



ASSESSING THE FINANCIAL RETURNS OF HUMAN CAPITAL INVESTMENT IN NIGERIAN BANKS: A GMM-BASED ANALYSIS

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ABSTRACT: *The study tries to assess the causal link between human capital investment through training and development of staff of Deposit Money Banks in Nigeria and their financial performance. Ex-post facto research design was adopted for the study where panel data extracted from the annual reports of nine (9) selected banks in Nigeria for the periods 2014 to 2021 were used. The dependent variable was financial performance measured with return on asset and earnings per share while the independent variable was training and development cost. Generalized Method of Moments (GMM) Model was used to test the two formulated hypotheses under E-views version 10. The findings showed that training and development cost has a positive and significant influence on both the return on assets and earnings per share of the selected DMBs in Nigeria. The study, therefore, concludes that human capital investment through training and development costs positively and significantly influences the financial performance of DMBs in Nigeria. The study recommends among others that more funds should be invested in the training and development of employees as this has been proven to have a positive and significant impact on the financial performance of the selected Deposit Money Banks in Nigeria.*

KEYWORDS: Banks, Development, Financial, Human capital, Investment, Performance, Training cost.



INTRODUCTION

Human capital/resources is one of the most important organizational factors of production and it concerns the task of increasing and motivating the morale of workforce or employees. The phrase "human capital" refers to the group of people who work for an organization or a corporate entity (Edom, Inah & Adanma, 2015). Human capital is keen at improving and developing the skills and knowledge of an employee, which in turn has a greater impact on the financial performance of an organization. Onyeukwu, Ihendinihu & Nwachukwu (2021) stated that without human resources, the organization becomes an engineless vehicle regardless of the volume of current and non-current assets invested.

The essence of any business is to maximize its profit; employee development implies a managerial orientation that ensures the use of human resources in a manner that adds value to an organization by giving it a competitive advantage and leads to the achievement of the organization's goals, objectives, and mission (Kiiru, 2015). Generally, one of the most important determining variables that are frequently used to assess an organization's success or failure is its financial performance (Onyekwelu & Akani, 2021). Ikpefan, Kazeem & Taiwo (2016) see performance as the extent to which organizations, viewed as a social system, fulfilled their objectives. Human resources is keen on improving and developing the skills and knowledge of an employee, which in turn has more impact on the financial performance of an organization.

Despite the importance of human resources as shown by the different studies carried out in the area (Abraham, Odoobi & Enwuchola, 2022; Godwin & Udeh, 2021; Ezejiofor et al, 2017; Adhikari, 2020; Ezekwesili & Ezejiofor, 2022), the concept still lacks general acceptability; this is because most organizations view human resources as a waste of funds and would rather invest the same money in their goods and services. Organizations that place value on human resources avail their staff with opportunities to different training and development, which come with huge financial implications. Various studies on how exposure of an organization's staff to various training and development programmes has influenced the financial performance of these firms yielded mix results. While some authors report that the huge financial implication of staff training and development positively influences financial performance, others report a negative impact and see it as a waste of resources. This study reevaluated the impact of employee training and development costs on the financial performance of Deposit Money Banks in Nigeria as a result of the inconsistent results.

The purpose of the study is therefore to reassess the influence of human capital investment through staff training and development cost on the financial performance of banks in Nigeria, with much focus on nine (9) banks namely United Bank of Africa Plc, Fidelity bank Plc, First City Monument bank Plc, Guaranty Trust bank Plc, Stanbic IBTC bank Plc, First Bank Plc, Zenith Bank Plc, Union Bank Plc and Access Bank Plc that have huge capital base, have significantly driven the economy of Nigeria and have records of the usage of high rate of human resource skills and knowledge. The study is carried out between the periods 2014-2021.

This study has made significant contributions to the body of knowledge, considering the outcome of previous studies. First, while most previous studies were mainly descriptive in nature with survey design, this study considers the quantitative aspect with an ex-post facto design used to estimate the influence of training and development cost on return on assets and earnings per share of Deposit Money Banks in Nigeria. Secondly, though works have been



done on DMBs in this area, the majority of the works handle the bank as a firm alone whereas this study takes the banks as a sector of the economy and at such conducts a panel study on them.

The study deviates from previous studies in that, while other studies generalize the human resource accounting, the study specifically tries to reassess the import of training and development cost on financial performance of Deposit Money Banks in Nigeria. Also, the study considers an advance and dynamic technique like the Generalized Method of Moments (GMM) in analyzing and testing the formulated hypotheses unlike the technique adopted in previous studies.

The remaining part of the research is broken into four sections, each representing critical areas of the study such as the review of related literature, the materials and methods, the analysis and discussion of the research findings and the conclusion and recommendations from the study which is also followed by the limiting factors to the study and suggested areas of further research.

REVIEW OF RELATED LITERATURE

Training and development

Training and development are part of human resources management responsibilities, which help to inspire and increase the knowledge and talents of both new and existing employees. Training is been define by Abomeh & Peace (2015) as a process which involve series of activities set up by an organization to bridge and transform an existing gap in employees' knowledge, attitude and skills toward achieving better performance and attainment of organizational objectives. Managers in charge of human resource training create various training programs to position employees to carry out their obligations and develop the desired skills, knowledge, and capabilities (Lakra, 2016). Such training initiatives not only aim to increase employees' familiarity with their duties, but they also support motivating them to become more dedicated to their work. Huang and Jao (2016) assert that firms build training programs to equip their employees to perform their jobs appropriately and in accordance with the established standards. Kaur (2016) see training as a means to provide employees with the knowledge and skills they need to perform their job effectively, to meet current job demands and prepared for the upcoming changes in the modern workplace and work. This shows that it is a never-ending activity.

Employee development is the process of broadening the scope of knowledge on an employee, by adding to their existing skills and knowledge in a way of employee development programs for the purpose of increasing their capabilities. Kiiru (2015) view development of employee as managerial orientation, which ensure that human resources are used in a way that brings value to the organization, by providing it with competitive advantages, leading to achievement of organization goals, vision and mission. Therefore training and development are logical and more systematic means of improving employee's knowledge, skills and attitudes about their work.

There are variety of training and development methodologies that an organization can choose from depending on the organization industry type, and employee training need (Hazra et al.



2017). Managers in charge of human resource training create various training programs to help employees gain desirable skills, knowledge, and capabilities and position them to accomplish their obligations (Lakra, 2016).

Financial performance

Abraham, Odobi & Enwuchola (2022) see financial Performance as the realization of organizational goals and objectives with minimum resources while performance measurement could be described as the assessment of the level of achievement of organizational goals and objectives with minimum resources.

Earnings per share (EPS)

This is an important instrument used to measure financial performance of a firm. It show how the earning of a firm and the amount of profit actualized in a period year, on each share of common stock. Accordingly, Ezejiofor & Ezekwesili (2022) view earnings per share (EPS) as part of a company's earnings that is distributed to each shareholder of common stock and as a metric that measures a company's profitability. Earnings per share (EPS) are calculated as (Net income -Preferred dividends)/Average number of common shares.

Return on asset (ROA)

This is also another important financial instrument in measuring financial performance, It show the profit generated from the asset of a firm. Rosikah, Dwi and Miswar (2018) viewed Return on asset (ROA) as a ratio, known as return on total assets, that measures the net income generated by total assets during the period by comparing net income to average total assets.

Theoretical review

Human capital theory

This study is anchored on the human capital theory, and it was originally proposed by Schuityz in 1961, and later developed by Becker in 1964. The theory views training, skills, knowledge and experiences as important forms of capital that can be invested, which will enhance the productivity and potentials of workers. To this theory, a workforce that is more educated and has the necessary skills will help a firm to adopt and implement new technologies easily (Omodero, Alpheaus & Ihendinihu, 2016). Human capital theory is based on the premise that formal education is highly beneficial, if not necessary, for increasing a population's productivity capability. The theorists contend that an educated population is a productive population (Aliyu, Suhal & Suriyani, 2014).

In the case of this study, the human capital theory expresses the importance of human resources especially as regards to training and development of employee, which will improve the productivity of the firm and at such improve the financial performance of the firm. It also stressed the importance of investing on training an employee, which will lead to Firm growth and enhance financial performance.

Empirical Framework

Eke, Odukwu, and Ellah (2024) examined the relationship between human capital development and the financial performance of Nigerian deposit money banks (DMBs). Using an ex-post-



facto design, secondary data were collected from two purposively selected banks (Fidelity Bank and UBA) for the period 2010–2022. Multiple regression analysis was employed, with profit after tax (PAT) as the dependent variable and employee training costs, number of employees, and employee salaries as proxies for human capital development. The results revealed that all three human capital indicators had significant effects on profit after tax, with employee salaries showing the strongest positive influence. The model explained about 70% of the variation in PAT (Adjusted $R^2 = 0.703$), confirming a strong explanatory power. The findings align with human capital theory, which emphasizes investment in training and compensation as drivers of productivity and long-term profitability.

Chukwu, Osirim, Chukwu, and Ahiakwo (2024) study titled Empirical Measurement of the Effect of Human Capital Investment on Return on Assets of Banks in Nigeria investigated how different components of human capital investment influence the financial performance of Nigerian deposit money banks. Adopting a survey research design, the authors collected primary data from 335 employees out of a population of 2,073 across 24 banks in six South-South states. The regression analysis revealed that Employees' educational investment had a positive and significant effect on return on assets (ROA), Employee health investment also had a positive and significant effect on ROA, and Staff welfare investment, however, showed a negative and significant effect on ROA. Overall, the model explained about 20% of the variation in ROA ($R^2 = 0.202$), and the results emphasized that while educational and health investments enhance bank profitability, welfare costs may reduce efficiency if not strategically aligned.

Amegayibor (2021) evaluated methods of training and development, as well as organizational performance from local government organizations in Ghana's Central Region, which were studied quantitatively, including the use of correlation design and multiple regressions to analyze data from 215 questionnaires administered to employees. The result of the study shows that training and development had a significant relationship with organizational performance.

Depo-Magaji & Olowolaju (2019) studied the effect of employees' training on the profitability of Deposit Money Banks using secondary data from 8 DMBs for the period 2009 to 2014. The study used descriptive statistics to assess the relationship between employee training and bank profitability. The study revealed that banks that train employees have better performance than others.

In Abraham, Odoobi & Enwuchola (2022), the influence of human resource accounting on the performance of a Nigerian listed deposit money bank was explored. The ex-post facto research design was used in this study; secondary data were sourced from the annual reports of the listed deposit money banks from the period of 2015 - 2019. Descriptive statistics and correlation were used in the analysis of data. Multiple regression analysis was further used to test the hypothesis at 5% level of significance. The findings revealed that staff training cost has a significant effect on the market value of a listed deposit money bank.

Alade & Ilelaboye (2021) examined human resource accounting and profitability of Development banks in Nigeria. Secondary data were collected from annual report and management accounts of sample banks spanning 2012 - 2019. The study adopted ex-post facto research design and descriptive statistics, correlation, and OLS regression methods were used for data analysis. The result shows that salary and wages, employee benefits have negative



relationships with profitability, staff training and development and director remuneration have positive relations with profitability.

Bankole (2020) researched on human resource cost's influence on financial performance of Nigeria consumer goods company. Secondary data were sourced from published annual financial statements of the selected consumer goods company, trading on the floor of Stock Exchange in Nigeria from the period of 10 years spanning 2009 - 2018. In order to achieve the predetermined goal, data were analyzed utilizing static panel estimating approaches such as the pooled ordinary least square (POLS) estimator, fixed effects model (FEM), and random effects model (REM). The findings suggest that investing in human resources has a substantial impact on the financial performance and growth of Nigeria Consumer Goods Company.

Edeh and Chibundu (2017) researched on employee training and organizational performance of selected deposit money banks in Abia state, Nigeria using secondary data which include textbooks, journals and internet material with primary data obtained from questionnaire from 32 top level managers. Spearman's rank order correlation coefficient was used to analyze the formulated hypotheses. The study found that employee training has a positive and significant relationship with organizational performance.

Edom, Inah, and Adanma (2015) investigated the influence of human resource accounting on Access Bank of Nigeria Plc's profitability. From 2003 to 2012, secondary data were acquired from Access Bank of Nigeria Plc annual reports. In order to examine the hypotheses, the ordinary least squares analytical technique was used. Its findings demonstrated a positive association between the indices of human resource cost (training cost, development cost, and number of employees) and the organization's (Access Bank Plc) profit. It was also discovered that there was a significant relationship between training cost, development cost and the profit of the bank. However, they noted that, the number of staff does not have a significant effect on profit of the bank.

Quresh et al. (2015) investigated whether human resources management practices have an impact on financial performance of Banks. Primary data was collected as questionnaire from 46 banks and 38 respondents returned their questionnaire. Stepwise regression analysis, Pearson correlation and descriptive statistics were adopted for the research, the study concluded that training of employee have a positive relations and impact on financial performance of banks.

Ikpefan, Kazzem & Taiwo (2016) investigated human capital accounting and performance of microfinance banks (MFBs) in Nigeria. The study makes use of content analysis of the annual reports and financial statement of sample microfinance bank. Data were analyzed using both parametric and non-parametric techniques; appropriate descriptive and inferential statistical techniques were also used to analyze the collected data. The study's findings demonstrated a significant association between human resource accounting and microfinance bank performance.



METHODOLOGY

The study adopted Ex-post research design where there is a panel secondary data study of the annual publications of selected Deposit Money Banks in Nigeria. This design is most suitable for this study as data collected were not originally intended for this purpose, so they already exist and are less manipulative for the interest of this study and also to utilize a quantitative way of estimating the causal link between training and development cost and financial performance of Deposit Money Banks in Nigeria.

The population of the study comprises of twenty four listed banks in Nigeria, out of which, the study conveniently sampled nine (9) banks namely United Bank for African plc, First City Monument Bank Plc, Fidelity Bank Plc, Stanbic IBTC Bank Plc, Guaranty Trust Bank Plc, First Bank Plc, Zenith Bank Plc, Union Bank Plc and Access Bank Plc. These were banks that have huge capital base, have significantly driven the economy of Nigeria and have records of the usage of high rate of human resource skills and knowledge.

Secondary data were used for the study and were collected from the annual reports of the selected banks in Nigeria covering period of eight (8) years (2014-2021). The annual report was used to ascertain the influence of training and development cost on return on asset (ROA) and earnings per share (EPS) of the selected banks in Nigeria.

Model specification

To further ascertain the influence of training and development cost on the financial performance of Deposit Money Banks, the study has estimated the equations below as model for the study. The models are modified versions of Adhikari (2020) and Godwin & Udeh (2021) prepared to suit the variables for the study. The model in its functional form is presented thus:

$$EPS = f(\text{TRAININGEXP})$$

$$ROA = f(\text{TRAININGEXP}) \quad \text{Equation 1}$$

The econometric form of the stated model that captures both the intercept the β_0 and error term μ is presented below:

$$EPS = a_0 + a_1 \text{TRAININGEXP} + e \quad \text{Model 1}$$

$$ROA = a_0 + a_1 \text{TRAININGEXP} + e \quad \text{Model 2}$$

Where:

EPS = Earnings per share

ROA = Return on assets

TRAININGEXP = Training and Development Cost



Data estimation techniques

Using the Levin, Lin, and Chu t^* unit root test, the study attempted to determine the stationarity of the variables in the panel data. The Pedroni panel co-integration test was also used to evaluate the co-integrating relationship among the variables, and the panel data generated was analyzed using the Generalized Method of Moments (GMM) model. According to Orji & Nwaeze (2022), the Generalized Method of Moments features both the Ordinary Least Square (OLS) regression test and the two staged least square (2SLS). The appropriateness of the model in determining the influence of training and development cost on financial performance of DMBs is based on the fact that the cross section of companies selected for the study is larger than the time period chosen.

Data analysis and discussion of findings

Unit root test

Table 1: Levin, Lin & Chu t^* Unit Root Test

@LEVELS				@1ST DIFFERENCE		
VARIABLES	CRITICAL	Prob	REMARK	VARIABLE	CRITICAL	Prob
REMARK	VALUE				VALUE	
EPS	-5.79093	0.0000	Stationary	EPS	-7.36596	0.0000
Integrated						
ROA	-2.61307	0.0045	Stationary	ROA	-5.51878	0.0000
Integrated						
TRAINEXP	-1.67807	0.0467	Stationary	TRAINEXP	-17.3095	0.0000
Integrated						

Source: *Researchers computation (2025)*

The unit root test presented in table 1 above shows that all the variables such as Earnings per share (EPS), Return on assets (ROA) and Training expenses were stationary at levels whereas at first difference, all the variables were also integrated at 5% level of significance. The outcome of the unit root test prompts us to confirm whether there is a long run co-integrating relationship among the dependent and independent variables.

Tests for Co-integration

Table 2: Pedroni Co-integration test results

	Statistic	Prob
Within Dimension		
Panel v-Statistic	1.820805	0.7837
Panel rho-Statistic	0.272480	0.8469
Panel PP-Statistic	-1.816194*	0.0068
Panel ADF-Statistic	0.671157*	0.0003
Between Dimension		
Group rho-Statistic	2.520324	0.9941



Group PP-Statistic	-3.833221*	0.0001
Group ADF-Statistic	-4.464920*	0.0000

Note *shows the rejection of the null hypothesis of no co-integration at 5% significance level. The lag length was selected using SIC

The study conducted the Pedroni Co-integration test to ascertain whether a co-integrating long run relationship exist among the variables. From the result in Table 2 below, the panel PP-Statistic and Panel ADF-Statistic were statistically significant at both panel and group statistics while other statistics at both panel and group statistics are statistically insignificant. With the result of the Co-integration test, the study concludes that there is a long run relationship existing among the variables under study.

Hypotheses testing

Based on the objectives of the study, the study is hypothesized as follows:

H₀₁: Training and development costs of selected DMBs in Nigeria do not have significant relationship with the return on assets (ROA) of the banks.

The first formulated hypothesis is tested and analyzed using the panel Generalized Method of Moments as presented below:

Table 3: Panel Generalized Method of Moment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNROA(-1)	-0.027518	0.032565	-0.845011	0.4020
LNTRAINEXP	0.106249	0.005302	20.03969	0.0000
Effects Specification				
Cross-section fixed (first differences)				
Mean dependent var	-0.013209	S.D. dependent var	0.263166	
S.E. of regression	0.263812	Sum squared resid	3.619032	
J-statistic	7.328789	Instrument rank	9	
Prob(J-statistic)	0.395468			

Source: Authors computation using E-views 10.0 (2025).



From the result of the GMM test conducted in table 3 above to test the first formulated hypothesis, training and development cost has a positive and significant influence on return on asset estimated at one percent level of significance. This implies that an increase in training and development cost will lead to an increase in financial performance of the banks by 0.1062 percent and vice versa. This outcome of the study correlates with the results of Godwin & Udeh (2021), Ezejiofor et al (2017), Vincent et al (2022), Odobi & Enwuchola (2022) whose works revealed positive and significant relationship between training and development cost and return on asset. The study also contradicts the findings of Ezekwesili & Ezejiofor (2022) who found a negative and insignificant relationship and Ndum & Oranefo (2021) who found out there is a positive but insignificant relationship between training and development cost and return on assets.

The study confirmed the validity and fitness of the model for the study through the J-value statistic (J-Stat). From the result, the J-value has probability of 0.395 which is greater than 0.05 and at such the use of GMM model is valid and most suitable for the study.

The second hypothesis for the study is formulated as follows:

Ho₂: There is no significant relationship between training and development cost and earnings per share (EPS) of selected DMBs in Nigeria.

The formulated hypothesis is tested and analyzed using the Generalized Method of Moments as also presented thus:

Table 4: Panel Generalized Method of Moment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNEPS(-1)	0.793451	0.066302	11.96718	0.0000
LNTRAINEXP	0.073037	0.021339	-3.422755	0.0012
Effects Specification				
Cross-section fixed (first differences)				
Mean dependent var	0.064767	S.D. dependent var	0.140134	
S.E. of regression	0.233211	Sum squared resid	2.828137	
J-statistic	6.598791	Instrument rank	9	
Prob(J-statistic)	0.471813			

Source: Authors computation using E-views 10.0 (2025).



From the result of the GMM test conducted in table 4 above to test the second formulated hypothesis, training and development cost has a positive but significant influence on earnings per share of DMBs in Nigeria estimated at one percent level of significance. This implies that an increase in training and development cost will lead to an increase in earnings per share of the banks by 0.073 percent and vice versa. This outcome of the study correlates with the results of Agbiogwu et al (2016), Adhikari (2020) and Edom et al (2015) whose findings show positive and significant relationship between training and development cost and earnings per share. The study also contradicts the findings of Ezekwesili & Ezejiofor (2022) who found a negative and insignificant relationship between training and development cost and earnings per share.

Further assessment of the result of the study, shows that training and development cost expensed on the staff of these banks improves their skills, competence and overall productivity of the members of staff of the banks which will in turn translates to an improved financial performance of the banks with increase in patronage of the banks by both investors and other stakeholders to the bank. The J-value statistic (J-Stat) which is a measure of how valid and fit the model is for the study was assessed. From the result, the J-value has probability of 0.471 which is greater than 0.05 and at such the use of GMM model is valid and most suitable for the study.

Diagnostic Analysis

Table 5: Arellano- Bond Serial Correlation test result

Test order	m-Statistic rho		SE(rho)	Prob.
AR(1)	-0.961399	-0.086441	0.089911	0.3364
AR(2)	1.278694	0.103687	0.081088	0.2010

Source: Authors computation using E-views 10.0 (2025).

From the outcome of the serial correlation test presented in table 5 above, it is clear and convincing that the stated model for the study is free from serial correlation in both AR (1) and AR (2) as the probabilities of the m-Statistic which are 0.3364 for AR (1) and 0.2010 for AR (2), are all insignificant and at such, the model suffers no auto correlation problem.

CONCLUSION AND RECOMMENDATIONS

The purpose of this research is to look into the impact of training and development costs on the financial performance of Nigerian deposit money banks. The study reassessed how the huge cost expensed in training and capacity building of staff of DMBs influences the performance of the banks measured through their return on assets and earnings per share which are performance metrics validated over time and by many authors. The results of the study revealed that training and development cost exhibits a positive and significant influence on the return on assets and earnings per share of these banks implying that as more funds are being



committed to building and improving staff knowledge, skills and expertise, these translates to better productivity and at such leads to an increased financial performance by the banks. The study therefore concludes that training and development cost positively and significantly influences financial performance of Deposit Money Banks in Nigeria.

The study is based on the human capital theory, which contends that employee training and development will improve the productivity of the firm and at such, improve the financial performance of the banks.

Drawing strength from the outcome of the study, the research recommends that initiative of regular training and capacity development of staff should be sustained as these enable employees to acquire skills and knowledge that will improve the financial performance of the banks. Also, more funds should be invested in the training and development of employees as this has been proven to have positive and significant impact on the financial performance of the selected Deposit Money Banks in Nigeria. This study is constrained by its narrow scope as the study did not consider the possible influence of some control variables on the outcome of the study. The study encourages future studies in this area to consider assessing the influence of some control variables which might have significant impact on the study of the study.

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