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Human Resource Accounting and Firms' Performance: an Empirical Study of Listed Pharmaceutical Firms in Nigeria

Akam, Chibugo Angelina (Ph.D)
Department of Accounting, Ignatius Ajuru University of Education,
Port Harcourt, Nigeria |
chiben761@gmail.com
Ikegwuru, Mac-Kingsely (PhD)
Department of Marketing, Rivers State University, Port Harcourt, Nigeria |
ikegwuru.mac-kingsley@ust.edu.ng

Abstract: *The study investigated the impact of human resource accounting on financial performance of listed pharmaceutical firms on the Nigerian stock exchange between the periods 2013 -2018. Specifically, the study examined the impact of personnel cost, personnel benefit and cost of training on the return on asset of pharmaceutical firms in Nigeria. The study adopted ex- post factor research design. Data was sourced from the annual published accounts of pharmaceutical firms listed on the Nigerian stock exchange from the period of 2013–2018. The study used econometric tools; list squares analysis, unit root and graph to examine the relationship between the variables estimated in the model. Findings from the investigation show personnel cost positively and significantly influenced return on assets, cost of training personnel positively and significantly influenced return on assets, training cost positively and significantly influenced return on assets, and personnel benefit positively and significantly influenced return on assets. The study therefore concludes that, human resource accounting has significant influence on firms' performance of listed pharmaceutical firms in Nigeria, and recommends that, the managers of listed pharmaceutical firms should adopt human resource accounting in their books in order to stimulate superior financial performance to achieve overall growth of their firms.*

Keywords: *Firms' performance, Human resource accounting, Personnel cost, Return on asset.*

INTRODUCTION

Conventionally, a firm's success or failure is mostly measured by its performance. Performance could be seen as the achievement of a firm in relation to achieving its set goals. This could be the outcomes achieved through the contributory efforts of the workforce to the firms' strategic goals. It is essential to note that one of the dominant and crucial elements that propel firm's performance is human capital element. Hence, the correlation between human resource accounting and firm performance becomes overly important and a matter of interest to the firm (Abraham *et al*, 2020).

Human resource as stated by Abraham *et al.* (2020) is one of the most important factors of production and had been normally specified as all human efforts both skilled, semi skilled and unskilled used in the act of production. Human resource therefore, consists of skills, energies, talents and knowledge of people which are capable of being used in the production of goods or to produce useful services to an organization.

Human resource accounting is the measurement of the cost and value of the human capital in a business organization (Micah, Ofurum & Ihendinihu, 2012) cited in Abraham (2020). It therefore involves the cost incurred by the organization to select, train, recruit, hire and develop the employees together with the evaluation of their economic value to the organization.

Okpala and Chidi (2010) stated that human resource accounting can be linked to the quantification in monetary terms of human capital or workforce employed by an organization. Abraham *et al.,* (2022) opined that the main aim of human resource accounting is to support and aid the management to get information on the cost and value of human resource. Human resource accounting discloses the volume of human resources and specifies the right control of maintenance, consumption and valuing of it in the right judgment (Abraham *et al.,* 2022). It provides information to the interested party about the cost of human capital or human resources in equation to the value obtained out of its utilization. Furthermore, traditional economics defined human resource as the translating and harmonizing effort which propels other resources towards the accomplishment of the organizational goals (Obulor & Ohaka, 2020).

Okafor *et al.* (2022) noted that notwithstanding the ideology in the traditional economics literature about the significance of human resource in the equation of value creation, human capital has been greatly demoted to the under parts in the overall valuation of business model components. He therefore stated that the connection of expenditure in human resource to financial performance of business enterprises in Nigeria is still empirically unclear.

The people or human resource is the most important asset of an organization although the values of this asset are yet to appear in the financial statement. Regrettably, the value of human capital, apart from being constantly failed the recognition as an element of assets disclosed in the statement of financial position, however also appears to be outrageously neglected by many organizations. That is why, over the years, there have been a continuous argument in accounting, managerial, economic, and psychological literature that organization's negligence to account for its human resource as one of the company's asset in their statement of financial position can have diverse negative results on the overall organization's performance and productivity as well as in the management of the human capital.

Several studies have been conducted on the human resource accounting and firm's performance. For instance, Abraham et al. (2022) studied the "Effect of human resource accounting on the performance of listed deposit bank in Nigeria", Obulor and Ohaka (2020) examined the "Training cost and financial performance nexus: sector analysis of quoted manufacturing firms in Nigeria", Okafor *et al.* (2022) investigated the "Expenditure in human resource and financial performance of quoted manufacturing companies in Nigeria ".

Conspicuously, none of these studies attempted to ascertain the impact of human resource accounting on the performance of listed pharmaceutical firms in the Nigerian. This study therefore, investigates the impact of human resource accounting on the performance of listed pharmaceutical firms in Nigeria. The period under study covered 2013-2018.

LITERATURE REVIEW AND HYPOTHESES

Human Capital Theory

Human Capital theory was developed by Schultz in 1961 and extensively developed by Becker in 1964. Adam Smith is arguably the originator of human capital theory.This theory is raised on the assumption that the productivity of an employee is based on the level of education and training obtained. Therefore, based on the firm's level of investment in their workforce, greater productivity that will impact the investors can truly be expected. Human capital theory regards workforce as one of the assets of the organization and stresses that investment in the workforce will surely yield greater outcome (Oladejo, 2021). Human capital theory considered human resource as a beneficial asset that organizations can utilize in achieving their set goals and higher output. It promotes an advancement in the training and development cost which will benefit the organization in the long run.

Firms can invest in human capital via education, training as well as medical treatment while firms output depends partly on the return on human capital inform of high productivity. The theory asserts thatthe education and training cost including development cost is expensive hence should be considered as investment since it is taken with the intention of increasing organizational income. Human capital theory asserts that education or training increases the output of workers by imparting useful knowledge and skills, thereby increasing their personal income through their life time earnings.

Resource Based Theory

The theory was propounded by Baney (1991) and the theory postulate that individual employee performance affects the end result of firms. In other words, the contributory efforts of individual employee at various levels of the organization impacts results in corporate goal (Utami & Alamanos, 2022). The theory posits that the firm's competitive advantage is sustained by valuable resources (investment in human resources) and capabilities. The theory also believed that the firm competitive advantage can be sustained through the development of human skill and knowledge.The outmost aim of any human resource (HR) manager is to create value via the human resource function. Therefore, the first question to be addressed by (HR) executive is how the human resource can add value to the organizational vision and corporate goals.

This theory connects to the study as it explains the strength of human resource to the overall achievements and performance of firms.

Human Resource Accounting

Human resource accounting has been variously defined by different researchers; Broker et al (2022) defined human resource as the process of identifying, measuring and disseminating the information on the human resources in other to provide comprehensive and qualitative information to the interested parties to make informed decisions. It is the act of accounting for the expenditures incurred in developing the human capital (Stanley & Edrin, 2022). Human resource accounting entails treating the human components of the organization as an income yielding asset and not as an expense that reduces their income (Akinjare, Idowu & Sule, 2019). Firms performance remains the key criteria in measuring the firm's failure or success however, high performance that will lead to higher return on assets cannot be achieved without a well developed human resource. Human resource accounting entails the measurement of the cost and value of people to the organization which involves the cost incurred in recruiting, selecting, hiring, training and developing the workforce and ascertain their value added to the organization.

This study therefore, used personnel cost, training cost and personnel benefit as proxies of human resource accounting to access the impact of human resource accounting on firm's performance.

The Concept of Firms' Performance

The concept of performance is the accomplishment of the organization in relation with its set objectives (Abraham *et al*. 2022). It comprises the result and the achievements through the contributory efforts of the workforce towards the organizational goals. Performance could be regarded as one of the key elements in evaluating the organization's failure or success. Firm's performance discloses its growth and development over time.

There is no particular measure to employ in other to arrive at performance. Nevertheless, the estimation of corporate performance could be arrived by the use of indices or variables which include return on assets, profitability, growth and productivity as well as customer satisfaction (Aliu, 2010). Consequently, several researchers have used different proxies to measure firm performance. Most firms use the phrase performance in describing a collection of measurements which comprise of output efficiency, input efficiency and also transactional efficiency, as a result, the word performance may not be entirely clarified by a solitary measure (Ikegwuru & Acee-Eke, 2020). In accordance with the previous studies, this study used return on assets as the metrics to measure firm's performance.

Empirical Review

Loadele *et al*. (2018) studied the impact of human resource accounting disclosure on financial performance of selected firms quoted in Nigeria stock exchange. The study employed secondary data between the period 2011-2015, and applied descriptive statistics, multiple regression and correlation matrix on the analysis of the obtained data. The study revealed a positive co-efficient value of 0.565 between the independent and dependent variables.

Omodero *et al.* (2017) investigated the impact of human resource accounting and financial performance of firm in Nigeria, using least squared techniques. The result illustrated that personnel benefit cost is significant and positive to profit after tax of firms.

Prince *et al*. (2013) determined the nexus of human resources and its impact on organizational performance through panel data drawn from different sectors in the stock market. With aid of regression estimate, the result shows that human capital and intangible asset are positive and insignificant to the organization.

Micah *et al.* (2012**)** examined financial performance of firm and resource accounting in Nigeria; by means of descriptive statistics, correlation and least squared estimation. The result unveiled a significant and positive correlation between human resource accounting and financial performance of firms in Nigeria.

Ekwe (2012), examined the nexus between intellectual capital and financial performance of deposit money banks in Nigeria, and employed least squared regression in estimating the data obtained. The result revealed positive and significant relationship between the variables of intellectual capital and return on equity of banks.

Abubakar (2011) investigated human resource accounting and the financial reporting of service companies quoted on the floor of the exchange. The data employed were analyze using the chi-squared technique and Kendall's coefficient of concordance, and the findings demonstrate that the nature and features of investments on the human resource require them to be capitalized rather than expensed.

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

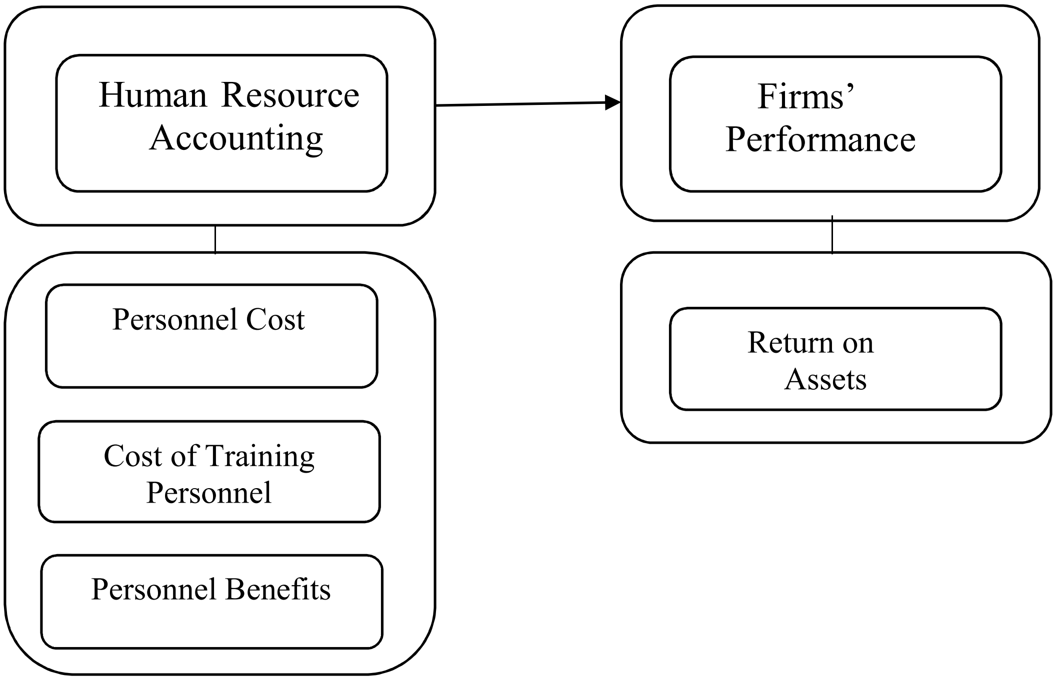


Figure 1: Conceptual Framework of Human Capital Investment and Financial Performance.

Source: Designed by the Researchers, 2023

Based on the conceptual framework, this study anchored the hypotheses on the following null form:

H_{01}: There is no significant effect of personnel cost on return on asset.

H_{02}: There is no significant effect of training personnel on return on asset.

H_{03}: There is no significant effect of personnel benefits on return on asset.

METHODOLOGY

The study used the ex-poste research design to ascertain the true relationship between the variables in the estimated model.The study employed ex-post factor research design because the data is readily available on annual published financial statements of listed pharmaceutical firms in Nigeria. Secondary data extracted from published financial accounts of the various pharmaceutical firms was used for the study.

The population the study comprised eight (8) listed pharmaceutical companies on the Nigerian Stock Exchange (NSE). The sample of the study also, comprised the eight (8) pharmaceutical firms listed in the Nigeria Stock Exchange (NSE) that have consistently submitted their annual reports to NSE from 2013-2018. Pharmaceutical firms that were not in operation throughout the period of 2013-2018 were not part of the sample size. Consequently, the sampled listed pharmaceutical firms used for the study were purposively sampled; they include, Fidson, Glaxosmith, Maybaker, Morrison, Neimeth, Pharmadeko, Ekocarp and Union Dac. The reason for sampling the eight (8) companies was because, the data sourced for the variables studied were available from 2013-2018 as at the time of carrying out the study. Some of these companies are multinational companies and as such have embraced human capital cost in line with global best practices. They integrate human capital expenditures in their annual reports. The study employed various econometric tools such as least squared analysis, parsimonious error correction model, granger causality approach to produce a reliable result for recommendation and forecasting.

Model Specification: the research study is anchored on the following econometric model;

$ROA = \beta_0 + \beta_1 PC + \beta_2 CTP + \beta_3 PBC + \sigma_t$
Where
ROA = Return on assets of pharmaceutical firms
PC= personnel cost
CTP = cost of training personnel
PBC = personnel benefits cost
β = constant
$\beta 1$, $\beta 2$, $\beta 3$ = parameters for estimation.

Data Presentation and Econometric Analysis

The data as presented, represent the values of return on assets, personnel cost, cost of training personnel and personnel benefit respectively between the period 2013 -2018; find attached in appendix 1 the data as extracted from the audited financial reports of quoted pharmaceutical firms in Nigeria stock market.

In order to explore the data analysis, we began the econometric test with parsimonious error correction model; followed by Granger causality exeogenity test and unit root to confirm the stationarity of our data.

Dependent Variable: ROA
Method: Least Squares
Date: 10/12/23 Time: 03:52
Sample: 1 6
Included observations: 6

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.568281	0.410751	1.383518	0.0007
PBC	0.000145	0.001964	0.073759	0.0479
PC	0.000822	0.006441	0.127653	0.0101
CTP	6.34E-05	0.003874	-0.016364	0.0884

R-squared	0.606009	Mean dependent var	0.633333
Adjusted R-squared	0.534978	S.D. dependent var	0.150555
S.E. of regression	0.225077	Akaike info criterion	0.089969
Sum squared resid	0.101319	Schwarz criterion	-0.048858
Log likelihood	3.730092	Hannan-Quinn criter.	-0.465766
F-statistic	0.079053	Durbin-Watson stat	2.998917
Prob(F-statistic)	0.065485		

The result from the econometric output shows that 53.4% variations in the performance of pharmaceutical firms quoted in the stock market is caused by human resource management proxy by personnel benefits cost, personnel cost and cost of training personnel; the figures of the various criterion also prove that the model is good in line with the F- probability result. The individual coefficient shows that all the variables of human resources are positive and significant to the company's performance; this implies that positive changes in human resource development will impact positive changes in the firm's performance.

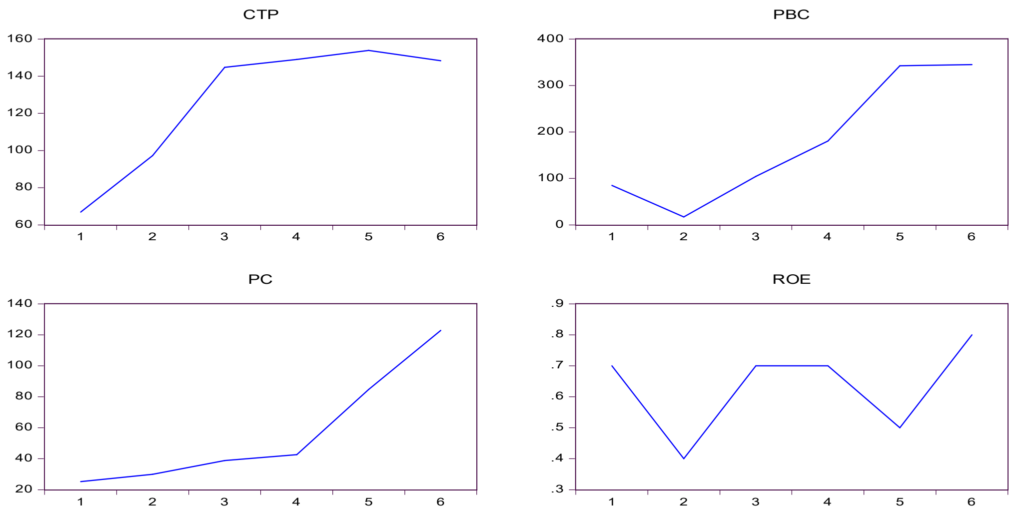
Unit root test

We employed Dicky fuller test statistics to examine the stationarity of our data in order to confine our data to conform to the classical regression assumptions, below is the estimated test result.

Variables	ADF	5%	Probability	Order
ROA	-5.809450	-2.569595	0.0001	1(1)
PBC	-4.60420	-3.492851	0.0520	1(1)
PC	-3.519595	-2.898418	0.0020	1(1)
CTP	-5.119808	-.2517740	0.0154	1(1)

The result revealed that the data are stationary to the order of 1, signifying a long run equilibrium relationship existing between the variables.

Graphical presentation of the relationship between the variables estimated in the model



The result shows the trend lines of the various variables represented in the model; these trend lines revealed the consistent relationship between cost in training personnel, personnel benefits cost, personnel cost and return on asset of pharmaceutical firms quoted in Nigeria stock market. It was discovered that increase in human resource accounting led to increase in the financial performance of pharmaceutical firms quoted on the floor of Nigeria stock exchange.

DISCUSSION OF FINDINGS

From the econometric analysis performed above, it was discovered that human resource accounting proxied by personnel cost, cost of training and development and personnel benefits impacted positively on the performance of listed pharmaceutical firms in Nigeria proxied by return on asset. The individual statistics put claims to earlier findings by showing positive and significant relationship with return on assets of pharmaceutical firms listed on stock exchange. The result of the unit root test also subjected the data to stationarity. The trend line in the graph signifies the relationship between the variables estimated in the model.

Hence, human resource is the stimulus for value creation in the current enlightened fierce economy. It is therefore of outmost important to value human resources with other types of resources in order to find out the total value of an organizations. The treatment of people in the organization will subsequently impact on the overall performance of the firms, therefore, management find it reasonable in hiring and maintaining goodwill with employees by projecting motivational packages that can stimulate the drive to work effectively and efficiently.

Abraham et al. (2020) noted that the driving force of an organization is the human resource also known as human capital. Accordingly, Robbin (2001) posits that, the features that differentiate successful organization from other corporate firms in all sectors is the quality of people they are able to get and retain. Therefore, the expenditures on human training and development are the best investments a company can make because it will impact positively on the overall growth of the organization.

The outcome of this study finds support in the following empirical studies: Loadele *et al*. (2018) whose study revealed a positive of human resource accounting disclosure on financial performance of selected firms quoted in Nigeria stock exchange, Omodero *et al.* (2017) whose findings illustrated that personnel benefit cost is significant and positive to profit after tax of firms, Prince *et al.* (2013) whose result demonstrated that human capital and intangible asset are positive and insignificant to the organization, Micah *et al.* (2012**)** whose result unveiled a significant and positive correlation between human resource accounting and financial performance of firms in Nigeria, Ekwe (2012) whose result disclosed a positive and significant relationship between the variables of intellectual capital and return on equity of banks, and Abubakar (2011) whose findings demonstrate that the nature and features of investments on the human resource require them to be capitalized rather than expensed.

CONCLUSION AND RECOMMENDATION

This study investigated the impact of human resource accounting on financial performance of listed pharmaceutical firms in Nigerian between the periods 2013-2018. The statistical analysis revealed that, personnel benefits cost has positive and significant influence on return on assets, personnel cost has positive and significant influence on return on assets and cost of training personnel has positive and significant influence on return on assets. This shows that the optimum value of human resource accounting is positive to the organizational growth of the pharmaceutical firms studied. The study therefore concludes that, human resource accounting has significant influence on firms' performance of listed pharmaceutical firms in Nigeria, and recommends that, the managers of listed pharmaceutical firms should adopt human resource accounting in their books in order to stimulate superior financial performance to achieve overall growth of their firms.

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About the Authors

Dr. Akam, Chibugo Angelina
Dr. Akam, Chibugo has a Ph.D degree in Taxation from Ignatius Ajuru University of Education, Port Harcourt, Nigeria. She currently conducts research on taxation. Dr. Akam, Chibugo has authored or co-authored some articles in referred Journals. Dr. Akam, Chibugo can be contacted at **chiben761@gmail.com**

Dr. Ikegwuru, Mac-Kingsley is a Senior Lecturer in the Department of Marketing, Rivers State University, Port Harcourt, Nigeria. He currently conducts research on digital supply chain and cloud-enabled process integration in supply chain management. He has authored and co- authored several articles in referred Journals. Ikegwuru, Mac-kingsley is the corresponding author and can be contacted at ikegwuru.mac-kingsley@ust.edu.ng.

THE Nigerian STOCK EXCHANGE

APPENDIX 1

FIRMS	YR	PC	CTP	PBC	ROA
FIDSON	2013	25.2	66.9	84.9	0.7
	2014	29.9	97.3	17.0	0.4
	2015	38.8	144.8	104.4	0.7
	2016	42.6	149	180.5	0.7
	2017	84.7	153.9	342.4	0.5
	2018	122.8	148.3	345.1	0.8
GLAXOSMIT	2013	153.2	126.6	339.9	0.64
	2014	214.8	249.7	322.0	0.34
	2015	244.7	249.2	543.5	0.56
	2016	311.7	396.6	122.2	0.55
	2017	429.3	518.4	31.1	0.21
	2018	714.5	652.5		0.87
MAYBAKER	2013	805.3	804.6	59.2	0.8
	2014	1,012.40	980.6	110.6	0.5
	2015	1,278.60	1,049.50	137.3	0.3
	2016	1,584.50	1,342.40	102.5	0.32
	2017	2,096.30	1,585.30	326.5	0.42
	2018	3,861.50	2,209.40	303.6	0.21
MORRISON	2013	6,051.70	2,846.90	1.0	0.43
	2014	7,385.80	3,394.80	50.8	0.23
	2015	6,359.60	4,447.30	54.6	0.45
	2016	6,098.50	5,545.50	257.6	0.45
	2017	7,034.10	6,247.90	293.8	0.23
	2018	8,730.60	6,853.90	274.8	0.53
NEIMETH	2013	11,591.00		3.5	0.21
	2014	11,609.30	7,677.30	108.5	0.23
	2015	14,163.50	8,691.40	204.8	0.34
	2016	13,703.30	10,870.51	218.5	0.54
	2017		12,382.05	372.8	0.56
	2018			285.6	0.87

PHARMDEKO	2013	6.2	171.6	51.0	0.32
	2014	24.8	305.2	8.8	0.14
	2015	200.4	274.0	259.7	0.16
	2016	102.0	360.0	149.5	0.63
	2017	226.3	453.0	354.3	0.54
	2018	144.4	302.6	279.2	0.45
EKOCORP	2013	111.9	98.3	416.2	0.56
	2014	364.5	9.4	433.5	0.65
	2015	273.1	258	250.7	0.45
	2016	62.2		125.2	0.45
	2017	2440	83.9	64.4	0.46
	2018		4.8	3.6	0.56
UNIONDAC	2013	280.3	280.3	105.0	0.45
	2014	279.1	279.1	15.5	0.56
	2015	227.8	227.8	147.2	0.23
	2016	223.7	223.7	148.0	0.23
	2017	494.6	494.6	190.3	0.28
	2018	348.9	348.9	211.5	0.23

Source: Audited financial account of firms