

Intellectual Capital and Financial Performance of Listed Insurance Companies in Nigeria

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Abstract: *This study investigated intellectual capital and financial performance using a causal study design. The study adopted ex-post facto research design on a population of twenty-six (26) insurance companies listed on the Nigeria stock exchange. The census method was adopted to opt for all of twenty-six (26) insurance companies. However, only thirteen (13) of the companies had complete data for the period under review (2012 to 2020). Therefore, the sample size of the study was thirteen (13). Given the period of nine (9) years (2012-2020), the study used 117 firm year observations. The statistical model adopted in this study were; descriptive statistics and multiple regression technique for the analysis data with the aid of Statistical Package for Social Science (SPSS). The study found that, Human Capital Efficiency, Structural Capital Efficiency and Capital Employed Efficiency have minimal significant and positive effect on Return on Asset. The study concludes that all the indicators of intellectual capital show that there is no much significant effect on financial performance of insurance companies in Nigeria, and recommends amongst others that, the International Financial Reporting Committee (IFRC) to develop standard that will make intellectual capital reporting compulsory in the financial statement in order to enhance financial reporting quality and performance within the context of satisfying the information need of stakeholders*

Keywords: *Capital employed efficiency, Human capital efficiency, Return on asset, Structural capital efficiency.*

INTRODUCTION

It is generally contended that the success of any business organization depends largely on the quality and caliber of its workforce. The fact that firms are engaging in voluntary disclosure of intellectual capital information is a clear indication that firms are now recognizing and acknowledging that there has been an omission of a very important asset in the financial statements. An organization having vast physical resources with latest technology may find itself in the midst of severe financial crisis in case it does not have right people to manage and conduct its affairs (Oko, 2018). Thus, in spite of the growing technological advancements, the importance of intellectual capital has in no way diminished.

Human resource accounting also recognized that inclusion of this disclosure in the financial reporting will make the published financial statements more meaningful and useful to the users of accounting information. This is an important step in the development of human resources accounting as it clearly indicates that in future there may be need for financial regulatory authorities on the inclusion of human resources values in the financial statements. They may also need to determine what human resources information firms in Nigeria are disclosing and the trend of this disclosure and what factors determine intellectual capital disclosure in Nigeria. This will shed more light on the current practices of accounting for intellectual capital in the annual reports of Nigerian firms as well as pointing the way forward in the development of this important branch of accounting (Ezekwesili *et al.*, 2022).

The adoption of International Financial Reporting Standard (IFRS) in Nigeria has compounded the need for complete disclosure: IFRS recognized the disclosure of intangibles assets in the annual financial statement. Oko (2018) opine that the adoption of the global financial reporting standard (IFRS) increase the need for intangibles disclosure. Ironically, the financial statements in Nigeria lack full disclosure of human resources information. Human resources accounting and by corporate organization is still at the infant stage in Nigeria (Jesuwunmi *et al.*, 2019). Studies revealed that a limited attention has been given to examine human capital practices of the business in the developing countries (Jesuwunmi *et al.*, 2019). In Nigeria there is a dearth of studies to the best of our knowledge, consequently investigating the determinants of intellectual capital disclosure is imperative. However, despite the growth and development of human resources accounting disclosure, its ability to satisfy the information needs of various stakeholders is still low (Agbi *et al.*, 2020).

According to Ofurum *et al.*, (2018), innovation chiefly creates competitive advantage through intellectual capital rather than tangible assets. Therefore, managers in those umpires predisposed to invest in knowledge-based resources in order to achieve and maintain corporate success (Nasif *et al.*, 2017). However, Oladele *et al.*, (2018) opined that Managers of company's intellectual capital generate more than half of a company's value than the production of internal goods in the current economic system. Also, Ofurum *et al.*, (2018) revealed that an efficient utilization of intellectual capital is more crucial for accomplishing success in banking than other industries, making such an acclaimed statement that delivering high quality services by a bank is strictly dependent on its investment in terms related to intellectual capital. So, there is need to investigate other sectors of the economy specifically oil marketing companies.

However, to be encouraged to embark on the need to boast intellectual capital, one is expected to be aware of what will be the possible outcome and its impact on the economy in general. Although, Christian *et al.*, (2016) has argued that financial statements which is one of the documents that account for profitability cannot be complete devoid of bigotry, since fiscal phenomena placed in yearly disclosures are continually within the circumstances of skepticism. So, there is need for profitability to be fully accounted for and disclosed as a mandatory document that can be accessible to the management of every company. This makes financial performance to be fully accounted for. This makes financial performance to be crucial to any business organization survival and continuous growth and patronage by the stakeholders in the business world (Ofurum *et al.*, 2018). Ofurum *et al.*, (2018) further explained that specifically, financial performance otherwise referred to as profitability is a natural result of business operations that involve the use of both physical and intellectual capital. So, these two variables (intellectual capital and profitability) must always work together to foster considerable growth in the economy. Although, research carried out by

Ofor *et al.*, (2022), Sebestova *et al.*, (2022) have shown that there is a relationship between intellectual capital and profitability (financial performances). In another development, it has also been proven that there are positive effects on profitability and the results of research carried out by Imeokparia *et al.*, (2020). Okoye *et al.*, (2022) revealed that financial performance (profitability) is positively related to company's value.

Despite the phenomenal importance and heavy investments in intellectual capital and its significant relationship with profitability, listed deposit money banks still face a growing challenge. These challenges are not reflected in the financial statements of various organizations as a result of the standard of International Accounting Standard IAS 38 (intangible assets). Also, it is a common knowledge that statement of financial position does not provide holistic information on the real value of an enterprise; instead, they are mainly prepared for reporting purposes (Nasif *et al.*, 2017). Moreover, the relationship between the data obtained from financial reports and sometime the data obtained were produced in line with the traditional accounting system. In like manner, traditional accounting system fails to capture intangible assets that create value in the enterprises Lambe *et al.*, (2022).

Therefore, practicality of the accounting data obtained from financial reports has been reduced (Nasif *et al.*, 2017). Hence, the disclosures of financial statement of various organizations as a result of the standard of international accounting standard IAS in Nigeria are not in an organized form. In view of the above facts, this study seeks to examine the effect of intellectual capital on financial performance of listed insurance companies in Nigeria.

Statement of the Problem

Intellectual capital reporting has remained a burning issue across the globe in the recent time. The historical method of accounting recognizes only tangible assets in the financial statement of an organization. This is viewed to be inadequate by users of accounting information. In the quest to satisfy the information need of stakeholders, there is the felt need to disclose intangible assets in organization's financial statements. Unfortunately, accounting standards on intangible assets (IAS 38) deals with assets that the entity can easily measure and control. But intellectual capital contributes to organizational performance (Chukwu *et al.*, 2019).

The study on intellectual capital and financial performance of listed insurance companies appears to be lacking in local content. Onyekwelu *et al.*, (2021) investigated human resource accounting and corporate financial performance of quoted insurance companies in Nigeria, Ofurum *et al.*, (2018) examined the effect of intellectual capital component and financial performance of quoted banks in Nigeria. Chukwu *et al.*, (2019) examined market valuation of human capital in Nigeria banks. Godwin *et al.*, (2018) studied the impact of intellectual capital on financial performance of listed Nigerian oil marketing companies. Also, Nwaiwu *et al.*, (2018), Onyekwelu *et al.*, (2017) and Shafiu *et al.*, (2017) all examined the impact of intellectual capital on the financial performance of listed deposit money banks in Nigeria.

The type of gap filled in this study is content gap and scope gap. The scope of this study is nine (9) years, 2012 to 2020 while that of Onyekwelu *et al.*, (2021) and Anuonye (2016) were limited to seven (7) and five (5) years. The content gap the researcher filled was in the area of operational variables particularly the independent variable. The independent variables of this study are human capital efficiency (HCE), structural capital efficiency (SCE) and capital employed efficiency (CEE). These three variables have not been used in any of the studies carried out in Nigeria with respect to insurance companies. However, the two known studies

in Nigeria were carried out by Onyekwelu *et al.*, (2021) and Anuonye (2016), and the independent variables used by them are; human resource accounting disclosure (HRAD), training cost (TC), number of staff (NOS), increase in staff salaries (INSS) for Onyekwelu *et al.*, (2021), while Anuonye (2016) used relational capital (RC), structural capital (SC) and human capital (HC).

It has been observed through empirical review of extant literature that previous studies on intellectual capital and financial performance of quoted firms does not consider firms' total premium as a control variable. The total premium of an insurance firm affects financial performance and it is a measure of firm size (Onyekwelu *et al.*, 2021). Therefore, this study becomes very imperative as there exist a clear gap in existing literature on the effect of intellectual capital on financial performance of listed insurance companies in Nigeria as most of the studies were carried out in foreign countries.

Measurement of intellectual capital in Nigeria appears to be very shallow. It is true that human capital is acknowledged by the Directors of companies, especially in the chairman's statement in the annual reports, yet such knowledge are not measured or articulated in the company's financial report. This implies that the value of firms in Nigeria is under reported.

LITERATURE REVIEW AND HYPOTHESES

Theoretical Underpinning

This study was anchored on the value added intellectual coefficient (VAIC) Model.

Value Added Intellectual Co-efficient (VAIC) Model

The theory Value Added Intellectual co-efficient model is another theoretical concept upon which this study is anchored on. According to Pulic (1998) as cited in Mujakaji *et al.*, (2019), this model was propounded in the year 1997 and was widely adopted by the academic and practitioners as a method to reflect the market value of corporations. Ulum *et al.*, (2014) observed that the model provides a standardized and integrated measure, which allows cross-organizational or cross-national comparison and analysis. In another development Uzoamaka *et al.*, (2015) opined that the VAIC is very important and is a consistent approach which comprises of several components and this includes Human Capital (HC) Structural Capital (SC) and Capital Employed (CE). He further explained that this was developed by pulic (1998) in Austrian Intellectual Capital research center. It was developed like an equation that measures how much and how efficiently intellectual capital and capital employed create value, where the value of human capital was considered as the sum of all salaries and allowances accrue to the employees. Nasif *et al.*, (2017) revealed that the model shows the intellectual capability of an organization and whether its sources are used efficiently or not.

This is to say that, value added intellectual co-efficient (VAIC) model measures the newly-created value per monetary unit invested in each source. Pulic (2004) as cited in Imeokparia *et al.*, (2020) added that the higher the VAIC value of an organization is, the more is the value added created by overall sources of that organization. This model is relevant to this study as it predominantly focus on intellectual capital and financial performance of insurance companies, and other sectors. It is also relevant to this study in the area of examining the relationship between intellectual capital and financial performance of companies.

The Concept of Intellectual Capital

Essentially, intellectual capital is the value of a company's knowledge, skills, business training, or any proprietary information that may provide the company with a competitive advantage. In other words, it is the sum of employee's expertise, organizational processes, and other intangibles that contribute to a company's bottom line. In another development, Oladele *et al.*, (2018) sees intellectual capital as a group of knowledge assets that are attributed to an organization and most significantly contribute to an improve competitive position of the organization by creating additional value to defined stakeholders.

However, despite several definitions and concepts by different researchers, one of the most important resources that can positively impact on a company profitability and efficiency is intellectual capital (Anuonye, 2016). Ibor (2016) observed and reiterates that the world economy has shifted from the industrial in which plant and equipment were considered core assets to the post-industrial era in which emphasis is on intellectual capital as the main company's asset. He further explained that most firms in the industrial era by concept still relied on manufacturing capabilities; companies in the post-industrial era now rely almost completely on driven information and knowledge for survival and profit.

The foundation of the above argument is corroborated by Ikpefan *et al.*, (2015) who proposed that a company will gain a competitive advantage if their intellectual capital resources are properly and effectively harnessed in the organization. Meanwhile, Davies (2018) observed that the drivers of intellectual capital advantage may be discovered in all employees as well as the organization's ability to beat value through market assessment. This is to say that intellectual capital is represented by the company's stock for example skilled employees, knowledge and management philosophy (Ekundayo *et al.*, 2016). However, the study and measurement of the effect of intellectual capital on the profitability of Insurance companies is a key challenge employer faces in an organization towards the fulfillment of their stewardship obligation to investors who depend on the financial information of such company in evaluating the performance of the sector in Nigeria. This is because such a study is expected to provide the industry with sufficient information to formulate and implement strategies that will help develop its intellectual capital and serve as a guide in order to improve the company's value creation Asiku *et al.*, (2017). It is against this background that Ofurum *et al.*, (2018) argued that intellectual capital represents an intangible resource that has been created or acquired by the company and can be used to provide future economic benefits to the company. The question therefore, is that what aspect of this intellectual capital can actually serve the purpose of boasting company's financial performance and what are the various categories of intellectual capital?

According to Anuonye (2016), intellectual capital can be categorized into: Human Capital (HC), structural capital (SC) and relational capital (RC). This study therefore, adopts Human Capital (HC), structural capital (SC) and relational capital (RC) as the dimensions of intellectual capital.

Human Capital: According to Sedeaq (2018), the term human capital could be defined as a key element in improving a firm assets and employees in order to increase productive as well as sustain competitive advantage. He further explained that to sustain competitiveness in the organization human capital becomes an instrument used to increase productivity. Human capital is basically a term that is related to the education, training, and other professional initiatives introduced in an organizational setting to enhance the levels of knowledge, skill,

abilities and social assets of an employee. This is done to enhance the satisfaction and performance of employees which eventually result to firm's profitability.

Human capital is human ability to solve problems. Inyada *et al.*, (2018) opined that human capital as the skills, knowledge and experience of individual employees within an organization. He further described human capital as collective capabilities of an organization in extracting the best solutions using the knowledge of its individuals. Brooking also believes that human assets of an organization include skills, expertise, problem-solving ability, and leadership practices. According to Oladele *et al.*, (2018), human capital as the basis of intellectual capital includes the factors (such as knowledge, skills, capabilities and attitudes of employees) leading to improvement of client's expected performance and company's profitability. In fact, they believe that each employee has a type of skills and knowledge which are an integral part of that employee's mind; if the knowledge and skills are not activated, the employee cannot be used to create value for organization.

Structural Capital: Structural capital on the other hand, represents organizational values that are necessary for an establishment to continue its activities and that support the human capital. Anuoye (2016) defined structural capital as the supportive infrastructure that enhances the functionality of human capital within an organization. According to Onyekwelu *et al.*, (2017), structural capital defined knowledge assets that are indeed company's property includes intellectual property, for example, patent, copyright, and trademarks processes, methodologies, models, documents and other knowledge like artifacts, computer networks and software; administrative systems etc. as earlier mentioned, organizational values here could be referred to as organizational culture, documentation, database where information belonging to the company's customers and the market are stored, production process, quality control and management systems, copyrights and patents etc management tools that have been applied for the purpose of improving the effectiveness, efficiency, and profitability of the establishment, improvement techniques, the information technology systems, the research and development (R and D) effort, emblems all these form all the organizational infrastructural values (Omotayo *et al.*, 2019).. Onyekwelu (2017) revealed that structural capital is more permanent assets that remain when intellectual assets accrue to customers, employees and strategic partnerships are ignored. It is the capacity of an organization to engage in and achieve a business with the information they possess and their corporate culture.

Relational Capital: Relational capital is defined as the set of all relationships – market relationships, power relationships and cooperation – established between firms, institutions and people that stem from a strong sense of belonging and a highly developed capacity of cooperation typical of culturally similar people and institutions (Davies, 2018). According to Prakash *et al.*, (2018), relational capital is defined as the collection of tacit and explicit knowledge regarding the form of the relations a company with its local agents. Customers are one of the main agents.

According to Raman *et al.*, (2015), the relational capital is defined as the organizational association with the internal and external stakeholders of a firm. These include customers, employees, suppliers, industry associations, stakeholders and strategic alliance partners of a firm. It is the value of the relationship between the firm and its business environment.

Shafiu *et al.*, (2017) opined that Relational capital can also be known as customer capital which was defined as the strength and networking of organization through its customers and

external environments. This element of Intellectual Capital encompasses knowledge embedded in the relationships with outside environments; knowledge provided by customers, suppliers, government or even competitors, and perceptions held about the firm, such as corporate reputation Ihendinihu *et al.*, (2017). Customer capital is developed, maintained and nurtured by the organization in order to maintain its external relationship, which influences corporate performance ultimately, (Juan, 2019). It is the collection of resources brought about by a stable network of relationships within a company, (Obialor, 2017).

The relational capital refers to the relationship between enterprises, customers, suppliers and partners, which is a key to long-lasting profit-making and successful business operations. Relational capital refers to the value of the relationship between the firm and its environment (Bukh, 2015). Relational capital can be business capital i.e. the value the relationship that the organization maintains with the main agents connected with its business processes, and social relational capital which the organization maintains with other social agents and its surroundings.

The Concept of Financial Performance

The hallmark of every business enterprise is to maximize Profit. Profit making served as the engine that boost as well as drive business enterprises (Graynor *et al.*, 2016). They further pointed out the importance of profit to different parties mean different things to the financial management, profit simply mean the test of efficiency and a measure of control to the owners of companies, it is a measure of the worth of their investment. Pandey (2014) opined that to the creditor profit simply mean the margin of safety, while to the government it is a measure of taxable capacity.

In general, financial performance is seen as the difference between selling price and the cost of producing and selling that particular production. Although, accounting profits are classified into three categories: for example, gross profit, Operating profit and Net profit. On the other hand, the concepts of profitability are split into two principle parts and this includes: “Profit” and “Ability”. This simply means that to obtain profit from accounting point of view has to do with total expenses subtract from the total revenues for a specific period of time. However, on a contemporary basis it is defined as the ability of an investment to earn as the return from its use (Nwaiwu *et al.*, 2021).

According to Olalekan *et al.*, (2018), measuring financial performance of insurance companies requires accumulation financial information critical to the firm . There are several methods used and they include: Return on Equity (ROE), Return on Asset (ROA), Earnings per Share (EPS). All these are used for testing the effect of intellectual capital on the financial performance of listed Insurance firms in Nigeria.

Return on Assets: Return on Asset (ROA) is defined according to Ironkwe (2019) as an indicator of how profitable a company is in relation to its total assets. Onyekwelu *et al.*, (2017) further explained it as an idea that shows how efficient the management uses assets to generate earnings. This is computed mathematically as the ratio or the net income subtract from preferable dividends divided by book value of total assets as reported in the annual accounting reports (ROA equal to net income divided by total assets) Onyekwelu *et al.*, (2017) also following the value added intellectual coefficient (VAIC) approach developed by Ante Pubic in 1998 formed the underlying measuring basis for intellectual capital in this study. In this study, we make use of the three components of the VAIC coefficients as thus:

Capital Employed Efficiency, follow by Human Capital efficiency and the structural capital efficiency and the structural capital efficiency. Also Omes (2018) opined that return on asset is an accounting ratio expressing the amount of profit for a financial period (year) as a percentage of the rate of a company. This is an indicator that shows how profitable companies maybe when compare to its total as well as how efficient managers or company uses its assets to generate income.

Empirical Review

Ezekwesili *et al.*, (2022) examined human capital investment and financial performance: A study of deposit money banks in Nigeria. The study was carried out on nine (9) deposit money bank listed on the Nigerian stock exchange using ex-post facto research design. Secondary data were sourced from published financial statement of the listed banks covering the period; 2011 to 2020 in order to provide evidence on the nature of relationship between accounting information and share price. Ordinary Least Square (OLS) regression analysis was used to analyze the data with the aid of E-View version 90. Findings revealed that human capital (HC) investment has no positive and significant effect on return on capital employed (ROCE). It was recommended among others that organization should put in more financial resources in human resources and personal management in order to encourage the employees on the job, thus enhancing specialization and positive influence on financial performance.

Okafor *et al.*, (2022) investigated expenditure in human resource and financial performance of quoted manufacturing companies in Nigeria. The study was an ex-post facto one. Causal comparative research was employed by the researcher. Expenditure on human resources are proxied by salary and wages allowance (SWA), other staff related expenses (OSRE) and human resources efficiency (HRE), while financial performance are proxied by ROE and MVP. Secondary data were extracted from the published financial statement of the companies from 2010 to 2019. The population of the study was 52 quoted manufacturing companies in Nigeria. The researcher used regression analysis and panel data to analyze the data with the aid of SPSS. Findings revealed that expenditure in human resources among the quoted manufacturing companies in Nigeria is positively associated with their financial performance. It was recommended that manufacturing companies to engage in other staff related expenses as strategy for attracting and retaining high quality workforce.

Ofor *et al.*, (2022) investigated intellectual capital and corporate performance of quoted consumer goods manufacturing companies in Nigeria. The study was an ex-post facto research design; with a sample size of 16 consume good manufacturing companies quoted on the Nigerian stock exchange. Secondary data was sourced from annual report and accounts of the companies and Nigeria Stock Exchange website covering period of ten years (2010 to 2019). The operational variables are; human capital (HC), structural capital (SC), ROA, firm size and firm coverage. The data were analyzed using multiple regression models. Findings revealed that HC and SC have significant and positive effect on ROA. It was however recommended that human capital should be treated as important business resources by business executive and entire stakeholders, as it is a direct influence of the firm's corporate performance.

Yue, Jian, Weizhen and Feng., (2019) investigate the impacts of three IC components, including human capital (HC), structural capital (SC), and relational capital (RC), on technological innovation and firm performance. Data are collected from 1112 manufacturing listed companies in China during 2013–17. Using partial least squares structural equation

modeling (PLS-SEM), the results show that HC and SC exert a positive impact on firm performance while RC has a negative impact; SC has a positive influence on technological innovation while HC has a negative influence; technological innovation can enhance the firm's performance. In addition, technological innovation partially mediates the relationship between SC and firm performance. This study will bridge the gap in research by investigating the impacts of IC components on technological innovation and firm performance in developing countries.

From the review of literature, the following conceptual framework was designed:

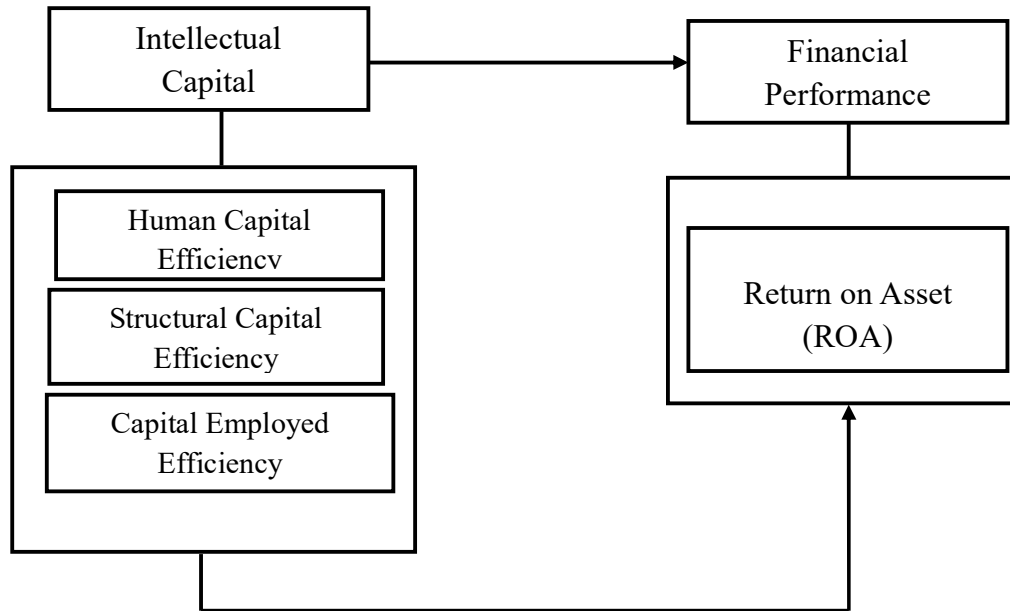


Figure 1: Conceptual Framework of Intellectual Capital and Financial Performance of Listed Insurance Companies in Nigeria.

Source: Conceptualized by the Researcher (2023)

From the review of literature, the following research hypotheses were considered appropriate at 0.5 level of significance.

- H₀₁:** Human capital efficiency has no significant effect on return on assets of insurance companies in Nigeria.
- H₀₂:** Structural capital efficiency has no significant effect on return on assets of insurance companies in Nigeria
- H₀₃:** Capital employed efficiency has no significant effect on return on assets of insurance companies in Nigeria.

RESEARCH METHODOLOGY

3.2 Research Design

The study adopted ex-post facto research design. The population of the study constitutes twenty-six (26) insurance companies that are listed on the Nigeria stock exchange, and the period under consideration was 2012 to 2020. The researchers adopted the census method to elect all of twenty-six (26) insurance companies for the reason that, the population of twenty-six (26) was small. However, only thirteen (13) of the companies had complete data for the period under review (2012 to 2020). Therefore, the sample size of this study was thirteen (13). Given the period of nine (9) years (2012-2020), the study used 117 firm year observations. The statistical model adopted in this study were; descriptive statistics and multiple regression technique for the analysis of data with the aid of Statistical Package for Social Science (SPSS). These statistical models are considered suitable for this study because it is a reliable method of analyzing the relationship between dependent and independent variables.

Model Specification

The econometric model used for this study is as follows;

$$\begin{aligned} \text{ROA} &= a + \text{HCE} + e \dots\dots\dots 1 \\ \text{ROA} &= a + \text{SCE} + e \dots\dots\dots 2 \\ \text{ROA} &= a + \text{CEE} + e \dots\dots\dots 3 \\ \text{FP} &= a + \text{VAIC} + \text{FSZ} + \text{VAIC} * \text{FSZ} + \epsilon \dots\dots\dots 4 \end{aligned}$$

Decision Rule

The rules guiding the test of hypothesis of this study are as follows;

Accept null hypothesis if P-value is greater than 0.05 ($P > 0.05$). On the other hand, reject null hypothesis if P-value is less than or equal to 0.05 ($P \leq 0.05$).

RESULTS

Univariate Analysis

Table 1: Descriptive Statistics

Variables	N	Range	Minimum	Maximum	Mean	Std. Dev
HCE	117	11.98	-2.58	9.4	2.1825	1.37895
SCE	117	18.36	-12.56	5.8	0.3524	1.46667
CCE	117	2.57	-0.06	2.51	0.2543	0.45089
ROA	117	51.37	-35.89	15.48	1.3707	7.49702
FP	117	51573199	572895	52146094	5551674.1	7550047

Source: SPSS Version 24

Human capital efficiency (HCE), Structural capital efficiency (SCE) and Capital employed efficiency (CEE) have negative minimum values (-2.58, -12.56 and -0.06) respectively), suggesting that the efficiency of human capital, structural capital efficiency and capital employed efficiency in some insurance firms are negative, indicating inefficiency in the use of human capital. The maximum value of HCE – a positive figure of 9.4 indicates high level of efficiency of human capital, structural capital and capital employed. The mean value of 2.18, 0.35 and 0.25 respectively, shows that averagely, there is a reasonable efficiency of human capital in the insurance industry in Nigeria, but this is not the case with structural capital and capital employed. The standard deviation of 1.37, 1.47 and 0.45 respectively are however low, suggesting that the values of HCE, SCE and CEE respectively are clustered around the mean.

Multivariate Analysis

Table 2: Hausman test result (ROA on HCE, SCE and CEE)

Model Summary 1

ROA	---- Coefficients ----			
	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
HCE	2.117483	1.976453	.1410297	.1895303
SCE	.1332532	.481234	-.3479807	.1196976
CEE	-1.741471	-.1339315	-1.60754	1.025599

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\begin{aligned} \text{chi2}(3) &= (b-B)[(V_b-V_B)^{-1}](b-B) \\ &= 10.42 \\ \text{Prob}>\text{chi2} &= 0.0153 \end{aligned}$$

Table 3: Fixed-effects Regression results of ROA on HCE, SCE and CEE

Model Summary 2

Fixed-effects (within) regression	Number of obs	=	117
Group variable: firmid	Number of groups	=	13
R-sq: within = 0.1583	Obs per group: min	=	9
Between = 0.0877	avg	=	9.0
Overall = 0.1416	max	=	9
	F(3,101)	=	6.33
corr(u_i, Xb) = -0.0655	Prob > F	=	0.0006

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
HCE	2.117483	.5230373	4.05	0.000	1.079917 3.155048

SCE		.1332532	.4685526	0.28	0.777	-.796229	1.062735
CEE		-1.741471	1.826919	-0.95	0.343	-5.365587	1.882645
_cons		-2.849867	1.294561	-2.20	0.030	-5.417929	-.2818052

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Source: SPSS output

Table 2 is the summary of hausman regression results of ROA on HCE, SCE and CEE respectively. The p-value of the Chi Square yielded a statistically significant value of 0.0153. Therefore, Fixed-effect model is appropriate for testing ROA on HCE, SCE and CEE (Hypotheses 1 to 3).

Table 2 is the model summary result of regression of ROA on HCE, SCE and CEE respectively. The p-value of the regression of ROA on HCE, SCE and CEE is 0.000 which is less than 0.05 benchmark. This indicates that Human Capital Efficiency, Structural Capital Efficiency and Capital Employed Efficiency have significant and positive effect on Return on Asset of insurance companies in Nigeria, and therefore the null hypotheses were rejected. This implies that Insurance companies in Nigeria are committed to investment in intellectual capital to improve their financial performance.

DISSCUSSIONS

Result of hypothesis one revealed that Human Capital Efficiency (HCE) has positive and significant effect on Return on asset (ROA) of insurance companies in Nigeria. The p-value of the Chi square arising from the hausman regression test yielded a statistically significant value of 0.0153. This implies that the fixed-effects model fit the data to test hypothesis 1 to 3 respectively. The p-value of regression of ROA on HCE is 0.000 which is less than 0.05 acceptable benchmark. This is an indication that human capital efficiency has significant and positive effect on return on assets of insurance companies in Nigeria. This also implies that insurance companies in Nigeria are committed to investment in intellectual capital to improve financial performance. The result of this finding opposed the hypothesis which states that there is no significant relationship between Human Capital Efficiency and Return on asset. The finding of this study is in agreements with some previous studies reviewed in the literature. Such studies include: Anuonye (2016) who investigated the effect of intellectual capital on return on assets of insurance firms in Nigeria. The study adopted an ex post facto research design. Data were extracted from both primary and secondary sources. Findings revealed a significant relationship between Human Capital Efficiency and return on assets of insurance firms in Nigerian. The study also agrees with the study carried out by Okafor *et al.*, (2022). They theoretically and empirically investigated the influence of human resource accounting on financial performance of quoted manufacturing companies in Nigeria. They came to a conclusion that the role of intellectual capital is critical to financial performance, and this helps in achieving competitive advantages by companies from emerging economics where performance was strongly determined by the physical capital used in the study.

Finding of hypothesis two revealed that Structural Capital Efficiency (SCE) has no significant effect on return on assets (ROA) of insurance companies in Nigeria, given a P-value of 0.777 which is higher than the 5% acceptable benchmark. This means that SCE does not influence financial performance of insurance companies. The implication is that, the larger the insurance companies, the lesser the attention given to intellectual capital by management. Result of hypothesis two is in line with the study carried out by Godwin *et al.*,

(2018). They investigated the impact of intellectual capital on the financial performance of listed oil marketing firms in Nigeria. The researcher used ex-post facto research design. Using VAIC, the researchers used multiple regression analysis to analyse the data. Findings revealed a negative significant impact on ROA of the oil marketing companies in Nigeria. Also, this finding disagrees with some of the former studies reviewed in the literature. Oko *et al.*, (2018) investigated the effect of Intellectual Capital Management on revenue generation of listed deposit money banks in Nigeria. Descriptive research design was adopted for the study considering the total population of all the 21 listed deposit money banks in Nigeria. Data were obtained through secondary source from Six (6) published annual reports of the listed deposit money banks and analyzed using percentages and ratios. Multiple regressions was employed in the data analysis and test of hypotheses to determine if there is significant effect of human capital efficiency, structural capital efficiency and Intellectual Capital management on revenue growth of listed deposit money banks in Nigeria. The study revealed that Structural Capital Efficiency (SCE) has no significant effect on revenue growth of the listed deposit money banks in Nigeria.

Finding of hypothesis three revealed that Capital Employed Efficiency (CEE) has no significant effect on return on assets (ROA) of insurance companies in Nigeria, given a P-value of 0.343 which is higher than the 5% acceptable benchmark. This means that CEE does not influence financial performance of insurance companies. The implication is that, the larger the insurance companies, the lesser the attention given to intellectual capital by management. Result of hypothesis three is in line with the study carried out by Godwin *et al.*, (2018). They investigated the impact of intellectual capital on the financial performance of listed oil marketing firms in Nigeria. The researcher used ex-post facto research design. Using VAIC, the researchers used multiple regression analysis to analyze the data. The findings revealed a negative significant impact on ROA of the oil marketing companies in Nigeria. Also, this finding disagrees with some of the previous studies reviewed in the literature. Oko *et al.*, (2018) investigated the effect of Intellectual Capital Management on revenue generation of listed deposit money banks in Nigeria. Descriptive research design was adopted for the study considering the total population of all the 21 listed deposit money banks in Nigeria. Data were obtained through secondary source from Six (6) published annual reports of the listed deposit money banks and analyzed using percentages and ratios. Multiple regressions was employed in the data analysis and test of hypotheses to determine if there is significant effect of human capital efficiency, structural capital efficiency and Intellectual Capital management on revenue growth of listed deposit money banks in Nigeria. The study revealed that Structural Capital Efficiency (SCE) has no significant effect on revenue growth of the listed deposit money banks in Nigeria.

CONCLUSION

The study examined the effect of Intellectual capital on the financial performance of insurance companies listed on Nigeria stock exchange. VAIC method was employed on indicators of Intellectual capital, which include; Human Capital Efficiency, Structural Capital Efficiency, and Capital Employed Efficiency. The indicators of financial performance is Return on Asset.

The study depict mixed results, Human capital efficiency (HCE) has significant and positive effect on return on assets (ROA). This implies that most insurance companies in Nigeria are committed to investing in their staff in order to enhance profitability. On the contrary, structural capital efficiency (SCE) and capital employed efficiency (CEE) has no significant

effect on return on assets (ROA). This implies that insurance companies in Nigeria did not invest much in structural capital as well as capital employed, and as such, they need to invest adequately.

In view of the findings of this study, virtually, all the indicators of intellectual capital show that there is no much significant effect on financial performance of insurance companies in Nigeria. This implies that intellectual capital is not the only parameter that predicts the financial performance of insurance companies in Nigeria. For instance, board size, capital structure, and audit committee can influence financial performance of insurance companies in Nigeria.

The study also revealed that intellectual capital does not have much influence on the financial performance of listed insurance companies in Nigeria. Finding also revealed that some companies, irrespective of their being listed on Nigerian Stock exchange, they do not disclose enough information to stakeholders, investors, researchers and others interested parties who are interested in examining empirical aspects of their operational framework or to conduct further research.

RECOMMENDATIONS

In view of the findings of this study, the following recommendations were made;

1. International Financial Reporting Committee (IFRC) to develop standard that will make intellectual capital reporting compulsory in the financial statement in order to enhance financial reporting quality and performance within the context of satisfying the information need of stakeholders.
2. There is need for management of insurance companies in Nigeria to invest more on intellectual capital instead of traditional factor of production, such as training, enhanced welfare package etc in order to improve financial performance on the long run.
3. Investments in human capital should be capitalized. Human capital is made up of employee costs which include salary, training and staff development, pension contribution and others.

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