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**Intellectual Capital and Corporate
Performance in Nigeria Banks**

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Abstract

Purpose: This study is on the interaction between corporate performance variables and Intellectual capital effectiveness of selected banks in Nigeria.

Methodology: One multivariate model that incorporates the three performance indicators was formulated. The three (3) indicators are Asset Quality, Loan Quality, and Net Income. The study adopted ex-post-facto research design on a time series data spanning 10 years (2006-2015). The sampling technique was purposive sampling and data were drawn from the financial statements of the selected banks. Ordinary Least Square regression analysis was employed to test each of the three (3) hypotheses, at 5% level of significance.

Results: The results indicated that; intellectual capital contributes positively to asset quality of banks; there is no significant positive effect of intellectual capital on loan quality; there is a significant positive effect of intellectual capital on net income of the banks.

Unique contribution to theory, practice and policy: The study recommended that banks should take inventory of her portfolio (assets) so as to identify those of them that are no longer useful and also employ qualified, experienced and trained staff to add value to her intellectual resources.

Key words: *Intellectual capital, asset quality, loan quality, net income, Ordinary Least Square (OLS)*

1.0 INTRODUCTION

Intellectual capital has attracted considerable interest from both academics and practitioners. Research in this area has highlighted the importance of intellectual capital in generating and sustaining organizational competitive advantage (Bontis, 2000;); is generally conceptualized as “intellectual material - knowledge, information, experience, core technique, intellectual property, and customer relationship that can be put to use to create wealth” (Stewart, 1997); a knowledge-based economy, characterized by a rapid expansion of knowledge-intensive industries creating and exploiting knowledge and information in all sectors of the economy (Nonaka & Takeuchi, 1995).

However, despite an increasing recognition of the importance of intellectual capital in the knowledge based economy, little research attention has been devoted to understanding the link between intellectual capital and organizational performance in Nigeria as few scholars have focused on the effect of intellectual capital on organizational performance in the Nigerian banking sector. This is so in spite of the fact that many scholars (Yang & Lin, 2009) argue that intellectual capital development is the hidden value that is not reflected in organizational financial statements even though it has the potential to contribute to organizational profitability and competitive advantage.

In response to the need to ensure safe and sound banking practice in Nigeria, the CBN which is the apex regulator of the Nigeria Banking System was created by CBN Act 1958 as a result of perceived inadequacies of the then West African Currency Board (WACB). The bank began operation in 1959, discharging such mandates as issuance of legal tender, promotion and maintenance of monetary stability, lender of the last resort; such that all the commercial, merchant, development and specialized banks operate within the context of CBN regulation. Since inception, it has introduced measures to discharge the mandate, notable among which is guidelines on loan provisioning, introduced in 1990 and which categorized defaulting credits into doubtful, substandard and loss. Although this policy made many banks to post huge losses within the period, it produced reliable financial information on loan provisioning. However, the guideline failed to address the human factor associated with the banks’ productivity, thus allowing them to still keep inexperienced credit officers in their advances units. Another measure was the 2004/005 banking sector consolidation policy which mandated all banks in Nigeria to upscale their capital base to N25 billion. This measure was depositor friendly in that it was meant largely to protect their interests. The exercise necessitated mergers, absorption and other forms of consolidation arrangements among the banks. In spite of the gains of this exercise, many staff of the banks lost their jobs. The category of the affected staff ranged from the executive cadre to the clerical staff, irrespective of one’s qualification, experience or training already attained. A change in leadership in 2009 necessitated yet another policy innovation that largely addressed the commercial banks’ risk assets and this was followed by the inauguration of Asset Management Company of Nigeria (AMCON) management team. Their main goal was to revive the financial system by resolving the non-performing loans of the banks in the country. Undoubtedly, the above three major policy changes were intended to improve the quality of the banks financial report variables like profit, owner’s equity, and risk assets. However, in spite of the positive changes recorded by the commercial banks, there is still evident of policy inconsistency that has brought some challenges confronting the system globally. These challenges include among others, high operational expenses, lack of infrastructural facilities, increase in fraudulent activities and most importantly, lack of intellectual capital. Beyond the Nigeria context, the lack of policy initiative on intellectual capital as evidenced from advanced countries has produced divergence of results (Pulic 2000; Williams 2004; Kamath 2007; Magdi 2008; Maria do Rosario & Landeiro 2006 found

significant positive effect, others such as Choudhury, 2010 and Williams, 2004 found no significant effect of intellectual capital on a firms performance. It is in this context that this study is premised and is designed to investigate the interaction between intellectual capital and asset quality of the banks in Nigeria, assess the extent to which intellectual capital interact with the loan quality of banks in Nigeria and examine the degree to which intellectual capital influence the position of net income of the banks in Nigeria.

2.0 REVIEW OF LITERATURE

Intellectual Capital (IC) is one of the most important strategic assets in knowledge based economy. There are a number of definitions of intellectual capital since its origin coupled with the fact that both knowledge based and economic based approaches exist. The knowledge economy is that where production and its distribution with the use of knowledge is a main force for creating growth and wealth as defined by the Organization for Economic Corporation and Development (OECD, 1996), other studies have attempted to define intellectual capital variously(Stewart1997; Pulic2001; Evinson & Malone 1997; Mei-Chun Chen 2001.

The impact of human capital is largely categorized into three parts: individual, organization, and society. In the perspective of individual in the internal labor market, most of researchers refer to the possibility of increasing individual income, resulting from the individual productivity (Becker, 1993; Sidorkin, 2007). By the increase of productivity in the workplace, the high-productive individual is recognized as the worker with much possibility to move to higher level, in the internal market (Sicherman, 1991). External market, (Edvison &Malone 1997) presents individual human capital can present improvement in which affect organizational human capital such as ‘collective competences, organizational routines, company culture and relational capital’ as well. The social perspective is the synthesis of individual and organizational perspective. McMahon (1999) depicts the possibility of human capital for ‘democracy, human rights, and political stability’ on common consciousness of social constituents. According to Beach (2009), human capital can increase social consciousness of constituents within community as, the link between human capital and social consciousness is based on a close inter-relationship resulting in sociopolitical development (Alexander, 1996; Grubb & Lazerson, 2004; Sen, 1999).

The modern concepts of industry performance (economic Growth) propelled by increase in productive capacity among industries began with the critique of merchantalism such as Adam Smith and David Hume. The theory states that productive capacity allows for growth and also contributes to improvement and increases in the wealth of nations.

The neoclassical growth theory on which this study is based evolved from the classical theory developed by Solow and Swan which associates a company’s performance (growth rate) with the increases in its productive resources, including human capital and physical capital. The endogenous model tries to functionally (mathematically) explain technological advancement as well as human capital which tends to incorporate variables that would increase the productivity of its workforce, thus recognizing the importance of human factor as the engine that facilitates the proper functioning of the other factors.

In alignment with these theories, Pulic (1998), Sveiby (2007), Luthy (1998) & William (2004) introduced the value creation efficiency of intellectual capital while Mouritsen (2001), Jorgensen & Frumeni (1989) & Kendric (1976) introduced the models that captured financial statement variables, their disclosure and application in the assessment of human capital as tools for companies performance assessment standard.

Following some empirical expositions Yanuar Trisnowati and Isti Fada (2012) using Linear Regression analysis carried out a study on impact of intellectual capital on bank’s market value

and financial performance in Indonesia for a period 2009-2011 and found that the value added intellectual capital had no significant effect on firms market and growth of revenue.

Furgan, Raja and Muhammed (2012) investigated the impact of intellectual capital on financial performance of banks in Pakistan using Value Added Intellectual Coefficient (VAIC). The study found that intellectual capital had significant effect on the financial performance of banks.

Rahman, Choudhury, Hafeez and Ayesha (2011) in adopting predictive analysis conducted a study in Pakistan on intellectual capital performance and its impact on corporate performance and found that human capital efficiency could strengthen the intellectual capital performance.

Wang (2011) in similar study in Taiwan for 2001-2007 used the Ordinary Least Square and found that intellectual capital impacts on corporate performance insignificantly while Wang (2012) found positive and significant effect on the performance of organizations. The above finding is in consonance with that of Pasaribu, Purnamasari & Hapsari (2012) in a study on the role of corporate intellectual capital used the Partial Least Square found that intellectual capital has significant positive effect and also Bontis(2000), Mavridis (2000).

Muhammed Khalique (2013) studied intellectual capital and organizational performance of Islamic Banking Sector in Malaysia using the Pearson Correlation and Multiple Regression and found that intellectual capital is influenced by organizational performance. Mario do Rosario and Jorge Vaz (2006) studied intellectual capital and value creation in Portuguese companies and using primary data they found that intellectual capital is substantially and significantly related to the organization performance.

Pulic (2000) in a study on intellectual capital's impact on the banking industry used Ordinary Least Square method to measure Australian Banks' intellectual capital performance (1993 – 1995) and Croatian Banks' capital performance (1996 – 2000) with Value Added Intellectual Capital (VAIC) model. He found significant different positions among banks and posited that the differences arose from variation in performance rank and classic accounting rank in the banks. Pek Chen Goh (2005) measured 7 domestic and 3 foreign banks' intellectual capital performance in Malaysia using Linear Regression method and found that all the banks' human capital efficiency was relatively higher than their structural capital efficiency; domestic banks' human capital efficiency was generally lower than foreign banks'.

Kamath (2007) measured 98 Indian banks' intellectual capital with VAIC model using Ordinary Least Square method and found that different types of banks performed differently. The study also posits that some banks performed better because they applied the intellectual capital on the organization performance. Harjinder (2009) conducted a study on the interface between intellectual capital and strategic environment of enterprises and found that the various ownership strategic environmental, private and foreign banks could deal with strategic environmental changes using different intellectual capital mechanisms.

Li Jiaming and Li Fubing (2005) using Ordinary Least Square method and laying credence to the resources base enterprise theory found a positive correlation between enterprise's performance and human capital. This finding also corroborates that of Liu Dinglin (2009) who found that the human capital value added coefficient and structural capital value added coefficient both had positive correlation with profitability.

Chao-Hsu Yang (2006) using primary data conducted a study on 211 listed enterprises and found that intellectual capital had a significant contribution to the improvement of organizational values and organizational competitive edge over other companies. Ming-Chun Chen (2001) conducted a study using Ordinary Least Square method found that organization's intellectual capital had a significant positive effect on organizational performance.

Riahi-Belkaoui (2003) and Saudah Sofia (2005) found that intellectual capital is positively related with financial performance and corporate performance respectively while Ming-Chin Chen et al. (2005) found that intellectual capital has a positive influence on the market value and the financial performance.

Paula and Antti (2005); Hong Pew Tan (2007) both found various levels of interaction between intellectual capital and firms performance while Syed (2005); Flavio L. Richieri (2007) and Ranjith (2007) found positive relationship between intellectual capital and organizational performance. Other studies that used Value Added Coefficient (VAIC) and found significant positive effect include Reze Ahanger (2011); Gigante (2013); Pasaribu, Purnamasari & Hapsari (2012) in a study on the role of corporate intellectual capital used Partial Least Square found that intellectual capital has significant positive effect on performance of companies.

3.0 METHODOLOGY

3.1 Nature and Source of Data

The study is designed around an ex-post-facto concept and was based on secondary data generated from the selected banks' annual report, spanning 10 years (2006-2015). Only some of the variables in the financial statements that can address topical issues like Net Income (NI), Total Assets (TA), Bank Loan (BL), and Employee Expenses (EE) were included as sample for the study.

The dependent variable for the study is intellectual capital represented by EE as the proxy. The EE is used as proxy for Intellectual Capital. On the other hand, the explanatory (independent) variables are proxies for bank performance indicators. The variables used to represent bank performance for this study include: asset quality, loan quality, and net income.

3.2 Population and Sampling

The population of this study is the twenty one commercial banks operating in Nigeria. The commercial banks comprise 18 Public Limited Companies (PLCs) and the 3 (three) Limited Liability companies (LTDs) banks in Nigeria.

3.3 Sample and Sampling Techniques

Purposive sampling was adopted to select 5 commercial banks for the study. The banks are First Bank of Nigeria Plc, United Bank for Africa (UBA), Fidelity Bank Plc, Diamond Bank Plc and Zenith Bank Plc, representing about 20% of the banks quoted in the Nigeria stock exchange.

3.4 Model Specification and justification

This study on Nigeria adopted the linear regression model. A linear equation relating the intellectual capital to bank performance measures is displayed as a function, thus:

$$EE = f(AQ, LQ, NI) \dots\dots\dots (1)$$

Hence, in this study, a linear model is used to analyse the time series data to isolate the performance factors that are best improved by bank intellectual capital. Thus:

$$EE_i = \beta_0 + \beta_1 AQ_i + \beta_2 LQ_i + \beta_3 NI_i + \mu_i \dots\dots\dots (2)$$

Where:

a_1 , a_2 , and a_3 , are the coefficients of the explanatory variables while a_0 is the constant. μ is

stochastic error term. i is the company specific variables which will be analysed separately. This means that five separate analyses will be generated from the independent company specific data collected from Annual Reports of the banks.

The above model is consistent with Pulic (2007) in his theory of value creation efficiency; Sveiby (2007), Luthy (1998) and William (2004) on the monetary value of intangible assets employed in organisations; Mouritsen (2001) which dealt on the relevance of true and fair financial statement disclosure.

4.0 DATA ANALYSIS

The main tool employed in the course of this research work is the Ordinary Least Square (OLS) regression technique. Regression analysis includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. The statistics analyzed from the results used for interpretations include: co-efficient of determination (R^2), F-statistic (ANOVA), and the coefficient of the regression analysis. The R^2 and F-statistics (ANOVA) are used for the hypotheses testing while the coefficient is used to answer the research questions. The statistics are explained hereunder:

1. Coefficient of Determination (R^2) Test measures the explanatory power of the independent variables on the dependent variable. The coefficient of determination varies between 0.0 and 1.0. A coefficient of determination, say 0.20 means that 20% of changes in the dependent variable is explained by the independent variable(s).
2. F-Test measures the overall significance. The extent to which the statistic of the coefficient of determination is statistically significant is measured by the F-test. The F-test can be done using the F-statistics or by the probability estimate. We used the probability estimate for this analysis since it is normally given by SPSS software for computerized analyses. At 5% level of significance, we reject null hypotheses for tests with probability estimates lower than 5% (0.05) and conclude that they are statistically significant. Otherwise, we accept (when probability estimates are above 0.05) and conclude that there is no overall statistical significance.
3. Coefficient of the analysis produces a value that explains the nature and degree of relationship between the dependent and independent variables. A positive value means positive relationship while negative value means negative relationship.

4.1 RESULTS AND DISCUSSIONS

The result shown below is the interaction between the Intellectual Capital and Bank Performance which was done on five banks individually and below also shows the cumulative group results presenting the relationship between the effects of Intellectual Capital on Bank Performance, making it six regression analyses. The results presented include the coefficients of the variables on each model, the corresponding t-values, the coefficients of determination (R^2), and its corresponding F-value; and the Durbin Watson, to test for autocorrelation.

4.1.1 Regression

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.972 ^a	.944	.875	.21198	1.196

a. Predictors: (Constant), IEcum, NlCum, VAcum, AQcum, LQcum

b. Dependent Variable: EECum

Table 2: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.044	5	.609	13.548	.013
	Residual	.180	4	.045		
	Total	3.224	9			

a. Predictors: (Constant), NlCum, AQcum, LQcum

b. Dependent Variable: EECum

Table 3: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.882	19.319		.977	.384
	AQcum	-.205	.229	-.930	-.895	.421
	LQcum	-.215	.776	-.350	-.276	.796
	NlCum	.160	.276	.318	.580	.593

a. Dependent Variable: EECum

Table 4: Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	17.9414	19.5216	18.8470	.58156	10
Residual	-.21467	.21202	.00000	.14132	10
Std. Predicted Value	-1.557	1.160	.000	1.000	10
Std. Residual	-1.013	1.000	.000	.667	10

a. Dependent Variable: EECum

Table Regression of the Effect of Intellectual Capital on Bank Performance

Model	Fidelity Bank Plc (1)	UBA Plc (2)	Diamond Bank Plc (3)	Zenith Bank Plc (4)	First Bank Nigeria Plc (5)	Cumulative (6)
(Constant)	11.298** (2.956)	6.621** (3.346)	6.092** (2.687)	6.945 (2.234)	7.509 (2.465)	18.882 (.977)
Asset Quality (AQ)	-.100 (-2.509)	-.057* (-4.762)	.102** (2.623)	.154 (2.459)	.020 (1.587)	-.205 (-.895)
Loan Quality (LQ)	-.766** (-2.968)	-.172** (-3.968)	.633 (2.257)	.371 (1.252)	.545 (1.020)	-.215 (-.276)
Net Income (NI)	.773* (5.738)	-.022 (-.544)	-.113 (-1.269)	-.609 (-.907)	.029 (.049)	.160 (.580)
R ²	.996	.955	.967	.957	.947	.944
Adj-R ²	.992	.898	.926	.903	.880	.875
Durbin-Watson	2.156	2.412	2.818	1.791	2.596	1.196
F-Statistics (Prob)	216.155*	16.919*	23.390*	17.699*	14.190**	13.548**

*Significant at *1%; **significant at 5%, () = t-values

Predictors: (Constant), AQ, NI, LQ

Dependent Variable: Employee Expenses (EE)

The statistics results on coefficients and the t-values are used to address the specific objectives and the hypotheses while the F-values and the adjusted coefficient of determinations determine the overall significance and explanatory power of the model. The adjusted R^2 is used in order to obtain more robust results from a short term serial data (Pallant, 2004).

From the results therefore, the adjusted R^2 for columns 1 to 5 (the banks) ranges from 0.88 to 0.99. The cumulative adjusted R^2 is 0.87. The results indicate that, about 87% of the changes in intellectual capital (employee expenses) can be explained by bank performance indicators. This implies that performance can be an indispensable factor in determining bank spending on intellectual human capital. To further investigate this finding, the F-value is used to test the overall significance of the model from which the adjusted R^2 derives. The statistics indicate that at 5% level of significance, the models for each bank and the cumulative results are statistically significant. More so, the Durbin Watson for most of the models are close to 2 (that is, can be approximated to 2). This indicates that the models are not auto correlated and hence the results from these models can be adjudged robust.

The coefficient of the Asset Quality (AQ) in the models for the selected banks are Fidelity Bank Plc (-.100), UBA Plc (-.057), Diamond Bank Plc (.0102), Zenith Bank Plc (.154), First Bank Nigeria Plc (.020), and the cumulative is -.205. From the results, the AQ of most of the banks are on the negative and the group (cumulative) result is negative. This suggests that the overall effect of intellectual capital (employee expenses) is negative.

The test of significance is done with the t-value of the cumulative results. The t-value of the cumulative coefficient result is -895. This value is negative and as well not statistically significant at 5% level. Thus the study infers that there is no significant positive relationship between intellectual capital and asset quality of the banks.

The coefficient of the Loan Quality (LQ) in the models for the selected banks are Fidelity Bank Plc (-.766), UBA Plc (-.172), Diamond Bank Plc (.633), Zenith Bank Plc (.371), First Bank Nigeria Plc (.545), and the cumulative is -.215. From the results, the LQ of most of the banks is on the negative and the group (cumulative) result is also negative. This suggests that the overall effect of intellectual capital on Loan Quality is negative.

The test of significance is done with the t-value of the cumulative results. The t-value of the cumulative coefficient result is -.276. This value is negative and as well not statistically significant at 5% level. Thus the study infers that there is no significant positive relationship between intellectual capital and loan quality of the banks.

The coefficient of the Net Income (NI) in the models for the selected banks are Fidelity Bank Plc (.773), UBA Plc (-.022), Diamond Bank Plc (-.113), Zenith Bank Plc (-.609), First Bank Nigeria Plc (.029), and the cumulative is .160. The results showed that the coefficients of N1(Net Income) for Fidelity, First Bank, and the overall cumulative are positive; while those of UBA, Diamond, Zenith are negative. Besides, the industry result indicates that there is positive relationship between Net Income of banks and their Intellectual Capital. This implies that as the banks use more qualified and experienced staff, the more income they tend to generate. Using the cumulative t-value (0.580), we found that the result is not statistically significant at 5% level. This means that there is no significant positive effect of intellectual capital on net income of the banks.

The t-value (-2.209) is statistically significant at 5% level. Thus, we reject the null hypothesis and then conclude that there is a significant positive effect of intellectual capital on interest expenses of the banks.

5.0 CONCLUSION AND RECOMMENDATIONS

Corporate governance rather than intellectual capital has attracted a wide discourse within the Nigerian academic context. However, it can be deduced from previous studies that corporate governance is merely a product of intellectual capital because the latter is the pendulum around which the former revolves. For instance, Edvinsson and Malone (1997) see intellectual capital as a composite of human and structural capital with human capital comprising individual capability, knowledge, skills and experience both of which are needed to harness the other resources of an organization. These include the structural and customer oriented capital which are designed to increase the overall performance of the organization. Although the study revealed that intellectual capital of Nigerian Banks has not contributed positively to growth in corporate performance, it was also found that the asset quality and loan quality of some of the banks improved as a result of investment in intellectual capital.

Also, the net income of some of the banks and the industry (cumulative) was positive implying that if banks engage experienced, trained and more qualified staff in their operations, there will be improvement in their net income position.

On recommendations, the asset quality of most of the banks as well as the cumulative experienced negative effects. The study recommends that the banks should take inventory of their stock of assets and take steps to dispose those that are no longer productive as some of the equipments may be unserviceable and / or obsolete.

Intellectual capital generally has a positive effect on net income of the banks including the group. The other banks that experienced negative effect should borrow the template being used by the other banks in assessing their intellectual capital needs.

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