

HUMAN CAPITAL ASSET AND FINANCIAL PERFORMANCE OF LISTED CONSUMER GOODS MANUFACTURING COMPANIES IN NIGERIA

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ABSTRACT

This study investigated the effect of human capital costs on financial performance of listed agricultural companies in Nigeria. The study employed an ex-post facto research design. The study population was five (5) listed agricultural companies on the Nigerian Exchange Group (NGX). A sample size of five (5) agricultural companies was used, using a census sampling technique covering ten years (2014 to 2023). The data used in this study were secondary, sourced from annual reports and statement of accounts of the five selected firms between 2014 and 2023. The method of data analysis was descriptive statistic, unit root test, diagnostics test and panel least square (PLS) with the help of E-view v12. The findings showed that the effect of staff training costs on return on assets of listed agricultural companies in Nigeria is not significant, the effect of health and safety costs on return on assets of listed agricultural companies in Nigeria is not significant, the effect of salaries and wages costs on return on assets of listed agricultural companies in Nigeria is not significant and finally, the effect of staff gratuity costs on return on assets of listed agricultural companies in Nigeria is not significant. The study generally concluded that the effect of human capital costs on financial performance of listed agricultural companies in Nigeria is statistically insignificant for the period spanning from 2014 – 2023. It was suggested amongst others that agricultural companies in Nigeria should continue to prioritize and enhance their staff training costs. The expenditure can serve as valuable tool for employee productive and motivation, which, in turn, can contribute to the financial performance of the companies.

Keyword: *Human Capital Costs, Return on Assets and Agricultural Companies*

Introduction

There are challenges causing the sub-optimal performance among agricultural companies in Nigeria. Among these challenges is a huge shortfall of skilled professionals (underwriters, brokers, actuaries, etc.) which has affected the financial performance of the entire agricultural industry. The companies invested a low percentage of their budgets in human capital development and this has affected the sales of agricultural product in the last few decades. Majority of the agricultural companies attract low-skilled personnel due to inadequate remuneration package, inadequate retirement package, low training costs and other staff benefits. To this end, a lot of comments have been passed and a number of questions raised on the state of human capital cost in the agricultural industry in Nigeria. Most of the remarks in this regard tend to clothe human capital expenditure in the industry whether positively or negatively compared to other players in the larger sector. Ohaka et al. (2019) contended that traditional accounting views expenditure relating to improvement and intellectual development of organization's human resources as expenses. The implication of this system is the disposition that such expenses are unimportant beyond the current period, whereas human resource knowledge and skills remain crucial to the future of organizations. For this reason, this study aligns with the recognition of human resources as assets in order to necessarily profile the true state of organizations (Okeke, 2023). Taibat et al. (2024) observed that divergence in the stock of human

capital potentially accounts for the cross-country variation in corporate profitability of developed and developing countries. Also, there seems to be no universal approach to reporting on human capital costs, thereby making it difficult for meaningful comparisons. Based on the absence of a universal approach, the companies that are proactive enough to measure do it their own way for fear that it could lead to negative interpretation from various stakeholders (Nyeche et al., 2025; Adu & Olomola, 2024; Obi & Okoro, 2024; Aaron & Jonah, 2024; Major & Dumble, 2023; Newstyle & Major, 2022).

A number of empirical studies have consequently looked into the effect or relationship between human resources cost and financial performance. These empirical studies argued that there is a negative relationship between human resource cost and financial performance. For instance, Akam and Ikegwuru (2023) study confirmed 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. Newstyle and Major (2022) contradicted most of the earlier evidence on the effect of human resource cost and financial performance. Their study concluded that there is insignificant relationship between human capital accounting and financial performance of listed oil and gas companies in Nigeria under Pre – Covid-19 era and Post Covid-19 era. Chukwu (2018) study revealed that staff salary and staff training have positive effect on bank profitability while staff development revealed inverse effect. Ofurum and Adeola (2018) carried out a study on nine (9) quoted companies of the Nigerian Stock Exchange for 5 years, using the ordinary least square and the Product Moment Correlation Coefficient of Pearson and found that there was no correlation between HRA and profitability of the listed companies. Major and Dumle (2023) confirmed that there is a negative and significant effect of human capital costs on financial performance of listed healthcare firms in Nigeria under the period of the study between 2012 and 2021. Olayinka et al. (2023) study disclosed that human resource accounting has a significant effect on firm sustainable growth with the exception of training and development cost. The study therefore recommends that organization should improve their gross staff cost so as to improve their sustainable growth and there should be a uniformed standard for identifying and measuring human capital assets. Okeke (2023) study result indicated that human resources accounting positively influenced financial performance of banks in Nigeria within the period under study.

Above all, the contexts of these empirical studies were different in terms of scope, context, time frame, methodology and the firm used. To the best of my knowledge, none of the prior studies have conducted an empirical study, the effect of human capital costs on financial performance of listed agricultural companies in Nigeria. Therefore, this study sought to ascertain the effect of human capital costs and financial performance of listed agricultural companies in Nigeria. Specifically, the objectives of the study were to:

1. evaluate the effect of staff training costs on return on assets of listed agricultural companies in Nigeria,
2. examine the effect of health and safety costs on return on assets of listed agricultural companies in Nigeria,
3. determine the effect of salaries and wages costs on return on assets of listed agricultural companies in Nigeria,
4. evaluate the effect of staff gratuity costs on return on assets of listed agricultural companies in Nigeria,

Research Questions

The following research questions were raised to guide the objectives of the study:

1. What extent does staff training costs affect return on assets of listed agricultural companies in Nigeria?
2. How does health and safety costs affect return on assets of listed agricultural companies in Nigeria?
3. What is the effect of salaries and wages costs on return on assets of listed agricultural companies in Nigeria?
4. What is the effect of staff gratuity costs on return on assets of listed agricultural companies in Nigeria?

Research Hypotheses

The following hypotheses were stated to be tested at the 0.5 level of significance.

- H₀₁: The effect of staff training costs on return on assets of listed agricultural companies in Nigeria is not significant,
- H₀₂: The effect of health and safety costs on return on assets of listed agricultural companies in Nigeria is not significant,
- H₀₃: The effect of salaries and wages costs on return on assets of listed agricultural companies in Nigeria is not significant,
- H₀₄: The effect of staff gratuity costs on return on assets of listed agricultural companies in Nigeria is not significant,

REVIEW OF RELATED LITERATURE

Conceptual Review

Human Capital Costs

Human capital costs are intended in an-organisation to identify appropriate information for manpower planning, human resource deployment, information for creating personnel policies, increasing morale and motivation, attracting the best human resources, and valuable information for investors (Adegbayibi et al., 2024). Human capital costs is the technique that recognizes, documents, and reports investments of an organization on such human resources that have largely been ignored both in the human resource management system and a part of traditional accounting processes (Sharma & Khatik, 2017; Bhattacharjee et al., 2017; Shukuhian, 2018; Pala, 2021). To put it in a different way, it is just an extension of the current "expense recognition principle" or "Matching Principles" which demand revenue to be matched with costs paid to produce a certain level of revenue, as well as data management to convey important information. This attempt to measure the value of human resources aids managers in adapting to changes in their quantity and quality so that a balance may be struck between the resources necessary and the benefits received from them. Human resource costs also identified as human-asset accounting which are information-systems that facilitate the practice of recording, identifying, measuring and examining the potential and value of human-resources in the-company and communicating the resulting information to-the company's stakeholders (Newstyle, 2025; Adegbayibi et al., 2024). Newstyle and Major (2022) noted that human capital cost comprises of the talents, skills and knowledge of a company's workforce. In addition to the above, Ovechkin et al (2021) described human capital cost is the complete skills, creative abilities, knowledge, talent, attitudes and belief of an organization workforces as well as values, attitude and belief of the single personality involved.

Staff Training Cost

Staff training costs are seen as expenditures incurred on staff or employees for capacity building in order to maximize performance (that is profit). Capacity building entails investment in human capital, institutions and practices necessary to enhance human skills, overhaul institutions and improves procedures and systems (Nangih et al., 2020). Training is viewed as the process of improving a

person's existing skills, knowledge, exposure, and abilities. Employee training is a significant aspect of human resource investment, which denotes the knowledge and training an individual requests and undergoes to improve their skills in performing activities of economic value. During development, more attention has been paid to training-related aspects, making training an important part of human capital investment. Bankole (2020) found that attended training courses and teamwork practices lead to superstars, where more productivity could be translated into organizational services and the quality of developers and the volume of market share improved.

Health and Safety Costs

There are substantial benefits to adopt health and safety cost as part of human capital accounting, such benefits include; improvements to individual employees' health and well-being; increased productivity; and reduced safety risks and expenses. Yet many employers remain reluctant to shift from traditional safety initiatives and spending. This paper aims to demonstrate the value of investing in an integrated health and safety cost will improve financial performance or not. Safety customs can enhance proactive injury avoidance, and studies conducted has demonstrated that organizations do perceive health and safety as an essential segment of making and keeping up a healthy workforce by the provision of hospitals for treatment or by providing health care and safety allowances. In altering an association's way of life, it is imperative that top management involvement in health and security issues is paramount and that a vibrant and positive attitude is needed to institute safety culture in the organization. The implementation and review of any safety programme becomes successful with the involvement of top level or strategic level management (Adegbayibi et al., 2024).

Salaries and Wages Cost

Salaries and wages cost refer to the total amount of money paid by a company to its employees in exchange for their labor. This includes not only the base salaries or wages but also any additional compensation such as bonuses, overtime pay, and benefits. The cost of salaries and wages is a significant component of a company's overall expenses and is a crucial factor in determining its financial health and performance. Surbhi (2015) defined salary as a fixed amount paid to the employees at regular intervals for their performance and productivity whereas wages are the hourly-based payment given to the labor for the amount of work finished in a day. He further argued that while salaried persons are generally said to be doing "white collar office jobs" which implies that an individual is well educated, skilled and is employed with some firm and holds a good position in the society, whereas the waged person are said to be doing "blue collar labour job" which implies that an individual is engaged in the unskilled or semi-skilled job and is drawing wages on a daily basis.

Staff Gratuity Costs

Gratuity, also known as a tip, is a sum of money customarily given by a client or customer to certain service sector workers for the service they have performed. In the context of staff gratuity costs, it refers to the amount a business or employer sets aside to compensate their employees for the service they provide. This can include tips received by employees in industries such as hospitality, food service, and personal care services. The benefit of retirees has recently attracted the interest of both researchers and policy makers' world over (World Bank, 2013). In Nigeria, the increased attention could be attributed to the mismanagement of pension fund that characterized the old pension system. The old system and its management introduced lots of untold hardship to the retirees which led to the deaths of many. It is quite unfortunate that the welfare of the retirees in Nigeria have not been well handled over the years. A search of literatures shows that little or nothing has been done for the total package of the retirees outside the pension and gratuity which is monetized. Yet the pension and gratuity system have been found wanting in many areas (Fiwe, 2020). For this reason, Alonso-Garca (2017) and Wanger (2021) urge policy makers to ensure that

pension contributions by workers during their working life correspond with pension rates at retirement and be managed well, to the extent that there is adequate liquidity.

Financial Performance

Financial performance can be characterized as measure of financial capability of a company at any given period of time. Financial performance analysis is an effective criterion for businesses to achieve their goals, to adapt to changing conditions in the market, to improve the way of doing businesses and to be able to take measures against possible problems. Therefore, financial performance is an increasingly important issue not only for businesses but also for economies of countries. Financial performance analysis is an essential tool in evaluating the commercial activity of businesses (Basyith, 2016; Ndum & Oranefo, 2021). Evaluating the financial status of businesses is a complex and multivariate process based on predicting the future using historical data. The performance of an organization could be categorized into human resource which could be measured in terms of turnover; organizational category which could be measured in terms of productivity, quality, customer satisfaction and manufacturing flexibility; financial accounting category which could be measured in terms of return on assets (ROA), return on equity (ROE), profits, sales, and employee value; while the financial market category could be measured in terms of stock prices or the measure of the ratio of the market value of the firm's assets to their replacement cost in line with the Tobin's Q (Newstyle, 2025).

Earnings Per Share (EPS)

Earnings per share is defined the profit in pence attributable to each equity share, based on the consolidated profit of the period after tax and after deducting minority interests and preference dividends, but before taking into account extraordinary items, divided by the number of equity shares in issue and ranking for dividend in respect of the period (Okpolosa, 2018). Earnings per share can be used as an indicator of the company's success in managing the company. So that earnings per share is one way to measure success in achieving profits for shareholders in a company. Earnings per share (EPS) is a ratio that shows how much profit (return) obtained by investors or shareholders per share by dividing net income after tax with the number of ordinary shares outstanding. Earnings per share are the amount of income earned on a share of common stock during an accounting period (Charles, 2009). EPS is used to see the development of the company's operations, determine the market price of the stock, and determine the amount of dividends to be distributed.

Theoretical Framework

Human Resources Value Theory

Human resources value theory was the brain idea of Flamholtz, who developed the theory. Flamholtz suggested that the determination of human resources and value attributable to human capital largely lies with the organization concerned (Elbadawi & Soto, 2015). Human capital value reflects the monetary value an organization places its employees individually. The human resource value theory emphasized that corporate organization has parameters which guides them in determining employees' value to an establishment. According to Flamholtz, the human resource value theory served as a framework for developing both monetary and nonmonetary measurements of human resource value. It is a value-based paradigm for human resource management. Physical and intangible assets have long been considered strategic resources for a firm. With the passage of time, the focus of this theory has been mainly dragged towards intangible resources (Reed et al, 2006). These authors argued that it is actually intangible assets or Intellectual Capital that contributes more towards a sustainable competitive advantage for firms. They argued that physical assets such as plant, machinery and financial assets are generic and can be substituted at any time by any firm. This argument supports Youndt et al (2004) who concluded that it is only Intellectual Capital (IC) that contributes significantly towards value creation and hence builds a sustainable competitive

advantage for the firms in the knowledge economy era. The theory advanced and assessed the validity of a model of an individual's value to an organization (Okpala & Chidi, 2015). Bakotic (2016) argued that human capital had suffered setback over the years due to lack of clear-cut regulatory policy to harmonize and standardization of fair value recognition, valuation of human resources value and positional consideration in financial statements.

Human resource value theory recognizes the economic value of intellectual capital, and beyond this, considers the social and psychological determinants of a persons' value to an organization. The postulations are based on the premise that a human skills and property value to an organization is a product of the attribute he brings to an organization and the characteristics of the organization itself (Lunsford, 2019).

Empirical Review

Nyeche et al. (2025) examined the effects of human capital investment on industrial sector output in Nigeria from 1990 to 2022. Three specific objectives were examined in the study. Investment in education, investment in research and development and investment in health were used as the proxies of human capital investment (independent variable) while industrial sector gross domestic product was used as the proxy of industrial sector output (dependent variable). Annual times data sourced from Central Bank of Nigeria (CBN) statistical bulletin and World Bank Development indicators were utilized. The study adopted Autoregressive Distributed Lag (ARDL) technique as the main data analysis technique. The findings of this study indicated that investment in education has a positive and significant effect on industrial sector output in Nigeria in both short run and long run, investment in research and development has a positive and significant effect on industrial sector output in Nigeria in the long run while investment in health has a positive and non-significant effect on industrial sector output in Nigeria in both short run and long run. Based on the findings, the study concluded that human capital investment plays a significant role in promoting industrial sector output in Nigeria. The study recommended among others that to boost industrial sector output, the government should foster stronger linkages between research institutions, universities, and the industrial sector. Increased investment in research and development, particularly in areas critical to industrial innovation, can lead to the development of new technologies, processes, and products.

Jack (2025) investigated the impact of human capital cost on the financial performance of listed commercial banks in Nigeria from 2009 to 2023. The study employed an ex-post factor research design. The population comprises fifteen listed commercial banks in Nigeria, with data collected from audited financial reports and the Nigeria Stock Exchange fact book. The study employed descriptive statistics and multiple regression analyses. Findings reveal significant variability in training costs and financial performance (ROA) among Nigerian commercial banks. Health safety costs demonstrate a positive and statistically significant relationship with ROA. Conversely, no statistically significant relationship is found between training costs and ROA. The study's poor overall model fit, evidenced by a negative adjusted R squared, indicates that factors beyond training and health-safety costs likely influence bank performance. The uneven distribution of financial performance among banks suggests that high-performing institutions maybe driving overall industry performance. Recommendations include increasing investments in employee health and safety programs, reassessing training strategies to improve effectiveness, developing targeted human capital management approaches, and investigating additional factors influencing financial performance such as organizational culture, management practices, and technological investments. Newstyle (2025) determined the effect of human capital development on economic performance in Nigeria. The research design adopted for the study was ex post facto research design. The population of the study was conducted on Federal Republic of Nigeria under the National Bureau of Statistics, Federal Inland Revenue Services, Central Bank of Nigeria (CBN) and Federal Ministry of Finance. The study period covered was forty-three (43) years spanning from 1981 to 2023. This

study utilized Descriptive statistic, Unit Root Test, diagnostic tests such as Breusch-Godfrey serial correlation LM test, Breusch-Pagan Heteroskedasticity test was adopted. And ARDL Regression analysis with the aid of E-View 10 was also employed for testing for hypotheses. The findings from the study revealed that there is no significant effect of capital development on education and real gross domestic product in Nigeria in the short run but there is a significant effect of capital development on education and real gross domestic product in Nigeria in the long run, there is a significant effect of capital development on health and real gross domestic product in Nigeria for both short run and long run, there is no significant effect of capital development on education and misery index in Nigeria for both short run and long run, there is no significant effect of capital development on health and misery index in Nigeria for both short run and long run. The study concluded that there is a significant effect human capital development on economic performance in Nigeria for long run planning but is not significant for short run prediction base on the ARDL model analysis. Therefore, the study recommended that government should invest more in capital expenditure on education to ensure enhancement in human capital development through raise in budget allotment to these sectors for long term planning.

Taibat et al. (2024) assessed the impact of human capital expenditure on the financial performance of listed insurance companies in Nigeria. The population of the study consisted of twenty - three (23) insurance companies listed on Nigerian Exchange Group among which nine (9) companies were sampled for a period of ten (10) years from 2012 to 2021. Employee's Salaries and wages, Employee's Retirement Benefits, Employee's Training Costs and Other Employee Benefits were adopted as proxies for human capital expenditure, while Profit Before Tax was adopted as proxy for financial performance. Secondary data were collected from the sampled insurance companies' annual reports and accounts over the period of study. Panel Least Square analysis method was used to analyze the collected data. The findings of the study revealed that employees' salaries and wages and employee's retirement benefits have significant positive impact, and employee's training costs and other employee's benefits have no significant impact on the financial performance of Insurance companies in Nigeria. The study therefore, recommended that; insurance companies in Nigeria should carefully consider and invest in competitive and fair compensation packages for their employees, prioritize and enhance their employee retirement benefit packages and evaluate the cost-effectiveness of additional benefits and focus on other factors that more directly influence their financial performance.

Adu and Olomola (2024) examined the effect of human resource accounting) and on the financial performance of Deposit Money Banks (DMBs) in Nigeria. Other objectives of the study were to determine the influence of HRA on capital employed and to appraise the influence of HRA on return on capital employed. Secondary source of data was adopted for this study and ten quoted deposit money banks were selected through random sampling technique while the data were analyzed using regression analytical method. It was found out that salaries and wages, training, health and safety had significant positive influence on capital employed of deposit money banks in Nigeria and salaries and wages, training, health and safety had significant positive influence on return on capital employed. The study therefore concluded that human resource accounting improved financial performance of deposit money banks. The study suggested for the management of deposit money banks to improve the general welfare of their employees through improved salaries and wages, better training and enhanced health and safety in order to improve their financial performance.

Methodology

The study collected secondary data using all the listed five (5) agricultural companies in the Nigerian Exchange Group (NGX) with a period of ten(10) years 2014-2023 using ex-post-facto. The targeted population of this study consists of all the listed five (5) agricultural companies in the Nigerian Exchange Group (NGX) and all were employed using census sampling technique and they includes; Ellah Lakes Plc, FTN coca processors Plc, Livestock Feeds Plc, Livestock Feeds Plc, Okomu Oil Plam

Plc and Okomu Oil Plam Plc. The method of data analysis was descriptive statistic, unit root test, diagnostics test and panel least square (PLS) with the help of E-view v12.

Table 1 Measurement of Variables

Variables	Measures/ Abbreviations	Mathematical Expression	Sources
Independent Variables	Staff training cost (STC)	Staff Training cost are extracted direct from note to the accounts	Adegbayibi et al (2024), Olayinka et al (2023), Newstyle and Major (2022a), Chukwu (2018)
	Health and Safety Cost (HSC)	Summary of medical expense security cost and worker compensation.	Kankpang (2024), Major and Dumle (2023), Newstyle and Major (2022b)
	Salaries and wages Cost (SWC)	Natural Log of the value of welfare cost on the note to the account	Obi & Okoro (2024), Newstyle and Major (2022a), Abolo (2022), Chukwu (2018),
	Staff Gratuity Cost (SGC)	Natural Log of the value of gratuity on the note to the account	Adegbayibi et al (2024), Okeke (2023), Abolo (2022), Nwauzor and Longjohn (2020)
Dependent Variable	Return on Asset (ROA)	$\frac{\text{Profit Before Taxes}}{\text{Total Assets}}$	Newstyle and Major (2022a), and Researcher (2024)
Control Variable	Firm size	Natural Log of Total Assets	Newstyle and Major (2022a) and Researcher (2024)

Model Specification

The model's specifications were made in a way that it answered the study's specific goals. Because of its straightforward computational process and the estimates, it produces, which have the best properties, including linearity, unbiasedness, minivariance, and mean square error estimation, panel least square (PLS) was chosen for this research project (Koutsoyianis, 2003). In carrying out this research work on the effect of environmental costs on the financial performance, we developed a compact form of our as follows:

Model: Return on Assets (ROA) Model

$ROA = f(STC, HSC, SWC, SGC, FS)$ i

This can be written in Panel Least Square (PLS) form as:

$$ROA_{it} = a_0 + a_1STC_{it} + a_2HSC_{it} + a_3SWC_{it} + a_4SGC_{it} + a_5FS_{it} + U_{it} \text{ ii}$$

$$a_1 > 0; a_2 > 0; a_3 > 0; a_4 > 0; a_5 > 0$$

Data Analysis and Discussion Of Findings

Descriptive Analysis

The descriptive statistics result shows the mean (average) for each of the variables, their maximum values, minimum values, median, standard deviation, skewness, kurtosis, and the Jarque-Bera (JB) statistics (normality test) computed for each of the variables to quantify the manifested construct central tendency, dispersion and shape of their distributions.

Table 2: Descriptive Statistics of the Variables

	STC	HSC	SWC	SGC	ROA	FS
Mean	4.492522	4.672966	5.063687	4.794916	0.146023	7.362325
Median	4.641180	5.207420	4.544437	4.640453	0.118060	7.143360
Maximum	6.897068	6.951111	7.365592	6.229058	1.009515	9.079181
Minimum	2.000000	1.919078	3.442166	3.267641	0.005095	6.426213

Std. Dev.	1.306010	1.430569	1.231067	0.652925	0.152616	0.778210
Skewness	-0.111737	-0.267151	0.708018	0.112535	3.793302	0.878358
Kurtosis	2.581989	1.877017	2.286111	3.629978	21.68664	2.815555
Jarque-Bera	0.468071	3.222019	5.239153	0.932352	847.3894	6.500153
Probability	0.791334	0.199686	0.072834	0.627397	0.000000	0.038771
Sum	224.6261	233.6483	253.1843	239.7458	7.301150	368.1163
Sum Sq. Dev.	83.57744	100.2798	74.26076	20.88922	1.141289	29.67491
Observations	50	50	50	50	50	50

Source: Author's Computation, (2025) using E-Views 12

As it is presented in the table, it includes the mean, standard deviation, number of observations, minimum, maximum, skewness and kurtosis for the dependent and independent variables of the model. It shows the average indicators of variables computed from the Nigeria Exchange Group (NGX) financial report. The independent variables Staff Training Costs (STC), Health and Safety Costs (HSC) Salaries and Wages Cost (SWC) and Staff Gratuity Cost (SGC) reported a mean value 4.492, 4.672, 5.064 and 4.794 respectively for the time frame investigated. The results disclosed that dependent variable return on asset (ROA) reported a mean value 0.1460. The descriptive statistics also disclosed the standard deviation values of the variables on Staff Training Costs (STC), Health and Safety Costs (HSC) Salaries and Wages Cost (SWC) and Staff Gratuity Cost (SGC), return on asset (ROA) and firm size (FS) that reported 1.306, 1.430, 1.231, 0.652, 457.55, and 0.778 respectively. This signified that the mean and standard deviation values for all the variables are clear indications that the variables are not constant over time. However, the skewness statistics indicated that all the variables are positively skewed which shown the variables has a long right tail except firm size. The corresponding probability values of the Jarque-Bera test statistics disclosed that Staff Training Costs (STC), Health and Safety Costs (HSC) Salaries and Wages Cost (SWC) and Staff Gratuity Cost (SGC) variables are all normally distributed at 5% significant level while return on asset (ROA) and firm size (FS) variables are not normally distributed at 5% significant level is less. Therefore, the researcher carryout unit root test and some diagnostics test in order to determine the normality level of the variables before regression estimation.

Unit Root Test (Pre Test)

The variables in the regression model are required to be stationary to ascertain the reliability of the result. Therefore, potential variables for a model have to be tested for stationarity before estimation. As the method involved for this model is panel data analysis, an appropriate panel unit root test was carried out. Therefore, the Fisher-ADF test unit root tests were performed to ascertain the stationarity state of the dataset.

Table 3 Summary of Unit Root Test Result

Variables	ADF - Fisher Chi-square	ADF - Choi Z-stat	ORDER OF INTEGRATION	REMARKS
STC	0.0347	0.0292	1(0)	Stationary
SHC	0.0062	0.0056	1(0)	Stationary
SWC	0.0065	0.0384	1(0)	Stationary
SGC	0.0000	0.0000	1(0)	Stationary
ROA	0.0000	0.0000	1(0)	Stationary
FS	0.0006	0.0024	1(0)	Stationary

Source: Researcher Computation using E-Views, 12

Table 3 shows the results of Augmented Dickey Fuller (ADF) unit root test on the variables at 5% critical level utilized in this investigation. The table depicted that all the variables of interest are 1(0) or stationary at level. This is supported by the P-values with regards to ADF FISHERS are smaller than the alpha value of 5%. The null hypothesis of panels unit root is therefore rejected with 95% certainty. This indicates that the data series have been cleansed of unit root.

Multivariate Data Analysis (Regression Analysis)

To test the multiple regressions, Random effect and Fixed effect regression model has been developed to verify the cause and effect relationship between the dependent and independent variables.

Table 4 Hausman Test for Model

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	41.336719	4	0.0000

Source: Researcher Computation using E-Views, 12

The Hausman test was carried out to decide which of the fixed and random effect model is appropriate for this analysis. The result of the test with a probability value of 0.000 implies that fixed effect is appropriate for this analysis.

Table 5: Regression Analysis of Model

Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/20/25 Time: 03:01
Sample: 2014 2023
Periods included: 10
Cross-sections included: 5
Total panel (balanced) observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STC	0.327092	0.164204	1.991986	0.0532
HSC	0.013898	0.113172	0.122805	0.9029
SWC	-0.044524	0.129419	-0.344030	0.7326
SGC	0.089621	0.101019	0.887170	0.3803
FS	0.671142	0.079789	8.411481	0.0000
C	-0.326410	1.053992	-0.309690	0.7584

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.883063	Mean dependent var	6.353387
Adjusted R-squared	0.856752	S.D. dependent var	0.733150
S.E. of regression	0.277483	Akaike info criterion	0.450745
Sum squared resid	3.079879	Schwarz criterion	0.833149
Log likelihood	-1.268613	Hannan-Quinn criter.	0.596366
F-statistic	33.56275	Durbin-Watson stat	2.401785
Prob(F-statistic)	0.000000		

Source: Author's Computation, (2025) using E-Views 12

Results in table 5 above showed that $R^2 = 0.883$ and adjusted $R^2 = 0.856$ that measured the proportion of the variations in return on assets (ROA) of dependent variable attributed to Staff Training Costs (STC), Health and Safety Costs (HSC), Salaries and Wages Cost (SWC) and Staff Gratuity Cost (SGC) of independent variables implied that, the dependent variable explained 85.6% (percent) of the variations in to Staff Training Costs (STC), Health and Safety Costs (HSC), Salaries and Wages Cost (SWC) and Staff Gratuity Cost (SGC) of independent variables. The remaining variation of 14.4% is the error term that attributed to other factors not included in the model. The F-statistic, 33.562 with a Prob (F-statistic) value of 0.000 showed that the model satisfies the overall goodness-of-fit statistical test. This means that return on assets (ROA) measures of financial performance were able to explain Staff Training Costs (STC), Health and Safety Costs (HSC), Salaries and Wages Cost (SWC) and Staff Gratuity Cost (SGC) of human resources costs in the study. The Durbin-Watson Statistic of 2.4017 explained that the model does not contain serial correlation which affirmed that the Residual Cross- Section Dependence Test

Statistical Test of Hypotheses

The following hypotheses were stated to be tested at the 0.5 level of significance.

H_{01} : The effect of staff training costs on return on assets of listed agricultural companies in Nigeria is not significant,

Decision Rule: Accept H_0 if $P > 0.05$. Otherwise reject

Decision: The findings from hypotheses 1 in table 5 revealed that staff training cost has insignificant effect with the financial performance measure (return on assets) with P-values 0.053, t-sta value of 1.991 and this implied that as staff training cost increases, return on assets of listed agricultural companies in Nigeria. This result is consistent with the work of the following prior studies; Festus

and Albert (2020) investigated result show that human capital does not have significant positive impact on performance of the banks. Albertini and Berger-Remy (2019) result revealed that human capital (HC), structural capital (SC), and relational capital (RC) did not uniformly influence corporate financial performance, Newstyle and Major (2022) study result showed that earning per shares under Pre - Covid19 era and Post Covid19 era had insignificant relationship with training/development cost of listed oil and gas companies in Nigeria. Worlu and Onyinyechi (2016) result obtained showed a no effect on PAT and no effect on training. However, the following prior studies disagree with the result and they include; Newstyle and Major (2022) result of the study showed that training and development cost has significant relationship with financial performance. Khadijat et al. (2022) result show that the cost of staff training have a positive significant impact on the profitability of the Nigerian conglomerate companies. Ogundajo et al. (2022) study revealed that the disclosure of employee training and development significantly impact on firm value. Godwin and Udeh (2021) study showed that Staff Training and Development cost has a significant positive effect on EBTIDA. Onyekwelu and Ironkwe (2021) result showed that human resource accounting disclosure and training cost significantly affect Return on Asset and Return on Equity positively.

H₀₂: The effect of health and safety costs on return on assets of listed agricultural companies in Nigeria is not significant.

Decision Rule: Accept H₀ if $P > 0.05$. Otherwise reject

Decision: The findings from hypotheses 5 in table revealed that health and safety cost has insignificant effect with the financial performance measure (return on assets) of listed agricultural companies in Nigeria with P-values 0.9029, t-stat value of 0.122 and this implied that as health and safety cost increases, return on assets of the firms increases. This result is consistent with the work of the following prior studies; Abraham et al. (2022) study revealed that cost of health care and safety have no significant effects on market value using TQ. Newstyle and Major (2022) result of the study showed that health and safety cost has insignificant relationship with return on capital employed of listed healthcare firms in Nigeria. Festus and Albert (2020) investigated result show that human capital does not have significant positive impact on performance of the banks. Ofurum and Adeola (2018) result revealed that there is no significant relationship between human resource accounting and the profitability of quoted firm. However, the following prior studies disagree with the result and they include; Nwauzor and Longjohn (2020) result showed that, the relationship between compensation cost and market share is positive and statistically significant. Giami and Iwo (2021) finding showed a significant positive correlation and statistically significant positive relationship between the cost of staff welfare and both growth in sales volume and return on assets respectively. Juliana et al (2019) study found that employee remuneration cost have significant effect on performance of quoted companies in Nigeria. Size of employees was found to have insignificant effect on performance of quoted companies in Nigeria. Odhigu (2016) study revealed that welfare cost has a significant impact on human capital in Nigeria.

H₀₃: The effect of salaries and wages costs on return on assets of listed agricultural companies in Nigeria is not significant..

Decision Rule: Accept H₀ if $P > 0.05$. Otherwise reject

Decision: the result in table 5 discovered a significant level between salaries and wages costs (SWC) and return on assets (ROA). The t-statistics of -0.344 indicated that there is a negative effect of salaries and wages costs (SWC) on return on assets (ROA). That is 1% increase in salaries and wages costs (SWC) would contribute to -0.344% decrease in return on assets (ROA). The probability value $P = 0.7326 > 0.05$ revealed that the significant effect of salaries and wages costs (SWC) on return on assets (ROA) is statistically insignificant at 0.05 alpha level. Thus the null hypothesis three is accepted which implied that the effect of salaries and wages costs on return on assets of listed agricultural companies in Nigeria is not significant. The finding of this study is in consonance with Godwin and Udeh (2021) showed that increment in number of staff has no significant positive effect

on EBTIDA. Ngozi and Patricia (2021) study revealed that staff cost has an insignificant effect on the return on assets of quoted brewery firms in Nigeria. Olaoye and Afolalu (2020) results of the random effect revealed that salaries and wages have insignificant positive relationship except director's remuneration (RENMR) that has insignificant negative relationship with EPS. However, the following prior studies disagree with the result and they include; Oswald et al. (2021) findings from the study for both microfinance banks reveal that personnel cost have significant effect on both net profit margin and return on equity. Onyekwelu and Ironkwe (2021) result showed that number of staff and increment in staff salaries has a statistically significant negative effect on Return on Asset. Ikotun and Obi (2020) result indicated that workers' wages and salaries have a positive and noteworthy impact on the benefit making capacity of chose banks. Chukwu (2018) study revealed that staff salary and staff training have positive effect on bank profitability while staff development revealed inverse effect.

H₀₄: The effect of staff gratuity costs on return on assets of listed agricultural companies in Nigeria is not significant,

Decision Rule: Accept H₀ if $P > 0.05$. Otherwise reject

Decision: The results in table 5 reported the effect of staff gratuity cost on return on assets of listed agricultural companies in Nigeria. The T-statistics (0.887) disclosed a positive effect. The Prob.** value 0.3803 > 5% significant level. Given the above result, the null hypothesis is accepted while the alternative hypothesis is rejected. This implied that the effect of staff gratuity cost on return on assets of listed agricultural companies in Nigeria is positive and not significant. The finding of this study is in consonance with Abraham et al. (2022) study revealed that; staff remuneration have no significant effects on market value using TQ while cost of staff training has a significant effect on market value of a listed deposit money bank using TQ. However, the following prior studies indicated negative and insignificant and they include; Abolo (2022) finding of the study were; that recruitment and hiring costs significantly influence return on assets of listed commercial banks in Nigeria. Also, that compensation cost significantly influence return on assets of listed commercial banks in Nigeria. Nwauzor and Longjohn (2020) result showed that, the relationship between compensation cost and market share is positive and statistically significant.

Diagnostic Test Results

The following sections discuss the results of the diagnostic tests that were conducted to ensure whether the data fits the basic assumptions of the classical linear regression model. The implication of the test, limits therein, test results and their discussion are also presented. Thus, this study adopted the Residual Cross- Section Dependence Test and Residual Histogram Normality Test was used to establish whether the observed values of the variables on the estimation of the model are normally distributed.

Table 6 Residual Cross-Section Dependence Test for Model

Residual Cross-Section Dependence Test

Null hypothesis: No cross-section dependence (correlation) in residuals

Equation: Untitled

Periods included: 10

Cross-sections included: 5

Total panel observations: 50

Note: non-zero cross-section means detected in data

Cross-section means were removed during computation of correlations

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	7.918658	10	0.6368

Pesaran scaled LM	-0.465402	0.6416
Pesaran CD	-0.527478	0.5979

Source: Author Computation, (2025) using E-Views 12

The table 6 above disclosed diagnostic test using Residual Cross-Section Dependence Test as criteria for decision. The result indicates that there is no residual cross-section dependence in the panel estimation. This implies that the panel model two has a goodness fit since the Pro values of the three method under the Residual Cross-Section Dependence Test is greater than 0.05 and this means that that the residuals are normally distributed hence regression model can be estimated.

Conclusion

This study established the effect of human capital costs on financial performance of listed agricultural companies in Nigeria. The study adopted staff training costs, health and safety costs staff salaries and wages costs, and staff gratuity costs as measures of human capital costs while return on assets were used as measure of financial performance. Also, firm size was employed as control variable. From the data analysis, the study generally concluded that the effect of human capital costs on financial performance of listed agricultural companies in Nigeria is statistically insignificant for the period spanning from 2014 – 2023, other sub-variable conclusion as followed:

1. The effect of staff training costs on return on assets of listed agricultural companies in Nigeria is not significant,
2. The effect of health and safety costs on return on assets of listed agricultural companies in Nigeria is not significant,
3. The effect of salaries and wages costs on return on assets of listed agricultural companies in Nigeria is not significant,
4. The effect of staff gratuity costs on return on assets of listed agricultural companies in Nigeria is not significant,

Recommendations

Based on the findings of this study and the conclusion drawn thereof, the following recommendations are made

1. Is recommended that agricultural companies in Nigeria should continue to prioritize and enhance their staff training costs. The expenditure can serve as valuables tool for employee productive and motivation, which, in turn, can contribute to the financial performance of the companies.
2. Agricultural companies in Nigeria should evaluate health and safety cost quarterly or annual because the result of this study showed that, health and safety cost has insignificant effect with financial performance in term of return on assets.
3. The lack of statistically significant impact of other employee benefits on financial performance the sampled agricultural companies in the study, suggests that beyond salaries and wages, additional benefits may not be a key driver of financial outcomes. It is therefore recommended that agricultural companies in Nigeria should evaluate the cost-effectiveness of additional benefits and focus on other factors that have more direct influence on their financial performance.
4. Nigerian exchange group (NGX) and other accounting regulatory authorities should specifically make retirement benefits cost as contained in the human resource accounting as a compulsory accounting ratio to be disclosed by listed companies in Nigeria.

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