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INFLUENCE OF HUMAN RESOURCES VALUATION ON RETURN ON ASSETS OF LISTED OIL AND GAS COMPANIES IN NIGERIA

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Abstract: The Study determined the influence of human resources valuation on return on assets of Listed Oil and Gas Companies in Nigeria. The specific objectives were to examine the effect of human resource cost (HRC) on return on assets (ROA) of listed oil and gas companies in Nigeria and evaluate the effect of human capital efficiency (HCE) on return on assets (ROA) of listed oil and gas companies in Nigeria. The independent variable as human resources valuation proxied by human resource cost (HRC) and human capital efficiency (HCE) while dependent variable as return on assets (ROA). The ex-post facto research design which made use of secondary data drawn from the annual report and accounts of four (4) firms in listed oil and gas sectors in Nigerian economy covering a period of ten (10) years from 2010 to 2019 both years inclusive. The study was anchored on both human capital theory and resource-based theory. The E-views version 10.0 software statistical package was used to run the Panel ordinary least square (OLS) for the study. The multiple regression model was applied in determining the extent of the effect of the independent variable (human resource valuation) on dependent variable (return on assets) of companies under investigation. The result of the regression analysis indicated that human resource cost (HRC) has negative and insignificant effect on return on assets (ROA) of listed oil and gas companies in Nigeria while human capital efficiency (HCE) has positive and significant effect on return on assets (ROA) of listed oil and gas companies in Nigeria. The implication of this finding is that a percentage increase in human resource valuation (human resource cost and human capital efficiency) will also result to a decrease and an increase of the profit made by the companies under consideration. Based on the findings, the researcher recommended among others that the Firms should invest in employees' education and relevant programmes that can help increase in their work by harnessing information technology and reduce in the money spending in hiring expert from outside for the same work. Also, human capital efficiency has been shown to be the key driver of value creation especially in financial performance, efforts should be made to grow human capital efficiency of firms by first recruiting very competent staff, train, retrain and motivate them.

Keywords: Human Resource Cost, Human Capital Efficiency, Return on Assets and Human Resources Valuation.

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Introduction

Human resources have been identified as one of the main sources of competitive advantage by many organizations in today's economy. This is true not only of knowledge intensive organizations, which are based on services and intangible outputs, but also increasingly of more traditional organizations, both in the private and public sectors. However, human resources are still not recognized in the reporting mechanisms, despite an interest dating back to the 1960s in techniques such as human resource valuation. The economic environment has shifted from industry based with a focus on physical assets such as factory, machines and equipment to a high technology, information, innovation based environment with a focus on the expertise, talents, creativity, skills and experience of people– the company's human capital. However, despite the human capital intensive economy, traditional accounting continues to focus on traditional assets to the exclusion of the more important human assets. Moreover, there are divergent opinions on Human Resource Valuation in Nigeria banking industry as its impacts are insignificant and not felt. However, in the past, employers of labour have been complaining that employees perform their work efficiently when they are newly employed but over time, their efficiency and performance decrease. Hence, employees have attributed the decrease in efficiency and productivity to the fact that employers do not provide adequate incentives, motivation and training to enable them put in their best.

Human resource is the most vital part of any organization, it is the melting engine between financial and all other physical resource toward the achievement of organizational objectives and goals. The impact of the wrong classification on the organization profit annually is unimaginable, as analyst and investor who rely on the report tend to under value the organization, managers may be judged as non-performance, the report generated using the conventional accounting will show a distorted net income. Though the idea of accounting for human resource started many years back, the concept still lacks general acceptability especially in relation to corporate profitability (Adewole, Ogunyemi & Ojo, 2019).

Statement of the Problem

Human resource valuation is the productive efforts of an organization's workforce while performance is the employees' performance that helps implements the firm's strategy. Most firms have had to cut down the cost of human capital to ensure survival because huge human capital cost is always a threat to the survival of firms and also a threat to the liquidity of banks and other businesses. Organizations invest in human development, only for the human capital to leave the organization for greener pastures within a short period. The economic loss to such firm impact negatively and heavily on its performance, survival and growth. There is the problem of a onetime huge investment in human capital that brings oil and gas companies to long time loss if not treated adequately. These are issues that have been in existence and have to be addressed in this study. There is also the issue of concept compatibility through the practice of expending huge human capital cost and the growing idea of capitalizing human capital development as intangible asset. The incessant turnover of trained and talented personnel of the firm that could have been retained by organization in the statement of financial position of firms cannot be overlooked. It is in the light of the above crisis and more that it becomes necessary to determine the influence of human resource valuation on financial performance of listed oil and gas companies in Nigeria.

Objectives of the Study

The main objective of this study is to determine the influence of human resource valuation on return on assets of listed oil and gas companies in Nigeria.

The specific objectives are:

1. To examine the effect of human resource cost (HRC) on return on assets (ROA) of listed oil and gas companies in Nigeria.

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2. To evaluate the effect of human capital efficiency (HCE) on return on assets (ROA) of listed oil and gas companies in Nigeria.

Statement of Hypotheses

Based on the specific objectives, the researcher formulated and tested the following null (H_0) hypotheses.

H_{o1}: Human resource cost (HRC) has no significant effect on return on assets (ROA) of listed oil and gas companies in Nigeria.

H_{o2}: Human capital efficiency (HCE) has no significant effect on return on assets (ROA) of listed oil and gas companies in Nigeria.

Concept of Human Resources Valuation

Abubakar (2011) says that human resource (HR) is a term used to describe the individuals who comprise the workforce of an organisation, although it is also applied in labour economics to business sectors or even whole nations. Human resource is also the name of the function within an organization charged with the overall responsibility for implementing strategies and policies relating to the management of individuals (i.e. the human resource).

Micah, Ofurum & Ihendinihu (2012) see human resource valuation as human Resources (HR) which are the energies, skills, talents and knowledge of people which are, or which potentially can be applied to the production of goods or rendering useful services. HRA is the process of identifying and measuring data about human resources and communicating this information to interested parties. They add that it is not a new issue in economics. Economists consider human capital as a production factor, and they explore different ways of measuring its investment in education, health, and other areas.

Human resources can be referred to as human assets or capital; these refer to the set of individuals, who make up the workforce of an organization or a business entity (Edom, Inah, Adanma, & Eyisi, 2015).

Jesuwunmi, Nzewi, Obelogu & Udodi (2019) say that human resource valuation can also called human resource accounting (HRA) as the process of identifying and measuring data about human assets (resources) and communicating this information to interested parties. This will enable organizations make relevant decisions regarding internal and external matters. Like other physical assets, human assets also have the ability to create expenditure and income. Therefore, it is necessary to value human forces just as other assets, that is, to consider the costs and benefits of human resources.

Measurement of Variables for the Study

Human Resource Cost

Human resource costs are costs incurred to acquire or replace people. Like other costs, they have expense and asset components; they may be composed of outlay and opportunity costs; and they may have both direct and indirect cost elements. The measurement of human resource costs (HR costs, also called Human Resource costing), is a key component of HR accounting.

Human resource acquisition cost (HRAC) refers to the costs incurred in acquiring the right man for the right job at the right time and in right quantity. This includes cost of hiring employees, cost of selecting employees, cost of interviewing employees, cost of recruiting employees, and cost of placement of employees. The entire cost is taken into consideration including those who are not selected (Jesuwunmi, et al, 2019).

Human Capital Efficiency

Human capital refers to the acquired skills, knowledge, and abilities of human beings. The underlying concept is that such skills and knowledge increase human productivity and that they do so enough to justify the costs incurred in acquiring them (Loo-see, 2018).

Although Becker (1964) is most recognized for the theory of human capital, Schultz (1963) was also one of the first theorists to identify the significance of human capital and its economic value. Schultz (1963) sees it as education and other forms of human capital investment increase output in a variety of ways: by generating new ideas and techniques

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that can be embodied in production equipment and procedures; by equipping workers to utilize the new production techniques and initiate changes in production methods; by improving the links among consumers, workers and managers; and by extending the useful life of the stock of knowledge and skills that people embody.

Onyekwelu and Ubesie (2016) indicate that Human Capital Efficiency (HCE) is the ratio of total value added to total salaries and wages. They add that human capital (HC) is interpreted as employee expenses and human capital efficiency (HCE) is calculated by dividing VA (added value) with HC (Human Capital). Thus: VA/HC

Value Added Intellectual Coefficient (VAIC)

Baye, Douanla and Fonkem (2014) say that the Value Added Intellectual Coefficient™ (VAIC™) methodology developed by Pulic (1998) forms the underlying measurement basis for the independent variable in this present study. In his words VAIC™ is an analytical procedure designed to enable management, shareholders and other relevant stakeholders to effectively monitor and evaluate the efficiency of VA by a firm's total resources and each major resource component. VAIC™ is a composite sum of two indicators these are: Capital Employed Efficiency (CEE) – indicator of VA efficiency of capital employed and Intellectual Capital Efficiency (ICE) – indicator of VA efficiency of company's Intellectual Capital base. Intellectual Capital Efficiency is composed of (a) Human Capital Efficiency (HCE) – indicator of VA efficiency of human capital; and (b) Structural Capital Efficiency (SCE) – indicator of VA efficiency of structural capital. The value added (VA) are newly created value, calculated as follows VA = Operating Profit + Employee costs + depreciation + Amortization or VA = output (Total Income) – input (All costs of purchasing goods and services from the market). The human capital (HC) is overall employee expenses (salaries, education, and training); in this analysis considered an investment, not cost, and thus not substantial part of input any more. The human capital efficiency (HCE = VA / HC) and Structural Capital (SC) are results of Human Capital's past performance (organisation, licenses, patents, image, standards, and relationship with customers). Therefore, structural capital efficiency (SCE = SC / VA). Capital Employed (CE) are all material and financial assets. Capital employed efficiency (CEE = VA / CE) and Intellectual Capital Efficiency (ICE = HCE + SCE) are indicators which show how efficiently intellectual capital has created value. They are also indicators which show how much VA is created on each monetary unit invested in capital employed. Value Added Intellectual Coefficient (VAICTM = ICE + CEE). The two sub-components of VAIC™ form the independent variables in our research. They indicate the value creation efficiency of all resources (sum of the previous indicators). It expresses the intellectual ability of a company or firm.

Onyekwelu and Ubesie (2016) say that value added intellectual coefficient (VAIC) is the sum of human capital efficiency (HCE), structural capital efficiency (SCE) and capital employed efficiency (CEE).

Thus: VA= W+I+DP+DIV+T+R.....(1)

Where:

VA = Value Added measured by addition of wages and salaries; interest expenses; depreciation expenses; dividends; corporate taxes and retained profit for the year.

Return on Assets (ROA)

Return on Assets (ROA) is a financial ratio that shows the percentage of profit a company earns in relation to its overall resources. It is commonly defined as net income divided by total assts. Net income is derived from the income statement or statement of comprehensive income of the company and is the profit after taxes (Enekwe, 2012).

Emekekwue (2008) describes return on assets as a ratio which seeks to measure the amount of profit generated from the entire assets of the firm. It is express as

$$\frac{\text{Profit before tax}}{\text{Total Assets}}$$

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Theoretical Framework

The theories were employed in explaining existing relationships.

Transaction Cost Theory

This theory assumes that business enterprises choose governance structures that economize transaction costs association with establishing, monitoring, evaluating, and enforcing agreed upon exchanges (Williamson, 1979 & 1981). Predictions about the nature of the governance structure an enterprise will use incorporate two behavioural assumptions: bounded rationality and opportunism (i.e. the seeking of self-interest with guile). These assumptions mean that the central problem to be solved by organizations is how to design governance structures that take advantage of bonded rationality while safeguarding against opportunism. To solve this problem, implicit and explicit contracts are established, monitored, enforced, and revised. The theory has direct implications for understanding how HRM practices are used to achieve a governance structure for managing the myriad implicit and explicit contracts between employers and employees (Wright & McMahan, 1992). For example, organizations that require firm specific knowledge and skills are predicted to create internal labour markets that bind self-interested and bounded rational employees to the organization, while organizations that do not require these skills can gain efficiencies by competing for self-interested and bounded rational talent in an external labour market (Williamson, 1981). Contextual factors, in turn, partly determine whether the types and amounts of skills and knowledge firm needs are likely to be available in the external labour market, the costs of acquiring them from the external market, the organization's capability for developing them internally, and the costs of doing so.

Resource-Based Theory

The resources based theory of the firm blends concepts from organizational economics and strategic management (Barney, 1991). A fundamental assumption of this view is that organizations can be successful if the gain and maintain competitive advantage (Porter, 1985). Competitive advantage is gained by implementing a value -creating strategy that competitors cannot easily copy and sustain (Barney, 1991) and for which there are no ready substitutes. For competitive advantage to be gained, two conditions are needed: First, the resources available to competing firms must be variable among competitors, and second, these resources must be immobile (i.e. not easily obtained). Three types of resources associated with organizations are: Physical (plant; technology and equipment; geographical location); Human (employees' experience and knowledge); and Organizational (structure; systems for planning, monitoring, and controlling activities; social relations within the organization and between the organization and external constituencies). Human resource management greatly influences an organization's human and organizational resources and so can be used to gain competitive advantage (Schuler & Macmillan, 1984). Presumably, the extent to which human resource management can be used to gain competitive advantage, and the means of doing so, are partly determined by the environments in which organizations operate (Wright et al., 1994). For example, in some industries, technologies can substitute for human resources, whereas in others the human element is fundamental to the business to illustrate contrast labour intensive and knowledge in tensive industries. The latter context may be more conducive to the use of human resource management as a means to gain competitive advantage.

Human Capital Theory

Theory of human capital theory was proposed by Schultz in 1961 and extensively developed by Becker (1964). In the economics literature, human capital refers to the productive capabilities of people (Becker, 1964). Skills, experience, and knowledge have economic value to organizations because they enable it to be productive and adaptable; thus people constitute the organization's human capital. Like other assets, human capital has value in the

market place, but unlike other assets, the potential value of human capital can be fully realized only with the co - operation of the person. Therefore, all costs related to eliciting productive behaviours from employees including those related to motivating, monitoring, and retaining them -constitute human capital investments made in anticipation of future returns (Flamholtz & Lacey, 1981). Organizations can use human resource management in a variety of ways to increase their human capital (Cascio, 1991; Flamholtz & Lacey, 1981). For example, they can "buy" human capital in the market (e.g. by offering extensive training and development opportunities). Investments of either type have associated costs, which are justifiable only to the extent the organization is able to productively utilize the accumulated capital (Tsang et al., 1991). In human capital theory, contextual factors such as market conditions, unions, business strategies, and technology are important because they can affect the value of the organization's human capital and the value of the anticipated returns, such as productivity gains (Boudreau & Berger, 1985; Russell et al., 1993).

Knowledge-based Theory

A sustainable competitive advantage is based on the knowledge of a firm as one of the main components of intellectual capital (Hunter, 2002). Competitive capability is largely dependent on the capability of an organization to develop, differentiate, adopt and disseminate its knowledge base. Knowledge in an organization is a resource on which a firm can build and maintain the core competencies that, if being adopted, enable it to survive and prosper in a competitive world (Hunter, 2002). The knowledge-based theory puts emphasis on knowledge as a resource which is difficult to imitate, which differentiates and creates a competitive advantage (Leonard-Barton, 1992). The knowledge-based view of the firm distinguishes four dimensions of set of skills: knowledge and skills of employees, technical systems, management systems and values and norms associated with different types of personalized and embedded knowledge, as well as, the processes of knowledge creation and control. In addition, Grant highlights the fact that knowledge is "the critical input in the production and the primary source of value" (Grant, 1996). Spender (1996) organization is seen as a lasting alliance between independent entities that create knowledge, regardless of whether they are individuals, teams, or other organizations, with the material resources subordinated to the provided services. This suggests that in the constantly changing environment, the most successful firms are those which produce original knowledge, spread it within the organization and quickly transform it into innovative products. Liebeskind (1996) believes that firms as institutions have a key role in creating and sustaining a competitive advantage by protecting useful and valuable knowledge. In particular, given that the intellectual property rights are insufficiently regulated, but also expensive to propose and implement, firms are able to use a range of organizational arrangements that are not available on the market to protect the value of knowledge. Hence, firms can in many ways prevent the expropriation of knowledge, and reduce the visibility of knowledge and its products, thus protecting them from imitation. In this way a firm can achieve the "possession rights" which are also valuable, if not more valuable, than the limited property rights of knowledge required by the law. Therefore, the uniqueness, which is the key to competitive advantage, actually depends on the adoption of the various protective arrangements by firms. If the core knowledge is a main strategic asset of an organization, then its main tasks are to improve the existing knowledge and to create new core knowledge (Viedma, 2007). At the same time, creation and improvement of core knowledge require the capabilities of organizational learning, including the corresponding structure of learning and information systems, where the valuable knowledge can only be obtained through a systematic and repeated comparison to the processes and core competencies of "world class" competitors in the same business segment.

General system theory

This theory is propounded by Von Bertalanffy in 1950. In general, system theory unit of analysis is understood as a complex of interdependent parts. An open versus closed system is dependent on the environment for inputs which are transformed throughout to produce outputs that are exchanged in the environment. Open systems models seldom address organizations or large units within organization. According to Katz & Kahn's (1978), the social psychology of organizations is an exception in that it treats human resource management has been developed further by Wright & Snell (1991), who used it to described a competent management model of organizations. Skills and abilities are treated as inputs from the environment; employee behaviours are treated as throughout; and employee satisfaction and performance are treated as outputs. In this model, the HRM subsystem functions to acquire, utilize, retain, and displace competencies. Similarly, Snell's (1992), description of human resource management as a control system is based in open systems theory. In a narrower discussion Kozlowski and Salas (1994), presented a multilevel organizational systems approach for understanding training implementation and transfer.

However, this study was anchored on both the human capital theory and resource-based theory because of their connection on the research work.

Empirical Review

Several empirical works have been conducted by various researchers.

Olaoye and Afolalu (2020) studied the effect of human capital accounting on Earning per Share (EPS) of equity owners of deposit money banks in Nigeria. Secondary data were collated from annual reports of the sixteen deposit money banks listed on the Nigerian Stock Exchange between 2006 and 2017. The study employed static panel data of fixed and random effect to explore the relationship between human capital accounting and EPS of deposit money banks in Nigeria. Post estimation test (Hausman Test) was also conducted to select the best and most consistent estimator. Random effect was selected to achieve the stated objective. The results of the random effect revealed that the pension and training and development have significant positive relationship with EPS while other salaries and wages have insignificant positive relationship except director's remuneration (RENMR) that has insignificant negative relationship with EPS.

Sojka (2015) carried out a study on the relationship between human resources management practices and firms finance performance. The research studies the links between human resources management practice and economic performance of a sample of 102 organizations in Slovakia, studying basic management practices such as strategy, organizational structure, corporate culture and operational management. The study reveals a positive correlation between human resource practice and economic performance.

Rashedul and Mohammad (2018) evaluated the intellectual capital and firm performance, evidence from the financial sector in Bangladesh. The quantitative data are collected from 49 financial institutions listed in the Dhaka Stock Exchange (DSE) for the year ending 2012 and 2013. Intellectual capital is measured using Value Added Intellectual Coefficient (VAIC). The impact of both the current and past years' VAIC on firm performance is measured, along with the effects of its three components - human capital efficiency (HCE), capital employed efficiency (CEE), and structural capital efficiency (SCE). The stepwise regression results indicate a positive and significant relationship between current year VAIC and two measures of firm performance (ROA, ROE) while past years' VAIC is found insignificant for all three measures of firm performance. HCE for the current year is found to be the most significant contributor toward firm performance among all the three components of VAIC, having a substantial positive relationship with all three measures of firm performance. SCE of the current year significantly

affects ROA and ROE whereas CEE is found to be significant only for ROA. While measuring past years' effect on performance, only HCE has been found to have a negative influence on current year's revenue growth (RG).

Baye, et al (2014) investigated the impact of intellectual capital efficiency on the financial performance of financial institutions in Yaounde, Cameroon. The total of 60 companies was taken into consideration with data collected from the National Institute of Statistic for 2007-2008. Regression analyses was done between intellectual capital efficiency and financial performance and it was discovered that financial institutions still depend very much on capital employed since it is positively significant to profitability, while human capital and structural capital are not.

Faizi, Ahmad, Mohd and Haque (2020) determined the measuring the impact of intellectual capital on the financial performance of the finance sector of India. This study was conducted on Bombay Stock Exchange's finance index has been taken for a period ranging from 2009 to 2018, and the Value Added Intellectual Coefficient (VAIC™) methodology has been used to measure the intangible aspects of these firms. The results reveal that Value Added Intellectual Coefficient has an insignificant association with the profitability and productivity of the sample companies. While among the components of Value Added Intellectual Coefficient, the capital employed efficiency has a significant positive relationship only with the profitability of the financial sector. In the case of productivity, all the components of intellectual capital have an insignificant effect on the financial companies of India. The SCE remain insignificant for all the financial performance measures, whereas human capital efficiency is substantial only for enhancing the return on assets of the sample companies.

William, Gaetano and Giuse (2019) investigated the impact of intellectual Capital on firms' financial performance and market value, empirical evidence from Italian listed firms. In this study, the Valued Added Intellectual Coefficient (VAIC) is employed as a measure of intellectual capital to investigate the relationship between intellectual capital, firms' financial performance and market value. The empirical investigation is developed by using data drawn from a sample of 135 Italian listed companies for the period from 2008 to 2017 and performing different Ordinary Least Squares (OLS) regression models. The findings suggest that, when taken in its aggregated form, intellectual capital exerts a positive impact on firms' financial performance measured as firms' profitability and growth in revenues as well as on market value. However, when considering its components, only Human Capital efficiency shows a positive effect on firms' financial performance while Structural Capital efficiency and Capital Employed efficiency exhibit a negative effect.

Xu and Liu (2020) investigated the impact of intellectual capital on firm performance, a modified and extended VAIC model. This study covers the Korean manufacturing firms over the period 2013–2018. The modified and extended Value Added Intellectual Coefficient (VAIC) model was adopted to more accurately measure intellectual capital, and firm performance was systematically and comprehensively measured in three distinct parameters: profitability, productivity and market value. The regression results show that physical capital was the most influential factor to firm performance; human capital was viewed as a performance enhancing measure; structural capital had no significant impact on firm performance; and innovation capital and relational capital hurt a firm's profitability.

Rahman, Sobhan and Islam (2020) examined the impact of intellectual capital disclosure on firm performance, empirical evidence from pharmaceutical and chemical industry of Bangladesh. In this study, 21 listed pharmaceutical and chemical companies have been selected as sample for 2016 and 2017. The return on assets and return on equity have been used as the proxy variable of firm performance. In this study, content analysis is performed to assess the level of disclosure regarding intellectual capital and pooled cross-sectional analysis is

used to assess the relationship between intellectual capital disclosure (ICD) and firm performance. The study has found a positive and significant relationship between intellectual capital disclosure (ICD) and firm performance while all the components of intellectual capital disclosure (ICD) namely internal capital disclosure, external capital disclosure, and human capital disclosure are also positively and significantly associated with firm performance.

Nhoh, Thong and Trung (2020) described the effects of intellectual capital on information communication technology firm performance, a moderated mediation analysis of environmental uncertainty. This is particularly crucial for firms in the high- tech or service sectors. Intellectual capital dimensions, including human, organisational and social capital, are key to developing outstanding performance. This study involved a survey of 350 information communication technology (ICT) firm's directors and managers, which was used to analyse the impacts of intellectual capital dimensions on firm performance, the indirect effects of organisational capital on performance via human and social capital, and the moderating role of environmental uncertainty. They found that the human and social capital mediated significantly the relationship between firm performance and organisational capital, and the environmental uncertainty moderated significantly the relationship between intellectual capital dimensions and firm performance.

Methodology

The research design adopted by this study was the Ex-Post facto method because it involves events which have taken place or already existed and cannot be manipulated. The researcher used the secondary source of data gathered from annual reports and accounts or financial statements of selected companies from listed consumer goods companies in Nigeria to compute all the variables (independent and dependent) for this study period of ten (10) from 2010 to 2019 both years inclusive. The study was focused on the listed oil and gas companies in Nigeria and they were total of fifteen (15) companies of listed oil and gas companies in Nigeria. But, out of these fifteen (15) companies, only four (4) were selected for the study. The four (4) selected listed oil and gas companies in Nigeria are Mobil Nigeria Plc (11 Plc), Conoil Nigeria Plc, Oando Plc (O & O Plc) and MRS oil Nigeria Plc. The sampling technique that was used for selecting of the above listed oil and gas companies is Non-Probability or Purposive Sampling which is, convenience or accidental sampling will be chosen for the study (Onyekwelu, 2015). The econometric technique was adopted pool panel data generated for the period of ten (10) years covering about four (4) firms selected from the listed oil and gas companies in Nigerian Stock Exchange (NSE). The choice of the pool panel data analysis was to enable us aggregate the cross sectional dimension of the whole variable included in the model so as to determine the effect of the independent variable on the dependent variable. The descriptive analysis was used in the study to describe relevant aspects of the human resources valuation and provide detailed information about each relevant variable. The regression analysis was also used for multiple regression in order to known the effect of each independent variable on dependent variable and to assess the combined or overall effect of independent variable (human resources valuation) on dependent variable (return on assets) of listed oil and gas companies in Nigeria. The researcher also used E-Views 10.0 Statistical Software to run the multiple regressions for this study.

Model Specification

To achieve the objectives set out for this study, the following models were used to enable us estimate the effect of independent variable on the dependent variable. This provides us with the opportunity to test for the stated hypotheses with a view to determining the acceptability or unacceptability of the hypothesis, offering us a statistical ground to draw conclusion. The choice of ordinary least square (OLS) for this research work is guided by the fact that it computational procedure is simple and the estimates obtained from this procedure has optimal proprieties which include: linearity, Unbiasedness, Minivariance and Mean

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square error estimation (Koutsoyianis, 2003). In carrying out this research work on the effect of human resources valuation on return on assets, the researcher developed a regression model in such ways that it addressed each of the objectives of the study, as such:

$Y_1 = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + U_t$ 1

Where:

Y_1 = Dependent variable of company

X = Independent variable of company

β_0 = Intercept for X variable of i company

β_1 - β_2 = Coefficient for the independent variables X of companies, denoting the nature of the relationship with dependent variable Y (parameters)

U_t = Error term

Model:

$$ROA_{ij} = f(HRC_{ij}, HCE_{ij}) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

$$ROA_{ij} = \beta_0 + \beta_1 HRC_{ij} + \beta_2 HCE_{ij} + U_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where:

ROA = Return on assets was measured by net profit after tax divided by total assets.

HRC = Human resource cost was measured by logarithm of human resource development and acquisition cost (Employees benefits or Administrative expenses).

HCE = Human capital efficiency was measured by value added (VA) divided by human capital (HC).

HC = Human capital was measured by training cost (Employees benefits or Administrative expenses) for the company.

VA = Value Added measured by retained profit (Profit after tax) for the year.

β_0 = Regression equation intercept

β_1 = Regression equation coefficient

U_{it} = Error Term.

Discussion of Findings

<Table 1>

The descriptive Statistics table above shows that human resource cost (HRC) has the highest mean value while human capital efficiency (HCE) has the lowest value of mean. Also, the low standard deviation of human capital efficiency (HCE) implies that it does not deviate so much from the mean while the standard deviation of human capital efficiency (HCE) substitution are relatively high implying much deviation from their respective means which is also reflected in the squared deviation figures. The table further indicates that the observed distribution for human resource cost (HRC) and human capital efficiency (HCE) have skewness coefficients which estimate the asymmetry of the distribution of time series data around its mean of 0.490671 and -2.333103 respectively. The kurtosis coefficient, which measures how peak or flat the distribution of series for human resource cost (HRC) and human capital efficiency (HCE) were 4.506256 and 7.741772 respectively. The implication of the result was that the observed distribution of human resource cost (HRC) was normally distributed while

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human capital efficiency (HCE) was normally distributed. Jarque-Bera Statistic also confirmed this outcome with significant values of 0.067664 for human resource cost (HRC) while human capital efficiency (HCE) stood at 0.000000.

<Table 2>

The regression analysis above shows that R-Squared is 75% of the variations in return on assets (ROA) of listed oil and gas companies in Nigeria were caused by level of human resource cost (HRC) and human capital efficiency (HCE) while 25% of the variation in return on assets (ROA) were affected by other factors outside our model. The adjusted R-Squared which indicates a figure more than 50% implies that human resource cost (HRC) and human capital efficiency (HCE) were the major determining factors of return on assets (ROA) of listed oil and gas companies in Nigeria. The Durbin-Watson Statistic is 1.929315 while F-Statistic is 5.348636 at P-value of 0.000141.

From the regression analysis table above shows that t-calculated of human resource cost (HRC) is -1.006589 less than critical value of 2.0000 while P-value indicate a figure of 0.3238 greater than 5% which is level of significance. This implies that human resource cost (HRC) has negative and insignificant effect on return on assets (ROA). So, the researcher rejects alternate hypothesis (H_i) and accepts the null hypothesis (H_o) of hypothesis one which states that human resource cost (HRC) has no significant effect on return on assets (ROA) of listed oil and gas companies in Nigeria. So, human resource cost (HRC) is not a major determining factor for return on assets (ROA) of listed oil and gas companies in Nigeria.

Also, the t-calculated of human capital efficiency (HCE) is 2.580890 greater than critical value of 2.0000 while P-value indicate a figure of 0.0161 less than 5% which is level of significance. This implies that human capital efficiency (HCE) has positive and significant effect on return on assets (ROA). So, the researcher rejects null hypothesis (H_o) and accepts the alternate hypothesis (H_i) of hypothesis two which states that human capital efficiency (HCE) has significant effect on return on assets (ROA) of listed oil and gas companies in Nigeria. So, human capital efficiency (HCE) is the major determining factor for return on assets (ROA) of listed oil and gas companies in Nigeria. So, the test output described to the results and the emerging multiple regression equation in the table above is as:

$$(ROA)_{yt} = 0.260489 - 0.037749(HRC)_{yt} + 0.002069(HCE)_{yt} + \sum i$$

Summary of Findings

The findings from the specific objectives of this study are:

1. That human resource cost (HRC) has negative and insignificant effect on return on assets (ROA) of listed oil and gas companies in Nigeria. This implies that any increase in human resource cost will also result to a decrease in financial performance of listed oil and gas companies in Nigeria that is profit generation and vice versa.
2. That human capital efficiency (HCE) has positive and significant effect on return on assets (ROA) of listed oil and gas companies in Nigeria. This implies that any increase in human capital efficiency will also result to an increase in financial performance of listed oil and gas companies in Nigeria that is profit generation and vice versa.

Recommendations

Based on the specific findings of this study, we recommended as follows:

1. Firms should invest in employees' education and relevant programmes that can help increase in their work by harnessing information technology and reduce in the money spending in hiring expert from outside for the same work.
2. Since, human capital efficiency has been shown to be the key driver of value creation especially in financial performance, efforts should be made to grow human capital efficiency of firms by first

recruiting very competent staff, train, retrain and motivate them.

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Appendix

Table 1: Descriptive Statistics

	ROA	HRC	HCE
Mean	0.019813	6.164585	-3.852195
Median	0.023700	6.262050	1.282000
Maximum	0.158400	7.339100	20.09310
Minimum	-0.368400	5.429600	-66.42460
Std. Dev.	0.096234	0.351667	16.66639
Skewness	-1.905335	0.490671	-2.333103
Kurtosis	8.398834	4.506256	7.741772
Jarque-Bera	72.78102	5.386395	73.76314
Probability	0.000000	0.067664	0.000000
Sum	0.792500	246.5834	-154.0878
Sum Sq. Dev.	0.361178	4.823115	10832.97
Observations	40	40	40

Source: Authors' E-view 10.0 Output

Table 2: Regression Analysis

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Dependent Variable: ROA
Method: Panel Least Squares
Date: 03/18/22 Time: 16:49
Sample: 2010 2019
Periods included: 10
Cross-sections included: 4
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
HRC	-0.037749	0.037502	-1.006589	0.3238
HCE	0.002069	0.000802	2.580890	0.0161
C	0.260489	0.231725	1.124131	0.2716

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

R-squared	0.749702	Mean dependent var	0.019812
Adjusted R-squared	0.609535	S.D. dependent var	0.096234
S.E. of regression	0.060134	Akaike info criterion	-2.504489
Sum squared resid	0.090402	Schwarz criterion	-1.871160
Log likelihood	65.08979	Hannan-Quinn criter.	-2.275497
F-statistic	5.348636	Durbin-Watson stat	1.929315
Prob(F-statistic)	0.000141		

Source: Authors' E-view 10.0 Output