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INTELLECTUAL CAPITAL EFFICIENCY AND CORPORATE FINANCIAL PERFORMANCE OF ICT COMPANIES IN NIGERIA

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Abstract
The study ascertained the effect of intellectual capital efficiency on corporate financial performance of listed ICT companies in Nigeria. Specifically, the study sought to determine the effect of innovation capital efficiency and corporate financial performance of listed ICT companies in Nigeria. *Ex Post Facto* research design was adopted. The population of the study comprised all the eight listed ICT companies in Nigeria. Data were extracted from 2013 to 2024. Regression analysis was employed to test the hypothesis. The study revealed that innovational capital efficiency has negative and significant relationship with corporate financial performance of listed ICT companies in Nigeria. This study thus recommended companies should capitalize more on its innovation capital (research and development costs) to sufficiently improve its ROA, which is a measure of corporate financial performance.

Key words: Intellectual capital efficiency, Innovation capital efficiency and Corporate financial performance

Introduction

The performance and value of corporate firms are constrained because financial statements do not sufficiently convey information regarding the creation, acknowledgment, and assessment of intellectual capital (Chen et al., 2005). This highlights the significance of economic worth beyond the creation of tangible products. Likewise, this perspective was backed by Dashti (2016) and Keter et al. (2024), who argued that the considerable difference between corporate market values and book values hinges on the value of intangible assets (intellectual capital) frequently omitted in traditional financial statements. The expanding divide has attracted the attention of researchers to explore the undisclosed value not reflected in the financial reports (Dashti, 2016; Keter et al., 2024).

This study draws inspiration from the fact that much of the prior literature (Acuña-Opazo & Gonzalez, 2021; Akkas & Asutay, 2022; Yousaf, 2022) utilized the value added intellectual coefficient (VAIC), which is broken down into human capital efficiency, structural capital efficiency, and relational capital efficiency as indicators of intellectual capital efficiency. Other existing research like Ali et al. (2022) and Saddam and Jaafar (2021) utilized the modified value added intellectual coefficient (MVAIC), which includes innovation capital efficiency as a variant of intellectual capital efficiency. Arguably, these studies were conducted in developed nations, with none taking place in Nigeria.Consequently, this research adopts a varied perspective from previous studies by using the MVAIC to assess intellectual capital efficiency and examine the connection between intellectual capital efficiency and the financial performance of publicly traded information and communication technology (ICT) firms in Nigeria. The main aim of the research is to examine the impact of intellectual capital efficiency on the financial performance of publicly listed ICT firms in Nigeria. The specific goals are to explore the connection between the efficiency of innovation capital and the financial performance of publicly listed ICT firms in Nigeria.

Literature Review

Financial Performance

In practice, professionals view performance evaluation as a key indicator of managerial effectiveness that significantly influences company survival (Ali et al., 2020). With rising global market competition, companies are focused on enhancing their financial resilience to sustain a strong competitive position, attract foreign direct investments, and ensure sustainable economic and financial growth (Ohidoa & Kolade, 2024). Financial performance is often used to assess the stability of the company, a primary concern for stakeholders and the organization's senior management team. Keter et al. (2024) indicate that financial performance acts as a signal to investors regarding a company's capability to effectively utilize its resources to fulfill its financial responsibilities, satisfy the financial interests of stakeholders, and generate profits for the organization. As a result, companies rationally and wisely assess performance in numerical terms to pinpoint areas for improvement; evaluate the effectiveness of corporate strategies, make informed choices, establish accountability for corporate actions, and create benchmarks to exceed rivals (Al-Hashimi et al., 2023). The operationalization of financial performance is a crucial task for companies since various organizations utilize different metrics that align with achieving established goals and objectives (Ali et al., 2020). Abubakar et al. (2021) and Ali et al. (2020) identify two methods for assessing financial performance. These include the accounting-based approach and the market-based approach. The accounting-based approach relates to the attainment of a company's short-term financial goals. It includes indicators like return on assets

(ROA), return on equity (ROE), return on investment (ROI)/return on capital employed (ROCE), earnings per share (EPS), dividend per share (DPS), gross profit margin (GPM), and net profit margin (NPM).

Empirical Review

Arumona et al. (2023) examined the relationship between intellectual capital and financial performance of seventy-six (76) listed non-financial companies in Nigeria over a ten (10) year period from 2012 to 2021. Intellectual capital was analyzed through human capital efficiency, capital employed efficiency, and structural capital efficiency, while financial performance was represented by return on assets (ROA). The data collected were examined through panel regression methods, revealing a significant negative relationship between human capital efficiency, structural capital efficiency, and financial performance in Nigeria. The research also discovered a strong and meaningful link between the efficiency of capital employed and financial performance in Nigeria. Akintoye et al. (2022) examined the relationship between intellectual capital and the performance of thirty-five (35) listed financial companies in Nigeria over a decade from 2010 to 2019. The gathered data were examined using the panel regression method, indicating a positive and significant relationship between intellectual capital and organizational performance in Nigeria. Rehman et al. (2022) investigated the connection between the efficiency of intellectual capital and the performance of one hundred twenty-nine (129) Islamic banks across twenty-nine (29) countries in the Middle East, South Asia, and Southeast Asia over a decade from 2008 to 2017. Data were gathered and analyzed employing the 2SYS-Generalized Method of Moments (GMM) regression approach. The research discovered a strong and meaningful connection between the efficiency of human capital and the performance of banks. The research indicated a significant positive link between structural capital efficiency and bank performance (measured by ROA and TQ), while showing a negative and significant association with ROE.

Xu et al. (2022) examined the link between intellectual capital efficiency and the financial performance of one thousand seven hundred fifteen (1715) manufacturing firms in China over a five (5) year period from 2014 to 2018. The analysis of collected data using multiple regression techniques revealed that the effect of intellectual capital efficiency on financial performance varies across different life cycle stages. Mainly during the startup phase, the effectiveness of human capital, structural capital, and innovation capital shows a strong positive correlation with the financial performance of companies. During the growth and maturity phases, each element of intellectual capital efficiency positively influenced the financial performance of firms. Onyekwelu et al. (2017) investigated the effect of intellectual capital on the financial performance of three (3) listed banks in Nigeria over a ten (10) year span from 2004 to 2013. The collected data were examined using a simple linear regression method, demonstrating a positive and substantial connection between intellectual capital and financial performance in Nigeria. Ozkan et al. (2017) explored the relationship between intellectual capital performance and financial outcomes of forty-four (44) listed banks in Turkey over a decade from 2005 to 2014. The gathered data were examined through regression analysis. The research indicated a strong and noteworthy connection among human capital efficiency, capital utilization efficiency, and financial outcomes.

Methodology

This research is driven by the positivist philosophy and is based on a deductive strategy that involves the quantitative assessment of variables. The study population included all eight registered ICT companies from 2013 through 2024. The ICT sector is viewed as a technology-driven networking framework that demands skills, expertise, and is heavily reliant on intellectual capital. Employing the census sampling method, the 8 specified ICT firms were chosen as a sample because of the limited size of the study's population.

$ROA=\beta0+\beta1INCEi,t+\beta2FSZi,t+\varepsilon i,t$……..i

Where:

i and t denote the company and the year, respectively;

β signifies the expected parameter;

ε signifies the error component.

ROA = Return on Assets;

INCE = Efficiency of Innovation Capital;

FSZ = Firm Size;

ε = The Random Error Component

Method of Data Analysis

The panel least squares (PLS) regression technique was used as an inferential statistic to test the hypotheses of the study. The researcher employed the descriptive and inferential statistics to evaluate the data assembled for the study. The descriptive statistics includes the mean, median, minimum, maximum, standard deviation, skewness, kurtosis and Jarque-Bera statistics.

Table 1: Descriptive Statistics

	ROA	INCE	FSZ
Mean	2.376494	0.170300	5.322423
Median	0.048392	0.000000	9.830662
Maximum	82.71339	1.871909	14.23343
Minimum	-0.601174	0.429756	0.000000
Std. Dev.	11.82155	0.364100	1.956968
Skewness	5.596158	2.360774	-4.130643
Kurtosis	34.40858	12.03769	21.08678
Jarque-Bera	2087.190	313.7231	922.5543
Probability	0.000000	0.000000	0.000000
Sum	131.5717	9.541777	534.3757
Sum Sq. Dev.	7686.193	7.291284	210.6349
Observations	36	36	36

The average value of the dependent variable (ROA) is 2.376; the highest value is 82.713, and the lowest value is -0.601. The J-B values linked to the explanatory variable are 2087.19, accompanied by probability values of 0.000000. The average of the explanatory variables (INCE) is 0.170300; the highest value is 1.871909, and the lowest value is 0.529756. The J-B values related to the explanatory variable are 313.7231, with corresponding probability values of 0.000000.Regarding the control variable, FSZ has average and median values of 5.322423 and

9.830662 respectively. It shows maximum and minimum values of 14.23343 and 0.000000; a SD of 1.956968, a J-B value of 922.5543 with a related probability value of 0.000000 indicating that the firm's size significantly affects corporate financial performance.

Table 2: Panel Regression Test

	ROA			
Variable	Coefficient	Std. Error	t-Statistic	Prob
C	0.190949	0.209625	0.910908	0.0774
INCE	0.001041	0.051703	2.020133	0.0230
FSIZE	0.012446	0.002991	4.160558	0.0001
R-squared	0.803196	Mean dependent var		2.975007
Adjusted R-squared	0.758215	S.D. dependent var		6.125242
S.E. of regression	2.075101	Sum squared resid		179.6897
F-statistic	31.19287	Durbin-Watson stat		1.891019
Prob(F-statistic)	0.000134			

Source: Regression Output

The coefficient and probability values for the explanatory variable (INCE), with ROA as an indicator of corporate financial performance, are 0.001041 (0.9840). INCE showed a positive but insignificant correlation with ROA.

Discussion and Conclusion

The research indicated that INCE positively and significantly influences ROA. The significant and positive link corresponds with human capital theory and the a priori expectation, indicating that the examined companies focus on spending for R&D (INCE) to gain a competitive edge, address business challenges, and enhance market value (corporate financial performance). The outcome corroborates the conclusion of Xu et al. (2022). Examining the control variable, the coefficient and probability value of FSZ in relation to ROA are 0.012446 (0.0001). The findings indicated that FSZ possesses a positive and significant correlation with ROA, aligning with the prior expectation. This indicates that the significant opportunities available to ICT companies for raising funds in the capital market to acquire assets and other capital equipment for expansion are directly related to their intellectual assets. The research aimed to explore the connection between the efficiency of intellectual capital and the financial performance of publicly traded ICT firms in Nigeria. The efficiency of innovative capital significantly correlates negatively with the financial performance of publicly listed ICT firms in Nigeria. This result is consistent with the discovery of Lawal et al. (2019) but contradictory to that of Rehman et al. (2022). Concerning the control variable, FSZ serves as an effective predictor of ROA. This research hence suggested that businesses should leverage their innovation capital (research and development expenses) to effectively enhance their ROA, which reflects corporate financial performance.

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