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STAFF HEALTH AND TRAINING COST ON FIRM VALUE OF LISTED CONSTRUCTION AND REAL ESTATE FIRMS IN NIGERIA

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ABSTRACT

Poor human capital development in most firm has made many firms in Nigeria not to live up to their primary objectives of their existence. This study examine effect of health and safety cost and training and development cost on firm value of listed construction and real estate firms in Nigeria. The expo-facto research design was adopted with reliance on secondary data from annual report of listed firms. The purposive sampling techniques was employed in selecting the seven (7) firms out of nine (9) construction and real estate firms in Nigeria for 2010-2023 financial year. To achieve objective of the study, three method of panel regression estimation was used which is random effect by Hausman test which was analyzed using E-views 12. The finding showed that both health and safety cost with training and development cost have positive significant effect on price to book value. The study concludes that health and safety cost and training and development cost have significant positive effect on price to book value and does substantially reduce the inefficiencies in productivity of listed construction and real estate firms in Nigeria. The study recommends that construction and real estate firms should invest more in their health and safety cost training and development cost to increase firm value in other to enhance human capital efficiency

Keywords: Health and Safety Cost, Training and Development Cost, Firm Value, Price to Book Value, Shareholder.

INTRODUCTION

Firm value is a microeconomic concept that states that a firm exists and makes decisions to maximize profits. The stockholder wealth maximization goal states that management should seek to maximize the present market value of the expected future returns to the owners (shareholders) of the firm (Abraham *et al*, 2022). The stock price is a relative and proportional value of a firm's worth. The stock's price only tells you a firm's current value or its market value. This is based on the perception that the higher the stock price, the more profitable it will be for shareholders. The high corporate value does not only affect the smooth running of the firm but also benefits the firm's prospects in the future. This is because the market, the community, and potential investors believe in the firm's value, which is reflected in its stock price. The stock price is considered a reflection of the

actual value of the firm's assets. The value of a firm is very significant because, the higher the firm's value the higher the prosperity of stockholders (John & Cajetan, 2022). Also, the higher the market price the higher the firm value. Firm value is the existing benefits and the potential benefits that a firm can generate, expressed in the form of value that can be determined through suitable methods and pricing models (Ogah & Daniel, 2022). Maximizing firm value is one of the firm's main goals.

Human capital or human asset that Monisola *et al*, (2023), referred to depends on the knowledge or the intellectual capability that the employees or managers of firms or organizations possessed. Thus, there is an indication that the importance of human intellectual capability is indispensable in the assessment of firm performance. Considering the valuable role of human resource within an organisation, it is important that human resource cost in terms of hiring, training and development are properly recorded and recognized in the statement of financial position like other intangible assets that are usually disclosed in the statement of financial position of organisations. The essence of human asset or human resource accounting is to establish a generally acceptable model of valuation for human asset and ensuring that the value of human asset that drives the organisation for desired performance is adequately represented and disclosed in organization's financial statement as intangible asset. According to Khadijat *et al*, (2022), the development of human resource accounting originated from the growing needs of the importance of human assets in the management of organisation. It functions as a department that monitors the people that are involved in the organisational resources, as well as monitoring the development, progress in assets and revenues of the company. Firm value has effect on real estate which can be positive or negative on their operation of the firm. The Issue of human resource costs and firm value are very important in the development, survival, sustainability, growth and performance of real estate in Nigeria. Poor human capital development in most of the firms have made many firms in Nigeria not to live up with their primary objectives of their existence (Bello & Micah, 2021). The gap found in literature is the lack of studies on human resource cost and firm value of firms in Nigeria with focus on construction and real estate firms listed on the Nigerian Exchange Group which their assets are mainly made up of human resource capital. The study objective therefore seek to examine effect of human resources cost on firm value of listed construction and real estate firm in Nigeria.

H01: Training and development cost has a negative effect on price to book value of listed construction and real estate firms in Nigeria.

H02: There is no significant relationship between health and safety cost on price to book value of listed construction and real estate firms in Nigeria.

LITERATURE REVIEW

Conceptual Framework

Training and Development Cost

Training is one of the main function that directly contribute to the development of employees. Research also suggests that the organizations investing considerably in training justify their investment by the contribution training makes to improve individual and firm performance and hence the value of the firm (Oswald *et al*, 2021). Training and development cost being employed by organizations helps them to enhance

employee skills and firm value. Damaro and Egbule, (2019) assert that training and development is also attracting, developing, and retaining a diverse workforce that helps in providing the different skills required to maintain and improve the firm performance. The components of training and development activities including formal training develop employee skills and impart knowledge beyond the current position off the job training .induction training program for new comers and training programs for present employees.

Health and Safety Cost

Health and safety costs include costs incurred by an organization to ensure the health of its employees. It mainly involves health-related expenses such as health insurance costs. Despite the fact that individuals work and spend the majority of their working hours at work, occupational health and safety receive little attention. Safe workplaces are lucrative workplaces, whether evaluated by the company's bottom line, market share, overall consumer reputation, or capacity to attract and retain employees, managers, or investors. Healthy people are expected to make a significant contribution to the production and development of new products. However, absenteeism results in loss of productivity. Balogun (2020) evidence that employee health and safety costs have a positive and significant relationship with benefits, whereas Ikpefan *et al*, (2015) found no relationship between health and safety costs and employee benefits.

Firm Value

A firms value otherwise refers to as enterprise value is an economic concept that reflects the value of a business. It is the value that a business is worth at a given date. Theoretically, it is an amount that one needs to pay to buy or take over a business entity. Like an asset, the value of a firm can be determined based on either book value or market value (Abraham *et al*, 2022), But generally, it refers to the market value of a company. $FV = \text{market value of equity} + \text{market value of preference share} + \text{market value of debt} + \text{non- controlling interest} - \text{cash and investments}$. Firm value is determined based on the firm's asset earning power. If a firm has higher earning powers of the company, it has a positive impact on greater profit and more efficient company assets. Therefore, the value of the company has increased. In addition to assets and profits, the company's debt policy also affects the company's value. The higher the debt, the higher the share price. The value of a firm is basically the sum of claims of its creditors and shareholders. Therefore, one of the simplest ways to measure firm value is by adding the market value of its debt, equity and non-controlling interest. Cash and cash equivalents would then be deducted to arrive at the net value. The value of a firm is very important because the higher firm's value is the higher the prosperity of shareholders, (Onoriode, 2022).

Price to book value

The price-to-book value ratio refers to a valuation ratio that is used by investment advisors, fund managers, and investors to compare a company's market value (market capitalization) to its book value (shareholders' equity). It expresses the relationship between the stock price and the book value of each share. In conventional terms, the lower the price-to-book value ratio, the better the value is (Adesanmi *et al*, 2024). However, the value of the ratio varies from firm to firm. Thus, a benchmark is to compare with the firm average (Abraham *et al*, 2022). The book value of the company is a critical aspect that provides information on the value of a company. The price-to-book value ratio captures the relationship between the market value of the share capital and its

financial position value which is very common among investment advisors, fund managers as well as investors (Olaoye & Afolalu, 2020). The price-to-book value ratio refers to a valuation ratio that is used by investment advisors, fund managers, and investors to compare a company's market value (market capitalization) to its book value (shareholders' equity).

Firm Age

Firm age measured as the time between the initial creation date of a firm and the present time in year (Godwin & Udeh, 2021). Firm age is defined as the number of years of incorporation of the company (Biodun *et al*, 2023). In line with legitimacy theory, for a company to carry out business activities in a community depends on the acceptance of the society where they operate. As is obvious, businesses can be impacted by society and also have an impact on society. Hence, legitimacy theory is deemed to be an important resource determining organizational survival (Onoriode, 2022). Based on this, aged firms with longer societal existence may have taken relatively more legitimacy and may have gained more goodwill and involvement of societal responsibility than newly incorporated firms. Generally, aged firms disclose more information than new ones

Empirical Review

Adesanmi *et al* (2024), examined the effect of human resource cost on financial performance of listed manufacturing firms in Nigeria. This study employed ex-post facto research design. 41 listed manufacturing firms were purposefully selected as the sample size of the study. Data were gathered from secondary sources using annual reports of the selected firms from 2011 to 2020. Data were analysed using descriptive statistics and regression analysis. The-analysis of coefficients reveals that Compensation Costs has a-negative effect-on ROA which is statistically significant at 5%. The influence of Retirement Benefit on ROA is also negative and statistically insignificant at 5%. Also, Employees Training Costs has a-positive influence on ROA and statistically significant at 5%. On the overall, the study findings reveal that Human-Resource Cost measured by RB, CC, and ETC has a significant-effect on ROA of listed manufacturing-firms in Nigeria. The study concluded that compensation cost, employee training cost and retirement benefit which the variables are used to measure human resource cost significantly influence ROA. It is therefore, recommended that management of manufacturing firms should invest more on employees' capacity building through trainings, seminars and workshop and increase compensation packages to enhance financial performance. The study is limited to the manufacturing sector which conclusion and recommendation cannot be generalized for real estate firm in Nigeria.

Beida (2024), examined the effect of human resources accounting cost information proxied by training and development cost and personnel cost together with firm size (introduced as a control variable) on investment decision proxies using ROI of listed assurance companies in Nigeria. The ex-post facto research design was adopted with a population of 23 companies in which 15 were sampled using purposive sampling techniques. Secondary data sources from annual reports of listed Assurance companies in Nigeria ranging from 2013 to 2022 financial years were used. Panel regression analysis was used to analyse the result using E-views 10. The result of the study revealed that training and development costs had a positive and significant effect on the Return on investment of listed assurance companies in Nigeria. At the same time, personnel costs also had a positive and significant effect on the Return on investment of listed assurance

companies in Nigeria. Based on this finding, it is recommended that assurance companies invest more in their employees' training and development and increase their staff welfare to enhance human capital efficiency. The study is limited by assurance firm in Nigeria which differ from construction and real estate firm.

Biodun *et al* (2023), examine impact of human resource accounting on the financial performance of selected food and beverages firm in Nigeria. Secondary data was used for eight of these food and beverage companies from 2002 to 2021. The findings of the study showed that staff training, development costs and employee welfare costs both considerably improved business performance, while employee safety costs did not. The return on assets (ROA) of the selected food and beverage companies in Nigeria, however, was significantly impacted negatively by recruiting costs over the study periods. The study conclude that human resource accounting is required to sustain financial performance of firms. The study therefore, recommends that management in particular firms regularly do both off-the-job training and on-the-job training rather than viewing staff training as an irregular occurrence. The study is limited by sector because real estate is different food and beverages in Nigeria.

Monisola *et al* (2023), examined the impact of human resource accounting on deposit money banks' organizational performance in Nigeria. An ex-post facto research design was used in the study. The financial statements of deposit money banks in Nigeria were used as the secondary source for data collection. In order to conduct this research, convenience sampling was used, and ten (10) Deposit Money Banks in Nigeria were selected at random from a total of twenty-four (24) banks for a ten-year study period (2012-2021). This corresponds to 100 bank-year observations. Descriptive and inferential statistics were used in the data analysis. According to the study's findings, human resource accounting significantly affected both return on equity and return on capital employed. The study found a substantial correlation between organizational performance of deposit money banks registered in Nigeria and human resource accounting. It is recommend that bank management make use of these various human resource techniques, which will aid them regardless of whether the ongoing business is in danger or is distressed. Researcher observed that if a better methodology is used it give a better results.

Abraham *et al*, (2022), investigated the effect of human resource accounting on the market value of Deposit Money Banks listed on the Nigerian Stock Exchange. Specifically, the study examined the effect of staff remuneration, staff training and cost of health care with safety of staff on the market value of Deposit Money banks in Nigeria. The study adopted the ex-post facto research design. Data were sourced from annual published accounts of Deposit Money Banks listed on the Nigerian Stock Exchange for the period 2015-2019. Descriptive statistics and correlation were used in the analysis of data. Multiple regression analysis was further used to test the hypotheses at 5% level of significance. Findings from the investigation revealed that; staff remuneration with cost of health care and safety 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. The study therefore recommended the need for staff remuneration to be improved so that banks staff can put in their best in other to achieve better performance. Researcher observe that the study is limited by the period of the study. The five year period is too short for meaningful generalization.

John and Catetan (2022), examined the effect of human capital investment on return on investment of listed deposit money banks in Nigeria covering 2010-2019 (10 years). The independent variables were proxied by staff cost, number of staff and employee compensation to sales, while the financial performance was proxied by return on investment. Secondary data for this study was extracted from the sampled twelve (12) listed deposit money banks annual financial reports for the period studied. Using the panel regression technique, it was found that staff cost, employee compensation to sales and number of staff had insignificant effect on return on investment. It was therefore recommended that banks should institute effective investment plans on various aspects of staff training, retraining, seminars and workshops. The study is limited by sector which conclusion and recommendation cannot be used for real estate firm in Nigeria.

Onoriode (2022), evaluated the effect of human capital development cost on the firm financial performance of listed manufacturing companies in Delta State between 2014 - 2018 financial years. Specifically, it assessed the extent to which human capital investment cost affects the financial performance of firms and it also looks at how human welfare cost impinges on firms' financial performance of listed manufacturing firms in Delta State. A longitudinal research design was adopted and the data collected were analysed using descriptive and inferential statistics. Secondary data, the panel in nature, were gathered from annual reports and audited accounts of these firms that were selected using a stratified sampling technique. The results revealed a significant influence and positive relationship between Human capital investment, welfare cost and financial performance of listed manufacturing companies. Based on the results and discussion, the study concluded that the business environment is becoming complex with rapid information technology and socio-cultural flux. It also, affirmed that manufacturing firms should invest in human capital development to be able to have a competitive edge over competitors to achieve wealth maximization objectives. This study recommends that the management of manufacturing firms operating in Delta state should increase their investment in human capital as an increase may positively impact their financial performance. The study is limited to Delta state which cannot be generalize for real estate in Nigeria

Ogah and Daniel (2022), assessed the effect of human resource cost on financial performance of listed deposit money banks in Nigeria. The expo-facto research design was adopted with reliance on secondary data from annual report of listed firms. The purposive sampling technique was employed in selecting the 12 out of 19 deposit money bank in Nigeria for 2011-2020 financial years. To carry out this objective, three method of panel regression estimation was used which is random effect by Hausman test which was analysed using E-views 10. The finding show that salaries and wages and employee development cost has positive significant effect on return of asset. The study concludes that that salaries and wages with employee development cost has a significantly positive effect on financial performance and does substantially improve the performance of listed deposit money banks in Nigeria. The study recommends that Management should not recruit more staff and should consider retaining only efficient staff, this implies that deposit money bank firms should downsize their number of staff and focus on training and re-training of the most efficient members of staff. The study focused on deposit money bank in which result and recommendation cannot be used for construction sectors.

Omorho and Ajiri (2022), examined the effect of employee maintenance and training cost on performance of firms in Delta State between 2016 -2020 financial years. The objectives of the study are to examine the extent to which employee maintenance cost affects financial performance of firms. Also, it looks at how employee training cost affects financial performance of manufacturing firms in Delta State. The study adopted the longitudinal research design and the data collected were analysed using ordinary least square regression analysis, descriptive statistics, and correlation analysis. However, the study used hausman effect test to check between fixed and random effect that play on the data. Employee maintenance and training costs were proxy; while firm performance was proxy by return on assets. The study found that employee maintenance cost and training cost has positive and significant effect on the financial performance of organization. The study concluded that manufacturing firms should invest on human resource development to be able to have competitive edge over competitors in order to achieve the wealth maximization objectives. Based on the findings, the study recommended among others, that management of firms operating in Delta state should reduce their funding of human resource maintenance, as increase may negatively and significantly impact on the performance of firms operating in Delta state.

Theoretical Framework

General system theory

This theory is propounded by Von-Bertalanffy in 1950. In general, system theory unit of analysis is understood as a complex of interdependent parts. An open versus closed system is dependent on the environment for inputs which are transformed throughout to produce outputs that are exchanged in the environment. Open systems models seldom address organizations or large units within organization. According to Katz and Kahn (1978), the social psychology of organizations is an exception in that it treats human resource management has been developed further by Wright and Snell (1992) who used it to describe a competent management model of organizations. Skills and abilities are treated as inputs from the environment; employee behaviours are treated as throughout; and employee satisfaction and performance are treated as outputs. In this model, the human resource management subsystem functions to acquire, utilize, retain, and displace competencies.

Human Capital Theory

This study is built on the Human Capital theory proposed by Schultz (1961) and extensively developed by Becker (1964) as cited in (Seth, 2009). The theory has its root from labour economics which is a branch of economics that focuses on general work force in quantitative term. According to the theory, Human capital theory contends that education or training raises the productivity of workers by imparting useful knowledge and skills, thus raising workers' future income through increase in their lifetime earnings. The theory postulates that expenditure on education or training and development is costly, and should be considered as investment since it is undertaken with a view to increasing personal incomes. Human capital approach is used to explain or support occupational wage differential. However, the position of this study is that education or training and development will not only increase employee personal income, it will also serve as a means of achieving corporate competitive advantage which reflects ultimately in organisational performance.

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The theory underpin this work is human capital theory because considered the cost of education, training, development and even workers' medical treatment as investments towards improved productivity (efficiency) of individual workers and also creates a sort of competitive advantage which ultimately could result in improved firm value.

METHODOLOGY

This study adopted the ex post facto research design since the study is a secondary data research. Population of the study consists of nine (9) listed construction and real estate firms operating on the Nigeria Exchange Group (NGX) as at 31st December 2023, the sample size is seven (7) and purposive sampling techniques was adopted. Data required for this study were obtained from audited financial statements and annual reports of the listed construction and real estate Nigeria Exchange Group fact book. The inferential analyses will also involve the application of the appropriate statistical technique of Panel Regression Analysis and the study adapt the model of Abraham *et al* (2022) $TQ = \beta_0 + \beta_1HSC + \beta_2TDC + \epsilon_{it}$

$$PBV = \beta_0 + \beta_1HSC + \beta_2TDC + \beta_3FA + \epsilon_{it} \dots \dots \dots (i)$$

Where:

β_0 = The autonomous parameter estimate (Intercept or constant term)

$\beta_1 - \beta_3$ = Parameter coefficient of Human Resource Cost

PBV = Price to Book Value

HSC = Health and Safety Cost

TDC = Training and Development Cost

FA = Firm Age

ϵ_{it} = Stochastic Error term

Decision rule

If the value of the probability is less than or equal to the significance level of 0.05, the study reject the null hypothesis while accepting the alternative hypothesis. On the other hand, if the value of the probability is greater than the level of significance, the null hypothesis will not be rejected, while the alternative is rejected. Thus, the decision rule is statistically stated as:

Reject H_0 if $P < 0.05$

Do not rejects H_0 if $P > 0.05$

Table 3.3: Variables Measurement

Variable Acronym	Variable Name	Variable types	Measurement	Source
PBV	Price to Book Value	Dependent	Market Capitalization divide by Shareholders' Equity	Abraham <i>et al</i> (2022)
TDC	Training and Development Cost	Independent	Total annual training cost	Omorho and Ajiri (2022)
HSC	Health and Safety Cost	Independent	Total cost on annual health and safety	Onoriode <i>et al</i> (2022)
FA	Firm Age	Control	Age of the company from incorporation	Godwin and Udeh (2021)

Source: Researcher's Compilation, (2024)

DESCRIPTIVE STATISTICS

Descriptive statistics gives a presentation of the mean, maximum and minimum values of variables applied together with their standard deviations obtainable.

Table 4.1: Descriptive Statistics Result

	PBV	HSC	TDC	FA
Mean	0.764415	0.803847	0.917551	13.07143
Median	0.230000	0.650000	0.870000	13.00000
Maximum	4.200000	1.970000	1.980000	23.00000
Minimum	0.030000	0.090000	0.030000	4.000000
Std. Dev.	0.922838	0.544420	0.536453	4.550405
Skewness	1.467009	0.352704	0.273067	0.045814
Kurtosis	4.313792	1.719716	2.108846	2.187068
Jarque-Bera	42.19923	8.724968	4.460709	2.732784
Probability	0.000000	0.012747	0.107490	0.255025
Sum	74.91270	78.77700	89.92000	1281.000
Sum Sq. Dev.	82.60803	28.75016	27.91481	2008.500
Observations	98	98	98	98

Source: E-View 12 Output, (2024)

Table 4.1 presents the descriptive statistics of health and safety cost and training development cost on firm value of listed construction and real estate firms in Nigeria during the period of 2010 to 2023. The table shows that price to book value (PBV) as a measure of firm value has a mean of 0.764415, with a standard deviation of 0.922838 as well as a minimum value of 0.030000 and maximum value of 4.200000 respectively. Given that the range between the minimum and maximum is not quite wide, it implies a stable firm value as the standard deviation indicated that there is no much slightly wide dispersion of the data from the mean value. For the other measure of health and safety cost and training development cost shows a mean of value of 0.80384 and 0.91755 with standard deviation of 0.54442, 0.536453 and a minimum and maximum value of 0.09000, 0.030000, 1.97000 and 1.98000 respectively. This implies health and safety cost and training development cost a marginal increase during the study period, as the standard deviation is not so large compared to the mean, together with the low range between the minimum and maximum values. Firm age as control variable has a mean of 13.07143 with minimum value of 4.0000 and maximum value of 23.0000.

Table 4.2: Correlation Matrix

The correlation matrix table presents the relationship between dependent and independent variables and the correlation among the independent variables themselves.

Covariance Analysis: Ordinary

Date: 06/15/24 Time: 17:18

Sample: 2010 2023

Included observations: 98

Correlation Probability	PBV	HSC	TDC	FA
PBV	1.000000 ---			
HSC	0.155764 0.1256	1.000000 ---		
TDC	-0.275536 0.0060	0.417000 0.0000	1.000000 ---	
FA	0.225373 0.0257	0.067291 0.5103	-0.124809 0.2208	1.000000 ---

Source: E-View 12 Output, (2024)

In table 4.2 correlation analysis, which is used to quantify the association between two continuous variables. In correlation analysis, we estimate a sample correlation coefficient, more specifically the Pearson Product Moment correlation coefficient. The result presented above confirms that health and safety cost and training development cost have a positive and negative correlation which are 0.155764 and -0.275536 with price to book value while firm age as control variable has a positive correlation with price to book value at value of 0.225373.

Multicollinearity Test (VIF)

The Multicollinearity test was carried out to check if there is strong correlation among the independent variables that may produce misleading result.

Table 4.3: Multicollinearity Test (VIF)

Variance Inflation Factors

Date: 06/15/24 Time: 17:19

Sample: 2010 2023

Included observations: 98

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.101291	13.91837	NA
HSC	0.030564	3.945798	1.232067
TDC	0.031831	4.928318	1.245896
FA	0.000367	9.653612	1.033930

Source: E-View 12 Output (2024)

***Decision rule:** Centred VIF of less than 10 is an indication of absence of multi-collinearity, while the centred VIF of more than 10 is an indication of presence of multi-collinearity. As stated above, the decision rule for the multicollinearity test using the variance inflation factor is that Centred VIF of less than 10 shows the absence of multi-collinearity. Table above clearly shows that there is absence of multicollinearity among the independent variables, given that all the independent variable (HSC, TDC and FA) have a center VIF that is less than 10.

Heteroskedasticity Test

In order to validate the robustness of the estimates, the Heteroskedasticity test was conducted as a diagnostic check. Heteroskedasticity happens when the standard errors of a variable, monitored over a specific amount of time, are non-constant.

Table 4.4: Heteroskedasticity Test

Panel Cross-section Heteroskedasticity LR Test

Null hypothesis: Residuals are homoskedastic

Equation: UNTITLED

Specification: PBV C HSC TDC FA

	Value	df	Probability
Likelihood ratio	37.26644	7	0.2310
LR test summary:			
	Value	df	
Restricted LogL	-120.4521	94	
Unrestricted LogL	-101.8189	94	

Source: E-View 12 Output, (2024).

Table 4.4 shows the results of the panel cross-section Heteroskedasticity regression test. The decision rule for the panel cross-section Heteroskedasticity test is stated thus:

H₀: No conditional Heteroskedasticity (Residuals are homoskedastic)

H₁: There is conditional Heteroskedasticity

The null hypothesis of the test states that there is no Heteroskedasticity, while the alternate hypothesis states that there is Heteroskedasticity. The null hypothesis is to be accepted if the P value is greater than 5% level of significance. From the result in table 4.4 above with a ratio value of 37.2664 and a corresponding probability value of 0.2310 which is greater than 5%, the study therefore posits that, there is no reason to reject the null hypothesis, while the alternative hypothesis that states there is conditional Heteroskedasticity problem is rejected. Consequently, based on the diagnostic probability 0.2310 the null hypothesis is accepted, thus there is conditional heteroskedasticity, indicating that residuals are homoskedastic and as such the sample give a true reflection of the population.

Hausman Test

The Hausman test is a test for model specification in panel data analysis and this test is employed to choose between fixed effects model and the random effects model. Due to the panel nature of the data set utilized in this study, both fixed effect and random effect

regressions were run. Hausman specification test was then conducted to choose the preferred model between the fixed effect and the random effect regression models. The test basically checked if the error terms were correlated with the regressors.

***Decision Rule:** At 5% level of Significance, if probability value is less than 5% we accepted fixed effect but greater than 5% is random effect will be accepted

H₀: Fixed Effect is not more appropriate

H₁: Random Effect is more appropriate

Table 4.5: Hausman Test

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	6.501612	3	0.0896

Source: E-View 12 Output, (2024)

The Result of Hausman test shows that chi-square statistics value is 6.501612 while the probability values of it is 0.0896. This implies that there is enough evidence to accept the null hypothesis which states that random effect is most appropriate for the Panel Regression analysis. It thus stands that error component model (Fixed effect) estimator is not appropriate because the fixed effects are not well correlated with the regressors. Thus, the most consistent and efficient estimation for the study is the random effect cross-sectional model. Consequently, the result suggests that the random effect regression model is more appropriate for the sampled data because the Hausman test statistics as represented by corresponding probability value is greater than 5%.

Langranger Multiplier Test

The langranger multiplier test is a test for model specification in panel data analysis and this test is employed to choose between pooled effect model and the random effects model.

***Decision Rule:** At 5% level of Significance, if probability value is less than 5% we accepted random but greater than 5% is pooled will be accepted

H₀: Pooled Effect is more appropriate

H₁: Random Effect is more appropriate

Table 4.6: Breusch-Pagan Langranger Multiplier Tests

Residual Cross-Section Dependence Test

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

Equation: Untitled

Periods included: 14

Cross-sections included: 7

Total panel observations: 98

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	24.51650	21	0.0000

Source: E-View 12 Output, (2024)

Based on the probability value of the Breusch-Pagan Langranger Multiplier Test at 0.0000, the null hypothesis is rejected, thus random effect is more appropriate when compared to pooled effect.

Table 4.7: Panel Regression Result (Random Effect)

Dependent Variable: PBV

Method: Panel EGLS (Cross-section random effects)

Date: 06/15/24 Time: 17:23

Sample: 2010 2023

Periods included: 14

Cross-sections included: 7

Total panel (balanced) observations: 98

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.561202	0.314451	1.784706	0.0775
HSC	0.522138	0.175990	2.966857	0.0038
TDC	-0.651343	0.175453	-3.712360	0.0003
FA	0.029158	0.018958	1.538001	0.1274

Effects Specification

	S.D.	Rho
Cross-section random	0.095987	0.0134
Idiosyncratic random	0.822887	0.9866

Weighted Statistics

R-squared	0.680514	Mean dependent var	0.700594
Adjusted R-squared	0.614360	S.D. dependent var	0.911359
S.E. of regression	0.838074	Sum squared resid	66.02253
F-statistic	6.902026	Durbin-Watson stat	1.966562
Prob(F-statistic)	0.000299		

Source: E-View 12 Output, (2024)

This study examined effect of health and safety cost and training development cost on firm value of listed construction and real estate firms in Nigeria. From table 4.7 above, the coefficient of multiple determinations (R^2) is 0.68 and in line with the panel nature of the data used in this study, the regression model shows that the range of values between adjusted R^2 and R^2 falls between 68%, and 61% respectively. This indicates that about 68% of the total variations in price to book value (PBV) is explained by the variations in the independent variables (HSC, TDC and FA), while the remaining 32% of the variation in the model is captured by the error term, which further indicates that the line of best fit is highly fitted. The panel regression result for the sampled construction and real estate firm showed that there is a positive relationship between health and safety cost and training development cost and price to book value with a corresponding positive probability value of 0.0038 and 0.0003 which is less than 5%. However, when taken collectively, the regressors (HSC and TDC) against the regressed (PBV), the value of F-statistic is 6.90202 and the value of the probability of F-statistic is 0.000299. This result implies that the overall regression is both positive and statistically significant at 5%.

Discussion of Findings

This study examined the effect of health and safety cost and training development cost on firm value of listed construction and real estate firms in Nigeria, using panel series data and regression analysis approach. The human resource cost proxied by health and safety cost (HSC) and training development cost (TDC) for seven (7) listed construction and real estate firms in Nigeria for fourteen (14) years ranging from 2010 to 2023 were the independent variables while the price to book value (used to firm value) was the dependent variable for the study. The effect of the independent variable on dependent variable was analyzed in terms of strength and significant and the panel regression analysis was used to compare the relationship among the variables.

The result for the model of the study showed that when taken individually and collectively, health and safety cost (HSC) and training development cost (TDC) has a positive and significant effect on price to book value taken as a measure of firm value. This implies that health and safety cost and training development cost is significant and relevant predictor of firm value in listed construction and real estate firms in Nigeria. That is to say there are empirical evidences to suggest that the attributes exhibited by the human resource cost of construction and real estate firms, which naturally should promote efficiency and productivity in construction and real estate firms firm value dealings in Nigeria, is already having the desired effect. As such, the human resource elements of the listed construction and real estate firms have been able to exert the needed level of influence that is required to improve the tendencies to improve firm value framework of the construction and real estate sector in Nigeria. The findings of the study is also in agreement with the position of Adesanmi *et al* (2024) and Beida (2024) who examined the effect of human resource cost on financial performance of listed manufacturing firms in Nigeria. The study contradict Biodun *et al* (2023), who examine impact of human resource accounting on the financial performance of selected food and beverages firm in Nigeria

CONCLUSION AND RECOMMENDATIONS

In the Accounting and financial literature several studies have investigated the link between health and safety cost and training and development cost and firm value of listed construction and real estate firms in Nigeria. The conclusion of the study is that

health and safety cost and training and development cost has a significantly positive effect on price to book value and does substantially reduces the inefficiencies in productivity of listed construction and real estate firms in Nigeria. The result and the findings of the study present implication for regulators such as Security and Exchange Commission (SEC), financial regulating council and professional bodies within the construction and real estate sector of Nigeria. The study recommends that;

- i. Construction and real estate firms should invest more in their health and safety cost increase firm value in other to enhance human capital efficiency.
- ii. Training and development cost construction and real form should be increased as result of multiplier effect on firm value of the organisation.

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