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INTELLECTUAL CAPITAL EFFICIENCY AND ECONOMIC VALUE OF CONSUMER GOODS FIRMS IN NIGERIA

Ogiriki, Tonye (PhD) and Oyakemeagbegha Oruh
Department of Accounting, Niger Delta University.

Email:tonyeogiriki27@gmail.com, ebilaski@gmail.com

ABSTRACT

The study investigated the interconnection between intellectual capital efficiency and economic value of listed consumer firms in Nigeria for the period of 2016-2020. The study independent variable explores whether there are significant associations among intellectual capital efficiency such as Human capital efficiency, Structural capital efficiency, Capital employed efficiency and the dependent variable, economic value (ROA). Our result showed that Human capital efficiency, Structural capital efficiency has positive and significant impact on economic value (ROA). However, Capital employed efficiency shows negative and non-significant effect on economic value in Nigeria. The study concludes that intellectual capital efficiency has a positive and significant effect on economic value of listed consumer goods in Nigeria. Our study recommended that top executives of firms should cultivate the habit of investing in human capital development so as increase the economic value of their firm. Also, the study recommended that the regulatory agencies should intensify efforts to ensure that firms invest in the development of intellectual capital so as to increase the economic value of consumer goods firms in Nigeria.

INTRODUCTION

In today's knowledge-based economy, an organization's intellectual capital (IC) is used to produce value; an organization's ability to manage these assets determines its success. Intellectual capital is becoming increasingly important as a strategy for improving our firms' competitiveness (Tom-West, Okoye & Amahalu, 2021). In order to compare different companies and identify their genuine value and enhance their controls, it is vital to measure intellectual capital. Where heroic deeds of economics, science, and technology are concerned, knowledge of today's top tools of economics is becoming increasingly important. Furthermore, a company's competitive position is increasingly dependent on the strategic management of intellectual capital. Negligence in this regard might have irreversible consequences for the operation of capital market indexes, because intellectual capital shapes the economic environment in countries (Akpan & Otung, 2020). Similarly, when a firm's long-term economic worth is maximized, the corporation maximizes its own value. Firms can adopt the economic value in creating goals, evaluate performance, decide bonuses, communicate with investors, and budget for capital expenditure. There have been several past studies on intellectual capital and firm value of firms in Nigeria, but the empirical results differ using divers variables used for measurement. Furthermore, none of these studies investigated the influence of Intellectual Capital efficiency on the economic value of consumer firms in Nigeria, Furthermore, most studies on intellectual capital are conducted in more developed

countries with complex financial structures and diverse legal frameworks that prioritize the development of their economic value, Thus, necessitated for similar study in Nigeria.

Literature Review

Conceptual Framework

Economic value added (EVA)

Stewart & Co introduced the notion of EVA around the start of the 1990s. It's a calculation of a company's economic profit – the value provided above and beyond the needed return for the company's investors (being shareholders and debt holders). It is the metric that is most directly linked to the accumulation of shareholder wealth over time (Kamal, Mat, Rahim Husain & Ismail, 2012). The methodology is "the only measure that properly accounts for all the complex trade-offs involved in creating value," making it "the right measure to use for setting goals, evaluating performance, determining bonuses, communicating with investors, and capital budgeting and valuations of all kinds.

Intellectual Capital Efficiency

Theoretical Framework

Resource-based theory. Value addition of any resources own and controlled by

The study hinge on Resource based theory: The resource-based theory is a hypothesis that is based on resources. The cornerstone of resource-based theory has been the value addition of any resources owned and managed by businesses. The theory's core premise is that any resource capable of creating value must have specific characteristics, such as being imitable, uncommon, and un-substitutable, among others. The essential concept of the resource-based theory is that organizations differ fundamentally because each firm has a unique "bundle" of resources-tangible and intangible assets, as well as organizational capacities to exploit those assets. These resources are used by each firm to create competences, which, when done properly, form the source of the firm's competitive advantages (Barney, 2000). Furthermore, a closer examination of resource-based theory reveals that organizational assets can be classified into three categories: tangible assets, intangible assets, and organizational capabilities (Bierly and Chakrabarti, 1996). Production facilities, raw materials, financial resources, real estate, and computers are tangible assets, but intangible assets (such as brand names and corporate reputation) are not visible or touchable.

Empirical Review

The relationship between IC efficiency (ICE) and corporate book value of listed corporations on the main board of the Nigeria Stock Exchange was researched by Mutalib, Hafiz, Hairul, and Hassan (2018). The resource-based theory is used in this study to develop two hypotheses that will guide the data analysis. Using data from the 2010 to 2014 financial years, this study investigates the relationship between ICE and corporate book value, namely, cash flow from operations and economic value added (EVA), using a two-step dynamic system generalised method of moments (GMMs) and controlling for the possible endogeneity effect on the parameters estimated for a sample

of 91 listed firms on the main board of the Nigeria Stock Exchange. The findings reveal a strong positive correlation between overall ICE and company book value (cash flow from operation and EVA). This research adds to the growing body of evidence about the importance of IC data to investors and other interested parties. Because the study sampled listed enterprises on the main board of the Nigerian Stock Exchange, generalizing the results to smaller firms in the alternative securities market may be improper. Those in charge of governance should be concerned about IC investment and management since, according to resource-based theory, it increases economic value and operating cash flow. This is the first study to use modified Pulic value added intellectual capital to conduct an ICE analysis across all sectors of the Nigerian economy.

Tom-West, Okoye, and Amahalu (2021) investigate the performance of Intellectual Capital (IC) and its relationship with Economic Value Added (EVA) of listed Information, Communication, and Technology (ICT) enterprises in Nigeria from 2010 to 2019. This study relies on an empirical model that uses the Value Added Intellectual Coefficient (VAICTM) to predict IC performance. Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), and Capital Employed Efficiency (CE) are the three key components of VAICTM (CEE). This study used inferential statistics such as the Correlation coefficient, Panel Least Square (PLS) regression models, Granger Causality test, and Hausman test to assess the relationship between Intellectual Capital efficacy and enterprises' Economic Value Added using E-Views 9.0 statistical software. The study used an ex-post facto research design. Human Capital Efficiency (HCE) and Structural Capital Efficiency (SCE) have a substantial positive association with Economic Valued Added, according to the empirical findings.

Akpan and Otung (2020) looked into the impact of intellectual capital on the economic value added of Nigerian listed banks. The data was collected from secondary sources such as annual reports from these banks and fact books from the Nigeria Stock Exchange. The study was conducted over a four-year period, from 2015 to 2018, and used an expo facto research methodology. The Cochran model is used to choose a sample size of 12 banks. Pulic's Value Added Intellectual Coeffiecient (VAIC) is used to calculate intellectual capital. Descriptive statistics and the ordinary least square regression technique are used to analyze the data. The findings reveal that human capital efficiency, structural capital efficiency, and capital employed efficiency all have a significant impact on the economic value added of Nigeria's publicly traded banks. As a result, the study shows that IC efficiency is positively related to bank economic value added in Nigeria. Since a result, the apex bank and other regulatory bodies should boost the enforcement of policies and measures that support intellectual capital development, as this will increase the banks' economic value added.

Between 2007 and 2017, Adesanmi (2021) researched the impact of intellectual capital on performance parameters of listed non-financial enterprises in Nigeria. The study used an ex-post facto research design, and data was gathered from secondary sources such as audited annual reports from sampled companies and the Nigerian Stock Exchange fact books. Intellectual capital was proxied by data such as human capital efficiency, structural capital efficiency, and capital employed efficiency, while financial success was proxied by return on equity and return on assets. Purposively selected sample sizes of fifty (50) out of an initial population of eighty (80) listed non-financial enterprises on the

Nigerian Stock Exchange as of December 2018. Descriptive statistics and panel regression analysis were used to analyze the data collected. Human capital efficiency, capital employed efficiency, and firm size all had a significant positive effect on return on equity, while human capital efficiency, structural capital efficiency, capital employed efficiency, and leverage all had a significant negative effect on return on assets, according to the study's findings. According to the findings, intellectual capital has a strong positive impact on financial performance metrics. To improve financial performance and preserve a competitive edge, the study advocated a policy framework for management to increase intellectual capital usage through investments in human and customer capital.

Duho and Agomor (2021) examine the relationship between intellectual capital and the performance of listed non-financial enterprises in West Africa, taking into account several firm- and country-specific characteristics. The study measured intellectual capital performance using the Value Added Intellectual Coefficient (VAICTM), whereas profitability was measured using return on asset. The data collected from 2007 to 2018 was analyzed using panel-corrected standard error regression. The data show that structural capital efficiency is a primary driver of profitability among nonfinancial enterprises, but human capital efficiency and capital employed efficiency have no significant impact on profitability. It was proposed that intellectual capital and performance have an inverted U-shaped relationship.

The (VAIC^{TM}) computation technique is used in Muhammad, et al., (2020) study to explore the impact of the IC on financial performance and investment decisions in Pakistan's non-financial sector. The research population consists of 396 non-financial enterprises in Pakistan. The study's findings show that intellectual capital has a significant impact on financial performance and investment decisions.

Nnubia, Okolo, and Emeka-Nwokeji (2019) look into the impact of intellectual capital on non-financial enterprise performance in Nigeria. For a period of ten years, a sample of 21 Nigerian non-financial enterprises registered on the Nigerian Stock Exchange were studied (from 2007-2016) The data was analyzed using the Ordinary Least Square Method. The findings revealed that the explanatory factors – capital employed efficiency, human capital efficiency, and structural capital efficiency – have a positive and substantial effect on performance assessment for Nigerian listed non-financial enterprises.

Elfiswandi et al. (2019) employed an explanatory technique (verification survey) and a descriptive survey to investigate the impact of IC on the financial performance of 25 listed banking companies in Indonesia from 2008 to 2013, with data panel regression as the data analysis method. SCE, HCE, and CEE were found to have a beneficial impact on performance, whereas CEE had a minor impact on Net Interest Margin. Contribution to the banking world necessitates a careful examination of capital allocation decisions in order to improve human resources and improve bank performance.

METHODOLOGY

The study's research design was an ex post facto research design; The secondary data was collected over a five-year period, from 2016 to 2020. The study's population included all publicly traded consumer goods companies on the Nigerian Stock Exchange

as of the 2020 fiscal year. The ten consumer products companies were chosen using a simple random sample technique. The analytical tools employed were descriptive statistics, correlation analysis, and the ordinary least square regression technique, with E-view as the statistical program.

Model Specification

The model used in this work is specified below:
EVA = f (Intellectual Capital Efficiency)
EVA = ao + a1 HCEit +b2 SCEit +b3 CEEit +u
where;
ao = constant
EVA = Economic Value (ROA)
HCE = Human capital efficiency
SCE = Structural capital efficiency
CEE = Capital employed efficiency

ANALYSIS AND DISCUSSION

Table 1: ***Descriptive Statistics***

	ROA	CEE	HCE	SCE
Mean	7.006700	3.758400	6.524242	0.093600
Median	6.965000	0.000000	9.190000	0.070000
Maximum	108.9000	96.48000	90.00000	4.170000
Minimum	-179.9200	-72.27000	-73.00000	-1.120000
Std. Dev.	26.27053	33.05705	18.58049	0.478922
Skewness	-3.052418	0.758175	-0.742971	5.969521
Kurtosis	29.18110	4.186105	12.46399	54.47926
Jarque-Bera	3011.329	15.44235	378.5724	11636.06
Probability	0.000000	0.000443	0.000000	0.000000
Sum	700.6700	375.8400	645.9000	9.360000
Sum Sq. Dev.	68323.94	108184.1	33833.00	22.70730
Observations	100	100	100	100

Source: ***E-view Output, Version 9***

Interpretation

Table 1 reveals the descriptive statistics of the dependent and independent variables under study. The result showed that economic value (EVA) as a mean value of 7.006700 with maximum and minimum values of 108.9000 and -179.9200 respectively. Human capital efficiency (HCE) has a mean value of 6.524242 with maximum and minimum values of 90.00000 and -72.000000; Structural capital efficiency (SCE) has a mean value of 0.093600 with maximum and minimum values of 4.170000 and -1.120000

respectively; Finally, the mean value of Capital employed efficiency (CEE) stood at 3.758400 with maximum and minimum values of 96.48000 and -72.27000 respectively.

Table 2: ***Pearson Correlation Result***

Probability	ROA	CEE	HCE	SCE
ROA	689.5871			

CEE	63.73611	1091.243		
	0.4698	-----		
HCE	121.9249	38.09490	341.7475	
	0.0122	0.5396	-----	
SCE	5.195246	0.237125	0.390853	0.229277
	0.0000	0.8829	0.6643	-----

Source: *E-view Output*

Table 2 reveals the Pearson Correlation coefficient for the variables under study. The result revealed that ROA, CEE, HCE and SCE appear to have a positive relationship with the correlation coefficient (63.73611, 121.9249 and 5.195246). The result indicated that HCE and SCE both had significant relationship with economic value; while CEE have a non-statistical significant with economic value.

Table 3: ***Regression Analysis***

Dependent Variable: ROA
Method: Panel Least Squares
Date: 04/12/22 Time: 21:36
Sample: 2011 2020
Periods included: 10
Cross-sections included: 10

Total panel (balanced) observations: 99

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.699395	2.556855	1.055748	0.2938
HCE	0.326837	0.128434	2.544789	0.0125
SCE	22.05841	4.949406	4.456780	0.0000
CEE	0.042204	0.071812	0.587702	0.5581

R-squared	0.227873	Mean dependent var	7.081111
Adjusted R-squared	0.203490	S.D. dependent var	26.39363
S.E. of regression	23.55563	Akaike info criterion	9.196172
Sum squared resid	52712.43	Schwarz criterion	9.301025

Log likelihood	-451.2105	Hannan-Quinn criter.	9.238596
F-statistic	9.345588	Durbin-Watson stat	1.827691
Prob(F-statistic)	0.000018		

Source: E-view Output

Table 3 examines the coefficient of the explanatory variables, the t-ratios were reported and the probability. The value of R correlation stood at 0.227873 (23% moderately) indicating that 22% dependent variables fluctuates while the remaining 77% is attributed variables not captured in the model. Similarly, the adjusted R-square stood at 0.203490 (20%) resulting that the total variations in the dependent variable return on asset (ROA). The Prob(F-statistics) (goodness-of-fit test) capable of prediction stood at a value of 0.000018, while the Durbin Watson stood at 1.827691 indicating the presence of serial correlation. From the analytical output the results shows that Human capital efficiency (HCE) has positive significant impact on economic value (ROA) with coefficient of 0.326837 and p-value of 0.0125 which is less than 10% level of significance. This result is in line with the findings of Nnubia, Okolo, and Emeka-Nwokeji (2019); Elfiswandi et al. (2019). While it inconsistent with the findings of Duho and Agomor (2021). Structural capital efficiency (SCE) has positive and significant effect on economic value (ROA) with beta coefficient of 22.05841 and p-value 0.0000 which is less than 5% level of significance. This study is in tandem with the findings of Nnubia, Okolo, and Emeka-Nwokeji (2019); Elfiswandi et al. (2019). It contradicts the findings of Adesanmi (2021) who found a negative relationship between structural capital efficiency and economic value.Capital employed efficiency (CEE) has positive and non-significant effect on economic value (ROA) with beta coefficient of 0.042204 and p-value 0.5581 which is greater than 5% level of significance. This study is in tandem with the findings of (Mutalib, et al., 2018; Tom-West, et al., 2021).

CONCLUSION AND RECOMMENDATION

The study investigated the interconnection between intellectual capital efficiency and economic value of listed consumer firms in Nigeria for the period of 2016-2020. The study independent variable explores whether there are significant associations among intellectual capital efficiency such as Human capital efficiency, Structural capital efficiency, Capital employed efficiency and the dependent variable, economic value (ROA). Our result showed that Human capital efficiency, Structural capital efficiency has positive and significant impact on economic value (ROA). However, Capital employed efficiency shows negative and non-significant effect on economic value in Nigeria. The study concludes that intellectual capital efficiency has a positive and significant effect on economic value of listed consumer goods in Nigeria. Our study recommended that top executives of firms should cultivate the habit of investing in human capital development so as increase the economic value of their firm. Also, the study recommended that the regulatory agencies should intensify efforts to ensure that firms invest in the development of intellectual capital so as to increase the economic value of consumer goods firms in Nigeria.

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