital expenditure and appointment or selection of management staff which is a vital unction of a management team.

According to Aboramadan (2020), a team that has cross-functional knowledge and experience in different backgrounds helps the company more to tackle its strategic problems and issues than a team that focuses on a single functional area. Zimmerman (2008) also established that having diverse functional areas of the management team enhanced effective and efficient decision-making and fostered innovation and creativity in a company.

2.4 **Financial Performance**

Financial performance is a measure of a firm's health and overall competencies through the valuation of how its assets from its primary mode of business have been used to generate revenue. Financial performance is measured subjectively through different methods such as profitability, liquidity, leverage, and investor ratios. According to Kafidipe, Uwalomwa, Dahunsi, & Okeme (2021), performance is relative and it is peculiar to the strategy under which various financial institutions use to manage risk.

The methods of determining financial performance through the use of accounting ratios have been identified to explicitly cover profitability, for which we have measures such as return on equity (ROE), return on assets (ROA), return on investment (ROI), or return on capital employed (ROCE), gross profit margin and net profit margin. They also include Liquidity, which

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relates to ratios such as current capital, acid test ratio, debtors' turnover, debtors' collection period, stock turnover, assets turnover, etc. and Leverage encompasses items such as fixed interest cover, gearing ratio, proprietary fund ratio, income gearing ratio; and investor's ratio covers price-earnings ratio, net asset per share, earnings per share, dividend yield, etc.

Financial performance is the main determinant of how efficient the management is in the utilization of its resources in obtaining returns. Investors, the economy as a whole, and stakeholders are interested in knowing how well an organization is faring for a lot of reasons that are peculiar to each group. The understanding is that for investors, their major focus is the return on investment to know how well a firm is performing and if they can get long-term returns, while employees are concerned with financial profitability to know if their salaries could be increased.

2.5 Factors Influencing Firm Performance

Many factors have been examined and found to be influencing firm performance in the extant literature some of which are internal and external to organizations. Buachoom (2018) examined some characteristics of a board such as board independence, board size, board meeting frequency, and dual role leadership on board, to determine the significant influence on the performance of listed firm on the Thailand stock market, using a sophisticated statistical method known as the Quantile analysis, on which samples were carried on 446 firms for the period of 15 years ranging from 2000 to 2014, the objective of the study was to determine the effect of board's characteristics on different quantile levels of performance and to investigate the possible effect of board structures on a firm with different performance levels, findings from the study show that board independence, board size and board meeting often result in an improvement in the performance of Thailand listed firms. However, the dual role of leadership is found to hurt the performance of firms in Thailand listed firm.

Saeidi, *et al.* (2020) examined the relationship between how organizational leadership contributes to the firm performance by mediating the effect of corporate social responsibility in Malaysian firms. The aim was to study the attitude and perception of Malaysian managers and leaders about corporate social responsibility, organizational leadership, financial performance and nonfinancial performance by applying survey technique and using Multifactor Leadership Questionnaire (MLQ) and AMOS Structural Equation Modeling (AMOS-SEM). Data was collected from 285 manufacturing and consumer products firm for the period of four-month (June to September 2020), to ascertain the firm performance, which could stipulate the effective fulfilling of market orientation and financial objective of the organization.

Findings revealed that the relationship between organizational leadership and financial performance, as well as organizational leadership and nonfinancial performance, were partially mediated by corporate social responsibility. Further results revealed two fully mediated relationships in the way that non-financial performance was a full mediator variable between corporate social responsibility and financial performance, as well as corporate social

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responsibility and nonfinancial performance on organizational leadership and financial performance. These results helped Malaysian managers to understand their current position, capabilities and weaknesses in leadership in line with corporate social responsibility.

Song, Lee, & Kang (2021) investigated the influence of board on firm performance with the aim of examining the relationship between board interlocks and firm performance in North American for the period of 1993–2019. More importantly, investigating the effect of board interlocks on firm performance has become meaningful in establishing where directors of firm actively perform their duties and get involved in the fundamental decision-making process of the organization (Keiser, 2002; Barroso-Castro, Villegas-Peri˜nan, & Dominguez, 2017). From the results of the analyses, it was found that a positive and significant relationship exist between board interlocks and a firm's financial performance.

Kubo & Nguyen (2020) examined the effects of female chief executive officers (CEOs) on firm performance if it has a positive or negative impact on the financial performance of the firm using Upper echelon theory and Social role theory and the investigation was conducted in Japan between 2004 to 2015. They investigated the relation between female CEOs and firm performance using a variety of methods, including ordinary least squares (OLS) and fixed effects regressions, instrumental variable. Findings revealed that the number of female CEOs in listed firms in Japan is very low. Around one-third of these female CEOs were women who had gradually climbed the corporate ladder to top management positions before attaining the position of CEO, while others were from a pioneer family, as either the founder or the heir of a founder. Founder female CEOs was positive and significant in the fixed effects regression for Tobin's Q. This was consistent with observations that stock prices decline when a founder female CEO leaves the firm.

3. Methodology

3.1 Population, Sample Size and Sampling Technique

The targeted population consists of 18 commercial banks operating in the financial sector of the Nigerian economic system. These include all deposit money banks with national and regional presence whose shares are traded on the floor of the NGX. However, sample size for this study is the 12 deposit money banks listed on the NGX as at 31st December, 2023. This number comprises the banks from whom data needed were publicly available and can be obtained from their audited annual reports and accounts consistently over the period of 2011-2023. Thus, the sampling technique is purposive.

3.2 Model Specification

The research employed linear multiple regression equations to capture the extent to which board attributes and management team characteristics predict the financial performance of the

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sampled listed deposit money banks in Nigeria. To answer research question, a functional regression model is specified as follows:

$$FIP = f(MGT, \lambda) \quad (1)$$

where, FIP = financial performance, MGT = a set of management characteristics that influence the FIP of the listed banks, which were selected based on the outcomes of previous studies, and λ = a set of control variables such as firm size (SZE) and firm age (AGE). The relationship between MGT and FIP is however presented in econometric form in equation (2) as follows:

$$FIP_{it} = b_0 + b_1 MGT_{it} + \lambda_{it} + \mu_{it} \quad (2)$$

To indicate the management characteristics of interest and control variables of this study, the static panel model is re-specified as follows:

$$FIP_{j,it} = b_0 + b_1 MGS_{it} + b_2 MDV_{it} + b_3 FSZ_{it} + b_4 AGE_{it} + \mu_{it} \quad (3)$$

where, $FIP_{j,it}$ = alternative measures of financial performance (cost of capital, liquidity and return on asset) for firm *i* at time *t*; *j*=1,2,3; MSZ_{it} = management size for firm *i* at time *t*; and MDV = management diversity for firm *i* at time *t*. Control variables to be included in the model are firm size (FSZ) and firm age (AGE). b_0 represents the intercept or constant; $b_1 - b_6$ indicates the coefficients of the explanatory variables, and μ is the error term. It is *a priori* expected that all the explanatory variables will contribute significantly to the financial performance of the financial institutions.

Due to the limitation of static model restricting to the use of ordinary least squares (OLS), the dynamic panel version of equation (3) is specified as follows:

$$FIP_{j,it} = b_0 + b_1 FIP_{j,it-1} + b_2 MGS_{it} + b_3 MDV_{it} + b_4 FSZ_{it} + b_5 AGE_{it} + \mu_{it} \quad (4)$$

where, $FIP_{j,it-1}$ is the lagged dependent variables, which are the alternative measures of financial performance for firm *i* at time *t-1*.

To answer the research question three on the relationship between management team characteristics and financial performance, the following equation model is specified:

$$FIP_{j,it} = b_0 + b_1 FIP_{j,it-1} + b_2 MGS_{it} + b_3 MDV_{it} + b_4 FSZ_{it} + b_5 AGE_{it} + \mu_{it} \quad (5)$$

where, MSZ_{it} = management size for firm *i* at time *t*; and MDV = management diversity for firm *i* at time *t*.

In addition, to provide answer to the research question four covering the moderating effect of management team characteristics on the relationship between board attributes and financial performance, we incorporated the two moderating variables (management team size and management team diversity) individually with the explanatory variables (corporate governance mechanisms) in equation (3) as specified in equation (6):

$$FIP_{j,it} = b_0 + b_1 FIP_{j,it-1} + b_2 BSZ_{it} + b_3 BID_{it} + b_4 BDL_{it} + b_5 BDV_{it} + b_k MAT_{it,k} + b_6 FSZ_{it} + b_7 AGE_{it} + \mu_{it} \quad (6)$$

where, $MAT_{it,k}$ is the alternative measures of management team characteristics that is, MGS and MDV, and *k* is the number of moderating variables. In addition, the moderating effect of the two moderating variables were obtained by interacting the variable with each of the explanatory variables of this study, which are the four board attributes, one after the other.

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To obtain the net effect of the moderating variables on the dependent variable. The models are presented as follows:

$$FIP_{j,it} = b_0 + b_1FIP_{j,it-1} + b_2BSZ_{it} + b_3BID_{it} + b_4BDL_{it} + b_5BDV_{it} + b_6MGS_{it} + b_k(BAT_{it,k}*MGS_{it}) + b_7FSZ_{it} + b_8AGE_{it} + \mu_{it} \quad (7a)$$

$$FIP_{j,it} = b_0 + b_1FIP_{j,it-1} + b_2BSZ_{it} + b_3BID_{it} + b_4BDL_{it} + b_5BDV_{it} + b_6MDV_{it} + b_k(BAT_{it,k}*MDV_{it}) + b_7FSZ_{it} + b_8AGE_{it} + \mu_{it} \quad (7b)$$

where, BAT represents board attributes and *k* is the number of board attributes in the model, which is four. Equation 7(a) demonstrates the moderating effect of MGS on the relationship between corporate governance mechanisms and financial performance while equation 7(b) modelled the moderating effect of MDV on the relationship between corporate governance mechanisms and financial performance.

Table 1: Variable Definition and Measurement

Variable	Definition/Measurement	Sources
Dependent Variables		
Cost of Capital (COC)	This is an average measure of the cost of all the sources of capital (equity and debts) employed by a firm during a year. It was measured using the weighted average cost of capital (WACC) = $pE(K_e) + pD(K_d)$	Pandey, 2018
Liquidity (LIQ)	This was measured by using the current ratio, which was computed by dividing current assets by current liabilities of a company during a year of reporting.	Gupta, 2017
Returns on Assets (ROA)	This was measured by dividing profit after taxes (PAT) by the book value of total assets.	Naciti, 2019; Mertzunis et al, 2018; Pintea et al., 2020
Independent Variables		
Management Size (MSZ)	This is the ratio of officials, including the CEO, in the team to the average in the industry.	Zubanov, 2017; Ndum & Oranefe, 2021
Management Diversity (MDV)	This is the proportion of female officials to the total number of officials in the management team of a bank.	Aboramadan, 2020; Zimmerman, 2008
Control Variables		
Bank Size (FSZ)	This is the natural logarithm of the total assets of a bank.	Gupta, 2017; Song et al., 2021
Bank Age (AGE)	This is the number of years a bank has been incorporated.	Buachoom, 2018

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Source: Prepared by the researcher, 2025.

3.3 Data Sources and Collection

This study employed secondary data, collected from the audited annual reports and accounts of 12 deposit money banks currently listed on the NGX. The data covered a period of 13 years from 2011 to 2023. The period was selected because the Nigerian economy witnessed sporadic improvements during the years, financial sector inclusive. In addition, many codes of corporate governance were issued by different agencies of government to regulate the activities of corporations in different sectors, including those issued by the Securities and Exchange Commission and the Corporate Affairs Commission whose compliance, and the characteristics of the human capital that ensured compliance with the codes, can be measured and studied. So, the period coincided with the years when most financial institutions in Nigeria took the implementation of the codes seriously.

3.4 Data Analysis

Inferential analysis tools including correlation and multiple regression were used to establish the relationships among variables. In addition, econometric tools and tests such as normality test, multicollinearity test, and endogeneity test were conducted. All the analyses were carried out using econometrics analysis package such as *Stata* version 17 and *E-views* version 12. The research objective was achieved through the use of multiple regression to test the efficacy of management team characteristics on financial performance by estimating regression equation showing the effect of management team characteristics on financial performance. The regression model specified in this study was estimated using the generalized method of moments (GMM) estimator through the E-*view* statistical package. This estimator is appropriate where endogeneity condition is violated and the explanatory variables are not strictly exogenous and because this study used balanced panel data obtained from the audited annual reports and financial statements of the individual listed deposit money banks for each of the years covered in this study.

4. Presentation of Results and Discussion

4.1 Preliminary Tests Results

The preliminary tests carried out in this research include multicollinearity test, normality test, endogeneity test and heteroskedasticity test. The tests were carried out to ascertain the

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appropriateness of the techniques used to estimate the models specified to obtain information on the relationship between management team characteristics with the financial performance of the banks. The results of the tests were presented in the subsections that follow.

4.1.1 Multicollinearity Test Results

The multicollinearity test conducted involves the use of the Pearson correlation technique. The analysis was used to compare the correlation coefficients of each of the group of variables such as financial performance indicators, management team characteristics, and bank characteristics, given a threshold of 0.80, as suggested by Gujarati & Porter (2009). The first variable group is the dependent variable, that is, financial performance, proxied by cost of capital, liquidity position, and return on asset. The second variable group contains the explanatory variables (management team characteristics), proxied by management size and management diversity; while the third variable group contains the control variables, which are bank characteristics proxied by banks' size and banks' age.

The existence or otherwise of a multicollinearity problem was tested among the explanatory variables, and control variables to ascertain the possibility of excluding some explanatory variables that are highly correlated with each other from models before estimations are carried out. The results in Table 2 showed that the pairwise correlation coefficients for the variables were all less than 0.8, respectively, which indicated no perfect linearity among the explanatory variables. In other words, multicollinearity problem did not exist.

Table 2: Multiple Correlation Results

Correlation Probability	AGE	COC	FSZ	LIQ	MDV	MGS	ROA
AGE	1.0000						

COC	-0.1139	1.0000					
	.223	-----					
FSZ	0.2071	0.4413	1.0000				
	.026	*.000*	-----				
LIQ	-0.5133	-0.1678	-0.4451	1.0000			
	.000	*.072*	*.000*	-----			
MDV	-0.2782	0.1517	-0.4811	0.1920	1.0000		
	.003	*.104*	*.000*	*.039*	-----		
MGS	0.0539	0.2853	0.0014	-0.0652	0.0439	1.0000	
	.565	*.002*	*.988*	*.487*	*.640*	-----	

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"Moderating and Interacting Effects of Management Team Characteristics on Financial Performance"

ROA	-0.4422	0.0484	-0.2673	0.4818	0.3640	-0.0445	1.0000
	.000	*.606*	*.004*	*.000*	*.000*	*.329*	-----

Source: Author's computations using E-*views* 12 (2025). Figures in italics are levels of significance (Sample: 2011 2023).

4.1.2 Normality Test Results

To ascertain if data series for each variable of interest is normally distributed, the Shapiro-Wilk W-test was employed. The null hypothesis is that the data series is normally distributed across time. The statistical results were presented in Table 3. With p-values greater than 5 percent in each case, all the except cost of capital and bank size data series were normally distributed, respectively. The levels of significance for other variables were lesser than 5 percent hence, the null hypothesis of normality was rejected. This indicated that they failed the normality test and not normally distributed. The mixed results therefore indicated that the OLS estimation technique was not appropriate in estimating models.

Table 3: Normality Results

Variable	Shapiro-Wilk test				Remark
	W	V	*Z*	Prob.	
Coc	0.985	1.794	1.328	.092	Normal
Liq	0.844	18.838	6.669**	.000	Not normal
Roa	0.865	16.235	6.332**	.000	Not normal
Bdl	0.985	1.799	1.334	.091	Normal
Bdv	0.990	1.250	0.507	.306	Normal
Bid	0.953	5.642	3.931***	.000	Not normal
Bsz	0.995	0.608	-1.130	.871	Normal
Mgs	0.962	4.601	3.467***	.000	Not normal
Mdv	0.977	2.715	2.269**	.012	Not normal
Fsz	0.990	1.193	0.401	.344	Normal
Age	0.884	14.011	5.997***	.000	Not normal

** and * are 1 and 5% significant levels.*

Source: Author's computations using *Stata* 17 (2025).

4.1.3 Endogeneity Test Results

This test was carried out to determine the extent of dependence of a variable over its past values that is the possibility of endogeneity problem in the data series of each variable, most importantly the dependent variable of each of the models specified in this study and the Cumby-Huizinga test for autocorrelation was used. This enabled the researcher to obtain information on whether or not the explanatory variables are strictly exogenous. Where the explanatory variables of a model are not strictly exogenous then, serial correlation problem

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exists in the variables and the OLS estimation technique cannot be employed. The data in Table 4 showed that data series for all the variables were autoregressive of higher order, indicating that the variables were not strictly exogenous. The results indicated that serial correlation is present in the variables up to and at the specified lags. Therefore, the results violated one of the assumptions of using the OLS estimation technique.

Table 4: Autocorrelation Results

Variable	AR statistics		Order	Remark
	Chi-square	P-value	(lags)	
Coc	14.647***	.000	AR(3)	Endogenous
Liq	5.041**	.025	AR(10)	Endogenous
Roa	5.276**	.022	AR(7)	Endogenous
Bdl	5.204**	.023	AR(9)	Endogenous
Bdv	6.387**	.012	AR(3)	Endogenous
Bid	4.800**	.029	AR(8)	Endogenous
Bsz	4.817**	.028	AR(5)	Endogenous
Mgs	4.895**	.027	AR(9)	Endogenous
Mdv	4.393**	.036	AR(5)	Endogenous
Fsz	7.724***	.005	AR(6)	Endogenous
Age	7.430***	.006	AR(10)	Endogenous

*** and ** *are 1 and 5% levels of significance.* **Source:** Author's computations using *Stata* 17 (2025).

4.2 Management Team Characteristics and Financial Performance

The researcher used the size and diversity of the management team as management characteristics to achieve objective three of this research. This was to examine the relationship between management team characteristics and financial performance, which was estimated using the GMM regression models earlier specified. The data on management size was obtained by dividing the number of officials, including the CEOs of the banks, by the industry average; while management diversity was measured as the proportion of female officials in the management team to the total number of officials in the team.

The result revealed that management size had a significant positive effect on cost of capital and liquidity. A one-unit increase in the size of the management team led to an increase of about 1 percent and 5.7 units increase in cost of capital and liquidity, respectively. This means that banks with large number of management team experienced higher financial performance, in terms of overall cost of capital and liquidity position of the banks. The results suggested that the inclusion of female officials into the top management level helped in decision-making, drove innovation, expanded customer base, and enhanced reputation, which were ingredients for reducing short-term obligations and indebtedness.

The result on liquidity was consistent with the human capital theory as the inclusion of female officials into the management ensured the attraction of the institutions to external resources that contributed to managerial decisions, planning, and controlling and promoting

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the relationship of the institutions with external stakeholders such as suppliers and potential investors and internal stakeholders like the existing ordinary shareholders. However, the result on cost of capital showed increasing management team size led to high cost of capital. By harnessing the power of diversity in management team, the banks were unable to improve their liquidity position. The results further showed that bank size and bank age had a significant negative effect on two out of the three proxies for financial performance, as evidenced in the coefficients of -0.006 and -0.011 for cost of capital and returns on assets at a 1 percent level of significance, respectively.

The results further showed similar expected trend in lagged dependent variables in the three models, which had significant positive effects on each of the dependent variables at 1 percent level. In addition, the results of Hansen J-statistics of the models were not significant, considering their probabilities that were higher than 5 percent, indicating that the instruments used in the GMM estimations were valid and uncorrelated with error terms. The instrument count for each of the models were 10,10 and 8, respectively for the models, compared to the number of cross sections also supported this position, respectively.

From the results presented in Table 5, it can be inferred that only management team size can be used to explain changes in financial performance, most importantly, cost of capital and liquidity. It is therefore expected that management team size would likely play a higher moderating role in the influence of board attributes on the two measures of financial performance more than it would have on the relationship between board attributes and return on assets, if any.

Table 5: Management Team Characteristics and Financial Performance

	IV	**V**	**VI**
Explanatory Variable	*COC*	*LIQ*	*ROA*
Constant	0.042***	-0.031	0.11
	(.015)	(.160)	(.015)
COC(-1)	0.662***		
	(.060)		
LIQ(-1)		1.010***	
		(.053)	
ROA(-1)			0.453***
			(.057)
MGS	0.007**	0.057*	-0.002
	(.003)	(.032)	(0.003)
MDV	-0.004	-0.217**	0.017
	(.01)	(.108)	(.011)
FSZ	-0.006***	0.001	0.002
	(.002)	(.025)	(.002)
AGE	-0.003	-0.009	-0.011***

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	(.003)	(.042)	(.004)
Observations	144	144	144
No. of cross-sections	12	12	12
Hansen J-stat.	4.165	4.377	3.745
Prob. (J-stat.)	.384	.357	.154
No. of instrument	10	10	8

Note: *** and ** represent 1% and 5% significant level, respectively. Standard error in bracket.
Source: Author's computation using *Eviews* 12 (2025).

4.3 Moderating Effect of Management Team Size and Diversity

Panel VII-IX in Table 6 below was used to report the results of the moderating effect of management team size in the relationship between board attributes and the three measures of financial performance. The results showed improved estimates on the relationship between board independence and board diligence on liquidity only. While the significant negative impact board independence on liquidity increased from -0.111 (*P*=.05) in Table 4.10 to -0.152 (*P*=.05) when the model was moderated by management team size. However, the significant negative effect of board diligence on liquidity vanished with the inclusion of management team size in the model as board diligence did not have any significant impact on liquidity position of the banks again. These results therefore indicated that management team size did not play any significant moderating role in the effect of board size, and board diversity on cost of capital and return on assets.

As expected, the models showed that lagged dependent variables in the three models had a significant positive effect on each of the dependent variables at 1 percent level. Hansen J-statistics of the models were also insignificant, given their probabilities that were higher than 5 percent. This indicated that the instruments used in the GMM estimations were valid and uncorrelated with error terms. The instrument count of 12, 12, and 10 for each of the models, compared to the number of cross sections also supported this position.

The results in Panel X-XII were on the moderating effect of management team diversity in the relationship between board attributes and the three measures of financial performance. The results showed improved estimates on the significant effect of board diversity on cost of capital, from -0.019 (*P*=.01) reported in Table 4.10 to -0.021 (*P*=.01) in Table 6; increased significant effect of board diligence on liquidity from -0.042 (*P*=.01) in Table 4.10 to -0.057 (*P*=.116) in Table 4.11a; and a reduction in the significant effect of board independence on liquidity from -0.111 (*P*=.05) reported in Table 4.10 to -0.109 (*P*=.05) in Table 6.

In addition, given the inclusion and significant positive impact of management team diversity on liquidity and return on assets, board size now had a significant negative effect of -0.010 (*P*=.10) compared the insignificant result obtained in the unmoderated model results reported in Table 4.10. With increase in management team diversity, the effect of an increase in board independence led to increased reduction in return on assets from -0.008 (*P*=.10) recorded in Table 4.10 to -0.009 (*P*=.10) in Table 4.11a. These results therefore indicated that management team diversity played a significant moderating role in the effect of all the board attributes on financial performance though, the role was played differently and to different measures of financial performance.

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The results further showed that lagged dependent variables in the three models had a significant positive effect on each of the dependent variables at 1 percent level. Hansen J-statistics of 2.471 (*P*=.116), 1.088 (*P*=.297), and 1.405 (*P*=.495) for cost of capital, liquidity and return on assets models, respectively showed that the statistics were insignificant because they were higher than 5 percent. This indicated that the instruments used in the GMM estimations were valid and uncorrelated with error terms. The instrument count of 10, 10, and 11 for each of the models, respectively, which were lesser than the number of cross sections on which data were collected, also supported this position.

Table 6: Moderating Effect of Management Team Characteristics

	VII	**VIII**	**IX**	**X**	**XI**	**XII**
Variable	*COC*	*LIQ*	*ROA*	*COC*	*LIQ*	*ROA*
Constant	0.043***	-0.076	0.021	0.055***	-0.138	0.019
	(.015)	(.187)	(.016)	(.015)	(.148)	(.015)
COC(-1)	0.618***			0.641***		
	(.062)			(.063)		
LIQ(-1)		0.894***			0.813***	
		(.063)			(.044)	
ROA(-1)			0.448***			0.434***
			(.059)			(.058)
BSZ	0.001	-0.128	-0.007	0.001	-0.038	-0.010*
	(.003)	(.085)	(0.006)	(.003)	(.060)	(.006)
BID	-0.001	-0.152**	-0.008*	0.001	-0.109**	-0.009*
	(.004)	(.060)	(.005)	(.005)	(.052)	(.005)
BDL	0.002	-0.010	-0.001	0.002	-0.057***	0.001
	(.001)	(.022)	(.002)	(.002)	(.016)	(.002)
BDV	-0.019***	0.013	0.001	-0.021***	0.042	-0.003
	(.007)	(.079)	(.007)	(.007)	(.075)	(.008)
MGS	0.008***	0.066*	-0.001			
	(.003)	(.038)	(.003)			
MDV				0.012	0.281**	0.021*
				(.011)	(.112)	(.012)
FSZ	-0.006***	-0.006	0.002	-0.006***	-0.047*	0.001
	(.002)	(.032)	(.002)	(.002)	(.024)	(.002)
AGE	0.001	0.132	-0.009**	-0.001	0.112**	-0.006
	(.004)	(.109)	(.004)	(.004)	(.043)	(.002)
Observations	144	144	144	144	144	144
No. of firms	12	12	12	12	12	12
Hansen J-stat.	4.971	3.378	1.180	2.471	1.088	1.405

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Prob. (J-stat.)	.174	.337	.277	.116	.297	.495
Instrument	12	12	10	10	10	11

Note: ***, ** represent 1% and 5% significant levels respectively. Standard errors are in parenthesis ().
Source: Author's computations using *E-views* 12 (2025).

4.4 Interacting Effects of Management Team Size and Diversity

In Table 7, the results in Panel I-IV showed the effect of management team size when interacted with all the four board attributes on cost of capital while the results in Panel V-VIII showed the effect of management team diversity when interacted with board attributes on cost of capital. The results showed that management team size did not only have a significant positive effect on cost of capital, its interaction with board diversity (coefficient=-0.057, P=.10) and board size (coefficient=-0.031, P=.01) led to a reduction in cost of capital at 10 and 1 percent level of significance, respectively. These results indicated that an increase in management team size significantly contributed negatively to the relationship of board diversity and board size to financial performance of the listed banks by ensuring that the banks made strategic decisions on their external sources of funds, based on the cost of capital attached to them.

The results in Panel V-VIII of the table also showed that the interaction of management team diversity with board diversity (coefficient=-0.128, *P*=.05) led to a significant reduction in cost of capital at 5 percent level of significance. However, its interaction with board size (coefficient=-0.194, *P*=.10) produced a significant positive effect on cost of capital at 10 percent level of significance. So, while an increase in management team diversity contributed negatively to the impact of board diversity on cost of capital, an increase in the variable however contributed positively to the impact of board size on cost of capital. So, increasing management team diversity where board size was already large, was detrimental to financial performance for the banks, especially cost of capital.

Considering the lagged dependent variables, a consistent significant positive effect on the dependent variable in the three models was found at 1 percent significance level. Hansen J-statistics also indicated values that were insignificant based on the probabilities of the models, which were higher than 5 percent. The instrument count was lesser than the number of cross sections on which data were collected, which indicated that the instruments used in the GMM estimations were valid and uncorrelated with error terms.

Table 8 provided statistics showing the effect of the independent (board attributes) and moderating (management team characteristics) variables on liquidity position of the banks during the period 2011-2023, as contained in Panel IX to XVI. The results in Panel IX-XII showed that management size significantly and negatively contributed to the influence of board independence (coefficient=-0.340, t=6.11) and the influence of board diversity (coefficient = -0.361, t=2.87) on liquidity position of the banks during the period under consideration. However, the moderating variable did not have any significant effect on the influence of board size and board diligence on liquidity position.

The results obtained for management team diversity as a moderator followed similar trend by showing a significant moderating effect on only two independent variables, that is board diversity and board size. The data presented in Panel XIII-XVI revealed that management team diversity significantly contributed both negatively and positively to the influence of board diligence (coefficient=-0.337, t=-1.98) and board size (coefficient=0.796, t=3.86) to liquidity position of the sampled banks. The results therefore suggested that an increase in management team diversity, given an increase in board

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diligence, led to a significant negative reduction in liquidity while an increase in the moderating variable, given an increase in board size led to a significant increase in liquidity of the banks.

As expected, the lagged dependent variables, showed a consistent significant positive effect on the dependent variable in all the models, which was found significant at 1 percent level. Hansen J-statistics also indicated values that were insignificant based on the probabilities of the models, which were higher than 5 percent. The instrument count was lesser than the number of cross sections on which data were collected, which indicated that the instruments used in the GMM estimations were valid and uncorrelated with error terms.

In Table 9, the data in Panel XVII-XXIV showed results on the moderating effect of management team size and diversity on the relationship between board attributes and return on assets. Examining the moderating effect of management team size, the results showed that an increase in the moderating variable led to a significant positive influence of board diligence (coefficient = 0.035, t-stat. = 1.98) but a significant negative influence of board diversity (coefficient = -0.031, t-stat. = -1.94) on return on assets. Whereas, the interaction of management team size with board independence and board size did not lead to any significant influence of the dependent variable.

In addition, the results further revealed that management team diversity had lesser effect on the influence of the four board attributes on return on assets as the interaction of the moderating variable led to only a significant influence of board diversity (coefficient = -0.128, t-stat. = -1.97) on return on assets. This means that increasing management team diversity given an already increased number of independent directors, board diligence and board size did not lead to any significant influence on return on assets of the banks during the periods whereas, increasing the diversity of management team where the diversity of board members is already high contributed negatively to return on assets.

Lagged dependent variables for all the models showed a consistent significant positive effect on the dependent variable (return on assets) at 1 percent significant level. The results mean that past values of return on assets affected current values. Hence, past values of the variable can be used to predict current value, indicating persistence in behaviour of the banks with regard to return on assets. The estimates on the lagged dependent variable also showed time-invariant omitted variables that could bias the results and unobservable heterogeneity were properly controlled. The results showed that the dynamic effects are very strong, considering the magnitudes of the coefficients of the lagged dependent variables. Again, Hansen J-statistics indicated values with probabilities higher than 5 percent. The instrument count of 12, 11, 11 and 11, respectively for the four models was lesser than the number of cross sections, indicating that the instruments used in estimation were valid and uncorrelated with error terms. As an inference, the estimates obtained from the panel regression models showed that with the increased management team size and management team diversity; all the board attributes exerted a significant influence on cost of capital, liquidity and return on assets differently during the period. Therefore, the significant influence of board attributes (board size, board diligence and board diversity) was contingent on the changes in the size and diversity of management team of the banks.

Finally, consistent with contemporary studies on interaction terms in regression models such as Tchamyou and Asongu (2017), Asongu (2020b) and Nakpodia *et al.* (2024), the net effects of board attributes were computed to assess the incidence of the two management team characteristics (size and

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diversity) in modulating the effects of board attributes on the three measures of financial performance. For example, in Panel IV of Table 7, the net effect of management team size in modulating the effect of board size on cost of capital was -0.364 = [(-0.031*13.622) + 0.058].

In this computation, 13.622 was the average (mean) value of board size for all the banks sampled during the period covered by this study; -0.031 was the conditional effect from the interaction between board size and management size; while 0.058 was the unconditional effect of board size on cost of capital. The net effects were not computed for the other three panels because both the conditional and unconditional effects of the independent variables were not significant.

Similar procedure was adopted to obtain the net effects presented in Tables 7 -9 where the conditional, unconditional and net effects were -0.337, 0.325, and -0.725, respectively in Panel XV of Table A2; 0.796, -0,432, and 10.411, respectively in Panel XVI of Table 8; and 0.035, -0.059 and 0.146, respectively in Panel XVIII of Table 9. NA – not applicable, which means that at least, one estimated coefficient needed to compute net effects was not significant. The motivation for using different measures of financial performance was reflected in the differences in the magnitude and sign of the conditional, unconditional and net (total) estimated coefficients shown in Tables 7 - 9.

The effect of lagged dependent variables for all the models estimated were consistently significant with positive sign, indicating inertia in the effect of past values of each of the three measures of financial performance at low level (1 percent) of significance. The estimates on the lagged dependent variable also showed time-invariant omitted variables that could bias the results and unobservable heterogeneity were properly controlled given the high values obtained on the dynamic effects of the lagged dependent variables. Again, Hansen J-statistics indicated values with probabilities higher than 5 percent. The instrument counts for the all the models were lesser than the number of cross sections, indicating that the instruments were valid and uncorrelated with error terms.

Notably. the estimates obtained from the panel regression models showed that there was a negative net effect from the role of management team size in modulating the effect of board size on cost of capital while there was a positive net effect from the relevance of management team diversity in moderating the effect of board size on liquidity positions of the banks. Again, there was a negative net effect from the role of management team diversity in modulating the effect of board diversity on liquidity while a positive net effect from the role of management team size in moderating the effect of board diligence on return on assets was found.

5. Discussion

The panel regression results on the relationship between management team characteristics and financial performance showed that management team size had a significant positive effect on cost of capital and liquidity. However, management diversity had a statistically significant negative effect on liquidity position. These results implied that a higher level of gender diversity in management team led to a lower liquidity position (high liquidity risk) and a higher management team size led to a higher cost of capital and higher liquidity (low liquidity risk) during the period of investigation. Findings further provided that diversity in the management team had a significant positive effect on financial performance and was capable of driving liquidity and increased return on assets. The findings further showed that management size and diversity acted as a catalyst that moderated the relationship

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between board attributes and financial performance by influencing decision-making, stakeholders' trust, and compliance with ethical codes, regulations, and guidelines.

Using management team characteristics (size and diversity) as a moderating variable provided evidence that indicated a marginal increase in the significant effect of management team size on cost of capital from 0.007 at 5 percent level of significance to 0.008 at 1 percent level of significance; and an increase in its significant effect on liquidity from 0.057 to 0.066 at 10 percent level of significance. These changes in the effects of the two management team characteristics led to a significant change in the effect of board independence on liquidity position of the banks during the period under consideration, from -0.111 to -0.152 at 5 percent level of significance.

Furthermore, more improvement was detected in the moderating role of management team diversity as the moderator had a significant positive effect on liquidity and return on assets. These positive results made it to have a marginal reduction in the significant effect of board independence on liquidity from -0.111 to -0.109 at 5 percent level of significance and on return on assets from -0.008 to -0.009 at 10 percent level of significance as well as an increase in the significant negative effect of board diligence on liquidity from -0.042 to -0.057 at 1 percent level of significance.

The interaction of the two management team characteristics led to better performance of explanatory variables as they revealed improved significant effects (positive and negative) on the 3 measures of financial performance with higher explanatory power as indicated by the coefficients of each explanatory variable. Results showed that management team size had a significant influence on how corporate governance practices, especially board attributes were implemented and monitored to drive financial performance of the banks during the period. The results showed that larger management teams offered advantages in terms of their expertise and specialized oversight.

In addition, the interaction of management team diversity with board diversity produced a significant negative effect on cost of capital, which indicated the importance of gender diversity in both management team composition and board of directors' composition. While increasing management team diversity when board diversity had beneficial effect to the banks by reducing their costs of capital, similar conclusion could not be reached with increasing management team diversity when board size was already high because this led to a significant increase in overall cost of capital. This implied that the boards of most of the banks with large board sizes were composed of directors who own large number of shares, which led to high dividend payment and hence, increased overall cost of capital. So, increasing management team diversity did not make board size to provide a significant beneficial effect to the banks by reducing their costs of capital hence, the potential advantage offered by high management team diversity was lost.

It was a priori expected that the combining (net) effect of management team size and board size would lead to a reduced cost of capital to the selected banks as the effect of board size on cost of capital was not significant. This theoretical expectation was met as a negative net effect of board size, given a value of management team size, was established. This demonstrated the efficacy of management team size moderating the effect of board size on cost of capital, which was found to be beneficial to the banks by reducing their cost of capital. Similar net effect was proposed for the combination of management team diversity and board diversity, which was surprisingly found to be negative; management team diversity and board size, which was positive; and management team size and board diligence, which was also found to be positive in this study.

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Using liquidity as a measure of financial performance produced different results for the interaction of management team size with board attributes while the interaction of management team diversity led to similar trend when cost of capital was used as a measure of financial performance (See Table A2). Increasing management team size when board independence and board diligence were high led to a significant reduction in liquidity. The results demonstrated the importance of independent directors and diligence of a board in term of meetings over the size of the management team for a bank that needs to improve on its liquidity position even though the two sources of human capital were very important to the financial performance of a firm according to Olajire, *et al.* (2018). No significant effect of interacting management team size with board diversity and board size was detected.

The results in Table A2 further showed that increasing management team diversity given an increase in board diversity and board size led to a significant reduction and increase in liquidity, respectively. This indicated increasing both the diversity of the management team and the board at the same time produced detrimental effect on the liquidity position of the banks while increasing management team diversity and board size the same time improved liquidity positions of the banks during the period considered in this study. On the other hand, the effect of increasing management team diversity when there is increase in board independence and board diligence did not lead to any significant effect on liquidity of the banks. This also demonstrated the importance of the two board attributes over management team diversity.

Whereas, combining effect of management team diversity and board diversity was expected to produce improved liquidity. However, low level of liquidity that is, high level of liquidity risk, was found. The lack of adequate gender diversity in board composition earlier found in this study could be responsible for this result, which demonstrated the need for actionable policies to be implemented simultaneously for board diversity to have a net effect on liquidity and for management team diversity to have a significant modulating effect on the effect of board size on the liquidity positions of the banks.

With respect to return on assets as a measure of financial performance of banks, the results reported in Table A3 showed that increasing management team size when board diligence was already high led to a significant positive effect on the measure of financial performance. This indicated the importance of the size of management team in enhancing the impact of board diligence on return on assets of the selected banks. On the other hand, the interaction of management team size with board diversity led to a significant reduction in return on assets, which means that increasing the management characteristic when board diversity was high was counterproductive because it led to a decrease in returns on investment. This could have been caused possibly by low quality of management team member or unnecessary increase in size, which did not add any incremental value to management decisions, which might have led to increased return on investments.

Furthermore, management team diversity, when interacted with board diversity, had a significant negative effect on return on assets. This means that increasing the diversity of management team when board diversity is increased could be detrimental when the financial performance focus of a bank was on return on assets. Whereas, increasing management team diversity when there was increase in board independence, board diligence and board size did not produce any significant effect on return on assets of the banks during the period considered in this study. So, for these board attributes, management team diversity failed to moderate their influence on return on assets.

To obtain information on the combined effect of board diligence and management team size, the researcher examined the total effect of board diligence and its interaction with management team size on return on assets. Though, unconditional effect of board diligence on return on assets was found

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to be significantly negative, it had a significant positive conditional effect on the dependent variable, given a value of management team size. The combining (net) effect of management team size and board diligence was also found to be positive, as *a priori* expected. The result therefore demonstrated the efficacy of management team size in modulating the effect of board diligence on return on assets.

6. Conclusion and Recommendation

This study investigated the efficacy of the influence of management team on corporate governance mechanisms in predicting the financial performance of listed banks in Nigeria. The study employed dynamic panel models to examine the influence of four board attributes (size, independence, diligence, and diversity), management team characteristics (size and diversity), and two control variables (firm size and firm age) on financial performance, measured by the cost of capital, liquidity, and return on assets. These variables were selected and included in models based on the postulates of the agency theory and human capital theory.

The data series collected on each variable were sourced from the annual audited accounts and reports of 12 purposively selected listed banks over the years 2011 to 2023. The data were then analyzed using descriptive tools such as mean and standard deviation and panel regression techniques. The study employed the generalized method of moments (GMM) technique to estimate panel regression models after testing for normality, multicollinearity, heteroscedasticity and endogeneity problems.

The findings further showed that management size and diversity acted as a catalyst that moderated the relationship between board attributes and financial performance by influencing decision-making, stakeholders' trust, and compliance with ethical codes, regulations, and guidelines. The finding was also consistent with human capital theory as an increase in management size and gender diversity was beneficial to corporate governance mechanisms that drive financial performance. In light of these findings, this study concluded that effective boards, coupled with a diverse and sizeable management team, were pivotal in driving positive financial outcomes of listed banks in Nigeria. These insights provided valuable guidance for regulations and listed banks seeking to enhance their financial performance through strategic governance and management practices.

The results and conclusions have important implications for policymaking and financial performance. They also have implications for social change since the management and investors need to reduce inadequacies in the way that the affairs of the banks are conducted. The results contributed to a greater understanding of the moderating role that management team characteristics played in the relationship between board attributes and financial performance, as well as the fact that both management size and management diversity might have both positive and negative impacts on financial performance. Again, they contributed to the realization of the necessity of stringent laws, and guidelines, as well as the oversight function of the board of directors over the activities of the managers of the banks.

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The negative net effect from the role of management team size in modulating the effect of board size on cost of capital was an indication to the banks with low level of management team size and board size to take full advantage of beneficial effect of increasing the size of their boards relative to the maximum of 20 directors stipulated by Law and management team, to be composed of management experts with vast experience in the financial sector, especially deposit money banks and the Nigerian economy at large as this step could lead to reduction in their costs of capital. Similar position should be taken by banks with low level of board diligence by ensuring regular board meetings where vital policy directions on efficient utilization of resources would be deliberated and provided to the management for implementation to deliver high return on investments.

For any financial institution, liquidity risk is very germane to its survival and sustainable performance. A financial institution whose goal is to maximize its liquidity position to reduce its liquidity risk should increase its management size and improve its corporate governance practices in the area of size, independence, diligence, and gender diversity of their boards. It is also important for banks, which desire high return on assets to have management team size that is capable of making quality decisions for the progress of the banks, attracting more customer base, and being efficient in resource utilization. This is because with increased management team size return on assets as a measure of financial performance improved during the period.

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Appendix

Table 7: Interacting Effects of Management Team Characteristics on Cost of Capital

	Management Team Size (MGS)				Management Team Diversity (MDV)			
	I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**
Constant	0.047***	0.036***	0.062***	0.112***	0.054***	0.063***	0.059***	0.110***
	(.014)	(.016)	(.018)	(.021)	(.015)	(.016)	(.019)	(.034)
COC(-1)	1.238***	0.665***	0.698***	0.612***	0.641***	0.656***	0.603***	0.623***
	(.141)	(.071)	(.076)	(.064)	(.063)	(.064)	(.078)	(.081)
BSZ	-0.017*	-0.012	-0.001	0.058**	0.002	0.001	0.020*	-0.026
	(.009)	(.012)	(0.007)	(.022)	(.006)	(0.006)	(0.011)	(0.023)
BID	-0.006	-0.010	0.010	-0.001	0.003	-0.001	0.018**	0.014
	(.044)	(.010)	(.007)	(.005)	(.013)	(.005)	(.009)	(.009)
BDL	0.001	0.009	0.001	0.002	0.001	-0.005	-0.002	-0.004
	(.002)	(.009)	(.002)	(.001)	(.002)	(.004)	(.002)	(.003)
BDV	-0.052**	-0.011	0.084	-0.022***	-0.021***	0.023***	0.008	-0.014
	(.025)	(.012)	(.058)	(.008)	(.007)	(.007)	(.016)	(.010)
MGS	0.003	0.017**	0.021***	0.029***				
	(.016)	(.007)	(.007)	(.008)				

IJO -INTERNATIONAL JOURNAL OF BUSINESS MANAGEMENT
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MDV					0.017	-0.028	0.018	-0.154*
					(.024)	(.028)	(.022)	(.085)
BIDMGS	0.003							
	(.024)							
BDLMGS		-0.003						
		(.005)						
BDVMGS			-0.057*					
			(.031)					
BSZMGS				-0.031***				
				(.012)				
BIDMDV					-0.010			
					(.046)			
BDLMDV						0.025		
						(.016)		
BDVMDV							-0.128**	
							(.064)	
BSZMDV								0.194*
								(.106)
FSZ	-0.002	-0.007*	-0.003	-0.006***	-0.007***	-0.006**	-0.001	-0.001
	(.004)	(.004)	(.002)	(.002)	(.002)	(.002)	(.004)	(.004)
AGE	0.001	0.022	-0.006	0.002	-0.001	0.001	-0.032**	-0.038**
	(.006)	(.016)	(.006)	(.004)	(.004)	(.004)	(.015)	(.018)
Net effect	NA	NA	NA	-0.364	NA	NA	NA	NA
Observations	144	144	144	144	144	144	144	144
No. of firms	12	12	12	12	12	12	12	12
J-stat.	2.209	5.269	4.984	4.411	2.846	3.749	0.720	1.403
Prob.(J-stat.)	.331	.072	.173	.220	.241	.153	.396	.236
Instrument	11	11	12	12	12	12	11	11

Table 8: Interacting Effects of Management Team Characteristics on Liquidity (LIQ)

	Management Team Size (MGS)				**Management Team Diversity (MDV)**			
	IX	**X**	**XI**	**XII**	**XIII**	**XIV**	**XV**	**XVI**
Constant	-0.242	-0.682	0.168	0.074	0.124	0.162	0.138	0.533***
	(.239)	(.473)	(.288)	(.324)	(.152)	(.159)	(.173)	(.200)
LIQ(-1)	0.815***	0.829***	0.747***	0.816***	0.807***	0.812***	0.701***	0.801***
	(.045)	(.052)	(.059)	(.046)	(.046)	(.044)	(.094)	(.043)
BSZ	-0.012	0.055	0.011	-0.041	0.044	0.035	0.144	-0.432**
	(.061)	(.082)	(0.071)	(0.393)	(0.062)	(0.061)	(0.120)	(0.176)
BID	-0.500	-0.135**	-0.152**	-0.115**	-0.059	-0.111**	-0.048	-0.130**
	(.366)	(.061)	(.073)	(.053)	(.135)	(.052)	(.071)	(.051)
BDL	-0.038**	0.571	-0.081***	-0.038**	-0.058***	-0.075	-0.094***	-0.064***

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	(.016)	(.359)	(.025)	(.016)	(.017)	(.046)	(.036)	(.016)
BDV	-0.020	0.045	0.554	-0.016	0.043	0.037	0.325*	0.072
	(.072)	(.090)	(.676)	(.073)	(.075)	(.076)	(.180)	(.074)
MGS	0.217*	0.488*	0.114	0.022				
	(.011)	(.027)	(.097)	(.143)				
MDV					-0.190	-0.391	-0.128	-0.502***
					(.252)	(.288)	(.020)	(.044)
BIDMGS	-0.340*							
	(.020)							
BDLMGS		-0.361*						
		(.023)						
BDVMGS			-0.336					
			(.365)					
BSZMGS				-0.011				
				(.021)				
BIDMDV					-0.198			
					(.490)			
BDLMDV						0.069		
						(.165)		
BDVMDV							-0.337*	
							(.075)	
BSZMDV								0.796***
								(.063)
FSZ	0.027	-0.016	0.044	-0.031	0.046*	0.048*	0.113**	0.047*
	(.024)	(.029)	(.029)	(.024)	(.025)	(.025)	(.055)	(.024)
AGE	-0.073*	-0.062	-0.214***	-0.064	-0.116**	-0.110**	-0.378*	-0.148***
	(.043)	(.049)	(.069)	(.044)	(.045)	(.044)	(.209)	(.044)
Net effect	NA	NA	NA	NA	NA	NA	-0.725	10.411
Observations	144	144	144	144	144	144	144	144
No. of firms	12	12	12	12	12	12	12	12
J-stat.	0.953	0.452	5.669	5.500	0.196	2.739	0.197	1.038
Prob.(J-stat.)	.621	.798	.059	.064	.658	.254	.657	.308
Instrument	12	12	12	12	11	12	11	11

Note: ***, ** and * represent 1%, 5% and 10% significant level, respectively. Standard error in bracket.

Table 9: Interacting Effects of Management Team Characteristics on Return on Assets (ROA)

	Management Team Size (MGS)				**Management Team Diversity (MDV)**			
	XVII	**XVIII**	**XIX**	**XX**	**XXI**	**XXII**	**XXIII**	**XXIV**
Constant	0.041*	0.092**	0.055	0.042	0.016	0.013	0.022	0.090**
	(.025)	(.042)	(.034)	(.045)	(.016)	(.019)	(.019)	(.037)

IJO -INTERNATIONAL JOURNAL OF BUSINESS MANAGEMENT

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ROA (-1)	0.444***	0.465***	0.403***	0.427***	0.428***	0.530***	0.304***	0.480***
	(.059)	(.065)	(.075)	(.064)	(.059)	(.108)	(.085)	(.067)
BSZ	-0.080	-0.015*	-0.037*	-0.027	-0.009	-0.028*	0.008	-0.028
	(.006)	(.008)	(0.019)	(0.035)	(0.006)	(0.017)	(0.011)	(0.020)
BID	-0.049	-0.005	-0.013*	-0.011**	0.004	-0.019*	0.007	-0.016***
	(.038)	(.005)	(.007)	(.005)	(.014)	(.010)	(.008)	(.006)
BDL	-0.001	-0.059*	-0.001	0.001	0.001	0.002	-0.004	0.003
	(.002)	(.032)	(.002)	(.002)	(.002)	(.005)	(.003)	(.002)
BDV	0.001	-0.005	0.041	0.001	-0.003	-0.007	0.027	0.002
	(.007)	(.009)	(.026)	(.008)	(.008)	(.010)	(.017)	(.002)
MGS	-0.012	-0.044*	0.025*	0.011				
	(.012)	(.024)	(.013)	(.008)				
MDV					0.042*	0.031	0.027	0.001
					(.025)	(.034)	(.022)	(.051)
BIDMGS	0.002							
	(.021)							
BDLMGS		0.035*						
		(.019)						
BDVMGS			-0.031*					
			(.018)					
BSZMGS				0.007				
				(.018)				
BIDMDV					-0.046			
					(.048)			
BDLMDV						0.008		
						(.024)		
BDVMDV							-0.128*	
							(.067)	
BSZMDV								0.048
								(.072)
FSZ	0.002	0.003	0.002	0.002	0.001	-0.004	-0.008**	-0.011*
	(.002)	(.003)	(.002)	(.002)	(.002)	(.005)	(.004)	(.006)
AGE	-0.008*	-0.008*	-0.005	-0.005	-0.007	0.022	-0.042**	-0.001
	(.004)	(.005)	(.006)	(.005)	(.004)	(.024)	(.004)	(.006)
Net effect	NA	0.146	NA	NA	NA	NA	NA	NA
Observations	144	144	144	144	144	144	144	144
No. of firms	12	12	12	12	12	12	12	12
J-stat.	0.673	5.538	3.942	4.830	5.373	2.990	3.583	0.023
Prob.(J-stat.)	.412	.063	.139	.185	.068	.084	.058	.880
Instrument	11	12	11	12	12	11	11	11

Note: ***, ** and * represent 1%, 5% and 10% significant level, respectively. Standard error in bracket.

IJO -INTERNATIONAL JOURNAL OF BUSINESS MANAGEMENT

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