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Moderating Impact of Managerial Ownership on Intellectual Capital and Value of Listed Deposit Money Banks in Nigeria

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Abstract: This study examined the moderating impact of managerial ownership on intellectual capital and firm's value of listed deposit money banks in Nigeria. Ex-post facto research design was adopted to define the structure and strategy of the study, while the target population was all the listed deposit money banks in Nigeria as at 31st December, 2022 which were 14 in number. Out of the 14 banks 11 were purposively chosen based on their complete annual reports and accounts over the period of the study (2012-2022). Panel regression analysis was adopted to analyze the collected data. Thus, the study found a direct positive impact of structural capital efficiency, and innovation capital efficiency on the value of the bank. However, human capital efficiency was found to have negative but significant impact on the value of the banks, while capital employed efficiency revealed positive but insignificant direct impact on the value of the selected banks. Furthermore, managerial ownership was found to have positive and significant moderating impact on structural capital efficiency, human capital efficiency and firms' value, while managerial ownership revealed negative and insignificant moderating impact on innovation capital efficiency and the value of the banks. Therefore, the study concluded that managerial ownership have positive and significant moderating impact on intellectual capital and firms' value of listed deposit money banks in Nigeria. This signifies that, increase in the number of equity share owns by managers and directors would improve banks investment in intellectual capital, hence enhance banks value. Therefore, this study recommends that; in order for listed deposit money banks in Nigeria to maximize firms' value through intellectual capital efficiency, the banks should allow managers to acquire equity shares in the banks.
Keywords: Intellectual capital, Firms' value, Listed deposit money banks, Managerial ownership, Nigeria.

1. INTRODUCTION

In the wake of current economic challenges, government across the globe are devising means to averse its devastating effect on the national economy. Hence, several policies are formulated to improve different economic sectors, and the role of banking sector is cardinal. Banks as one of the major segments of financial system, they involve in financial intermediation; mobilizing financial surplus and channeling same to the demanding economy sector for efficient production. By this process, banks pool and manage risk on behalf of their customers. Therefore, banks are expected to be sustainable through maximization of firm value. Hence, studies such as Li

and Zhao (2018) maintains that, the going concern of an enterprise is the function at which it create value. Bank value reflect the extent to which bank effectively and efficiently utilized its available assets (Yunita & Prastiwi, 2021).

Therefore, for banks to maximize firms' value, several factors and mechanisms are required to be strategically put in place (Holiawati & Etty, 2019). Fundamentally, there are various mechanisms for corporate governance such as intellectual capacity, ownership and capital structure, internal control system, and audit quality that are believed to have significant influence on an enterprise value (Ozkan *et al.*, 2017;

Zahid, 2021). Thus, studies were conducted in different context to empirically ascertain the effect of these factors on firm value. However, regards with intellectual capital in particular, the studies reported contradictory results, hence inconclusive. Studies such as Ovechkin *et al.,* (2021), Yunita and Pratiwi (2021), and Holiawati and Etty (2019) reported positive and significant effect of intellectual capital on firms' value. While studies such as Iranmahd *et al.,* (2014) and Usman *et al.,* (2020) found negative effect of intellectual capital on firms' value. More so, in their studies, Utami and Juwaita (2020) and Hertina (2020) documented an insignificant effect of intellectual capital on firms' value in addition to the fact that, most of the prior studies on intellectual capital and firms' value were mainly cross-sectional in nature investigating the relationship over few years. Studies such as Holiawati and Etty (2019), and Yunita and Pratiwi (2021) used at most three years. However, studies such Ovechkin *et al.,* (2021) were of the view that, if such relationships exist, the results obtained cannot be realistic over time as firms may prove to be unstable from year to year. Therefore, there is a need for the use of mediating or moderating variable to observe its interactive effect over a long period of time. Hence, the motivation of this study to used ownership structure to observe its interactive impact on intellectual capital and the value of DMBs in Nigeria over a period of ten years (2012-2022).

Ownership structure of a firm is believed to have a significant impact on various areas of business decision making. Hence, Ozkan *et al.,* (2017) described ownership structure as a structure of business control by the contributors of capital. It defines the capital structure of an organization and the major determinant of business decision component. While, Aftab *et al.,* (2016) stated that, managerial ownership present the percentage of equity share of managers and directors and their voting power in the business. Hence, its important cannot be overemphasize. Therefore, this study believed that, managerial ownership would significantly moderate the relationship between intellectual capital and the value of listed DMBs in Nigeria.

Therefore, to achieve the objectives of this study, hypotheses were formulated to guide the study.
H_{o1}: Human capital efficiency has no significant impact on the value of listed DBMs in Nigeria
H_{o2}: Structural capital efficiency has no significant impact on the value of listed DMBs in Nigeria
H_{o3}: Capital employed efficiency has no significant impact on the value of listed DMBs in Nigeria
H_{o4}: Managerial ownership has no significant moderating impact on the relationship between intellectual capital and the value of listed DMBs in Nigeria

The novelty of this study is in its contributions to knowledge in the area of intellectual capital, corporate governance, and firm value. Therefore, the study would

benefit management and investors of listed deposit money banks. It would enlighten the management of the banks on the influence of effective and efficient management of intellectual capital and its impact on banks value. Therefore, the remaining part of this study is structured into four sections given that section one is introduction. The review of relevant literatures is presented in Section 2, while Section 3 described the methodology adopted for the study. Then, Section 4 discusses the results of the empirical analyses, while Section 5 presents conclusions and recommendations.

2. LITERATURE REVIEW
2.1 Firms' Value
Firm value is an important element in financial statement that indicate the general performance of an enterprise. Firm value indicate the wealth of an enterprise, thus enhance investment decisions making (Eitokpa, 2015). It is described by Juwita and Angela (2016) as the market value of firms' securities on a capital market. Yunita and Prastiwi (2021) viewed firms' value as an intrinsic value not just the price of firms' share, but the value of the company as a business entity. Therefore, if firm is regarded to have value, it implies of having future prospects. Optimizing firm value is the goal of any good manager (Holiawati & Etty, 2019).

Therefore, firms' value is mostly measured using financial performance (Njagi *et al.*, 2017). Thus, financial performance is described by Hassan *et al.,* (2020) as the ability of a firm to operate efficiently, generate income, and expand by observing environmental opportunities and threats. Financial performance gauges the proper use of enterprises' resources to maximize profit and wealth (Alawaqleh & Almasria, 2021). Hence, studies such as Suu *et al.,* (2020) used proxy of financial performance such as return on equity, return on capital employed, return on assets, return on investment, and Tobins Q. These assist in assessing the financial strengths and weaknesses of an enterprise by establishing relationships of items on financial statements (Nawaz, 2019). Therefore, for the purpose of this study, Tobin's Q is used to measure firms' value of the selected listed DMBs in Nigeria.

2.2 Intellectual Capital
The concept of Intellectual Capital (IC) could also be referred to as intellectual assets, knowledge assets, or intangible assets. Hence, Zephaniah *et al.* (2021) define intellectual capital as an intangible asset with the potential to create value for an enterprise and the society itself. This is in line with the earlier definition offered by International Accounting Standard Board, IASB (2004), that described IC as the non-financial fixed assets that do not have financial substance but are identifiable and controlled by the entity through custody and legal rights. They are invisible assets that gives business internal strength and opportunity (Brantianu, 2018). Thus, studies such as Li and Zhao (2018) states that, IC consist of four major components such as Human

Capital (HC), Structural Capital (SC), Capital Employed (CE), and Innovation Capital (IVC).

Li and Zhao (2018) further describe HC as the value of all the workers in the organization with all the attendant rewards attached to their utilization. These capabilities are peculiar to the workers because they go away with them whenever they leave the organization. Thus, Usman *et al.,* (2020) view HC as comprise the competences, professional skills and motivation that employees brings into the organization. It include the ability to learn self-consciousness in handling criticisms and risks as well as the creativity and flexibility of individual employees for harmonious co-existence within the work environment (Aptiti *et al.*, 2017). Structural capital on the other hand is the supportive infrastructure that enables human capital to function in an organization. SC is owned by an organization and remains with it even when the worker leaves the organization (Josh *et al.,* 2018). Thus, studies Aptiti *et al.,* (2017) and Giulinai (2015) stats that, SC consist of trademarks, patents, formulas, management style, company reputation, image, corporate culture, networking, mission, and vision.

Aftab *et al.*, (2016) defines capital employed as the physical machines, equipment, land and properties put in use not for sales but for generating cash inflows. While Zahid (2021) define capital employed as the total amount of capital used to generate profits by a firm. Therefore, capital employed is the visible and touchable assets of an entity that are in use for business activities. They are generally believed to be the bedrock of every firm and its value (Guiliani, 2015). It is the third most important component of intellectual capital (Pulic, 1997). With respect to innovation capital, Ozkan *et al.,* (2017) viewed it as consists of implementing research and development; relentlessly bring latest technology and products enabling customers demand and satisfaction to be met. In the modern era of knowledge-based economy, innovation capital is one of the major drivers of intellectual capital providing an ongoing development program in a company's structure. Hence, it shows the capability of a company to launch, create and design its latest research and development, products and services (Bambang & Mukhtaruddin, 2015).

2.3 Managerial Ownership
Jensen and Meckling (1976) define managerial ownership as stock ownership by company managers or directors who run the company so as to align the interests of management with shareholders. While Dumay (2016) describe managerial ownership as the percentage of directors' equity ownership. Dima and Ghinea (2016) viewed managerial ownership as shares owned by members of the corporate board. Bratianu and Bejinaru (2017) define managerial ownership as the fraction of equity shares held by insiders and promoters. This implies that managerial ownership is the percentage of a firm's ordinary shares owned by the chief executive, or

managing partner. Ownership by managers are encouraged because it is expected to influence managers to act in the interest of other stakeholders since the manager will also benefit directly on any good decision taken and also incurred loss if wrong decision is taken (Wahyu *et al.,* 2016). Therefore, this study believed that, managerial ownership would significantly moderates the relationship between intellectual capital and the value of banks.

2.4 Empirical Review
Yunita and Pratiwi (2021) investigated the relationship between intellectual capital, and firm value of 62 manufacturing firms listed on the Indonesia stock exchange from 2017 to 2019. Simple linear regression was used to analyze the data collected from annual reports and accounts of the firms. The study documented that there exists a positive and significant relationship between intellectual capital (VAIC) and firm value. However, the major criticism of the study was inability to categorize three types of industry as manufacturing companies. The domain (manufacturing industry) is not suitable for intellectual capital activities. It is worth mentioning that three years scope is viewed as inadequate for to generalized result. Furthermore, Hersugondo and Handriani (2020) empirically studied Intellectual Capital and productivity: Predicting the banking profitability in Indonesia. The research sample comprised 30 Banks out of (90 Banks) listed on the Indonesia stock exchange from 2016 to 2018. The findings revealed that intellectual capital using VAIC had a positive and significant effect on productivity. However, the period covered is too small (3) years and the banks were not treated individually. Though, the domain banking industry is very suitable for research work on intellectual capital as it is similar to this study.

More so, Ovechkin *et al.,* (2021) studied intellectual capital and financial performance using a 30-year data extracted from Russian company's financial statements. Analysis was done using multiple regression techniques that captures the three components of intellectual capital (Human capital, Structural capital and Physical capital). The findings from the analyses indicate that performance of a company can be explained by their intangible assets (intellectual capital). In the same vein, Holiawati and Etty (2019) examined the effect of Intellectual Capital, tax avoidance on the value of listed manufacturing companies in Indonesian stock exchange during the period of 2012 to 2016. The results shows that intellectual capital has positive impact on the value of the selected manufacturing firms.

Noradiva *et al.,* (2016) studied the effect of intellectual capital on the value of 46 firms listed on the ACE market of Bursa Malaysia from 2009-2012. The study reported that, human capital efficiency, structural capital and capital employed have significant positive effect on firm value. This is also in line with the position of Aftab *et al.,* (2016) who investigated the impact of

intellectual capital on firm value. Using multiple regression to analyze the panel data obtained from 79 non- financial firms listed on Pakistani stock exchange. The study reported a positive and significant effect of VAIC on Tobins Q. Moreover, Ulum *et al.,* (2017) examined the influence of intellectual capital performance- measured with modified value added intellectual coefficient (MVAIC) to four traditional financial performances: return on asset, return on equity, market to book value and price earnings ratio on 50 biggest market capitalization companies in Indonesian stock exchange for 8 years (2007-2014). They found out that: MVAIC influences positively to current and future financial performance.

While Usman *et al.,* (2020) studied intellectual capital and value creation of 14 listed Insurance companies in Nigeria over a period of ten years (2009-2018). The study found out that two of the three components of intellectual capital, (human capital and innovation capital) have a negative impact on firm value while the rest has a positive impact. However, Utami and Juwaita (2020) examined the influence of intellectual capital, firm size and asset structure on firm value of crude oil and natural gas subsector in Indonesia for a period ranging from 2013-2018. Panel data regression analysis method was adopted to analyze the data collected from seven selected companies. The study reported that intellectual capital has no effect on firm value.

Looking at the studies reviewed, it revealed that, the relationship between intellectual capital and firms' value are contradictory, hence inconclusive. However, the studies on the influence of managerial ownership on intellectual capital and firms' value are limited. But the studies of the influence of managerial ownership on intellectual capital, and managerial ownership on firms' value were found to be positive and significant.

Hertina (2020) studies the effect of managerial ownership on the value of non-financial firms listed on the Istanbul stock exchange. Using multiple regression analysis to analyze the data collected, the study found out that managerial ownership has significant effect on firm value and intellectual capital. Furthermore, Zahid (2021) studied the impact of IC on FV of listed companies in Pakistani over a period of six years 2013-2018. The study reported that intellectual capital have positive and significant impact on firm value. Hence, Aftab *et al.,* (2019) concluded that firms with higher firms' value are more associated with adequate intellectual capital and appropriate ownership structure. Therefore, this study believed that managerial ownership would positively and significantly moderate the relationship between intellectual capital structure and the value of listed DMBs in Nigeria.

2.5 Theoretical Review

Since the concepts of intellectual capital and firms' value have received a lot of attention by both policy makers and researchers. Thus, several theories were used to explain the concepts as stated by Garanina and Dumay (2017). Such theories include Stakeholders Theory, Human Capital Theory, Resource Based Theory, and Agency Theory. However, this study is anchored on Resource Based Theory.

Resource-Based Theory (RBT) is one of the widely accepted theory in the field of strategic management. it was propounded by Wernerfelt (1984) in his article "A resource-based view of the firm" that combined the idea of 'distinctive competencies' but the most influential theory is regarded to an article by Barney (1999) entitled "Firm Resources and Sustained Competitive Excellence", published in the Journal of Management. According to resource-based theory (RBT), there are three types of corporate resources: physical resources such as factories, offices, warehouses, buildings, and machinery; human resources such as performance, knowledge, and employee experience; and structural or operational resources such as information systems and internal and external relationships. These three resources are believed to contribute to a firm's efforts to achieve competitive advantage in the market. Resource-based theory stresses that firms should be able to acquire and manage their resources, especially those in the form of intangible assets, so as to create competitive advantage for the firm (Ulfa & Prasetyo, 2018).

There are two assumptions inherent in RBT Wernerfelt (1984) such as resource heterogeneity and resource immobility. Resource heterogeneity (also called resource diversity) alludes a company has the resources or capabilities that are also owned by other competitors, so that resources are not considered to have competitive excellence. While the resource immobility refers to a resource that is difficult for competitors, because it is difficult to obtain or it is very expensive if uses the resource. Resource-based theory is very appropriate to describe the study of intellectual capital (IC), especially in the context of the relationship between IC and firm value. In the perspective of IC, intangible assets of companies are classified into human capital, structural capital, capital employed and innovation capital.

3. METHODOLOGY

This study adopted ex-post facto research design to define the structure and strategy of the study. While the target population consisted of all the listed deposit money banks in Nigeria as at 31st December, 2022 and were fourteen (14) in number. Out of the 14 banks, 11 were selected as sample based on the availability and the complete required annual reports and accounts of the banks over the period of ten years from 2012 to 2022. The data collected were analyzed using both descriptive and inferential analysis.

Two panel regression models were developed in line with the model Usman *et al*. (2020). Model 1 was to evaluate the effect of intellectual capital on firms' value, while model 2 was to evaluate the moderating effect of managerial ownership (MGO) on intellectual capital (HCE, SCE, CCE, ICE) and firm's value (TBS), while controlling firms characteristics (FMS, FML, FMA).

$Y = F$ (MGO, HCE, SCE, CCE, ICE, FML, FMS, and FMA) …..........................equation

$TBQ_{it} = \beta_0 + \beta_1 HCE_{it} + \beta_2 SCE_{it} + \beta_3 CCE_{it} + \beta_4 ICE_{it} + \beta_5 MGO_{it} + \beta_6 FML_{it} + \beta_7 FMS_{it} + \beta_8 FMA_{it} + \mu_{it}$..

…………………………………………………………………………………………..model 1

$TBQ_{it} = \beta_0 + \beta_1 HCE_{it} + \beta_2 SCE_{it} + \beta_3 CCE_{it} + \beta_4 ICE_{it} + \beta_5 MGO_{it} + \beta_6 HCE_{it} * \beta_7 MGO_{it} + \beta_8 SCE_{it} * \beta_9 MGO_{it} + \beta_{10} CCE_{it} * \beta_{11} MGO_{it} + \beta_{12} ICE_{it} * \beta_{13} MGO_{it} + \beta_{14} FML_{it} + \beta_{15} FMS_{it} + \beta_{16} FMA_{it} + \mu_{it}$..Model 2

Table 1 presents study variables which gives information with respect to the measurement as used by previous studies.

Table 1: Variable identification and measurement

SN	Label	Variables	Description	Sources
1	TBQ	Tobin's Q	Firms aggregate market value divide by firms aggregate assets value	Aftab *et al.,* (2016)
2	HCE	Human capital efficiency	VA/ HC	Usman *et al.,* (2020)
3	SCE	Structural capital efficiency	SC/VA	Utami and Juwaita (2020)
4	CCE	Capital employed efficiency	VA/CE	Ulum *et al.,* (2017)
5	ICE	Innovation efficiency	R & D expenditure divide by book value of equity share	Usman *et al.,* (2020)
6	MGO	Managerial ownership	Equity share owns by management divide by value of equity share issued	Noradiva *et al.* (2016)
7	FML	Firms' leverage	Debt to total assets ratio	Ali (2021)
8	FMS	Firms size	Natural logarithms of total assets	Afrifa & Tauringana (2015)
9	FMA	Firms age	Number of firms' age since incorporation	Bala *et al.,* (2018)

VA = GM – sgaExp. + LExp. = Operating Income + LExp.

Where VA is value added; GM is gross margin; sgaExp; selling, general, and administrative expenses; LExp: labor expenses that Pulic calls human capital. According to Pulic (2000), the value of human capital (HC) and structural capital (SC) is described by the labor expenses and the difference between VA and HC. From this description, HC and SC are denoted as follows:

HC = LExp, while SC = VA- HC.

4. RESULTS AND DISCUSSIONS
The results of descriptive statistics are presented in Table 2.

Table 2: Descriptive statistics

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
TBQ	121	0.4609	0.2384	0.06	0.96
HCE	121	0.5217	0.6464	0.00	2.92
SCE	121	0.2780	0.1938	0.01	1.31
CCE	121	0.4753	0.4963	0.01	2.47
ICE	121	0.2719	0.1816	0.01	1.38
MGO	121	0.1586	0.1870	0.00	0.66
FMS	121	15.1472	1.5780	11.13	18.68
FML	121	0.1330	0.1172	0.02	0.54
FMA	121	40.2727	16.4057	13.00	77.00

Source: STATA 14 Output (2024)

Table 2 shows Tobins Q (TBQ) mean of 0.4609 with a standard deviation of 0/2384 in between minimum value of 0.06 and maximum value of 0.96. This implies that the data collected in regards TBQ are partially disperse. Moreover, human capital efficiency (HCE) has a mean value of 0.5217, minimum of 0, maximum of 2.92, and a standard deviation of 0.6464. This implies that there is a dispersion of the data from the mean given that the standard deviation is greater than the mean value.

With respect to structural capital efficiency (SCE), the mean value is 0.2780, minimum is 0.01, maximum is 1.31, and standard deviation stood at 0.1938. Hence, the conclusion that, there is no wide dispersion of the data from the mean given that the standard deviation is less than the mean value. The average value for capital employ efficiency (CCE) is 0.4753, minimum and maximum values are 0.01 and 2.47 respectively, while standard deviation is 0.4963. This result implies the data

deviate from the mean value from both sides by 49.63% which signifies no wide dispersion of the data from the mean given the standard deviation is less than the mean value. The innovation capital efficiency (ICE) mean value is 0.2719, minimum is 0.01, maximum is 1.38, and standard deviation of 0.1816. The mean figure implies that on the average, the ICE of the banks during the period under review is 27.19% while the standard deviation of 0.1816 indicates that the data deviate from the mean value from both sides by 18.16% which implies that there is no wide dispersion of the data from the mean. Managerial ownership (MGO) has mean value of 0.1586, minimum is 0.00, maximum is 0.66, and standard deviation stood at 0.1870. The mean implies that on the average, the MGO of the banks during the period under review is 15.86% while the standard deviation of 0.1870 indicates that the data deviate from

the mean value from both sides by 18.70% which implies a dispersion given the standard deviation is greater than the mean value.

Considering the control variables, the descriptive statistics shows that firm size (FMS) has a mean value of 15.1472, a minimum of 11.13, a maximum of 18.68, and a standard deviation of 1.5780. For leverage (FML), the mean value is 0.1330, minimum value is 0.02, and maximum value is 0.54, while standard deviation is 0.1172. For firm age (FMA), the average is 40 years, minimum of 13years, maximum of 77years and a standard deviation of 16.4057.

Furthermore, correlation analysis was carried using Pearson moment correlation statistics and the results presents in Table 3.

Table 3: Correlation Results

Variables	TBQ	HCE	SCE	CCE	ICE	MGO	FMS	FML	FMA
TBQ	1								
HCE	-.5518*	1							
SCE	0.3436*	-0.4007*	1						
CCE	-0.0117	0.0417	-0.0706	1					
ICE	0.2977*	0.1131	-0.1345	-0.0849	1				
MGO	0.0983	0.0687	0.0723	0.0165	-0.0523	1			
FMS	0.0505	- 0.0637	0.0765	0.0216	0.0262	-0.1089	1		
FML	0.1002	-0.1312	0.0460	-0.0103	-0.0614	-0.1415	-0.3803	1	
FMA	0.0579	0.0735	-0.0433	-0.1153	0.0709	-0.0277	0.0695	-0.0152	1

Sources: STATA 14 Output (2024) @ 5% & *10%

Table 3 shows that, human capital efficiency (HCE) and capital employed efficiency (CCE) have negative correlations with Tobins Q (TBQ), while others have positive correlations with Tobins Q at both 5% and 10% significant levels. Although there were mixed result in the direction of the relationship of intellectual capital and firms' value, managerial ownership and the firm's

characteristics, most of the correlation values ranges from very low to moderate correlation. The minimum absolute value of correlation is 0.0103 and the maximum absolute value is 0.5518. This implies that, the variables of the study were moderately correlated, thus, no multi-collinearity problem among the variables.

Table 4: Diagnostic test results

Variables	VIF	1/VIF	Std. Skewness	Std. Kurtosis
FML	1.25	0.79	1.5740	4.9969
FMS	1.24	0.80	0.2569	3.0152
HCE	1.24	0.80	1.4240	4.2523
SCE	1.23	0.81	1.6647	3.5007
MGO	1.07	0.93	0.3499	5.0724
ICE	1.04	0.96	1.0932	4.6445
CCE	1.03	0.97	1.8166	6.1711
FMA	1.03	0.97	0.4629	4.1411
Mean VIF	1.14			
Hausman test		0.0000		

Source: STATA 14 Output (2024)

The diagnostic results in Table 4 shows that, the absolute skewness values were all less than 1.96, and kurtosis more than 3. Hence, the data is considered to be moderately skewed and platy Kurtic in accordance to the rule of thumb (Gujarati, 2008). Furthermore, VIF shows the maximum value of 1.25 with a minimum value of

1.03, while the maximum tolerance coefficient of 0.97 with a minimum value of 0.79. This means that, the data collected are normally distributed and has no multicollinearity problem (Hair *et al.,* 2014). The value of Hausman model specification test of 0.000 is

significant, thus, the null hypothesis was rejected (random effect) in favor of fixed effect.

Since the data collected were normally distributed and there were no issues of multicollinearity,

multi-regression analysis was carried out to examine the effect of intellectual capital on the firms' value of the selected DMBs, and the moderating effect of managerial ownership on intellectual capital and firms' value of the selected listed DMBs and results presents in Table 5.

Table 5: Regression results

Models	Model 1			Model 2		
Variable	Coef.	t-value	p>t	Coef.	z-value	p>z
Constant	0.1631	0.80	0.0427	0.0676	0.24	0.0081
HCE	-0.1969	-7.47	0.000***	-0.1504	-4.21	0.000***
SCE	0.2123	2.32	0.020**	0.1975	1.29	0.197
CCE	0.0305	1.05	0.293	0.1336	2.89	0.004
ICE	0.5160	6.69	0.000***	0.5262	7.36	0.000***
MGO	0.2042	2.76	0.006***	0.3945	1.85	0.064
FSZE	0.0052	0.45	0.653	0.0189	1.07	0.285
FLEV	0.1716	1.10	0.269	0.3421	1.75	0.080
FAGE	0.0012	1.12	0.262	0.0008	0.74	0.460
HCE*MGO				-0.6777	-5.55	0.000
SCE*MGO				1.0003	4.55	0.000
CCE*MGO				-0.5159	-2.63	0.008**
ICE*MGO				-0.0956	-0.10	0.918
Observations	121			121		
No. of groups	11			11		
R^2	0.5012			0.5386		
Wald chi2 (8)	167.73			226.28		
Prob>chi2	0.0000			0.0000		

Source: STATA 14 Output (2023)

Table 5 model 1 shows R^2 value of 0.5012. This indicates that all the explanatory variables in model 1 accounted for 50.12% of variations in the dependent variable (TBQ). Moreover, the model as a whole is also found to be significant (*Wald chis2 (8)* = 167.73 $p < 0.000$), indicating a goodness of fit and validity of the model.

The result further shows that human capital efficiency (HCE) has a significant negative effect on Tobins Q (TBQ) at 1% level of significance ($\beta = -0.1967$; $p<0.01$). This indicates that as a measure to intensity of intellectual capital, an increase in the total human capital efficiency may result to a decrease in the firm value (Tobins Q) of the listed DMB in Nigeria. This result rejects hypothesis one which states that human capital has no significant effect on firm value (and is in line with that of Ulfa *et al*., (2018) and Aftab *et al*., (2019) but contradicts that of Utami and Juwaita (2020). Structural capital efficiency (SCE) has a significant positive effect on Tobins Q (TBQ) at 1% level of significance ($\beta = 0.2123$; $p<0.05$). Meaning that an increase in the measure of intellectual capital represented by structural capital efficiency may result to an increase in Tobins Q (TBQ). This result does not support hypothesis two which states that structural capital has no significant effect on firm value. More so, the result agrees with that of Aftab *et al*., (2019) who found that structural capital has a significant positive effect on firm value. While capital employ efficiency (CEE) shows an insignificant positive effect

on Tobins Q ($\beta = 0.0305$; $p>0.10$). This specifies that an increase in intellectual capital as represented by capital employed by 1, may result to an insignificant increase in Tobins Q by 0.0305. This result support hypothesis three of this study which states that capital employ has no significant effect on firm value but corroborates with that of Utami and Juwaita. (2020). Innovation capital efficiency (ICE) shows a significant positive effect on Tobins Q ($\beta = 0.5160$; $p<0.01$). This specifies that an increase in intellectual capital as represented by innovation capital by 1%, may result to a significant increase in Tobins Q by 51.6%. This result does not support hypothesis four of this study which states that innovation capital has no significant effect on firm value but corroborates with Ulfa *et al*., (2018) and that of Usman *et al.,* (2020). Managerial ownership (MGO) was found to have positive and significant relationship with firm value (Tobins Q) ($\beta = 0.2042$; $p<0.01$). This is in line with the findings of Noradiva *et al.,* (2016) and Aftab *et al.,* (2019), though it is contrary to that of Zahid, (2021).

Table 5 model 2 shows R^2 value of 0.5386 implies that explanatory variables in model 2 accounted for 43.86% of variation in the dependent variable (TBQ). More so, model 2 is found to be significant (*Wald chis2 (8)* = 226.28; $p < 0.01$) indicating goodness of fit and validity of model 2. After introducing MGO as a moderator, human capital efficiency (HCE) remained negative but significant (from -0.1969*** to -0.6777),

Structural capital efficiency (SCE) remains positive (coef. 0.2123 to 1.0003) and also significant (p-value 0.020 to 0.0000), Capital employ efficiency (CCE) became negative (coeff. 0.0305 to -0.5159) but significant (p-value from 0.293 to 0.008). However, innovation capital efficiency (ICE) that was positive and significant, but became negatively insignificant (from 0.5160* to -0.0956 at a p-value of 0.918). The regression result of model 2 signifies that managerial ownership has moderated the relationship between IC and firm value.

5. CONCLUSION AND RECOMMENDATIONS

Given the findings of this study, it reveals that, structural capital efficiency, innovation capital efficiency and managerial ownership have a direct positive and significant impact on the value of the banks, while capital employed efficiency shows a positive but insignificant impact on the value of the quoted DMBs. However, human capital efficiency has negative but significant impact on the value of the banks over the period under the study. Furthermore, managerial ownership has significantly and positively moderated the relationship between human capital efficiency, structural capital efficiency, capital employed efficiency, innovation capital efficiency and Tobins Q of the banks over the period of the study. Therefore, the conclusion that managerial ownership has positive and significant moderating impact on the relationship between intellectual capital and the value of listed DMBs in Nigeria. This implies that managerial ownership significantly influence investment decision making regards to intellectual capital that subsequently influence firms' value of listed DMBs in Nigeria.

Therefore, this study recommends that, in order for listed DMBs in Nigeria to maximize firms value through effective and efficient intellectual capital efficiency, managerial ownership of share should. This would help to safeguard the relationship between the intellectual capital and value of the banks.

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