

## Intellectual Capital and Financial Performance of deposit money banks in Nigeria

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### **Abstract**

*The competitive environment has ignited a shift in the mode of operations of financial institutions especially banks, making it to become one of the most knowledge-based industry. A vital component in this industry currently, is the knowledge capital also called Intellectual Capital. This paper examined the influence of intellectual capital on financial performance of deposit money banks in Nigeria. The main objective of this study was to examine the influence of intellectual capital on the performance of deposit money banks in Nigeria. The study adopted ex-post facto design this was because the study relied on previously generated data The population of the study was the fourteen (14) Deposit money banks listed on the Nigerian Stock Exchange as at 2022, of which Six banks were purposively selected The secondary source data was employed covering fifteen (15) years (2007-2021). The study also employed a descriptive statistic and regression analysis was used to test the two hypotheses. The result of the findings of hypotheses one showed that with t.cal of -0.545 it indicated that there is no significant impact of relational capital efficiency on the performance of deposit banks in Nigeria. Also, based on the decision rule of hypotheses two the result indicated that the null hypotheses two was rejected with t.cal. of 3.721 thereby implying that there is a significant influence of human capital efficiency on performance of deposit money banks in Nigeria. They study concluded that intellectual capital influences performance of deposit money banks in Nigeria. It was therefore recommended that bank should maintain equilibrium in their investment in intellectual capital components which include human capital and relational capital. They should also initiate strategies that will guarantee continued growth in performance.*

**Keywords:** Intellectual capital, Performance, and Relational capital

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## 1.0 Introduction

Most economies today are being driven by innovation, technology and information, which was not the case few decades back when machines were the drivers of the economy. These two eras have been differentiated by their mode of operations and resources. The value of firms in the machine era was determined by plants, machinery, materials and equipment, while knowledge, ability, skills, experience and employee attitudes form the current era. In the current era, intellectual capital is a significant asset against the belief of the previous eras that land, labour and capital are the main determinants of economic activities. (Ahangar, 2011).

The competitive environment has ignited a shift in the mode of operations of financial institutions especially banks, making it to become one of the most knowledge-based industry. A vital component in this industry currently, is the knowledge capital also called Intellectual Capital (IC). Intellectual capital plays a crucial role in advancing the banking industry. Historically, banking began in Nigeria during the 19<sup>th</sup> century, in which the Bank for British West Africa was set up in Lagos in 1883. The Nigerian banking sector has undergone several reforms in previous years. Despite the reforms, it has not performed optimally (Bassey and Tapang, 2012). The cause of the abysmal performance is usually attributed to poor framework, inadequate financing, poor internal control systems and corporate governance abuses. The constant collapse of banks has also been attributed to the predominance of managers who had no university education (Abel and Deitz, 2015). The banking industry in Nigeria has begun to prioritize the training of its employees on a very regular basis. At the emergence of technology in the Nigerian Banking sector, most operators did not embrace it while some did. Those that embraced technology in their operations have recorded significant growth over the years, thus causing others to follow suit. A key indicator of this change is the dominance of trading activities at the Nigeria Exchange Group (NEG) by banks who embraced technology as an offshoot of intellectual capital.

Though, some old generation banks report high book values of their assets, most of the new generation banks still post higher and better financial performance figures and better services than the former. Also, at the Nigerian Stock Exchange, the rate of revenue generated by these new generation banks as well as their market capitalization has steadily increased and remained superior to those of the old generation banks because the new generation banks invest more in their human asset and provide better incentives that will motivate them to work harder and put in their best (Ekwe, 2014). Of all the factors of production, labour is the most important, which constitute the human asset. Labour means choosing the right people with good character without sentiment. People with competent and right character are great assets to any organization as they enhance productivity and boost performance. They put in their best to achieve success as long as they are well motivated. A clarification on the cause of the variation in trend needs to be empirically analyzed.

### **Statement of the Problem**

Empirical studies on the challenges of business firms have been primarily on accounting systems, asset utilization and regulations without any emphasis on those who operate the systems, which is a core function of intellectual capital in a business entity. Employees are often regarded as the most important assets of an entity, yet they are excluded from the financial statements.

The functionality of any system is dependent on its operators. No corrupt practices are carried out in a system without human support. The level of integrity and motivation of employees determine their productivity and performance. An information centered economy is

determined by intellectual asset, but its role in an organization's sustainability is often neglected by management, especially in the deposit money banks in Nigeria. The financial statement should be reviewed and structured in a way that it measures investment in intellectual capital as an asset and not expenses, and include it in the statement of financial position because intellectual capital is the main driver of any economy. Thus, the research output, recommendations and implementation thereafter still leave the Deposit Money Banks with little or no reduction in the level of crises. This study is in furtherance of this need.

### **Objectives of the Study**

The main objective of this study was to examine the influence of intellectual capital on the performance of deposit money banks in Nigeria, while the specific objectives were to;

- i. evaluate the influence of relational capital efficiency on the performance of deposit money banks in Nigeria
  - ii. examine the influence of human capital efficiency on the performance of deposit money banks in Nigeria
- investigate the influence of intellectual capital efficiency on the performance of deposit money banks in Nigeria.

## **2.0 Review of related literature**

### **Conceptual review**

The concepts relevant in this study are discussed in the following order: Intellectual capital, human capital, relational capital and financial performance.

### **Intellectual Capital**

Intellectual capital has been defined by various ways by different author based on their individual understanding. Engstrom et.al 2003 agreed that there is no generally acceptable definition of intellectual capital. Nevertheless, some efforts have been made at providing more definitions of intellectual capital. Ahangar (2011) understood intellectual capital as inventions, ideas, general knowledge, design approaches, computer programs and publications. Intellectual capital can be defined as skills and knowledge acquired by people throughout their period on earth and which could be used for production of goods and services. However intellectual capital is a collective intangible assets that allow an enterprise to function. He also sees an enterprise as the sum of its tangible asset and intangible assets as expressed in the formula below:

$$\text{Enterprise} = \text{Tangible Assets} + \text{Intellectual Capital}$$

### **Human capital**

The primary sub component of an organization's human capital is its employees' skill sets, depth of knowledge, and extensiveness of experience. Human resources can be thought of as the living and thinking part of intellectual capital resources (Roos *et al.*, 2005). However, human capital is the heart of intellectual capital as it relates to employee's knowledge, competence, skills, capability and innovation (Khalique *et al.*, 2011). Employees also generate intellectual capital through their competence, attitude and intellectual agility (Roos *et al.*, 2005; Bontis *et al.*, 2000). Also, human capital includes the competencies of employees, their know-how in certain fields that are important to the success of enterprise and their aptitudes and attitudes. Employee loyalty, motivation and flexibility will often be significant factor too, because a firm's expertise and experience pool develop over time.

Furthermore, Virkus (2014) defined human asset as health, abilities, knowledge and motivation which offer satisfaction when possessed. Human capital refers to the competence

of the employees in creating both material and immaterial assets via their perceptions and technical know-how. Human capital as the capability, knowhow, sensitivity, attitudes and expertise of the workforce. It is seen as the productive capacity of the labour force. According to John (2018), human capital has eighteen (18) elements and they are system thinking, know how, tacit knowledge, situation knowledge, health, design, creativity, social capital, Social status, Cultural Capital, relational capital, leadership, research, diligence, strategic thinking, decision making, problem solving and personal resilience.

### **Relational capital**

Relational capital is mainly centered on the relationship that exist among organizations and their customers; that is, how organizations manage their friendly disposition towards their various stakeholders (goodwill). John (2018) defined relational capital as a type of intangible asset established by a business based on its reputation and relationship with stakeholders. It is described as the investment with the external stakeholders such as suppliers, partners, customers, clients, brand names, trademarks, reputation among others. Relational capital is one of the most important components of intellectual capital as it is based on customer satisfaction, loyalty and engagement. It is pointed out based on knowledge embedded in the marketing channels and customer relations with organizations that develop in conducting business (Bontis *et al.*, 2000). However, relational capital is mainly based on the relationship between the organization and its customers (Shaari *et al.*, 2010).

A good relationship with customers and other stakeholders is very important for the success of an organization because customers buy products or services from the organization (Roos *et al.*, 2005). According to Tai-Ning *et al.*, (2011) customers are the main source of revenue generation for organizations and it is very important for them to satisfy their customers' needs by creating incentives to motivate them and enable them enjoy the goodwill of the organization. Also, John (2018) explained that, relational capital is a type of intangible asset established by a business based on its reputation and relationship with stakeholders. The following are the various components of relational capital: competitor capital, community capital, supplier capital, regulatory capital, and alliance capital (Akpinar, 2000). John (2017) also gave elements of relational capital to include; brands, goodwill, employer branding, stakeholders, customer relationship, partners and contacts.

### **Financial performance**

Performance is a global concept as it is examination of all sectors of the economy. The definition of performance varies from organizations to organizations and their various applications as they tend to focus more on the performance indicator(s) that suit strategic organization goals. Ratti, (2012) explained that performance is the process of achieving the expected results due to functioning in a stipulated manner and regulated framework. An organization is said to be performing well when it is meeting its targets and achieving set goals and objectives. Performance can also be classified into strategic performance, individual performance, operational performance and firm-specific performance. Richard *et al.*, (2009) classified performance into three (3) as explained below namely; product market performance, total shareholders return performance and financial performance. Financial performance is a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. The term is also used as a general measure of a firm's overall financial health over a given period. Analysts and investors use financial performance to compare similar firms across the same industry or to compare industries or sectors in aggregate. There are several ways to measure financial performance, but all measures should be taken in aggregate.

Line items such as revenue from operations, operating income or cash flows from operations can be used, as well as total unit sales.

### **Return on asset (ROA)**

Profitability shows the extent to which a firm's income exceed its cost. Return on asset is an indicator of how cost-effective a company is in relation to its total assets. It gives an idea as to how efficient the management uses assets to generate earnings. It is the ratio of the net income (less preference dividends) divided by book value of total assets as reported in the annual reports; (Firer and Williams, 2003; Chen *et al.*, 2005). It is expressed mathematically as:

$$ROA = \frac{\text{Total Income}}{\text{Total Assets}} \times 100$$

### **Theoretical framework**

Human Capital theory by Schultz (1981) was the most related theory used in the study

#### **Human capital theory**

This theory was propounded by Schultz (1981). The theory emphasizes the correlation between investment in education and training and income differentials. It assumes the rationality of firms and individuals in committing resources to education. Another assumption of the theory is the nexus between education, productivity and earnings growth. Human Capital theory states that increase in human capital standard will increase productivity. The proponents equated the increase in productivity to the present value of the investment in education and trainings. Mincer (1958) and Becker (1964) introduced the concept of provision for general and specific training into human resource theory. They explained that general training that are not generic in nature enhance the skills of the employees.

On the other hand, specific trainings are specialized trainings that give employees skill set that are only relevant to a specific employer. Specific training can be offered by employers as a production enhancing mechanism. The proponent of the theory asserts that cost of education and training are investment like tangible assets which ought to be capitalized and reflected in the firm's audited accounts as investment in recruitment, training and development. This theory is applicable to this research as it pushes for the inclusion of intellectual capital in the financial statements considering its contribution to firm performance. Human capital theory is relevant in this work because ROA is dependent on VAIC as presented in the model, it means that increase in VAIC will bring increase in performance (ROA).

#### **Empirical review**

Blessed (2022) investigated intellectual capital performance in Nigeria drawing samples from listed non-finance firms on the floor of the Nigerian Exchange Group market. While performance proxied by return on asset is the dependent variable, the independent variables adopted for this study includes structural capital efficiency, capital employed efficiency, human capital efficiency and value-added intellectual capital coefficient. However, it was concluded that structural capital efficiency, capital employed efficiency and value-added intellectual coefficient significantly improve firm performance. Hossain, Salam, Reza & Hasan (2022) examined the impact of intellectual capital and its elements (e.g., human capital, structural capital, and capital employed) on the profitability, market value, and productivity of all 30 publicly traded banks listed on the Dhaka Stock Exchange in Bangladesh. The study found that banks with higher intellectual capital generated higher profits but lowered productivity; however, intellectual capital did not contribute to enhancing market value. The findings of the study suggest that the listed banks in Bangladesh failed to exploit intellectual capital well enough to gain a competitive advantage.

Opazo and Gonzalez (2021) analysed the direct impacts on financial performance and the added value of production in family businesses, considering the efficiency of intellectual capital as determining variables. A comparative analysis between family businesses (FB) and nonfamily businesses (NFB) is proposed to explore significant differences in the impacts on financial performance and added value of companies, through multivariate techniques. It contributed to the literature on the family business, and its performance from an analytical framework that incorporates the theory of intellectual capital and the measurement of its impact. The findings showed that the value-added coefficient of intellectual capital (VAICTM) is a determining factor in the financial performance of companies and, to a greater extent, in the FB than in their NFB counterparts.

Adugna, Kumar and Umamaheswari (2021) examined the effect of intellectual capital on the financial performance of Ethiopian bank and insurance companies. Specifically, this study examined the effect of VAIC (HCE, SCE, CEE), liquidity, leverage and size on the financial performance of Ethiopian bank and insurance companies. To investigate the effect of such factors, panel data were used from national bank of Ethiopia and from private banks and insurance companies audited annual report. Rezende & Silva (2021) discussed Value Creation based on the VAICTM method and as a research field the companies that are part of the B3 (BM&FBOVESPA) Corporate Sustainability Index (ISE) portfolio. As a first approach, we selected the year 2016 after ten years of ISE history. The VAICTM components were recovered and computed from the International Financial Reporting Standards ended in December 31, 2015. The hypotheses allowed to affirm the following: (i) there is interdependence among Invested Financial Capital, Intellectual Capital, and Value Creation; (ii) there are dimensions of Value Creation capable of differentiating and clustering the observations; and (iii) the allocative efficiency of companies can vary according to clusters. The main limitation is the size of the population/final sample - 29 corporations. The implications refer to the reinforcement of the theoretical existence of Value Creation based simultaneously on tangible and intangible assets and the possibility to categorize companies to broaden the understanding of the bases for appreciation of the value and pricing of assets traded on the stock exchange platforms.

Onyekwelu *et al.*, (2017) assessed the “Effect of Intellectual Capital on Financial Performance of Banks in Nigeria”. The results of their findings revealed that banks are statistically different in both intellectual capital and financial performance indicators, therefore, banks with high intellectual capital showed a higher financial performance. They recommended that banks should invest vigorously in the development of their human capital since human beings are key drivers of firm's performance. They also recommended that banks should provide necessary infrastructures needed to achieve a stable human capital in the system.

### **3.0 METHODOLOGY**

The research design that was adopted in this study is the ex-post facto design. This design relied on previously generated data that were used in exploring intellectual capital and performance of deposit money banks in Nigeria. The population of the study was the fourteen (14) Deposit money banks listed on the Nigerian Stock Exchange as at 2022. Six banks were purposively selected which were; First Bank Plc., Zenith Bank Plc., First City Monument Bank [FCMB], Guaranty Trust Bank [GTB], Access Bank and Union Bank. The secondary source data was employed covering fifteen (15) years (2007-2021).

**Description of variables**

The conceptual framework that specifies the variables and their inter connectedness is presented in Figure 3.1.

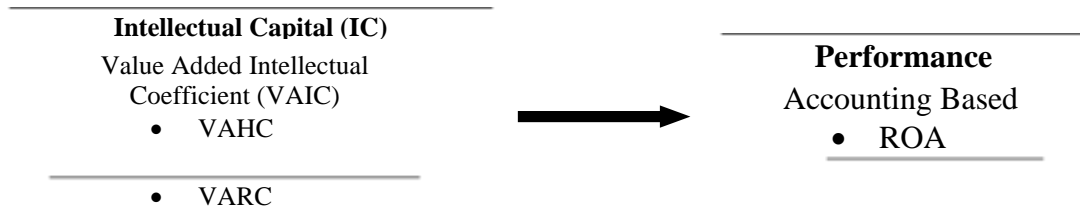


Figure 3.1 serves as a guide in model specification.

**Source:** Adapted from Pulic (1998).

**Model Specification**

The model used in testing the hypotheses is given as:

$$\text{Perf} = f(\text{IC}) \tag{1}$$

Where: Perf = ROA

IC = VAIC

$$\text{VAIC} = \text{HCE} + \text{RCE} \tag{2}$$

Thus, ROA = f(HCE and RCE) \tag{3}

$$\text{ROA} = \beta_0 + \beta_1 \text{VAIC} + \varepsilon \tag{4}$$

Where:

IC = Intellectual Capital (considered as an investment)

VAIC= Value Added Intellectual Capital

ROA = Return on Asset (Dependent Variable)

HCE=Human Capital Efficiency (Independent Variable)

RCE = Relational Capital Efficiency (Independent Variable)

$\beta_0, \beta_1$  – Coefficient

$\varepsilon$  – Stochastic Error Term

**4.0 Descriptive Statistics**

The descriptive statistics of the data set is presented in Table 4.1. The descriptive statistics includes mean, median, minimum, standard deviation, skewness, kurtosis, Jarque-Bera.

**Table 4.1 Descriptive Statistics**

	RETURN ON ASSETS (ROA) (%)	RELATIONAL CAPITAL EFFICIENCY (N'000)	HUMAN CAPITAL EFFICIENCY (N'000)
Mean	1.545134	0.005764	0.275713
Median	2.011927	0.001130	0.246671
Maximum	13.96257	0.277924	4.113974
Minimum	-31.06369	-0.149924	-3.243140
Std. Dev.	4.466797	0.036990	0.604616
Skewness	-4.962366	4.263706	0.799947
Kurtosis	37.89728	41.88326	35.60920
Jarque-Bera Probability	4387.734 0.000000	5282.081 0.000000	3553.065 0.000000
Sum	123.6107	0.461132	22.05703
Sum Sq. Dev.	1576.230	0.108095	28.87925
Observations	80	80	80

**Source: Researcher's Computation (2022).**

Based on the result of the analysis shown in Table 4.1, the average return on assets (financial performance) of the deposit money banks was 1.54%. The minimum value was -31.06% while the maximum was 13.96%. The degree of dispersion which is the standard deviation was 4.46%. Relational capital efficiency had a minimum value of -0.149924 or ~~₦~~149.924 while the maximum value was 0.277924 or ~~₦~~277.924. The average value of relational capital efficiency was 0.005764 or ₦5.764. The standard deviation for relational capital efficiency was 0.036990 or ₦36.99. Human Capital Efficiency had a minimum value of -3.243140 or ~~₦~~3,243.10 while the maximum value was 4.113974 or ~~₦~~4114.00. The average structural capital efficiency was 0.275713 or ~~₦~~275.71. The standard deviation for structural capital efficiency was 0.604616 or ~~₦~~604.62.

### Presentation and analysis of Empirical Results

A multiple linear regression analysis was carried out in line with the model specification of the study, and the results are shown in Tables 4.2, 4.3 and 4.4 respectively. The result of the regression analysis was used to test the research hypotheses.

**Table 4.2 Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.395 <sup>a</sup>	.156	.123	136.56875	1.552

a. Predictors: (Constant), RELATIONAL CAPITAL EFFICIENCY, HUMAN CAPITAL EFFICIENCY

b. Dependent Variable: FINANCIAL PERFORMANCE

**Source: Researchers' Computation (2022).**

**Table 4.3 ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	261839.006	3	87279.669	4.680	.005 <sup>b</sup>
	Residual	1417477.881	76	18651.025		
	Total	1679316.887	79			

a. Dependent Variable: FINANCIAL PERFORMANCE

b. Predictors: (Constant) RELATIONAL CAPITAL EFFICIENCY, HUMAN CAPITAL EFFICIENCY

**Source: Researchers' Computation (2022).**



**Table 4.4 Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	658.781	131.788		4.999	.000		
	RELATIONAL CAPITAL EFFICIENCY	-.236	.433	-.059	-.545	.587	.959	1.043
	HUMAN CAPITAL EFFICIENCY	-.688	.185	-.491	-3.721	.000	.638	1.566

a. Dependent Variable: FINANCIAL PERFORMANCE

**Source: Researcher's Computation (2022).**

### Test of Hypotheses

#### Hypothesis One

The null hypothesis one states that there is no significant impact of relational capital efficiency on the performance of deposit money banks in Nigeria. Based on the decision rule of the study, the null hypothesis one of the study is rejected and the alternate accepted because the p-value of 0.587 shown in Table 4.4 is greater than 0.05. The null hypothesis is further accepted because the t-cal value of -0.545 is less than the critical value of t which was 1.990. This implies that there is no significant impact of relational capital efficiency on the performance of deposit money banks in Nigeria.

#### Hypothesis Two

The null hypothesis two states that there is no significant influence of human capital efficiency on the performance of deposit money banks in Nigeria. Based on the decision rule of the study, the null hypothesis two of the study is rejected and the alternate accepted because the p-value of 0.000 shown in Table 4.4 is less than 0.05. The null hypothesis is further rejected because the t-cal value of 3.721 is greater than the critical value of t which was 1.990. This implies that there is a significant influence of human capital efficiency on the performance of deposit money banks in Nigeria.

### Discussion of Findings

Intellectual capital, as exemplified in this study is the human capital and relational capital of the sampled banks. The analysis revealed that relational capital efficiency had insignificant but negative influence on the financial performance of the sampled banks. The beta coefficient showed a 5.9% decrease in financial performance as accounted for by relational capital efficiency. The negative relational capital implied that the banks were not generating enough value added to cover their relational capital investment. The analysis also indicated that there was a negative but significant impact of human capital efficiency on the financial performance of the selected banks. This as indicated in the result implied that 49.1% decrease in the financial performance of the selected banks was caused by human capital efficiencies. These has to do with the people managing whatever structures put in place and the implementers of bank policies. It can therefore be said that with adequate manpower, the banks can perform efficiently but with excessive expenditure on human capital these will affect the

financial performance of the bank negatively. This was in line with the findings of Hossain, Salam, Reza & Hasan (2022).

The influence of intellectual capital efficiency on the performance of Deposit money Banks showed an adjusted R-square value of 0.123 which means that 12.3% of the variation in financial performance of deposit money banks is influenced by intellectual capital. The result was also in line with the findings of Ali, Murtaza, Hedvicakova, Jiang, and Naeem (2022) who researched on whether IC efficiency impacts the financial performance of listed Pakistani and Indian companies and their result showed that intellectual capital significantly influences financial performance.

### **5.0 Summary, conclusion and recommendations**

The study revealed that there is a significant influence on Intellectual Capital on the Performance of Deposit Money Banks in Nigeria, while relational capital does not significantly influence the financial performance of deposit banks in Nigeria

### **Conclusion**

In conclusion, the intellectual capital of banks in Nigeria significantly influences performance which confirms the a priori expectation of the study. It was also concluded that the independent variables on their own impacted the dependent variable differently.

### **Recommendations**

It was recommended that bank should maintain equilibrium in their investment in intellectual capital components which include human capital and relational capital. They should also initiate strategies that will guarantee continued growth in performance.

### **Contributions to Knowledge**

This study has established empirically that intellectual capital influences the performance of deposit money banks significantly using the VAIC approach.

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