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Corporate Characteristics, Investments in Human Capital and Financial Performance of Deposit Money Banks in Nigeria

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ABSTRACT

This study examines the mediating role of human capital investment between corporate characteristics and financial performanc of deposit money banks in Nigeria. The study used an ex-post facto design and obtained online secondary data from annual reports (2009 - 2018) of the eight deposit money banks that CBN classified as international banks in Nigeria. Board structure and firm size, considered as the banks' corporate characteristics, were examined in relation to the human capital investment and financial performance. Panel fixed effect regression was performed to test: (i) effect of corporate characteristics on performance, and on human capital investment; (ii) effect of human capital investment on performance; and (iii) the mediation role of human capital investment. The results support all seven hypotheses tested in the study. The study concludes that board structure and firm size have significant positive effect on the financial performance of the banks, and on their human capital investment. Moereover, human capital investment provides a complimentary medition in the effect of board structure and firm size on the banks' financial performance. Theoretically, the study shows that these constructs can be integrated in a model to understand corporate performance. Practically, the study reveals that banks can improve their performance through effective investments in human capital, by way of wages, salaries, training and development, and related benefits. Such will increase the effectiveness and efficiency of human capital and strengthen the banks' capacity to improve performance. Areas for further studies are also highlighted.

Keywords: Banks, Board Structure, Firm Size, Human Capital, Human Capital Investment

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1.0 Introduction

Banks occupy a strategic position in any economy. Effective and consistent performance of the banks matter to the government, business enterprises, individuals and civil society. Inconsistency and outright poor performance of many deposit banks (DMBs) in Nigeria have led to diverse policy and investor reactions. As at 2004, there were as many as eighty-four commercial deposit mony banks in Nigeria, but the Central Bank of Nigeria (CBN) adjudged more than fifty percent as technically bankrupt. The demands of the consolidation reform caused many mergers and acquisitions among the banks, in a bid to beef up the banks and make them internationally competitive. The reform saw only twenty-five DMB surviving as at end of 2005, a decrease of about 70%, and the Federal Government had to take over the management of five. Although the consolidation helped to instill some sanity in the banking sector, the spate of poor performance has not cleared as evidenced by the recent takeover of Intercontinental Bank Plc and Diamond Bank Plc by Access Bank Plc, and the sale and reorganisation of Skyle Bank Plc.

Like any modern economy, the Nigerian economy need a robust banking system to flourish. The banking sector is the custodian and distributor of liquid capital, which facilitates wealth creation, production and consumption. Whatever the nomenclature, banks mobilize savings, advance credits, provide payment platforms for financial settlements, promote financial inclusion, are agents for monetary policy implementation, offer investment avenues, and contribute to societal peace and safety, health, education, culture and tourism. Within the last decade, banks made an average of 4%' contribution to the nation's real gross domestic product. The role of the banks touch every aspect of society and public expectation for their stability, effectiveness and efficiency is high. Beside legal structures, the banks rely on their internal configurations for continuous performance.

Legal provisions require the separation of ownership from management, and indicate the structure of the management with its respective responsibilities. In addition, the law specifies minimum capital requirements, which underscores the banks' asset sizes, for various categories of banks operating in the country. Basically, the responsibility for the corporate performance of the banks rests with the management, defined as the board of directors, who work to create shared values. Thus, the board must make strategic decisions that affect the banks' continued relevance. To what extent these key characteristics (management structure and asset size) matter to the banks' performance has continued to draw research attention. It is, therefore, instructive that the present study contributes to this quest by examining the relevance of board structure and corporate size for the performance of deposit money banks in Nigeria.

As with every business entity, banks leverage on their resources to achieve success. Strategic management explained that the configuration of an entity's resources affects its capacity to explore opportunities, overcome threats, and remain relevant in a competitive economic

landscape (Kazmi, 2008; Barney, 1991). Usually, the banks make investments in and account for these resources in their financials. However, Wright and McMahan (1992) has noted that firms' human capital, which is not capitalised nor so reported in the accounts, is a critical resource that would become more important with hightened competitive environment. Although documented literature on the relationship between the firms' characteristics, investments in human capital, and the corporate performance reveal that there is synergy (Ciftci, Tatoglu, Wood, Demirbag, & Zaim, 2019), Paniaguaa, Rivellesb, and Sapenab (2018) stated that firm characteristics are dynamic in content and context, and the debate around them remains open. This implies the need for more studies to explore the implications of the components of firms' characteristics and their investments in human capital on the corporate performance. This study therefore examines the mediation role of human capital investments in the link between corporate characteristics and firm financial performance.

Specifically, the study would strive to examine the extent that board structure and the banks'asset size affect investments in the banks' human capital, and the extent such investments cause movements in the banks' value. Accomplishment of this study will increase knowledge about the banks' investments in HC and the strategic relevance of such investment to the performance of the banks. The rest of the paper is organized with separate sections on the theoretical foundation, conceptual review and hypotheses development, the methodology, results, discussion of findings, and conclusion.

2.0 Theoretical Foundation

Board structure and size of the firm are two critical factors research and practice evaluates keenly to unravel corporate responses to market dynamics and the outcome of such behaviours. The board represent the highest decision making body of the corporation and stands in agency relationship to the shareholders. What decisions the board make have serious implications for the performance and continued survival of the firm. Literature and politics have tinkered with different features of the board to help improve quality of board influence on corporate performance. At the center of this is the relative objectivity of the board, which is informed by the presence of independent members (Kalyani, Mathur, & Gupta, 2019; Ayodeji & Okunade, 2019). It is an aim of this study to contribute to the evolvement of a robust board and provide further reason for strengthening board independence among deposit money banks in Nigeria.

Scale differences affect firms' behaviour – large firms tend to enjoy substantial economies compared to small firms which content themselves with niches. Firms leverage their assets to explore opportunities in the environment (Porter, 1991), and the size and quality of the assets determine their resilience in the event of shocks (Barney, 1991). Asset size is key to ensuring depositors' confidence in Nigerian deposit money banks, and the banks have been differentiated on the basis of their asset size by CBN. Bank recapitalization and consolidation in Nigeria was engineered by the authorities to improve the asset base of the banks and ensure their strong local and international relevance (Soludo, 2004; Agusto,

2004). By integrating the banks' asset size in a mediated model, this study hopes to provide further justification for policy-driven consolidation of deposit money banks in Nigeria.

Literature has shown a direct link between board structure, asset size and corporate performance. Assets by definition include the human capital which possesses critical uniqueness. As Holmstrom and Tirole (1989) put it, the firm comprises individuals with differing objectives which they may pursue by informational expertise. It is instructive, therefore, that banks make robust investments in their human capital to strengthen commitment to corporate performance. As explained by Schultz (1961), investments in human capital consist of the wages and salaries, health benefits, staff training and development costs, paid study leaves and sponsorship of staff to acquire higher degrees, and relocation costs borne by the firm. Deposit money banks, as business entities, possess human capital, which they develop consistently, and deploy to achieve their strategic objectives. This study therefore aims to add breadth to the explanation of the link between corporate characteristics and performance of deposit money banks in Nigeria.

3.0 Literature Review

3.1 Corporate characteristics

Corporate characteristics are attributes that determine an entity's identity. They are dominant features such as board structure and firm size. According to Paniaguaa, Rivellesb, and Sapenab (2018), corporate characteristics are antecedents of managerial actions, which continue to influence operations of the entity. Board structure is a fundamental feature of corporate management with significant influence on organizational performance (Fama & Jensen, 1983; Becker, 1975). This is evident from the works of Penrose (1959) and Zorn, Sexton, Bhussar, and Lamont, (2017), who explained that managerial capacity is a fundamental constraining factor to firm performance. Aspects of the board that have been considered in studies include the board's composition, experience, key officer qualification, and board size (Ayodeji & Okunade, 2019; Paniaguaa, Rivellesb, & Sapenab, 2018).

Total assets of an organization is a common measure of firm size. Size determines the firm's capacity to explore economies of scale, make strategic decisions and choices that impact it's corporate performance (Zorn, Sexton, Bhussar, & Lamont, 2017; Xiong, Lu, Skitmore, Chau, & Ye, 2016). A rationale for corporate mergers is the consolidation of the assets of the separate companies to achieve immediate growth, improved efficiency, and strong capital base (Shah & Khan, 2017; Sheidu & Yusuf, 2015). Increasing the corporate size of banks in Nigeria informed the regulatory push for banks' recapitalization and restructuring in 2004. Thus, firm size is recognized in literature as one of the corporate characteristics that affects performance. This study therefore follow the prior studies (Ayodeji & Okunade, 2019; Paniaguaa, Rivellesb, & Sapenab, 2018; Zorn, Sexton, Bhussar, & Lamont, 2017) and selected board structure and firm size as corporate characteristics for examination.

3.2 Human Capital Investments

An improved human capital is a basis for

corporate performance. Considerable research interest has been shown on the human capital relevance for corporate performance (Awan & Sarfraz, 2013). Human capital comprises the knowledge, skills, capabilities and other competencies (KSAO) that are developed and deployed to achieve corporate goals (Becker, 1975; Crook, Todd, Combs, Woehr, & Ketchen, 2011). The key competence and relevant behaviours of the workforce contribute to an entity's strategic edge; helps to define impact of people on the business, contributing to shareholders' value, and demonstrating the human resource (HR) activities that produce value for money for the firm. Investments in human capital consists of the wages and salaries, training costs, paid study leaves, sponsorships and allowances for professional qualifications (Schultz, 1961). These investments add short to long term value through the development of key competencies and proficiency in individuals and groups. Firms explore these competencies and more people get to know more of what is useful to the organisation (Choudhury & Mishra, 2010).

Firms invest in their staff training and development, and encourage the staff to also enhance their capabilities through self-development. This investment is manifest in the expenditures the banks make and report in their financial statements as personnel costs, encompassing training and development, salaries and wages, pension contributions, health and personnel safety. It is expected that staff spend off their salaries and wages to acquire further general and job-specific training, in addition to what is availed themby the firm. These investments add value to create superior long-term economic benefit and strengthen the financial performance of the banks.

4.0 Conceptual Review and Hypotheses Development

4.1 Corporate characteristics and performance

The character of a firm affects the strategic choices that it makes and determines its performance (Singh, Tabassum, & Darwish, 2017; Annunziata, Pucci, Frey, & Zanni, 2017; Zorn M. L., Sexton, Bhussar, & Lamont, 2017; Ciftci, Tatoglu, Wood, Demirbag, & Zaim, 2019; Kalyani, Mathur, & Gupta, 2019). Elements of corporate characteristics relevant for firm's performance are board structure (Abu, Okpeh, & Okpe, 2016; Musa, Abdulrasheed, & Umar, 2020) and size (Uniamikogbo, Okoye, Adeusi, & Aggreh, 2020), which have been examined in diverse studies to assess their direct effects on performance heterogeneity. Capon, Farley, and Hoenig (1990) show that there is positive and significant links between growth in assets and revenue, market share and capital investment intensity, which have strong influence on firm performance, and that firm size is significant at the industry level. Zorn, Sexton, Bhussar, and Lamont (2017) reported that corporate complexity affects financial performance for the firms.

In their study, Kalyani, Mathur, and Gupta (2019) found that board structure significantly affects performance. Similarly, Singh, Tabassum, and Darwish (2017) found three board elements - size, committes, and ownership to be positively related to the performance of firms in Pakistan. Examining

firms' social performance, Macaulay, Richard, Peng, and Hasenhuttl, (2017), revealed that board structure affects firms' social performance; following the stakeholder theory, board structure has a high predictive relevance for performance. In their part, Ayodeji and Okunade (2019) found board independence to be significantly related to banks' financial performance in Nigeria. This shows that it is pertinent to consider board structure and firm size as pertinent corporate characteristics affecting financial performance.

H1a: Board structure does not significantly affect deposit money banks' financial performance in Nigeria.

H1b: Firm size does not significantly affect deposit money banks' financial performance in Nigeria.

4.2 Corporate characteristics and human capital investment

Firm characteristics determine employment of human resources and the organisational commitment to develop and utilize human capital assets. As Wright and McMahan (1992) posited, with hightened competitive environment, firms' human resources become more important. Business strategies and corporate competitive behaviours then focus more keenly on the domain of human resources management – human resource practices, human capital pool, specifications of appropriate human capital behaviours and these decisions' effectiveness. The seminal work of Huselid (1995) buttressed this corporate competitive stance on managerial practices that impact human capital.

Chisadza and Ngandu (2018) found that firm peculiarities influence human resource policies and practices. They explained that firm's size, among other variables play a role in human capital investments and employment outcomes. Studies by Ouimet and Zaruutskie (2014) and Decker, Haltiwanger, Jarmin, and Miranda (2015) found firm age significantly influence corporate human capital investments and utilization. Page and Soderbom (2015) found that firm size affects jobs: there is lower staff turnover and higher wages in large firms than in small firms in South Africa. Similarly, Cieslik, Michalek, and Michalek (2014) and Chauhan (2014) found that firm characteristics matter in their strategic choices and actions. Looking at factors (firms' size and investments in human capital) affecting export performance of organisations, Cieslik, Michalek, and Michalek (2014) found that the likelihood of exporting increases with greater levels of productivity, human capital investments, and firm size.

H2a: Board structure does not significantly affect deposit money banks' investment in human capital.

H2b: Firm size does not significantly affect deposit money banks' investment in human capital.

4.3 Mediating role of human capital investment

Studies in corporate strategies show that human capital significantly determines corporate success and competitive edge. Olusegun, Oluwasayo, Adetunji, and Olomu (2018), showed that effective investment in human capital is a winning business strategy. They pointed out that growing the human capital need not burst the budget, but provides an enhanced competitive advantage. Also, Crook, Todd,

Combs, Woehr, and Ketchen, (2011) show that investments in strategic human capital create enhanced firm performance; and it relates strongly to operational performance. Echoing this assertionm Morris (2015), concluded that strategically relevant capabilities of a workforce is key to commercial success: human capital efficiency improves corporate financial performance by increasing production capacity, improving service delivery, reducing operating costs and leads to more effective resource utilization.

Samagaio and Rodrigues (2016) analysed the connection of auditors' human capital traits and the firms' performance with a view to identifying the mix of human capital relevant for firms' high performance, competitiveness, growth, or profitability. The results show the presence of diverse profitable combinations of human capital attributes, which confirms that human capital plays an important role in the performance of audit firms. According to Shin, Koh, and Lou (2017), firms consider human, structural and relation aspects as important resources for enhancing business performance and competitive advantage. They (Shin, Koh & Lou, 2017) explained that corporate investment in human capital is a strategic choice determined by the corporate board and top management, whose decision integrates the corporate size. These strategic choices have implications for the competitive performance of deposit money banks,

Few studies that explored the relevance of human capital investment for firm financial performance are available in literature. Tasawar (2017) focused on Islamic banks and examined the effect of corporate governance on the banks' investments in their resources which includes human capital. The study found significant positive effect of corporate investments in human capital on the market value of Islamic banks. The study examined the direct relationship of both the human capital investment and corporate governance on market value of the banks. Since human capital is a resource of the banks, the boards' investment strategies affect the banks' investment in their human capital. Thus, the present study hypothesized that:

H3: Deposit money banks' investment in human capital does not significantly affect the banks' financial performance in Nigeria.

H4a: Deposit money banks' investment in human capital has no mediating effect on the link between board structure and financial performance.

H4a: Deposit money banks' investment in human capital has no mediating effect on the link between firm size and financial performance.

5.0 Methodology

5.1 Design of the study

This study used ex-post facto research design and collected secondary data from the banks' published annual reports for the period 2009 to 2018; and the respective share price data from the Nigerian Stock Exchange daily stock prices. The data are the reported financial values in the income statements, statements of financial position, accompanying notes, and related information in the commentaries contained in the published annual reports for the ten years, and the Nigerian Stock Exchange daily stock

prices. Only these secondary data sources were explored for the purpose of this study. The study relied on online sources for the data.

5.2 Population and sample of the study

The study population consists all the deposit money banks which are publicly listed on the Nigerian Stock Exchange (NSE) that have operating branches in all thirty-six states and the Federal Capital Territory of Nigeria, and in foreign countries. Following the classification of the banks by CBN as international, national, regional, merchant banking, and none interesting banking; those banks classified as international constitute the population of this study. This is to ensure consistency and uniformity of data. As at end of 2018, they were nine international banks; however, because of the process of merger between Access Bank Plc and Diamond Bank Plc that commenced early in 2019, annual report of Diamond Bank Plc for 2018 was not readily accessible for purpose of this study. The study therefore used all the remaining eight DMBs in the population as the study sample, culminating to 80 (8banks * 10years) observations.

5.3 Procedure of the study

Fixed effect panel data regression was used to analyse the data: the panel comprised all eight international DMBs in Nigeria. The book value of debt and total assets were obtained from the annual reports. The market prices of the banks equity as at the last trading day in the year were obtained from NSE. The banks' financial performance is then computed as the ratio of market value of equity, plus book value of debts, to book value of total assets (Chung & Pruitt, 1994;Tobin, 1969;Singh, Tabassum, & Darwish, 2017).

Total number of board members and number of non-executive/independent directors are obtained from the complimentary information in the annual reports. Board structure is computed as the ratio of non-executive/independent directors to total number of directors on the Board in the year (Ghosh, 2006; Khan & Awan, 2012). Firm size is determined as the natural log of total assets of the bank (Ali & Ahmed, 2019). Finally, details of the respective staff costs in terms of salaries and wages, training and development costs, medical expenses on staff, pension provisions, and related costs were obtained from the detailed notes accompanying the banks' income statements to determine their human capital investments. The natural log of this sum represents HCIs in the analysis.

Assessment of the mediating role of HCI followed the contemporary approach advanced by Zhao, Lynch, and Chen (2010), and three regression models. Model 1 consists only the independent and dependent variables; model 2 examines the extent human capital investment is affected by the corporate characteristics; and model 3 examines the extent human capital investment affect the dependent variables. These models are subject to the assumptions for regression. The regression models are:

DMB Perf = fn (CCtics: BrdStr, Firm Size; HCInv)

Model 1

$$DMB\ Perfit = \alpha i + \beta i1BrdStrit + \beta i2FirmSizeit + D2 + D3 + D4 + D5 + D6 + D7 + D8 + D9 + D10 + \varepsilon it$$

Model 2

$$HCI\ nv\ it = \alpha i + \beta i3BrdStrit + \beta i4FirmSizeit + D2 + D3 + D4 + D5 + D6 + D7 + D8 + D9 + D10$$

+εit

Model 3

DMB Perfit = αi + βi5HCInvit + εit

Where: DMB Perf = financial performance (dependent variable); αi=constant (intercepts for the cases observed); βi1-5=coefficients (fixed effect measures of independent and mediating variables). BrdStrit = Board structure), and Firm Size = firm size; HCInvit = human capital investment (mediator); i= DMBs t = time period (2009 – 2018). D2-10=time dummy variables: 2009=base year, and is omitted in the models. ε=error term. The measurements of the variables are contained in table 1.

Table 1: Measurements of the Research Variables

S/N	Variables	Measurements	Literature
1	Corporate performance	Ratio of market value of equity, plus book value of debts, to book value of total assets	Chung & Pruitt (1994),Tobin (1969)Singh, Tabassum and Darwish (2017)
2	Board Structure	Ratio of Non-executive/independent directors to total number of directors on Board during the year	Ghosh (2006); Khan & Awan (2012)
3	Firm size	Natural log of total assets of the bank	Ali and Ahmed (2019)
4	Human capital investment	Natural log of total amount of salaries/wages, training expenses, other personnel costs, (excluding all directors' emoluments)	Becker (1975)

5.4 Data analysis

Analysis of the data followed the heteroscedasticity and autocorrelation (HAC) robust estimation method (Arellano, 2003; Cameron & Trivedi, 2005).This process accounts for autocorrelation across the units and heteroscedasticity by the units. The panel exhibits a normal distribution with Chi-square of 31.524 (sig. = 0.0000) and the residuals Q-Q plot display a linear distribution. The distribution is also free from heteroscedasticity according to the Wald test, with Chi-square of 63190.6 and p = 0.000.

The panel was checked for differing group intercepts to assess the null hypothesis that cross-sectional units have a common intercept and the pooled effect model is adequate. The test statistics of F(7, 70) = 13.8955 with P(F(7, 70)>4.89)=0.000, means that the null hypothesis is not supported. That is, the observations are time-invariant with different intercepts: the data is not pool-able (Gil-García & Puron-Cid, 2014) and the fixed effect model is appropriate for the analysis. The regression residuals and scatter plots show satisfactory dependencies and cluttering (central tendency) for the observed cases. There were no collinearity issues, the Durbin-Watson statistics of 1.245727and 1.101232, respectively, are within the lower (DL=1.00) and upper (DU= 2.00) limits. The Wooldridge autocorrelation test in panel data show no autocorrelation among the variables, the rho of 0.320343, 0.330093, and 0.321330 are below 0.50.

6.0 Results

Tables 2, 3and 4 contain the regression results: 2) the direct effect of corporate characteristics on performance; 3) the effect of corporate characteristics on human capital investment;

and 4) the effect of human capital investment on performance. These statistics are examined to test the hypotheses and determine the mediation effect.

Table 2: Corporate characteristics and performance

	Coefficient	*Std. Error*	*t-ratio*	*p-value*
Const	32.2207	14.1728	2.2734	0.02659**
BrdStructure	5.117627	1.49529	3.4225	0.00160***
FirmSize	0.947929	0.334311	2.8355	0.00623***
dt_2	0.23484	0.188974	1.2427	0.21881
dt_3	0.179208	0.132475	-1.3528	0.18120
dt_4	0.853401	0.830707	1.0273	0.30839
dt_5	1.85997	0.760793	2.4448	0.01745**
dt_6	1.36149	0.792868	1.7172	0.09111*
dt_7	0.934859	0.710262	1.3162	0.19311
dt_8	1.19937	0.660144	1.8168	0.07424*
dt_9	1.14783	0.598509	1.9178	0.05990*
dt_10	0.842552	0.480868	1.7521	0.08486*

Mean dependent var	2.736036	S.D. dependent var	1.492124
Sum squared resid	50.06223	S.E. of regression	0.913439
R-squared	0.715375	Adjusted R-squared	0.625243
F(19, 60)	7.937026	P-value(F)	2.84e-10
Log-likelihood	94.76469	Akaike criterion	229.5294
Schwarz criterion	277.1699	Hannan-Quinn	248.6298
Rho	0.320343	Durbin-Watson	1.245727

Fixed-effects, 80 observations.8 cross-sectional units.Time-series length=10. Dependent variable: DMBPerf. Robust (HAC) standard errors

As shown in table 2, the t-ratios for corporate characteristics (Board Structure and Firm Size) are significant at the 95% confidence level. These ratios shows the direct effect of corporate characteristics on the performance. With t-ratio=3.4225 and p-values=0.0016, board structure show significant positive effect on performance of the banks. The null hypothesis (H1a) that board structure does not significantly affect deposit money banks' performance is therefore rejected. The result shows strongly that board structure has significant positive effect on financial performance of DMBs in Nigeria. Similarly, with t-ratio=2.8355 and p-value=0.0062, the result show that firm size displayed significant positive effect on performance. The null hypothesis (H1b) that firm size does not significantly affect performance is therefore rejected. There is strong support that firm size has significant positive effect on financial performance of DMBs in Nigeria. Based on these results, and the F-statistics $F_{(19, 60)}$ of 7.937026), this study shows that corporate characteristics positively and significantly affect financial performance of DMBs in Nigeria; board structure and firm size jointly account for over 62% (adjusted R^2=0.625243) change in the banks' performance during the ten-year period.

Table 3: Corporate characteristics and human capital investment

Fixed-effects, 80 observations. 8 cross-sectional units Time-series length=10. Dependent variable: HCInv. Robust (HAC) standard errors.

	Coefficient	*Std. Error*	*t-ratio*	*p-value*
Const	7.34356	1.25294	5.8611	<0.00001***
BrdStructure	0.310851	0.144865	2.1458	0.02510**
FirmSize	0.034885	0.0107812	3.2357	0.00968***
dt_2	0.00544828	0.0276781	0.1968	0.84460
dt_3	0.0496509	0.0423189	1.1733	0.24525
dt_4	0.144072	0.0674176	2.1370	0.03662**
dt_5	0.219636	0.110912	1.9803	0.05219*
dt_6	0.213908	0.0866854	2.4676	0.01642**
dt_7	0.230097	0.0711838	3.2324	0.00198***
dt_8	0.242434	0.0720512	3.3647	0.00133***
dt_9	0.252848	0.0848744	2.9791	0.00415***
dt_10	0.258392	0.106485	2.4266	0.01821**

Mean dependent var	7.482077	S.D. dependent var	0.224754
Sum squared resid	0.720335	S.E. of regression	0.108668
R-squared	0.819494	Adjusted R-squared	0.766230
F(18, 61)	15.38550	P-value(F)	2.49e-16
Log-likelihood	74.88752	Akaike criterion	111.7750
Schwarz criterion	66.51653	Hannan-Quinn	93.62961
Rho	0.330093	Durbin-Watson	1.101232

size has significant positive effect on DMBs' human capitalinvestment. The null hypothesis (H2b) that firm size does not significantly affect DMBs' human

In table 3, the t-ratios for the components of corporate characteristics (Board Structure and Firm Size) are significant at the 95% confidence level. These ratios show the effect of corporate characteristics on the banks' human capital investment. With t-ratio=2.1458 and p-value=0.02510, board structure shows significant positive effect on HCI. The null hypothesis (H2a) that board structure does not significantly affect DMBs' investment in human capital is therefore rejected. The result strongly shows that board structure has significant positive effect on human capital investment of DMBs in Nigeria. Similarly, with t-ratio=3.2357 and p-value=0.00968, the result show that firm capital investment is therefore rejected. There is strong evidence that firm size has significant positive effect on human capital investment of DMBs in Nigeria. Based on these results, along with the F-statistics $F_{(18,\ 61)}$=15.38550, p-value=0.0000), this study shows that corporate characteristics positively and significantly affect human capital investment of DMBs in Nigeria; board structure and firm size jointly account for over76% (adjusted R^2=0.766230) change in the banks' human capital investment during the ten-year period.

Table 4: Human capital investment and performance

	Coefficient	*Std. Error*	*t-ratio*	*p-value*
Const	12.3503	9.41624	1.3116	0.19388
HCInv	3.28498	1.25851	2.6102	0.03107**
Mean dependent var	2.736036	S.D. dependent var		1.492124
Sum squared resid	73.59591	S.E. of regression		1.018117
R-squared	0.581576	Adjusted R-squared		0.534429
F(8, 71)	12.33553	P-value(F)		6.77e-11
Log-likelihood	-110.1776	Akaike criterion		238.3552
Schwarz criterion	259.7934	Hannan-Quinn		246.9504
Rho	0.321330	Durbin-Watson		1.204571

Fixed-effects, using 80 observations. Included 8 cross-sectional units

Time-series length = 10. Dependent variable: DMBPerf. Robust (HAC) standard errors

The result in Table 4c shows that human capital investment of the banks have significant positive effect on their performance in the period of this study. With t-ratio of 2.6102 and p-value=0.03107, the null hypothesis (H3) that human capital investment by DMBs in Nigeria has no significant effect on the banks' performance is rejected. The study shows that human capital investment of DMBs in Nigeria has significant positive effect on the banks' performance. Based on this result, along with the F-statistics ($F_{(8, 71)}$=12.33553, p-value=0.0000), this study shows that HCI positively and significantly affect financial performance of DMBs in Nigeria, and this accounts for over 53% (adjusted R^2= 0.534429) changes in the banks' performance during the period.

The mediation role of HCI is determined using relevant statistics in tables 2, 3 and 4 as in Figures2 and 3.

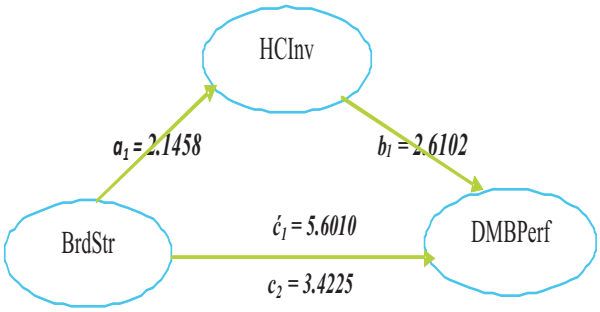

Figure 2: Mediation – Board Structure, Human Capital Investment& DMB Performance

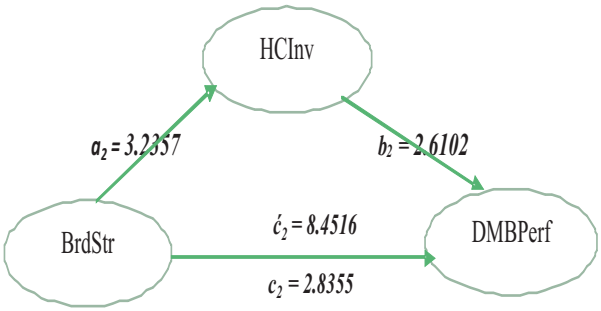

Figure 3: Mediation – Firm Size, Human Capital Investment & DMB Performance.

Using the contemporary mediation approach provided by Zhao, Lynch, and Chen (2010), and highly supported by Kim, Cui, Jang, Park, and Spence (2019); Kim, et al. (2018); and Aguinis, Edwards, and Bradley (2016), the study computes the mediation effect of HCI as the indirect effects ($C_1$and C_2) in figures 2 and 3, respectively. [NB: the values for a_1, b_1, c_1, a_2, b_2, and c_2 are the t-ratios of the respective variables as in tables 2, 3 and 4, respectively]. The indirect effect representing the mediation with board structure, is C_1 = 5.6010 (i.e. a_1 * b_1 or 2.1458 * 2.6102). Thus, the indirect effect is significant in addition to a significant direct effect (C_1=3.4225). The study, therefore, rejects the null hypothesis (H4a) that deposit money banks' human capital investment has no mediating effect on the link between board structure and banks' financial performance. Deposit money banks' human capital investment has complimentary mediating effect on the link between board structure and banks' financial performance.

The indirect effect representing the mediation in Figure 3 for firm size, is C_2=8.4516(i.e. a_2 * b_2 or 3.2357 * 2.6102). Thus, the indirect effect is significant in addition to a significant direct effect (C_2=2.8355). The study, therefore, rejects the null hypothesis (H4b) that deposit money banks' human capital investment has no mediating effect on the link between firm size and the banks' financial performance. Deposit money banks' human capital investment has a complimentary mediating effect on the link between firm size and banks' financial performance.

7.0 Discussion of the Results

The results of this study imply that corporate characteristics of deposit money banks in Nigeria affect their financial performance, and their human capital investment play a complimentary role in that relationship. As explained by Annunziata, Pucci, Frey, and Zanni (2017); Ayodeji and Okunade (2019); Kalyani, Mathur, and Gupta (2019); and Ciftci, Tatoglu, Wood, Demirbag, and Zaim (2019), corporate characteristics proxied by board structure and firm size, and human capital investment are key to organisations' strategic financial performance. The finding is in line with the conclusions of Abu, Okpeh and Okpe (2016), and Musa, Abdulrasheed and Umar (2020) that board structure has significant effect on the level of financial performance by deposit money banks in Nigeria. Since this study defined board structure as the relative inclusion of non-executive and independent members on the corporate boards, a robust mix of members in the board improves investors' assessment of the banks. That banks' asset size matter is also demonstrated by this study. This is in support of the works of Zorn, Sexton, Bhussar, and Lamont (2017) and Xiong, Lu, Skitmore, Chau, and Ye (2016), and confirms the rationale for corporate mergers involving consolidation of assets to achieve immediate growth, improved efficiency, and strong capital base (Shah & Khan, 2017; Sheidu & Yusuf, 2015). The finding thus provide explanation for the regulatory push for banks' recapitalization and restructuring in Nigeria .

Apart from having significant direct effect on performance, the banks' characteristics display

strong positive effect on human capital investment. This is in agreement with the studies of Chisadza and Ngandu (2018),Li, (2016), Page and Soderbom (2015), Decker, Haltiwanger, Jarmin, and Miranda (2015), Ouimet and Zaruutskie (2014), Cieslik, Michalek, and Michalek (2014), and Chauhan (2014),who argued that firm characteristics significantly influence corporate human capital investments and utilization. The areas of the banks' investments in human capital are wages and salaries, training, employment costs, health and safety of employees and pension.

The banks' human capital investment was found to exhibit strong complimentary mediation on the effect of the banks' characteristics on performance. This shows that the banks can significantly improve their performance through effective investment in human capital, by way of wages, salaries, training and development, and related benefits. These increase the efficiency and effectiveness of human capital resources, and invariably the corporate capacity to improve its performance in a competitive economy. Although the mediation effect is significant for both dimensions of corporate characteristics, it was stronger for firm size than board structure. In all, the findings show that the effect of corporate characteristics on financial performance of banks is significantly enhanced by their investment in human capital.

The study has followed the criterion for explaining mediation developed by Zhao, Lynch, and Chen (2010), in preference to Baron and Kenny's (1986) classical approach to mediation analysis. The approach adopted by this study is strongly supported by (Kim, Cui, Jang, Park, & Spence, 2019; Zhao, Lynch, & Chen, 2010; Kim, et al., 2018; Aguinis, Edwards, & Bradley, 2016), who argued that the classical approach of Baron and Kenny's (1986) lacked statistical power. The contemporary approach asserts that, if: (i) the indirect effect is significant in the absence of a direct effect, this shall mean an indirect-only mediation; (ii) the indirect effect is significant in addition to a significant direct effect, this shall mean a complimentary mediation; (iii) the indirect effect is significant in addition to a significant direct negative effect, this shall mean a competitive mediation; (iv) direct effect exist, but no indirect effect, this shall mean direct-only non-mediation; and (v) neither direct effect nor indirect effect exists, this shall be no-effect non-mediation. Since this study show that there is both a direct significant and indirect significant effects of corporate characteristics on performance, the study concludes that human capital investment provides a complimentary mediation effect in the link between corporate characteristics and the banks' financial performance.

7.1 Implications of the findings

Practically, the study shows that banks, and other organisations, can improve their financial performance by (i) maintaining a robust mix of board membership, which also is required by the regulating authories and (2) ensuring effective investment in their human capital by way of wages, salaries, training and development, and related benefits, as such commitments increase the effectiveness and efficiency of human capital resources, and invariably the corporate capacity to improve its

performance in a dynamic economic environment.

Unlike other mediation-modeled studies hitherto, this study has followed the contemporary approach to examining medtiation relationships. Prior studies used the Baron and Kenny (1986) methodology, which have been shown (Aguinis, Edwards, & Bradley, 2016; Rungtusanatham, Miller, & Boyer, 2014) to be problematic and liable to truncating promising research endeavours. The present study therefore contributes amply to knowledge about mediation and draws attention to an emerging research arena.

7.2 Limitation and direction for future research

This study has considered only deposit money banks that, on the bases of their asset size and extent of operations, have been classified as international banks by CBN. As such, the other categories of deposit money banks have not been covered in the study. Moreover, the study used two dimensions of corporate characteristics. The extent of internationalisation of operations and the network of branches may have effects on the bank's financial performance. However, the proxies used in this study demonstrated that not only do corporate characteristics have significant effect on performance, but there is complimentary positive mediating role of human capital investment in the link between corporate characteristics and financial performance. Further studies may focus on other categories of banks, or replicate this study by considering the dimensions of corporate characterisitics not covered in the present study. Additionally, further studies may examine the mediating effect of human capital investment in the relationship between corporate characteristics and non-financial performance of deposit money banks in Nigeria.

8.0 Conclusion

This study examined the mediating role of human capital investment in the relation between elements of corporate characteristics (board structure and firm size) and financial performance of deposit money banks in Nigeria. The study examined all banks classified as international banks by the Central Bank of Nigeria as at end of December, 2018. The results of panel data regression analysis performed show that (1) board structure and firm size have significant effects on financial performance of the banks; (2) board structure and firm size determine the banks human capital investment to a significant extent; (3) human capital investment is relevant to banks' financial performance; and (4) the banks' investment in their human capital provides complimentary mediation in the influence of board structure and firm size on financial performance. Thus, banks can improve their financial performance significantly by maintaing a robust board structure, strong asset base and appropriate investment in their human capital.

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