
**Human Resource Accounting and Financial Performance of Listed Service Firms in
Nigeria**

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Abstract

This study examined human resource accounting and financial performance of listed service firms in Nigeria. Population of the study consisted of all 22 service firms listed in the Nigerian Exchange Group, while purposive sampling technique was used to select 14 of the firms which constituted the study's sample size. Four hypotheses were formulated for the study in line with the variables of the study, and data were extracted from the financial statements of the sampled firms. Analysis was conducted using Dynamic Estimated Generalized Least Squares (DEGLS) Technique and the results indicated that both employees' health and safety costs, employees training and development costs and employees' retirement benefits costs has no significant relationship with financial performance of listed services companies in Nigeria, whereas, employees' remuneration costs have significant relationship with financial performance of listed service firms in Nigeria. The study therefore concludes that human resource accounting has a relationship with financial performance of listed service firms in Nigeria even though the relationship is somewhat insignificant. The study therefore recommends among others, that service firms intending to measure their financial performance using ROA in relation to employees' health and safety cost are advised not to since the result revealed a lack of any significant relationship between the two variables.

Keywords: Human Resource Accounting, Health and Safety costs, Retirement Benefit costs, Remuneration costs, Training and Development costs, Return on Assets

Introduction

Human resources are important assets which an organization possess to create value for the company and its stakeholders as well as enhances its continuous survival. The human resources play a significant role in the organization which cannot be neglected (Ndum & Oranefo, 2021). Khowanas et al. (2021) posited that organization should rely on the human resources as a tool to develop a competitive edge and improving productivity that would bring more value to the company.

According to Makkos et al. (2020), organization considered human resources as a key source of competitive advantage and therefore viewed their employees as an important resource to which huge investment should be made. They are very key to any organization because they are the stakeholders who are responsible for carrying out the organization's activities and ensure the achievement of its goals and objectives. Human resource plays significant role in increasing efficiency and creating opportunities for evaluating personnel policies, assessing employee performance, identifying non-operational and productivity gains resulting from investment in human capital (Kumar & Priyanka, 2018). It is often viewed as a vehicle driving out innovation, skills, competencies and improvement among staff and management to achieving organizational goals (Herath & Naser 2016). A system needs to be put in place to track and manage human resources cost in other to make informed decisions and value human resources in an organization.

Human resources accounting (HRA) is considered to be a new branch in accounting. In Nigeria, reporting of human resources cost has not gained high interest as disclosures has not been made in the financial statement of Nigerian organizations (Kirfi & Adbullahi, 2012). Human resources accounting is defined as the process of measuring the financial value of the human resources of an organization. Goa et al. (2015) posited that human resources accounting helps to assess the value of employee skills, knowledge, and experience and using the information to make decisions about resources allocation and organizational strategy.

According to Bhovi (2016), organizational resources can be both human and non-human. The human resource is referred to as the last M (Men) in the four Ms, while the non-human resources are referred to as the first three Ms (Money, Machines, and Materials). The financial statement

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treats men, money, machines, and materials as the 4 Ms differently (Akintoye, 2016). Since the late 1960s, there have been numerous historical discussions about HRA. The largest resource that every company needs to fulfill its primary goal of higher returns on assets is human capital, and there may be a growing need to move beyond this perspective (Manukaji, Osisioma and Okoye 2019). According to Akintoye (2016), HRA remains one of the most contentious accounting topics. In addition, the requirement to view human resources as assets rather than just expenses gave rise to the relationship between HRA and financial performance more specifically, ROA.

Olaniyi, (2010) believed that many businesses have been unable to accomplish their primary objectives due to inadequate human capital development. The accomplishment of organizational goals is significantly impacted by a well-managed human resource. Money, machinery, and men (human resources) are the components that affect how well other factors are used to meet the goals of the business. Babalola (2003) found that human capital should be preserved in an equilibrium state where there are no indications of a deficiency or surplus of educated people. According to this viewpoint, the main factor affecting the growth of human capital is education (Onuka & Ajayi, 2012). Insufficiently educated and trained labor firms can lead to poor performance, as employees are not given the opportunity to learn effectively during on-the-job training, and those responsible for training new hires may feel intimidated by the presence of this employee and start to conceal their skills while performing their duties (Prosvirkina, 2014).

Human resources accounting differs from traditional accounting in that it only considers the costs that are required to value human resources, such as labor turnover, employee training costs, employee retirement benefits, employee health and safety costs, and employee compensation costs. The compensation of employees has a big impact on an organization's financial results. It is among the biggest costs for any business and can have an impact on a number of aspects that are vital to financial success, including absenteeism, employee turnover, and productivity. According to Akinjare et al. (2019), it is crucial for organizations to thoroughly evaluate their compensation strategy and make sure that it is in line with their financial goals and objectives. The overall compensation an employee receives for their labor is known as remuneration. These consist of pay, benefits, bonuses, allowances, and salary. Paying employees more boosts their

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motivation, productivity, and job happiness, all of which can result in increased profits and improved financial performance.

This study therefore examines the effect of human resources accounting on the financial performances of listed service firms in Nigeria. It focuses on four (4) key areas of human resources accounting which are employee remunerations costs (ERC), health and safety cost (EHSC), employee retirement benefit costs (ERBC) and employee training and development cost (ETDC).

1.1 Statement of the Problem

Nigeria's economy depends heavily on the service sector, which also generates a sizable portion of the country's GDP and government income. The effect of human resource accounting (HRA) on the financial performance of Nigerian listed service organizations is not well understood, despite the industry's significance. Human resource accounting, which involves monitoring and reporting the cost and value of human resources, is vital for firms that rely largely on skilled personnel, such as those in the service sector. However, Nigerian enterprises generally underreport the contributions of their human capital, relying mostly on tangible assets in their financial statements. This disregard for human resource accounting could result in less money being spent on staff training, less efficient use of resources, and possibly worse financial results. Furthermore, because most research focuses on developed economies, little is known about the relationship between financial success and human resource accounting procedures in Nigeria. Examining how human resource accounting affects financial results in these companies is essential given the particular opportunities and problems faced by Nigeria's service sector.

1.2 Objectives of the Study

The main objective of this study is to ascertain the effect of human resource accounting on financial performance of listed service firms in Nigeria. The following are the specific objectives for which the study is being carried out:

1. To determine the effect of employee health and safety cost (EHSC) on return on asset (ROA) of listed service firms in Nigeria.

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2. To examine the effect of employee retirement benefit costs (ERBC) on return on asset (ROA) of listed service firms in Nigeria.
3. To examine the effect of employee remuneration costs (ERC) on return on asset (ROA) of listed service firms in Nigeria.
4. To investigate the effect of employee training and development cost (ETDC) on return on asset (ROA) of listed service firms in Nigeria.

1.3 Research Questions

In order to achieve the set objectives of this study, efforts were made to find answers to the following questions:

1. To what extent does employee health and safety cost (EHSC) affect return on asset (ROA) of listed service firms in Nigeria?
2. To what extent does employee retirement benefits cost (ERBC) influence return on asset (ROA) of listed service firms in Nigeria?
3. To what extent does employee remuneration cost (ERC) impact return on asset (ROA) of listed service firms in Nigeria?
4. To what extent does employee training and development cost (ETDC) affect return on asset (ROA) of listed service firms in Nigeria?

1.4 Research Hypotheses

The following hypotheses were formulated in a null form and to be tested for the purpose of this research:

H01: Employees' health and safety costs (EHSC) have no significant relationship with return on asset

(ROA) of listed services firms in Nigeria.

H02: Employees' retirement benefits costs (ERBC) have no significant relationship with return on

asset (ROA) of listed services firms in Nigeria.

H03: Employees' remuneration costs (ERC) have no significant relationship with return on

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asset (ROA) of listed services firms in Nigeria.

H04: Employees training and development costs (ETDC) has no significant relationship with return on asset (ROA) of listed services firms in Nigeria.

2.1 Conceptual Clarifications

2.1.1 Human Resource Accounting

According to The American Accounting Association (1973), human resources accounting is the process of identifying, quantifying, and sharing data related to human resources with the appropriate parties. The workforce of a business, sector, or economy is referred to as "human resources" when discussing a group of individuals. Akintoye (2012) asserts that the terms "human resources" and "human capital" are sometimes used interchangeably. Effective financial reporting requires user-friendly financial reports, even though financial reporting is the presentation of financial data showing a company's operating performance, position, and cash flow for a specific accounting period (Andrew & Higson, 2008). After a thorough analysis of the Skandia Model of Intellectual Capital, Ashton concluded that the Skandia Navigator and related framework have occasionally been used as the foundation for external reporting of non-financial information, which, in addition to understanding value creation itself, might be helpful for interested stakeholders' value-creating activities. Even though a company's ability to create value is being emphasized more, Ashton (2005) found that there seems to be a clear shift in focus towards the "intangible value drivers" in place now that will position the organization for realization tomorrow.

Effective organizations may have well-managed human resources with seasoned managers who have dedicated enough time to organizational relations policies, politics, and ethical ideals, according to Akintoye (2012). According to the aforementioned assertions, an organization's human capital component is among its greatest assets. A team of competent, committed, and driven workers can turn a failing company around. It is an important responsibility of an employer, according to Roslender (2004), to create a conducive working environment to employees' excellent health and high morale. Some firms have policies in place to protect their employees' well-being. Preventive actions must be taken and made available in accordance with

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the company's safety and health policies. Employees should primarily get safety training, protection, and consistent enforcement. Actually, an organization's most important resource is its human capital resource. The type of human resources that an organization may access determines how efficiently it can use its physical and financial resources. While efficient management of human resource helps to manage the people who make profit, machines and capital only serve to increase the capacity of such profit. Identification, measurement, and dissemination of data on human resources to interested parties is the process of human resource accounting. Reeta (2015) therefore defined HRA as a system of information that alerts management to changes in an organization's human resources. The cost incurred by organizations to find, choose, hire, train, and develop their human resources is measured in human resource accounting. It also entails calculating the financial contribution that each employee makes to the organization (Flamholtz, 2014).

2.1.2 Employee Remuneration Costs (ERC)

Employee remuneration cost refers to the total expenditure that a firm incurs in compensating its employees for the mental and physical effort used in the firm. This includes salaries, wages, bonuses, allowance, benefits, and any other forms of compensation that are paid to employee as reward for their labour. Akintoye (2018) described employee remuneration as costs associated with providing and maintaining employee benefits such as health insurance, retirement plans, and other perks. It is the total cost of all compensation, both direct and indirect, provided to employees. This includes wages, salaries, bonuses, commissions, benefits, and any other forms of compensation paid by the employer. Yusuf et al. (2018) opined that employee remuneration is the compensation or payment that an employee receives for their work or services rendered to an organization. It can take various forms, such as salaries, wages, bonuses, commissions, and benefits. It is a fixed sum paid to the employees at regular intervals due to their performance productivity, while wages are payments made on an hourly basis to labour for the quantity of work completed daily (Surbhi, 2015). Employee remuneration provide financial and non-financial incentives for employees to do their jobs well and to motivate them so as to stay retain them in the firm. Employers use remuneration as a tool to attract and retain employees, and to maintain a productive and motivated workforce (Bankole, 2020).

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2.1.3 Employee Retirement Benefits (ERB)

Employee retirement benefits refer to financial incentives provided to employees upon retirement to help them maintain their standard of living after they leave the workforce. Retirement benefits can take many forms which include pensions, IRAs, and other investment schemes which provide a stream of income to retired employees. Retirement benefits are often a critical part of an employee's overall compensation package and can play a significant role in attracting and retaining talented employees (Onyekwelu & Ironkwe, 2021). Many employers offer retirement benefits as a way to help employees save for retirement, which can be a challenging task for individuals to manage on their own.

Employee retirement benefits are an important aspect of an organization's compensation package and can significantly affect employee recruitment and retention. A well-designed retirement benefits program can provide employees with financial security and peace of mind, leading to a more engaged and motivated workforce (Nwauzor & Longjohn, 2020). Employers typically provide retirement benefits to their employees in form of defined benefit plans or defined contribution plans (Ahmed et al., 2018). Retirement benefits can be an expensive scheme for some employers to provide and they can also offer significant tax benefits. Contributions to retirement plans are often tax-deductible for the employer, and investment earnings in the plan are also tax-deferred.

2.1.4 Employee Health and Safety Cost (EHSC)

Etim and Effiong, (2021) defined employee health and safety cost the expense involved with providing a safe and healthy working environment for employees. These expenses cover a wide range of charges, including medical examinations, workers' compensation insurance, personal protective equipment, safety training, safety inspections, and other safety precautions meant to avoid occupational illnesses or injuries. This was particularly noticeable during the coronavirus outbreak, when every business made significant investments in handwashing stations, frequent corona virus training, and several other preventive steps to stop the virus's spread. It is impossible to overstate the importance of workers' health and safety at work. In addition to causing great pain for workers, occupational diseases and injuries also lead to decreased productivity, higher medical expenses, and even legal ramifications for employers. Therefore, it

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is imperative to state that any company's success depends on its investment in employee health and safety. Seleim et al. (2007) discovered that cooperation techniques and training attended result in superstars, where increased productivity could be converted into organizational services and developers' quality and market share increased (Bankole, 2020). A safety culture can boost productivity, boost employee morale, and create a more engaged and motivated workforce. Investing in employee health and safety is not only good for the workers, but it can also save organizations money over time by lowering the likelihood of workplace illnesses and injuries that could result in the employer having to pay workers' compensation, insurance premiums, and legal fees.

2.1.5 Employee Training and Development Costs (ETDC)

Training is the formal, systematic modification of behavior through learning that comes from development, instruction, education, and planned experience, according to Armstrong (2015), as quoted by Beida (2024). According to him, the primary goal of training is to increase the value of the company's workers, which is its most precious asset, in order to help it fulfill its mission. Beida (2024) further supports the premise that investing in training allows people to perform better and optimize their intrinsic skills. According to Beida (2024), who concurs with Armstrong (2015), the main objective of training and development is to remove performance flaws that now exist or are anticipated to occur and result in employees performing below expectations. According to Obi and Zakari (2005), Campbell (1971) distinguished between development and training. He claimed that whereas development is longer-term, more comprehensive, and targeted at managerial staff, training is done for non-managers with a specific goal. Oke (2010), found that many businesses, particularly multinational corporations, rely on staff development to reach company goals and objectives.

Armstrong (2015), opined that effective training programs help businesses reduce the cost of training employees, improve performance on an individual, team, and corporate level in terms of output, quality, speed, and overall productivity, increase operational flexibility by allowing employees to possess a wider range of skills (multiskilling), and draw in top talent by providing opportunities for learning and development. It also promote employee commitment by encouraging them to identify with the organization's mission and objectives; raise employees'

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levels of competence and develop their skills, enabling them to obtain more job satisfaction, earn higher rewards, and advance within the organization; support change management by raising awareness of the reasons for change and equipping people with the knowledge and skills they need to adapt to new situations; create a culture within the company that is focused on performance enhancement and improved customer service standards

2.1.6 Financial Performance

Performance is generally regarded as one of the major influencing elements that are frequently used to assess an organization's success or failure. Although many studies on performance-related problems that affect businesses or organizations have been conducted, it has been difficult for academics to define these problems (Lebans & Euske, 2006). The growth and development of an organization are governed by the firm's financial performance. It demonstrates the degree of financial development a firm has made over time. However, the measure of corporate financial performance could be determined by using a number of indices which include profitability, growth, productivity, or even customer satisfactions and employee happiness. There is no precise measure to utilize in order to arrive at performance (Aliu, 2010).

Generally, performance is regarded as one of the key determinant factors that are widely used in measuring the success or failure of firms. Although several research works had been carried out on performance related issues as it affects organizations or firms but its definition has been challenging to researchers. According to Ifuruzeet *al* (2014), performance is probably the most widely used dependent variable in organizational research today, yet it remains one of the most-vague and loosely defined constructs. Firm performance generally implies whether a firm has fared well within a trading period to realize its objectives. The only document that explains this is presumably the published financial statements. A fair evaluation of any firm's performance should start by evaluating whether it has been able to achieve the needed objectives set by management and stockholders

For the purpose of this study, return on assets (ROA) as a profitability indicator is used to assess the financial performance of listed service firms in Nigeria. This profitability measure checks the managerial efficiency in the usage of the firm assets to turn over and make profit. Amahalu et al,

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(2017) posited that the amount of net income earned in relation to total assets is an indicator of how efficiently a company uses its economic resources.

2.1.7 Return on Assets

Return on Assets (ROA) is a ratio that indicates the profitability of a firm. It is an indicator of how profitable a company is in relation to its total asset (Ezechukwu & Amahalu, 2017). It is a ratio of income to its total asset. It measures the ability of the firm's management to generate income by utilizing company assets at their disposal. In other words, it shows how efficiently the resources of the company are used to generate the income. This profitability ratio shows management efficiency, and rate of returns. It further indicates the efficiency of the management of a firm in generating net income from all the resources of the firm. In assessing the efficiency of a company, one of the ways that can be used is by comparing the earnings generated by total assets (ROA) (Okoye *et al.*, 2016). A higher ROA shows that the company is more efficient in using its resources. Service firms as a key player in Nigeria economy, plays important roles in creating employment opportunities and generating revenue for government, providing employment opportunity and promote economic growth and development.

Return on Assets is displayed as a percentage and it is calculated as:

$$\text{Return on Assets (ROA)} = \text{Net Income} / \text{Total Assets}$$

2.2 Theoretical Review

2.2.1 Resource-Based View (RBV) Theory

This theory was originally proposed by Birger Wernerfelt in 1984 and later developed and refined by Jay B. Barney and other scholars in 1991. According to the resource-based theory, competitive advantage is a function of the resources and capabilities of the firm. Also, Barney (1991) opined that there are four attributes of resources that can give rise to a firm's competitive advantage, namely; value, rarity, imperfect imitability, and lack of substitutability. The Resource-Based View (RBV) of the firm emphasizes the importance of a firm's internal resources in achieving competitive advantage. According to RBV, resources that are valuable, rare, inimitable, and non-substitutable (VRIN) can lead to sustained competitive advantage and

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superior financial performance. The theory holds that organizations' enormous resources and capabilities which are unique and challenging to replicate maintain their competitive edge.

According to Odhong and Were (2013), the development of knowledge and skills can aid companies in maintaining their competitive advantage. A firm has an advantage over competitors, according to the notion, because human capital is a resource that cannot be replaced or duplicated. This advantage can be preserved for a long time if the business is able to guard against resource imitation, transfer, or substitution. Human resources, which include the skills, knowledge, and abilities of employees, are considered a key strategic resource under this theory. By adequately accounting for and investing in human resources, firms can better leverage on these valuable and non-substitutable assets to enhance their overall financial performance. This theory emphasizes the evaluability and non-substitutable characteristics of human resource as internal resource which give competitive advantages for the achievement of firm's financial performance. In the context of this dissertation, RBV provides a theoretical foundation for exploring how the proper valuation and management of human capital through HRA practices can impact the financial outcomes of oil and gas firms in Nigeria.

2.2.2. Human Capital Theory (HCT)

Human capital theory is an economic theory that studies how people can improve their skills and knowledge to increase their productivity and efficiency. Human capital theory was pioneered by the American economist called Greg Becker in 1962. He coined the idea of investing in people. The theory allows us to view the link between human labour and production and how human capital can enhance the workplace today. We shouldn't view the theory as selling humans as a commodity, but rather as investing in their talents and performance, benefiting themselves and the business. It is based on the idea that people can accumulate human capital, or personal attributes, that are useful in the workplace. Human capital includes means for improving human qualities which can affect financial output and productivity. These qualities might be classed as tangible. But through consistency, you can increase financial performance and talent. Human capital can include qualities like: Education, workplace training, health, communication skills, problem-solving skills, people management, Physical, mental, and emotional wellbeing. Human

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capital theory assumes that education and training can improve a person's productivity and efficiency, which can lead to higher earnings.

Furthermore, Human Capital Theory posits that investments in employee education, training, and development are crucial for enhancing productivity and, consequently, the financial performance of an organization. The proponents of this theory contend that education spending is wise since it increases output. They claim there is a return on the employees' investments in education and training since a workforce with superior education and the necessary skills makes it easier for a company to adopt and use new technology (Izushi & Huggins, 2004). According to the hypothesis, an organization's competitive advantage is influenced by the competence, knowledge, abilities, and skills of its workforce. This theory suggests that the knowledge, skills, and competencies acquired by employees are a form of capital that contributes to organizational value.

In the context of human resource accounting, Human Capital Theory supports the idea that the quantification and reporting of human capital in financial statements are essential for recognizing the true value of a firm's human resources. This theory underpins the argument that firms that systematically account for and invest in their human capital are likely to experience better financial performance, as these investments lead to more effective and efficient operations.

If the afore mentioned theories are examined critically, it can be deduced that the Resource-based view (RBV) of the firm evidently explains the importance of a firm's internal resources in achieving competitive advantage while the later emphasizes that investments in employee education, training, and development are crucial for enhancing productivity and, consequently, the financial performance of an organization. The Resource-based view (RBV) and human capital theory are adopted to map the credibility of this study by emphasizing on the significances of human resource and link with the maiden objectives of the study.

2.3 Review of Empirical Literature

Kankpang et al. (2024) experimentally evaluated the influence of human resource cost (HRC) on profitability of quoted oil and gas enterprises in Nigeria. The study used staff training and development, staff size, and staff compensation cost as stand-ins for HRC. Profit after tax (PAT), on the other hand, served as a stand-in for profitability. An ex-post facto research design

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was used in the study. The study uses secondary panel data from the Nigerian stock exchange fact book and published audited annual reports and accounts of corporations from 2011 to 2021. Ten quoted oil and gas firms made up the study's sample, while 15 oil and gas companies listed on the Nigerian Exchange Group as of 2021 made up the study's population. Staff remuneration cost was found to have positive significant relationship with PAT of firms. It was also found that staff size had negative effect on PAT of oil and gas companies while staff training and development cost have positive significant effect on PAT.

With an emphasis on the moderating role of organizational culture, Haitham et al. (2024) examined the relationship between financial performance and human resource management practices (HRMP) in the Jordanian banking industry. 353 workers in the Jordanian banking industry were given surveys utilizing a standardized questionnaire as part of the study's quantitative research methodology. The sampling strategy used was random sampling. The study's conclusions showed a strong and favorable correlation between financial performance and HRM methods (employee training, incentives, recruitment, decentralization, and job security).

The impact of human resource costs on the return on assets of Nigerian listed manufacturing companies was investigated by Adesanmi et al. in 2024. Ex-post facto research design was used in the study. 41 publicly traded manufacturing companies were specifically chosen to make up the study's sample size. The annual reports of the chosen companies from 2011 to 2020 were used as secondary sources of data. Regression analysis and descriptive statistics were used to examine the data. The results of the coefficient analysis showed that ROA was negatively impacted by Compensation Costs (CC). Additionally, Retirement Benefit (RB) had a negative and statistically negligible impact on ROA. Also, Employees Training Costs (ETC) had a positive influence on ROA and statistically significant at. On the overall, the study findings revealed that Human-Resource Cost measured by RB, CC, and ETC had a significant-effect on ROA of listed manufacturing-firms in Nigeria.

Oswald et al. (2024) studied the link between human resource accounting and financial performance of Micro Finance Banks in Nigeria. Ex post facto research design was used and data for analysis obtained from the published financial statements of the only two listed microfinance

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banks in Nigeria Stock Exchange covering a period of 7 years (2011 to 2017) and 9 years (2011 to 2019) respectively. The first 7 years took into cognizance the data from both banks, whereas the additional 2 years making up to 9 years captured only data from Nigeria Police Force Microfinance Bank (NPFMFB) due to delisting of Fortis Microfinance Bank in 2018. The Simple linear regression analysis method was used to analyze the data generated. Findings from the study for both microfinance banks revealed that personnel cost had a significant effect on both net profit margin and return on equity with only return on assets having insignificant relationship. Further findings using only NPFMFB extended to 2019 indicated that personnel cost had no significant effect on all the explained variables (net profit margin, return on equity and return on asset).

Ekwutosi and Okeke (2024) carried out a study to examine the effect of human resource planning on organizational productivity in selected manufacturing firms in Anambra State, Nigeria. Survey research design was adopted. The population of the study was 1661 employees. The statistical formula devised by Borg and Gall was employed to arrive at a sample size of 299. Pearson moment product correlation method was used to analyze the data. The result of the study showed that training, performance appraisal, and talent management all had a significant positive effect on organizational productivity.

Adesanmi et al. (2024) examined the effect of human resource accounting on financial performance of listed deposit money banks in Nigeria. The study population was 13 listed deposit money banks on Nigeria Exchange Group. Census sampling technique was used to select the entire 13 listed deposit money banks form the sample size of the study. Data were collected from secondary source using annual reports of the selected firms from Factbooks published by the Nigerian Exchange Group from 2013 to 2022. Data collected were analyzed using descriptive statistics and ordinary least square regression analysis. The result showed that employee remuneration cost to revenue had a negative and significant effect on returns on capital employed of DMBs in Nigeria. Also, employee and safety cost had a positive and significant effect on returns on capital employed (ROCE) of listed deposit money banks in Nigeria. Employee retirement benefit had a negative and significant effect on returns on capital employed (ROCE) of deposit money banks in Nigeria.

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Adewoye and Tella (2024) embarked on an empirical study to examine the effect of HRA-maintenance costs` automation on the commitment of employees to work and also evaluated on social capital among employees. Primary data was used for the study. Simple random and purposive sampling were used to select two hundred (200) respondents. Ordinary Least Square Regression analysis (OLS) was used to analyze the effect of maintenance cost automation on employee and social capital performance, and the result revealed that the automated maintenance costs (Serving Employees) significantly impact employee commitment and social capital. Also, the result revealed that the automated maintenance costs (Retired Employees) significantly affect employee commitment and social capital, which were used as the two operational indications of employee performance. The research concluded that HRAIS (Automated Maintenance Costs) had a positive and significant impact on employee performance.

Korolo and Korolo (2024) investigated the relationship between human resource costs and the corporate financial performance of listed deposit money banks in Nigeria. An ex-post facto research design was adopted, and the study used secondary data from the annual reports and statements of account of selected banks listed on the Nigerian Exchange Group for the period 2018–2022. Judgmental sampling techniques were employed to investigate the relationship existing between the variables. The study founded that director's remuneration cost had no significant positive effect on earnings per share of listed deposit money banks in Nigeria, salaries and wages cost had a significant negative effect on earnings per share of listed deposit money banks in Nigeria, and pension and gratuity cost had no significant effect on earnings per share of listed deposit money banks in Nigeria.

Worimegbe et al. (2023) investigated the effect of human resource accounting on the profitability of Deposit Money Banks in Nigeria. The researchers made use of secondary data extracted from the annual financial reports of the sampled banks covering a period of nine (9) years from 2011-2019. The population for the study consists of twenty-one (21) deposit money banks in Nigeria, as listed in the Nigerian Stock Exchange after the banking recapitalization in 2011. The study used purposive (non-judgmental) probability sampling to select twelve (12) deposit money banks operating while adopting IFRS and still active. The study adopted the ex-post research design to show how the various independent variables affect the financial performance of each deposit

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money bank yearly. The findings of the study revealed that Employees' Benefit cost (Empl. Ben. Cost) and Personnel Expenses (Pers. Exp.) had a significant and positive effect on the performance of the companies as measured by return on equity.

Marhil et al. (2023) tested the relationship between HRM strategies and employee performance in the Libyan oil and gas sector. 321 survey data were collected from Waha Oil Company employees in Tripoli, Libya. The structural Equation Modelling (SEM) technique was used to analyze the data as well as hypotheses testing. The findings revealed that human strategies have significant effect on both job satisfaction and employee performance. Job satisfaction influenced employee performance. Besides, recruitment and selection, training and development, significantly affected job satisfaction, while performance appraisal significantly influenced employee performance.

Ogunbiyi-Davies et al. (2023) empirically evaluated the impact of human resource accounting on the financial performance of some selected food and beverages in Nigeria. E-Views 10.0 was used to analyze the secondary panel data for eight (8) of the food and beverage companies from 2002 to 2021. The findings of the study showed that staff training cost (STC) had a positive significantly impact on the performance (ROA) of the targeted firms, employee welfare costs had a significant positive impact on return on asset of the targeted firms, likewise employee safety costs had a positive but statistically insignificant impact on the ROA of the targeted firms. However, recruiting costs significantly and negatively impacted on the return on assets (ROA) of the selected food and beverage companies in Nigeria over the periods of the study. The study therefore concluded that human resource accounting was importantly required to sustain financial performance of firms.

3. Methodology

This study adopted ex-post facto research design, otherwise called the descriptive or correlational research design. The secondary data were extracted from published audited annual reports and accounts of the sampled firms and Nigerian Exchange Group Factbook. The population of this study is the total number of listed service firms in the Nigerian Exchange Group as at 2023 which is 22, with the study period spanning 2005 to 2023. A purposive

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sampling technique was adopted in this study to select fourteen (14) listed service firms in Nigeria Exchange Group as the study’s sample.

3.1 Model Specification

The functional equation of financial performance to test the four (4) hypotheses specified is stated as:

$$ROA = f(\text{EHSC, ERBC, ERC, ETDC}) \dots\dots\dots (1)$$

The functional testable model will be derived as:

$$ROA = \beta_0 + \beta_1\text{EHSC} + \beta_2\text{ERBC} + \beta_3\text{ERC} + \beta_4\text{ETDC} + \varepsilon \dots\dots\dots (2).$$

Since we are using panel data, the model will be specified in the appropriate form as:

$$ROA_{it} = \beta_0 + \beta_1\text{EHSC}_{it} + \beta_2\text{ERBC}_{it} + \beta_3\text{ERC}_{it} + \beta_4\text{ETDC}_{it} + \varepsilon_{it} \dots\dots\dots (3).$$

4.1 Data Analysis

4.1.1 Univariate Analysis of Descriptive Statistics.

The study used the raw data for the descriptive statistics analysis, correlation analysis and unit root test.

Univariate Data Analyses (Descriptive Statistics)

Table 4.1

Variables	Number of Observations	Mean	Std Deviations	Minimum	Maximum	Probability of Jarque-Bera(
EHSC	266	2016198	7429220	1209.000	37809575	0.000000
ELTR	266	0.009850	0.307243	-1.900000	3.140000	0.000000
ERBC	266	749209.2	2725600.	209.3630	17678543	0.000000
ERC	266	34474892	1.22E+08	11786.00	6.94E+08	0.000000
ETDC	266	3243972.	12243729	432.0000	1.04E+08	0.000000

Source: Researcher’s Computations (2024) Using EViews13 Software.

The statistics in Table 4.1 above shows the mean values of the variables as well as the standard deviations, minimum, maximum and Jarque-Bera Statistics Probability values. All the variables

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of interest have maximum values which are greater than their respective minimum values. However, the mean values of all the variables of interest (EHSC, ERBC, ELT, ERC, ETDC) are smaller than the standard deviation values (Mean<STD). This shows that these variables have outliers in their data set and so have a high gap between the highest and lowest values for the last 19years meaning that the average is quite low (Lestari & Setiany, 2023). This may or may not be a problem because the sample size is more than 100 satisfying the assumptions of the central limit theory.

4.2.3 Bivariate Data Analysis (Correlation Analysis)

Table 4.2: Correlation Statistics

Covariance Analysis: Ordinary
 Date: 10/30/24 Time: 13:42
 Sample: 2005 2023
 Included observations: 266

Covariance Correlation	EHSC	ELTR	ERBC	ERC	ETDC
EHSC	5.50E+13 1.000000				
ELTR	-297297.2 -0.130738	0.094044 1.000000			
ERBC	1.98E+13 0.983424	-96427.09 -0.115582	7.40E+12 1.000000		
ERC	7.58E+14 0.836754	-4728899. -0.126272	2.59E+14 0.780768	1.49E+16 1.000000	
ETDC	8.22E+13 0.906981	-399464.6 -0.106590	2.97E+13 0.892056	1.08E+15 0.725674	1.49E+14 1.000000

Source: Researcher’s Computations (2024) Using EViews13 Software.

The correlation analyses among the variables are meant to first determine the association between each pair of the dependent and independent variables as well as among the explanatory variables. It reflects the relative strength of the relationship between the explanatory variables.

The degree of association may be weak (0.00 to 0.5), moderate (0.51 to 0.8) or high (0.81 and above). A very high association among the regressors poses a problem of multi-collinearity. According to Gujarati (2004); multicollinearity could only be a problem if correlation coefficient between regressors is above 0.80. From the information obtained from Table 4.2 above, it can be

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seen that there is high association among ERBC to EHSC (0.983424); ERC to EHSC (0.836754); ETDC to EHSC (0.906981) and ETDC to ERBC (0.892056). That is, about 50% of the dataset are high correlated which may or may not pose any problem of multi-collinearity.

4.3.1. Unit Root Test

In determining the characteristics of panel data, a preliminary analysis is done to test whether the variables are stationary or not. In other words, this preliminary analysis is conducted to test for the presence of a unit root in the variables. The Levin, Lin and Chu unit root test and Lm, Pesaran and Shin W tests were applied and the results are shown in Table 4.3.

Table 4.3: Summary of Unit Root Test (P-Values)

Variables	Levin, Lin & Chu	PP - Fisher Chi-square	Hadri Z-Stats	Decision for Stationarity
ROA	0.4340	0.0103	0.0000	Stationary
EHSC	0.0048	0.0556	0.0000	Stationary
ELTR	0.0000	0.0000	0.0000	Stationary
ERBC	0.1840	0.0011	0.0000	Stationary
ERC	0.6471	0.7294	0.0000	Stationary
ETDC	0.2072	0.0402	0.0000	Stationary

Source: Researcher’s Computations (2024) Using EViews10 Software.

The results of the Levin, Lin and Chu; PP - Fisher Chi-square and Hadri unit root tests at 5 percent critical levels in Table 4.3 indicate that at least one of the variables are stationary at levels. Hence, all the variables are I (0) since at least, one of the variables of interest is I(0), that is, stationary at levels. When variables are not stationary, it means that they can drift apart on the long run and the regression results obtained can be spurious or nonsensical (Maeso-Fernandez et al. 2004). With this unit root tests result, we can go ahead and perform the regression estimation using the ordinary least squares (OLS) method of estimation as shown in Table 4.4 below.

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This study however, used the GLS regression method since it is a more efficient estimator than the OLS more so since about 50% of the dataset are highly correlated which may or may not pose any problem of multi-collinearity.

4.3.2. Estimation of the Regression Models.

In order to determine the effect of human resource accounting on financial performance of listed services companies in Nigeria, the Panel Estimated Generalized Least Squares (EGLS) model is used to examine the relationship between the independent variables (EHSC, ERBC, ERC, ETDC) and the dependent variable (ROA). The results obtained are presented in Table 4.4 below.

Table 4.4: Regression Result

Dependent Variable: ROA
 Method: Panel EGLS (Period weights)
 Date: 10/30/24 Time: 13:38
 Sample (adjusted): 2005 2023
 Periods included: 19
 Cross-sections included: 14
 Total panel (balanced) observations: 266
 Linear estimation after one-step weighting matrix
 Period SUR (PCSE) standard errors & covariance (df. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROA (-1)	0.752422	0.042821	17.57133	0.0000
EHSC	1.23E-09	5.89E-09	0.209075	0.8346
ERBC	1.07E-08	1.67E-08	0.642686	0.5210
ELTR	0.044732	0.009261	4.829989	0.0000
ERC	-2.45E-10	1.08E-10	-2.261417	0.0246
ETDC	-4.07E-10	1.02E-09	-0.398684	0.6905
C	0.002188	0.006056	0.361356	0.7181

Weighted Statistics			
R-squared	0.652274	Mean dependent var	0.012305
Adjusted R-squared	0.643759	S.D. dependent var	0.304127
S.E. of regression	0.180517	Sum squared resid	7.983667
F-statistic	76.59639	Durbin-Watson stat	1.880630
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.422192	Mean dependent var	-0.008425
Sum squared resid	8.413344	Durbin-Watson stat	1.709675

Source: Researcher’s Computations (2024) Using EViews13 Software.

4.4 Hypotheses Testing.

Earlier in Chapter one, it was stated that each of our independent variables in their null forms will be subjected to statistical test and the result of the test will either be accepted or rejected at the 5% significant levels. If the p-value of that explanatory variable is less than or equal to 5% (0.05), then there is a significant relationship between this explanatory variable and the dependent variable and so we reject the null hypothesis. If, however, the p-value of that explanatory variable is greater than 5% (0.05), then the null hypothesis is accepted that there is no significant relationship. We, therefore, restate each hypothesis and test for either acceptance or rejection based on their respective probability value (p-value).

H0₁: Employees' health and safety costs have no significant relationship with financial performance of listed services companies in Nigeria.

The coefficient of EHSC is positive (1.23E-09) but insignificant with a t-Statistic (0.209075) and a p-value (=0.8346) at the 83.46% level of significance. The p-value is 83.46% which is greater than 5% and so we accept the null hypothesis that employee health and safety costs have no significant relationship with financial performance.

H0₂: Employees' retirement benefits costs have no significant relationship with financial performance of listed services companies in Nigeria.

The coefficient of ERBC is positive (1.07E-08) but insignificant with a t-Statistic (0.642686) and a p-value (=0.5210) at the 52.1% level of significance. The p-value is 52.1% which is greater than 5% and so we accept the null hypothesis that employee retirement benefits costs have no significant relationship with financial performance.

H0₃: Employees' remuneration costs have no significant relationship with financial performance of listed services companies in Nigeria.

The coefficient of ERC is negative (-2.45E-10) but significant with a t-Statistic (-2.261417) and a p-value (=0.0246) at the 2% level of significance. The p-value is 2% which is less than 5% and so we reject the null hypothesis that employee's remuneration costs have no significant relationship with financial performance.

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H0₄: Employees' training and development costs has no significant relationship with financial performance of listed services companies in Nigeria.

The coefficient of ETDC is negative (-4.07E-10) and insignificant with a t-Statistic (-0.398684) and a p-value (=0.6905) at the 69% level of significance. The p-value is 69% which is greater than 5% and so we accept the null hypothesis that employees training and development costs have no significant relationship with financial performance.

4.5 Discussion of the Regression Results from Table 4.4.

The regression coefficient: This is the estimate of both the constant or intercept of the regression line and the independent variable. The size of the coefficient tells us the size of the direction of the relationship between the explanatory variable and the dependent variable. The standard error (S. E.) shows how much deviation has occurred from predicting the slope coefficient correctly.

The t-Statistic: This measures the number of standard errors that the coefficient is from zero. That is, it tells us how much the coefficients have deviated from being zero. A t-Statistic value greater than or equal 2 is usually taken as a benchmark for statistical significance. Table 4.4 above, the t-Statistics of all the independent variable (ETDC) statistically significant but those of EHSC, ERBC and ERC are statistically insignificant.

The P-value of the t-Statistic: This is the smallest evidence we have to reject the null hypothesis. Researchers use the 5% level or the 10% level of significance to reject the null hypothesis. Table 4.4 above, the p-values of all the independent variables, where (ETDC) is statistically significant, while those of EHSC, ERBC and ERC are statistically insignificant.

The Sum of squared residual: This is made up of the explained sum of squares and the unexplained sum of squares. It captures those aspect of our model that are explained by our variables while others occurred by randomness.

Log Likelihood: This is the difference between the value obtained from running a restricted version of the model and the unrestricted version of the model.

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The R-squared (R^2) and the Adjusted R-squared (R^2) tell us the extent to which the variation in the dependent variable is explained by the independent variables. The higher the value the better the model and the more the predictive or the forecasting power of the variables. With an R-squared (R^2) of 0.652274 and an Adjusted R-squared (Adj R^2) of 0.643759, the result shows that about 64% of variations in ROA can be explained by the independent variables (EHSC, ERBC, ERC, ETDC)) while 36% are explained by other factors not captured in this model.

The F-statistic and the Prob(F-statistic) tell us how jointly significant the independent variables are in explaining our dependent variable and the higher the value the better the model. That is, they show the combined effect or joint significance of the independent variables on the dependent variable. The higher the F-statistic value and the lower the Prob (F-statistic, the better our model. With the values of F-statistic at 76.59639 and the Prob(F-statistic) at 0.0000 showing the combined effect or joint significance of all the variables of interest (the independent variables in explaining financial performance.

The Durbin-Watson statistic is used to test for first-order serial correlation in the error term. Some argue that the rule of thumb is that if the Durbin-Watson value is less than 2, it is evidence of a positive serial correlation in the model. Some also argue that a value between 1.5 and 2 is acceptable. With a Durbin-Watson stat of 1.880630, we conclude that the model is free from first-order serial correlation.

4.5.1. Employees' health and safety costs (EHSC) and financial performance.

EHSC relationship with ROA is positively insignificant with a coefficient of 1.23E-09, a t-Statistic of 0.209075 and a p-value of 0.8346. This suggests that an increase in EHSC will increase ROA but only insignificantly. The sign or direction is in line with our expectations but the size or magnitude is not in line with our expectations. This result is supported by those of Adesanmi et al. (2024); Ubesie et al. (2019); Lambe et al. (2022); Ogunbiyi-Davies et al. (2023).

4.5.2. Employees' retirement benefits costs (ERBC) and financial performance.

ERBC relationship with ROA is positively insignificant with a coefficient of 1.07E-08, a t-Statistic of 0.642686 and a p-value of 0.5210. This suggests that an increase in ERBC will

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increase ROA but only insignificantly. The sign or direction is in line with our expectations but the size or magnitude is not in line with our expectations. This result is in contrast with the studies of Lambe et al. (2022) and Adesanmi et al. (2024) which had negative relationship; Korolo and Korolo (2024) which had no relationship.

4.5.3. Employees' remuneration costs (ERC) and financial performance.

ERC relationship with ROA is negatively significant with a coefficient of $-2.45E-10$, a t-Statistic of -2.261417 and a p-value of 0.0246 . This suggests that an increase in ELTR will decrease ROA. The results mean that the higher the levels of employee remuneration, the lower the levels of profitability. The sign or direction is contrary to our expectations but the size or magnitude is in line with our expectations. This result is supported by those of Adesanmi et al. (2024); Korolo and Korolo (2024); Peter and Ogaluzor (2022); but contradict those of Kankpang et al. (2024); Worimegbe et al. (2023); Okafor et al. (2022); Joe et al. (2020); Sajuyigbe et al. (2020) and Ubesie et al. (2019) which had positive relationship.

4.5.4. Employees training and development costs (ETDC) and financial performance.

ETDC relationship with ROA is negatively insignificant with a coefficient of $-4.07E-10$, a t-Statistic of -0.398684 and a p-value of 0.6905 . This suggests that an increase in ETDC will decrease ROA but only insignificantly. The sign or direction as well as the size or magnitude are not in line with our expectations. This result is in line with that of Enekwe et al. (2020) but not supported by those of Kankpang et al (2024); Haitham et al (2024); Adesanmi et al (2024); Ekwutosi and Okeke (2024); Ubesie et al (2019) and Oguniyi-Davies (2023) which had positive relationship.

4.6 Residual Diagnostic Tests of No Cross-Sectional Dependence

Just as we subjected the data to statistical tests for unit roots to know which model to use in our data analysis, we also carried out some diagnostics tests on the regression model used based on the model' underlying assumptions. These tests are very important to certify the validity of the models and of the final outcome of the regression results.

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An increasing number of literatures on panel-data conclude that panel-data models are likely to substantially exhibit cross-sectional dependence in the errors. This may be due to the presence of common shocks and some other unobserved components that may eventually become part of the error term. According to De Hoyos and Sarafidis (2006), the past few decades have witnessed an ever-growing economic and financial integration among countries and this signifies strong interdependencies among cross-sectional units. Thus, there is the tendency for individuals to respond in a similar manner to common “shocks”, or some common unobserved factors due to neighborhood effects, herd behaviour, social norms and genuinely interdependent preferences (De Hoyos & Sarafidis, 2006). Rodríguez-Caballero (2016) also noted that if cross-sectional dependence exists in a panel data model, it can complicate statistical inference and any estimators that do not take such into account could be inconsistent even if the number of cross section dimension N is large with a finite time dimension T .

The above necessitate the study to test for cross-sectional dependence as such testing is very important in fitting panel-data models. The results of the cross-sectional dependence tests in Table 4.5 below show that the Pesaran scaled LM, the Breusch-Pagan LM and the Pesaran CD test statistics accept the null hypotheses of no cross-sectional dependence in the residuals since the results of the test-Statistics is greater than 5% respectively.

Table 4.5: Residual Cross-Section Dependence Test

Residual Cross-Section Dependence Test
Null hypothesis: No cross-section dependence (correlation) in weighted Residuals

Equation: Untitled

Periods included: 19

Cross-sections included: 14

Total panel observations: 266

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	71.58106	91	0.9340
Pesaran scaled LM	-1.439428		0.1500
Pesaran CD	-0.042388		0.9662

Source: Researcher's Computations (2024) Using EViews13 Software.

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5.1. Summary of Findings.

This research study investigated human resources accounting and financial performance of fourteen listed services companies on the Nigerian Exchange Group (NGX). Fifty empirical literatures were reviewed which generally suggest that there is a relationship between human resources accounting and financial performance. The dynamic Estimated Generalized Least Squares regression method of analysis was used to analyze the data from 2005 to 2023. The results showed that:

- a) EHSC relationship with ROA is positively insignificant with a coefficient of 1.23E-09, a t-Statistic of 0.209075 and a p-value of 0.8346. This suggests that an increase in EHSC will increase ROA but only insignificantly. The sign or direction is in line with our expectations but the size or magnitude is not in line with our expectations.
- b) ERBC relationship with ROA is positively insignificant with a coefficient of 1.07E-08, a t-Statistic of 0.642686 and a p-value of 0.5210. This suggests that an increase in ERBC will increase ROA but only insignificantly. The sign or direction is in line with our expectations but the size or magnitude is not in line with our expectations.
- c) ERC relationship with ROA is negatively significant with a coefficient of -2.45E-10, a t-Statistic of -2.261417 and a p-value of 0.0246. This suggests that an increase in ELTR will decrease ROA. The results mean that the higher the levels of employees' remuneration, the lower the levels of profitability. The sign or direction is contrary to our expectations but the size or magnitude is in line with our expectations.
- d) ETDC relationship with ROA is negatively insignificant with a coefficient of -4.07E-10, a t-Statistic of -0.398684 and a p-value of 0.6905. This suggests that an increase in ETDC will decrease ROA but only insignificantly. The sign or direction as well as the size or magnitude are not in line with our expectations.

5.2. Conclusion

The study uses secondarily sourced panel data over the period from 2005 to 2023 of 14 Services companies listed on the floor of the Nigerian Exchange Group (NXG). The dynamic estimated generalized least squares (EGLS) results reveal that: (i) EHSC relationship with ROA is positively insignificant suggesting that an increase in EHSC will increase ROA but only

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insignificantly. (ii) ERBC relationship with ROA is positively insignificant which suggests that an increase in ERBC will increase ROA but only insignificantly. (iii) ERC relationship with ROA is negatively significant meaning that an increase in ELTR will drastically decrease ROA. (iv) ETDC relationship with ROA is negatively insignificant which means that an increase in ETDC will decrease ROA but only insignificantly.

Thus, the study confirms the overall importance of human resource accounting in either increasing or decreasing organizational value.

5.3. Recommendation

The study makes the following recommendations based on the regression results.

- a) Service firms intending to measure their financial performance using ROA in relation to employees' health and safety cost are advised not to since the result revealed a lack of any significant relationship between the two variables.
- b) Listed service firms are also advised not to use employee's retirement benefit costs and return on assets as a measurement for their performance, since EHSC showed that no relationship exists between the two variables.
- c) Listed service firms should improve more on their employee's remuneration cost so as to improve on the returns on assets (performance) because a significant relationship exists between employee remuneration cost and return on assets based on the result of the analysis.
- d) That listed service firms spending on employees training and development costs should nothope to improve their return on assets because the result showed that no significant relationship exists between ETDC and ROA. However, it is possible that ETDC may have significant relationship with other financial performance variables.

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