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HUMAN CAPITAL EFFICIENCY AND PROFITABILITY OF QUOTED INTEGRATED OIL AND GAS COMPANIES IN NIGERIA

TAJUDEEN LAWAL[1*], DANIYA ADEIZA ABDULAZEEZ[2], MOHAMMED YABAGI IBRAHIM[3]

ABSTRACT. Human capital represents the engine that drives the entity and the foundation on which organizational success rests. This study examines the impact of human capital efficiency on profitability of five Integrated Oil and Gas companies in Nigeria between 2008 and 2017. This was examined by means of value added intellectual coefficient (VAIC) and it analyses how human capital efficiency affects the profitability of these firms measured by return on assets (ROA) and return on equity (ROE). Multiple regression technique was applied on data to draw inferences using STATA Version 13. The finding of the study reveals that Human capital efficiency has positive and significant impact on the ROA of the firms under study. Based on the findings of the study, it is therefore, recommended that integrated oil and Gas companies in Nigeria should continue to invest more on their employees in order to improve their performance. The study also recommends that Human Capital should be treated as the most valuable asset of integrated oil and Gas companies in Nigeria.

Keywords: *human capital efficiency, return on assets, return on equity, value added intellectual coefficients.*

JEL classification: J24; G19

[1] *Department of Accounting and Finance, Kwara state University, Malete Kwara State Nigeria, e-mail: ltajudeen@yahoo.com, tajudeen.lawal@kwasu.edu.ng * corresponding author*

[2] *Department of Entrepreneurship and Business Studies, Federal University of Technology, Minna, Niger State, Nigeria, e-mail daniyad3rd@yahoo.com*

[3] *Department of Accountancy, Federal Polytechnic, Bida, Niger State, Nigeria, e-mail: badamasi82@gmail.com*

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Introduction

Human capital represents the engine that drives the entity and the foundation on which everything rests. In modern times, where tangible assets are no longer the only resources that generate profit for organization, investment in intangible capital which is hidden in an organization to create value for it and enhance its performance is important for an organization. The achievement of organization goals depend to a large extent on the availability of intellectual and operational know-how, customer and supplier relationships, a committed workforce, and other intangible assets. To achieve the objective of coordinating other forms of intellectual assets, there is need for proper and adequate investment in human capital. OECD (2008), state that using only tangible/ physical assets in measuring investment may lead to inefficient policymaking, misallocation of resources by managers and increased cost of capital for investors. Therefore, if organizations consider intellectual capital as investment, instead of expensing it, the problem of adequately measuring and valuing firms will be overcome. Human capital as an intellectual property relates to the knowledge and experience used to create value for an organization. Knowledge being the new engine of corporate development has become one of the great methods of recent years, given that value can be generated by intangible assets. Human capital is seen as the knowledge embedded in the minds of all employees. Profitability is the ability of a given instrument to earn a return from its use. It is the ability to make profit from all the business activities of an organization, company, firm, or an enterprise. Profitability shows the degree to which a firm's revenues exceed over cost.

Yusuf (2013) opines that the importance of human capital and its measurement has been increasingly considered in order to manage this intangible asset and reduce its costs while improving its benefits. Becker,

Huselid and Ulrich (2002) state that human capital performance is the extent to which employees contribute to effective implementation of the organization strategy. They believed that human capital performance is indeed performance behaviors that affect customers buying experience and therefore it is the basis of the company's financial performance. Using balanced scorecard terminology, Kaplan and Norton (2004) assert that human capital is a leading indicator and the main source of value creation for companies. Improvement in human capital performance will positively affect internal process, customer and financial results of the companies. Measuring human capital efficiency has become an essential issue for companies in today's business world and may help them to get the right perspective on human capital in being valued based on its performance. Using a proper performance measurement tool could provide the firms with the necessary information for creating an action plan in order to improve human capital contribution to the organizational success.

Danjuma and Akinpelu (2016) examine the impact of Human Capital Efficiency on Corporate Performance of industrial goods companies listed in the Nigerian Stock Exchange Market for a period of 6 years (2009-2014). The effect of Human Capital Efficiency on Performance was examined by applying the Human Capital component of the Value Added Intellectual Coefficient (VAIC) methodology. The study adopted multiple linear regression models to analyse the impact between the dependent variables and the independent variable. The result showed that Human Capital Efficiency has positive significant impact on ROA and EPS, and an insignificant negative relationship is found between human capital efficiency and size, lagged Human Capital Efficiency and Number of Employee Growth. The study covered only six years period as well as from 2009-2014.Yusuf (2013) examines the relationship between human capital efficiency and financial performance of banks in Nigeria from 2006-2010. Two hypotheses Human capital efficiency has no significant impact on the EPS of Nigerian banks and Human capital efficiency has no significant impact on the ROE of Nigerian banks were tested. The study adopted VAIC models. The study found that efficient utilization of human capital does not have any significant impact on the return of equity of banks. This present study covers a ten years period from 2008 up till 2017 which depict the current happening in the Nigeria stock market.

This study therefore seeks to empirically examine the impact of human capital efficiency on profitability of integrated oil and Gas companies in Nigeria from the 2008 to 2017 by adopting Pulic (1998) VAIC model.

The following section includes literature review concerning the main variables of the study as well as conceptual and theoretical framework. The research methodology is presented in section three. The results and conclusion and recommendations are discussed in sections four and five respectively.

The concept of human capital

Human capital is defined as the sum of knowledge, skills, creativity and personal values of the employees which contribute towards both the tangible and intangible assets of the firm and can be improved by training and other similar seminars. Human capital (HC) consists of skills and knowledge possessed by employees and goes with them when they leave the firm (Cater and Cater, 2009); such intangible capital cannot be retained by the firm. Subramaniam and Youndt (2005), opine that human capital is the key resource of the firm in an era where knowledge and skills of the employees are essential to create a sustainable competitive advantage. HC theory further explains the importance of HC as a major driver of a firm's productivity and assesses the employees' possession of necessary skills and knowledge to fulfill the requirements of their jobs. HC is important in industries such as banking and pharmaceuticals where firms compete in innovation and advancement. These firms need employees who possess innovation and problem solving skills. Hsu and Wang (2012) argue that a firm can improve its performance so long as its employees continue to improve their knowledge and skills because HC focuses on the value addition to the business in terms of profitability. HC contributes towards organizational efficiency in many ways such as decision making, which improves when employees possess the required skills.

The concept of profitability

The word 'profitability' is composed of two words, namely; profit and ability. The term profit is an excess of revenues over associated

expenses for an activity over a period of time whereas, the term ability indicates the power of a firm to earn profits (Nimalathasan, 2009). The ability of an enterprise also denotes its earning power or operating performance that is, the business ability points towards the financial and operational ability of the business. So, on this basis profitability may be defined as the ability of a given instrument to earn a return from its use (Nishantini and Nimalathasan, 2013). It is the ability to make profit from all the business activities of an organization, company, firm, or an enterprise. Profitability shows the degree to which a firm's revenues exceed over cost.

Review of related empirical studies

Kamath (2008) investigates the efficiency of IC and its relationship with the financial performance of firms in the Indian pharmaceutical industry for 10 years (1996- 2006), the author used VIAC to measure the efficiency of IC. The results reveal that domestic firms are relatively more efficient in using IC. The results also reveal that only human capital is closely associated with the profitability and productivity of the firm in terms of ROA and assets turnover, respectively. Ting and Lean (2009) study the impact of IC on the financial performance of financial institutions in Malaysia. Data from annual reports of Malaysian financial institutions were used to measure IC for the period 1999-2007. The results reveal that VAIC is significantly positively correlated with a firm's financial performance in terms of ROA. Further analysis of the individual components of VAIC shows that human and physical capitals significantly contribute to the added value. Kamalauddin and Abdul Rahaman (2009) examine the effectiveness of organization through human, relational and structural capital. Descriptive statistics, correlation and regression analysis were the statistical tools used in the study. It was found that among the intellectual capital components, structural and relational capital significantly influenced the organization's effectiveness, with structural capital being the strongest predictor. Maditinos, Chatzoudes, Tsairidis and Theriou (2011) measure the efficiency of IC and its impact on the financial performance and market value of firms listed on the Athens Stock Exchange for the period 2006-2008. The study reveals no significant relationship between VAIC and market value and firm financial

performance. However, the authors argue that these results are not surprising because of some alarming characteristics of the Greece economy, such as the low level of foreign direct investment, an inefficient capital market and huge public sector holdings, which may have caused the low IC efficiency. The results can also be as a result of the numbers of years used in the study.

Perera and Thrikawala (2012) investigate the impact of investment in human capital on financial performances of the companies in Sri Lanka for the period of 2 years from 2009 to 2010. The study used sample 40 companies listed under Colombo Stock Exchange. Data analysis was carried out with aid of SPSS (Statistical Package of Social Sciences). The study revealed that there is a significant relationship between investment in human capital and firm financial performance. Kamal, Mat, Rahim, Husin and Ismail (2012), examine the efficiency of IC and its association with the financial performance of 18 commercial banks publicly traded in Malaysia. The study revealed that only physical capital is significantly positively correlated with a firm's performance. The result showed that human capital efficiency has negative impact on ROA and ROE, which means that an increase in human capital efficiency leads to a decrease in ROA and ROE, which contradicts the basic theory of IC.

Yusuf (2013) examines the relationship between human capital efficiency and financial performance of banks in Nigeria from 2006-2010. Two hypotheses Human capital efficiency has no significant impact on the EPS of Nigerian banks and Human capital efficiency has no significant impact on the ROE of Nigerian banks were tested. The study adopted VAIC models. The study showed that using human capital in an efficient way does not have any significant impact on the return of equity of banks. Also, the study showed that size of the bank has no significant impact on it return on equity, the study went further to state that return on equity of banks cannot be predicted by human capital efficiency and size of the banks. The results of the study may be as a result of the number of years and banks used in the study. Sumedrea (2013) investigates the effect of intellectual capital and its influence on the economic performance based on the VAIC model. The results were obtained by applying certain regression models and suggest that, in crisis time, the development of companies is influenced by the human and the structural capital, while profitability is additionally linked to the

financial capital through the value added intellectual capital coefficient. Gigante (2013) examine the impact of IC efficiency on the performance of nine European countries for the period 2004 to 2007. The revealed that study that the mean IC efficiency scores for Finnish banks are highest, *i.e.* 12.23, and 1.88 for German banks being the lowest. Further analysis shows that human capital efficiency for banks in Finland is again the highest. The study reveals that IC efficiency is significantly correlated with the financial performance of banks in terms of ROA and ROE. However, the study revealed that there is no correlation between IC efficiency and market valuation in terms of the M/B ratio of the banks.

In a study on IC efficiency and its impact on financial performance of pharmaceutical firms in India, Vishnu and Gupta (2014) extended the original VAIC model by including a new variable called relational capital (RC). The authors' results showed a positive relationship between IC and firm performance but the new variable RC fails to produce any significant relationship. ROA is the preferred dependent variable over ROS (Return on Sales). The study however, suggests adding more variables to the VAIC model and using new proxies to measure the variables. Parham and Heling (2015) examine the relationship between human capital and financial performance of Dutch companies. The study investigates the efficiency of Human Capital and its impact on the financial performance of Dutch production companies for a period of 6 years (2007-2012) and applying the human capital component of the VAIC methodology. The study applied multiple linear regression models to analyze the relationship between Human Capital and organizations performance. The study results showed that there is positive relationship between HCE and all three corporate performance measures.

Danjuma and Akinpelu (2016) examine the impact of Human Capital Efficiency on Corporate Performance of industrial goods companies listed in the Nigerian Stock Exchange Market for a period of 6 years (2009-2014). The effect of Human Capital Efficiency on Performance was examined by applying the Human Capital component of the Value Added Intellectual Coefficient (VAIC) methodology. The study adopted multiple linear regression models to analyze the impact between the dependent variables and the independent variable. The result showed that Human Capital Efficiency has positive significant impact on ROA and EPS, and an insignificant negative relationship is found between human capital

efficiency and size, lagged Human Capital Efficiency and Number of Employee Growth. The study covered only six years period as well as from 2009-2014. The findings of the study may be as a result of number of years used in the study. Ariff, Islam and van Zijl (2016) did not find a relationship between human capital and the performance of multinational R&D corporations listed on the U.S Stock exchanges. They pointed out the management's lack of control over the human capital may be an explanatory reason for the result. Nadeem (2016) investigates the IC-FP relationship in developed, emerging and frontier markets using over 7,100 listed firms for the period 2005-2014. The study applied the system generalized method of moments (SGMM) to overcome the problem of endogeneity and so produce unbiased results. The findings revealed that IC efficiency is highest for developed markets followed by emerging and lowest for frontier markets. The study also revealed that a significant positive relationship exist between IC and FP in almost all types of market. The result further revealed that the significant positive relationship between human capital (HC) and FP in static models disappears when SGMM is applied. The study also made some adjustments in the value added intellectual coefficient (VAIC) model and presents A-VAIC model to overcome criticism of the original VAIC model. We then test A-VAIC on developed and emerging markets and report more consistent results where HC is also significant and positive with FP in almost all markets. Furthermore, the results revealed that IC efficiency remained unchanged during the 2008 financial crisis. The final results, though endorsing RB, RD and OL theories, posit that IC increases FP in all types of economy (developed, emerging and frontier) and that investment in IC should be on-going process.

Rahim, Atan and Kamaluddin (2017) examine the relationship between human capital efficiency and firm's performance in Malaysian technology industry. The study applied Value Added Intellectual Coefficient (VAICTM) methodology developed by Pulic (1998, 2000) to measure human capital efficiency. The results showed that both Main Market and Ace Market show no difference in reporting their human capital efficiency. Also correlation analysis result indicates that human capital efficiency has significant and positive relationship with firm's performance. The findings of the study may be as a result of the nature of the environment in which the study was conducted. Ozkan, Cakan and

Kayacan (2017), examine the relationship between the intellectual capital performance and financial performance of 44 banks operating in Turkey between 2005 and 2014. The intellectual capital performance of banks was measured through the value added intellectual coefficient (VAIC) methodology. The results showed that there is a statistically significant positive relationship between HCE and ROA.

Theories of Human capital and profitability

Resource Based Theory

The resource based (RB) theory is considered the pioneer that focused on the importance of intangible assets for firms (Barney, 1991). The basic argument in this theory is that the competitive advantage of the modern firm should lie in its use of tangible as well as intangible assets. The intangible assets included in this theory should be unique and inimitable which and can build a sustainable competitive advantage for the firm.

Resource Dependency (RD) Theory

The advocates of this theory, Pfeffer and Salancik (2003), argue that every firm depends on several stakeholders such as other firms that hold strategic resources necessary for the operations of the firm. They argue that every firm cannot hold all strategic resources so they have to build long term relationships with those stakeholders who can assist the firm in terms of necessary resources. This necessity actually motivates the firms to engage with the external environment, which forms the basis of social and relational capital for the firms. Linking this theory with the human resources of firms, Abeysekera (2010) argues that firms' effective engagement with the external environment is possible only when a firm holds efficient internal resources such as human capital and learning environment. This argument is also consistent with Williams (2000) who argues that firms should utilize their available human resources effectively to increase the value creation capabilities of the firm. The resource dependency theory recognizes the importance of efficient human resources, which can help the firm to achieve the objective of building relationships with stakeholders.

Organizational Learning (OL) Theory

Njuguna (2009) argues that a firm should follow a continuous learning process to build a sustainable competitive advantage. This continuous learning is necessary for a firm for many reasons. Firms, for example, can get more know-how about their customers' demands and changing preferences about products. A firm should invest in its resources such as research and development and human resources, which enable a firm to innovate with products.

The underpin theories of this study is resource Dependency theory. This study fill existing gap in literature by examining the impact of HCE on profitability of quoted integrated oil and Gas firms in Nigeria from 2008 to 2017 using VAIC model.

Methodology

This study adopted ex-post facto research design because the data are available and the researcher has no control over it. The population of the study is the integrated oil and Gas firms quoted on the Nigerian stock exchange (NSE) as at 31st December 2017. A detail of the population is shown in Table 1. However, for firms to be part of the sample, there are some criteria which have to be met as follows: therefore, two point filters were employed to arrive at the working population of the study: i companies must have been quoted on the Nigerian Stock Exchange as at 1st January 2008 ii. Companies must not have any omission in its data during the period of the study. After the above filters, five firms made our population and were selected as sample of the study which is shown in Table 2. The sampling technique used in this study is census sampling technique because it allows all the elements in the population to be represented. Multiple regression technique was applied on data to draw inferences using STATA Version 13.

Due to the panel data used in this study, the models of the study were subjected to other regression models (Fixed and Random Effects) in addition to OLS, because of the uncertainty as to the conformity with the classical assumptions of the OLS regression model, as indicated by the normality test. The study therefore applied robust GLS regression in model 1 and robust-OLS regression for model 2 as suggested by the

relevant tests conducted on the data. For the purpose of conducting the research, Return on Asset (ROA) and Return on equity is used to measure profitability. The value added intellectual co-efficient (VAIC) methodology developed by Pulic (1998; 2000) formed the underlying measurement basis for the human Capital efficiency in this study.

Table 1. Population of the study

S/NO	NAME OF FIRMS	YEAR OF QUOTATION
1	OANDO PLC	1992
2	ETERNAL OIL PLC	1997
3	FORTE OIL PLC	1978
4	JAPAUL OIL AND MARITIME SERVICES PLC	2005
5	11 OIL PLC	1979
6.	SEPLAT OIL	2014

Source: author compilation

The table represents the total population of firms that engage in mid-stream activities in the Oil and Gas companies in Nigeria.

Table 2. Sample size

S/NO	**NAMES OF FIRMS**
1	OANDO PLC
2	ETERNAL OIL PLC
3	FORTE OIL PLC
4	JAPAUL OIL AND MARITIME SERVICES PLC
5	11 OIL PLC

Source: author compilation

The table represents the sample of firms selected for the study. One firm was omitted because it was quoted in year 2014.

MODEL SPECIFICATION AND VARIABLE MEASUREMENTS

This study adopted Pulic (1998) VAIC model to obtain the value of human capital efficiency.

$$FP_{it}(ROA, ROE) = \beta_0 + \beta_1 VAIC_{it} + \beta_2 Control + \varepsilon_{it}$$

The model is further subdivided into two as follows:

$$FP_{it}(ROA) = \beta_0 + \beta_1 HCE_{it} + Size_{it} + \varepsilon_{it} \text{ - (Model 1)}$$
$$FP_{it}(ROE) = \beta_0 + \beta_1 HCE_{it} + Size_{it} + \varepsilon_{it} \text{ - (Model 2)}$$

INDEPENDENT VARIABLES

Value Added Intellectual Capital

The VAIC calculations involve a two-step process (Pulic, 1998; 2000) where value added is calculated in the first step and VAIC is calculated in the second step.

In the VAIC model, total Value Added (VA) by the business can be calculated as:

$$VA_t = OUT_{it} - IN_{it} = Op_{it} + SC_{it} + D_{it} + A_{it}$$

Where VA_t= value added in year t, OUT= net revenue IN= cost of raw materials, energy, water, gas, services and other similar resources for the year t

HC_{it}= Staff cost, both salaries and related contributions of firm i in year t

Value Added intellectual Capital can be further refined to express human capital efficiency as follows:

$$HCE_t = VA_t / HC_t$$

CONTROL VARIABLE

Size =Natural Log of Total Assets

DEPENDENT VARIABLES

Return on Asset

Return on Assets (ROA) is the ratio of pre-tax profit divided by average total assets as reflected in the annual report. ROA is a comparison of net income over total assets. This accounting measure of performance is generally accepted as a valid measure of overall

company performance (Core, Holthausen and Larcker1999). The ROA provides information about the value added to the company that lead to better performance of that company.

ROA = Profit before Tax/ Total Assets

Return on Equity

The Return on Equity (ROE) is the after tax profit divided by book value of equity. It considers profit rates and not profit size. It represents the ultimate measure of how well the companies serve the economic interest of the shareholders. ROE reveals how much profit a company earns in comparison to the total amount of shareholders fund. ROE is a typical performance benchmark in many empirical studies (Abowd 1990; Main, Bruce and Buck1996; Kern & Kerr 1997; Core *et al*1999).

ROE = Profit after Tax/ Shareholders Equity

RESULTS AND DISCUSSIONS

The aim of this section present is to present, analyze and interpret the results gather for the study.

Table 3. Descriptive statistics

VARIABLES	MEAN	STD.DEV	MINIMUM	MAXIMUM	observation
ROA	0.1296	0.1383	-0.1750	0.6689	50
ROE	0.1538	0.3099	-0.6992	0.9076	50
HCE	10.9790	7.2787	3.3902	33.7757	50
FSIZE	17.1343	0.9279	15.511	18.8482	50

Source: Output of Descriptive Statistics by Authors using STATA

Table 3 presents the descriptive statistics of the study. The table reveals that ROA has an average of 0.12, standard deviation of 0.13, minimum of -0.18 and maximum of 0.67.ROE has an average of 0.15, standard deviation of 0.31, and a minimum of -0.69 and a maximum of 0.91. The table also reveals that HCE has an average of 10.9, standard deviation of 7.27, a minimum of 3.39 and a maximum of 33.77. Size has an average of 17.13, standard deviation of 0.93, a minimum of 15.51 and a maximum of 18.84.

Table 4. Correlation analysis

VARIABLES	ROA	ROE	HCE	FSIZE
ROA	1.0000			
ROE	0.3648* 0.0092	1.0000		
HCE	0.2619 0.0662	-0.2453 0.0860	1.0000	
FSIZE	-0.0721 0.6189	0.0991 0.4935	0.6539* 0.0000	1.0000

Source: Output of Correlation Analysis by authors using STATA

* Correlation is significant at 1% level of significance; **Correlation is significant at 5% level of significance; ***Correlation is significant at 10% level of significance

Table 4 shows the correlation results among the variables. The table revealed that HCE is correlated with performance the firms using ROA and ROE based on coefficients of 0.2619 and -0.2453 and significance value of 0.0662 and 0.0860 respectively. Firm size which is used as control variable also has no correlation with performance.

Presentation of Regression Results and Hypotheses Testing

This section presents and analyses the regression results of the models of the study. The hypotheses formulated for the study are also tested in this section based on the results, as presented in table 5 and 6.

Table 5. Summary of GLS Regression Results

Model One (GLS-Robust Random)		**Model Two (Robust-OLS)**	
Variables	**Statistics**	**Variables**	**Statistics**
R^2	0.1556	**R^2**	0.1779
Chi2(F-Stat)	5.91	**Chi2(F-Stat)**	3.54
P-Value	0.0522	**P-Value**	0.0369

Source: Output Regression Analysis by authors using STATA

Table 6. GLS regression estimators (coefficients)

Model One (GLS-Robust Random)			**Model Two (Robust-OLS)**		
Variables	**Coefficients**	**P-Values**	**Variables**	**Coefficients**	**P-Values**
HCE	0.0141	0.018	HCE	-0.0231	0.011
FSIZ	-0.0605	0.269	**FSIZ**	0.1514	0.039
CONSTANT	1.0113	0.270	**CONSTANT**	-2.1875	0.068

Source: Output Regression Analysis by author 2018 STATA

The results in Table 6 shows that human capital efficiency has a significant positive impact on the performance of quoted integrated oil and Gas firms in Nigeria using ROA as indicated by the coefficient of 0.0141 which is significant at 5% level of significance (from the P-value of 0.018). Based on this, the study rejects the null hypothesis one which state that, human capital efficiency has no significant impact on performance of quoted integrated oil and Gas firms in Nigeria using ROA. Therefore, the study infers that the more the firms increase her spending on its human resources, the more; it increases its performance using ROA. The study is in line the study of Danjuma et al. (2016); Nadeem (2016); Gigante (2013). The finding of the study however contradicts the finding of Yusuf (2013). On the other hand, the results shows a negative but significant impact between human capital efficiency and performance using ROE as indicated by the coefficient -0.0231 which is significant at 5% level of significance (the p-value of 0.011). Based on this, the study rejects the null hypothesis one which state that, human capital efficiency has no significant impact on performance of quote oil and Gas firms in Nigeria. Therefore, the study infers that the more the firms increase her spending on its human resources, the more; its performance decreases using ROE. The study is in line the study of Kamal et al. (2012). The finding however contradicts the findings of Danjuma et al. (2016); Kharal et al. (2014)

Firm size is used in this study as a control variable, shows a negative and insignificant impact on the performance of studied firm using ROA based on coefficient of -0.0804 and p-value of 0.209. The implication of this finding is that size of the firms has no significant impact on the performance of the firms. On the other hand, from the table, firm size has no significant impact on the performance of the firms using ROE based on coefficient of 0.1514 and p-value of 0.039.

The results from table also indicate that the independent variables of the study (human capital efficiency and the control variable firm size) explained 15.58% of the variations in the performance (ROA) of quoted Oil and Gas firms in Nigeria, from the coefficient of determinations (R^2 value of 0.1558). The table also shows that the model is fitted as evident by the Wald Chi2 of 5.92 which is significant at 10% level of significance (as indicated by the P-value of 0.052).

Also, the table shows that the independent variables of the study (human capital efficiency and the control variable firm size) explained 17.79% of the variations in the performance (ROA) of quoted Oil and Gas firms in Nigeria, from the coefficient of determinations (R^2 value of 0.1779). The table also shows that the model is fitted as evident by the Wald Chi2 of 3.54 which is significant at 5% level of significance (as indicated by the P-value of 0.0369).

CONCLUSION AND REOMMENDATIONS

Conclusion

This study examines the impact of human capital efficiency on the profitability of five Integrated Oil and Gas firms in Nigeria between 2008 and 2017. This was examined by means of VAIC model and it analyses how human capital efficiency affects the profitability of these firms measured by ROA and ROE. The findings of the study suggest that human capital efficiency has positive and significant impact on the ROA of the firms under study. However, a negative but significant impact is found with ROE.

Recommendations

Based on the finding of the study, which shows that HCE has significant impact on ROA, it is therefore recommended that oil and Gas firms in Nigeria should continue to invest more on their employees in order to improve their performance since employees have been seen as assets that can generate revenue and enhance the performance of an organization positively. The study also recommends that Human Capital should be treated as the most valuable assets of integrated oil and Gas firms in Nigeria. To ensure improvement in employees' productivity and performance, organizations should be committed to regular training and development of their employees and ensuring the working environment is conducive to enhance their productive capacity.

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