



EMPLOYEE EFFICIENCY AND FIRM'S BUSINESS PERFORMANCE: EVIDENCE FROM QUOTED CONSUMER GOODS COMPANIES IN NIGERIA.

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Article history:	Abstract:
Received: 28 th June 2023 Accepted: 30 th July 2023 Published: 30 th August 2023	This study investigates effects of employee aggregate efficiency on firm's business performance in Nigeria, using a three panel data models, namely; pooled regression, fixed and random effects models. The data consists of 10 selected companies that are listed on the consumer goods index of the Nigerian stock exchange NSE, covering a period of seven years (2007 to 2013). Data were sourced and computed from selected companies annual report and are analysed in Eviews 7 version. Return On Equity (ROE) serves as proxy for firm business performance, while revenue per employee, staff costs and directors emoluments are dimensions of employee efficiency. When fixed effects estimates were compared with random effects estimates, there is strong evidence that the unobserved firm-specific effects are correlated with that of firm's revenue per employee, staff costs and directors emoluments. The study found staff costs and financial performance to be negatively related. This implies that an increase in staff costs would lead to a decrease in the firm financial performance. Also, there is weak evidence that directors' emoluments and firm's financial performance are positively related. This means an increase in directors' emolument would lead to an increase in firm's financial performance. However, there is no evidence that revenue per employee can significantly influence firms' financial performance. Overall, about 83% of the changes in firms' financial performance can be significantly explained by joint influences of revenue per employee, staff costs and directors' emolument. It is therefore recommended that firms desiring to improve business performance should increase efficiency and productivity through directors' remuneration optimization of employee performance inclusion.

Keywords: Employee aggregate efficiency, business performance, pooled OLS model, fixed effects and random effects

INTRODUCTION

Growing awareness on sustainable competitive business advantage has left some organisations more successful while others struggle to remain in business. It has been established that the difference in the performance of these organisations is not far from the aggregate efficiency of the employees or human resources HR that make up these organisations. This suggests that the employee is the most important component in the quest to improving organisational performance. A considerable number of research works have shown interest on human resource HR and organisational (firm) performance (Huselid, 1995; Dyer and Reeves,

1995; Sudin, 2004; Arthur, 1994; Becker and Huselid, 1998; Wright, Gardner, Moynihan, and Allen, 1993; Huselid, Jackson and Schuler 1997 and McDuffie, 1995). The initial instance in HR and performance can be traced to the seminal work of Huselid (1995); he argues that the employees' high performance work practice leads to high performance per employee. However, recently, the emphasis has shifted from establishing the relationship between HR and performance per se, to measuring the effects, role and the contribution of HR to firm performance (Wright, et al., 2005; Chen, Cheng and Hwang, 2005; Sani, 2012; Muogbo, 2013; Beha and Looa, 2013; Bashir, Abbas, Manzoor and Akram, 2013;



and Sibanda, Muchina and Ncube, 2014). These studies have empirically proven that there is a positive relationship between HR and organisational performance. Hence, they have agreed that the employees have been the reason behind the high performance of the organisation.

Based on the above position, Mitchell (2002:6) argues that the contribution of HR to organisational efficiency (performance) can be measured through the number of employees per supervisor, trend in revenue per employee, growth in revenue per employee, cost of compensation as percentage of expenses and cost of human resource function as percentage of expenses (staff cost).

However, the inability of the organisation to invest on the HR or adequately compensate, motivate and train the HR has left the employee efficiency in doubt. Perhaps, the organisation could not invest in the HR because it wants to record high profitability or financial performance in the short-run. Thus, any organisation that fails to invest in the HR would in the long-run record low financial performance and as such, would be struggling to remain in business or give way for those that have invested in the organisation's HR. Hence, the employee efficiency is the most important component in the quest to achieving sustainable competitive advantage and consequently ensures improved organisational financial performance.

The object of this paper is to examine the influence of employee aggregate efficiency on organisational performance. This study is undertaken using consumer goods companies that are most capitalized and liquid in the food, beverage and tobacco sector listed on the Nigerian stock exchange. The motivations for this study are threefold. First, there seem to be little empirical literature on the employee aggregate efficiency and organizational performance in Nigeria. Second, is that study employs panel regression estimation models. Third, HR related financial indicators such as staff cost, revenue per employee and directors' emoluments seem not to have been used to examine the impact of the relationship between employee aggregate efficiency and firm performance (ROE).

LITERATURE REVIEW

It has been established that there are relationships between the quality of a firm's employees and its competitive edge over other firms. Huselid (1995) argues that a firm's employee is capable of making a firm have an outstanding competitive edge above other firms and that HRM practices can contribute to creating a source of sustained competitive advantage provided they are integrated with the firm's competitive strategy. He finds consistent evidence that supports the view that high performance work practices and firm performance are significantly positively related.

Similarly, Wright and McMahan (1992) rely on the work of Barney (1991) on resource-based theory and argue that for a firm to achieve sustained competitive advantages, that the HR must be unique, valuable, scarce amongst current and potential competitors, be 'imperfectly imitable', and cannot have close substitute. This is eventually the means through which HR can serve as an agent of sustainable competitive advantage to any organisation. Pfeffer (2005) posits that the ever important and crucial factor in an organisation is the employees and their practical contribution to the organisation. Similarly, Chen, Cheng and Hwang (2006) argue that intellectual capital is an important, immediate and potential catalyst for sustainable competitive advantage in terms of enhanced corporate growth and profitability. Muogbo (2013) also finds evidence that strategic human resources management SHRM and performance level are positively correlated and concludes that SHRM is an important and indispensable tool for gaining competitive advantage. Accordingly, Sibanda, Muchena, and Ncube (2014) note that labour efficiency in organisation is a major catalyst to growth and competitive advantage of business. This suggests that employees who make up the organisation are their unique and most valued asset.

Empirical Review

Researchers over the years have increasingly shown interest on studies relating to HR and organisational performance. This is as a result of the global growing need for achieving sustainable competitive business advantage (Becker & Gerhart, 1996). They have successfully demonstrated the contribution of HR to organisational performance. Using regression analysis, Huselid (1995) examines the effects of systems of high performance work practices on firm performance, controlling for firm and industry effects. He finds consistent evidence that supports the view that high performance work practices and firm performance are significantly positively related.

Using a two-period panel data set, Huselid and Becker (1996) investigate methodological issues associated with survey-based analysis of the human resource management (HRM)-firm performance relationship. They focused on the above results and tested for heterogeneity bias in the HRM-firm performance model. The main concern was that the positive cross-sectional relationships found by these studies might be due to unobserved firm-specific effects which may be correlated with HRM practices. They estimated the three panel data models; namely, OLS pooled cross-sectional, fixed effects and random effects models, and compared their results. First, the results provided by OLS pooled cross-sectional model were compared with those of fixed effects model using the Lagrange



Multiplier (LM) test. Second the results from random effects model were compared with those of fixed effects model using the Hausman test. However, the Hausman test rejects the random effects model in favour of the fixed effects model. They conclude that although, the panel data (fixed effects) model controls for heterogeneity bias, its estimates however, are strongly influenced by errors in measuring HRM practices.

Using OLS regression technique, Huselid, Jackson and Schuler (1997) examine the impact of overall human resource management quality on firm performance. They find that effectiveness is linked with capabilities and attributes of HR, and that there is a relationship between HR management effectiveness and productivity, cash flow and market value. Thus, their findings were also consistent across market and accounting measures of performance. Richard and Johnson (2001) investigate the effective use of human capital on organizational performance using hierarchical regression analysis. They find that strategic human resource management SHRM effectiveness has a positive and significant impact on the overall market performance.

Using panel data, Kato and Kubo (2003) examine the relation between CEO compensation and firm performance in Japan. They find that Japanese CEO's cash compensation is sensitive to firm's performance measured in accounting terms.

Using correlation analysis, Wright et al. (2005) examine the causality between measures of human resource practices and firm's performance in US and Canada. They find consistent evidence that human resource practices have strong, positive and significant correlation with firm's performance.

Using linear regression analysis, Chen et al. (2006) investigated the relation between intellectual capital efficiency and firms' market valuation and financial performance. They concluded that firms with better Intellectual capital and human capital efficiency generate higher revenue growth and profitability. Similarly, Perera and Thrikawala (2012) investigate the impact of human capital investment on financial performance using regression analysis in Sri Lanka. Also, the result shows that there is significant relationship between investment in human capital and firm performance.

Using generalized method of moments GMM-system estimation method, Ozkan (2011) examines the relationship between CEO pay and firm performance in UK. The relationship between firm performance and total compensation was also finds to be positive but insignificant.

Al-Ghazawi (2012) examines the impact of investment in human resources activities on the effectiveness of human capital using linear regression analysis in Jordan. He finds evidence that investments in human resources activities have a positive and significant impact on human capital return on investment. However, the impact of human resources investment on turnover rate was found to be negative and insignificant.

Using bivariate regression and correlation analyses, Miyenda et al. (2013) investigate the relationship of Directors' remuneration and company performance in Kenya. They conclude, among others, that directors' remuneration is strongly related to raw performance indicators rather than measures of market performance and efficiency of utilization of shareholders equity.

In Nigeria, the empirical literature on the relationship between human resources practices and organizational performance is still growing. Oladipo and Abdulkadir (2011) using regression and correlation analysis investigate the relationship between strategic human resource management and organizational performance in the Nigerian manufacturing sector. They find that SHRM practices have a positive and significant impact on organizational performance. Similarly, Muogbo (2013) considers the place of Strategic Human Resource Management (SHRM) in improving corporate performances among SMEs using Spearman Rank correlation analysis in Nigeria. He finds strong evidence that SHRM and performance level are positively correlated, and concludes that SHRM is an important and indispensable tool for gaining competitive advantage.

Salman et al. (2012) examine the impact of intellectual capital components on corporate performance in the Nigerian manufacturing sector using regression and correlation analysis. They find evidence that human capital, i.e. total investment on salaries and wages, has higher impact on corporate performance than structural capital and physical capital.

Using regression analysis, Gidado et al. (2014) investigate the relevance of investing in human resource development and how it affects the performance of the banking institutions of Malaysia and Nigeria. They find evidence that employee compensation, training and development expenditure have positive and significant impact on bank performance in both Nigeria and Malaysia.

Ayanda et al. (2014) examine the effects of human resources management (HRM) practices on the financial performance of banks in Nigeria using Pearson correlation and stepwise regression analyses. They find that selection, training, compensation and employee participation have positive effects on the financial



performance of banks. This result is consistent with results obtained by earlier study by Ojo (2011). He examines the impact of strategic human resource practices on corporate performance in Nigeria using regression analysis. He finds that strategic human resource practices have positive effects on corporate performance.

Using multiple regression analysis, Ugheoke et al. (2014) examine the impact of SHRM on tangible firm performance amongst SMEs operating in Lagos, Nigeria. They also find evidence that SHRM has a positive and significant effect on tangible performance.

METHODOLOGY

This study investigates the effects of employee aggregate efficiency on organisational financial performance in Nigeria using a panel data approach. The data consists of ten selected companies that are listed in the consumer goods index of the Nigerian stock exchange NSE. The study covers a period of seven years from 2007 to 2013. However, the panel data is unbalanced as there are missing observations due to unavailability of data. Thus, the sample size is 50 instead of 70. The data were sourced and computed from annual reports of the selected companies and are analysed in Eviews 7 student version. The dependent variable is return on equity (ROE) which serves as a proxy to organisational performance while human resource factors namely, revenue per employee, staff costs and directors emoluments are used as the regressors. The study is undertaken using three panel data estimation models, namely, pooled regression model, fixed effects model and random effects model.

Variables

ROE = return on equity (a proxy variable for organisational performance)

SC = Natural logarithm of staff cost (a proxy for compensation/motivation)

RPE = Natural logarithm of revenue per employee (a proxy variable for employee efficiency)

DE = Natural logarithm of directors' emoluments (a proxy for compensation/motivation)

Return on equity (ROE)

ROE is also known as return on net worth. It is a measure that shows the profit made by the company on behalf of the shareholders within a year. It is the amount of net income returned as a percentage of shareholders equity. ROE is considered as a measure of financial strength and has been used as a measure of firm's performance by several authors including Delery and Doty (1996).

Staff cost (SC)

Staff cost is also known as personnel cost or labour cost. It is the sum of the wages, salaries, pension contributions, gratuities, welfare and related expenses

incurred by the employer. This suggests that all the costs incurred as a result of investing on the employees may be included in the staff cost (Perera & Thrikawala, 2012).

Revenue per employee (RPE)

Revenue per employee (RPE) refers to the amount of sales generated by each employee. It is a measure of employee efficiency and is defined as the ratio of revenue to employees. This variable tells how well a company is using its human resources to generate sales and is included in the model as one of the explanatory variables. Revenue per employee has been used by previous studies including, Simon, Maritin and Roja (2007) and Richard and Johnson (2001).

Directors' emoluments

Directors' emolument(s) is the sum of salaries, fees, bonus and other fringe benefits paid to the executive and non-executive directors by way of expenses to the company. The amount to be paid is subject to the approval of the shareholders. Increase in directors' emoluments can be considered as a motivation. Directors' emolument has been used by previous studies including Gidado et al. (2014).

Model specification

In this study, the relationship between employee aggregate efficiency and organisational performance can be expressed as: $ROE = f(SC, RPE, DE)$

The general model for this relationship is therefore specified as:

$$ROE_{it} = \alpha + z_i + \beta_1 SC_{it} + \beta_2 RPE_{it} + \beta_3 DE_{it} \quad (7)$$

where α is the intercept, β_1, β_2 and β_3 are the slope coefficients, z_i is the parameter that will capture any unobserved effects, and ϵ_{it} is the error term. Although, the general effects of the regressors on *ROE* as represented by the slope coefficients, is the primary interest, it is as stated in the previous session, if $z_i = 0$ and $\epsilon_{it} \sim iid(0, \sigma^2)$, then, the model at (7) is a pooled model and the usual OLS can be used to estimate the model. (i.e. OLS estimators are unbiased and consistent). However, $z_i \neq 0$, then the model is either a fixed effect or random effect specification depending on the assumption made about z_i . If z_i is assumed to be correlated with any of the explanatory variables, then the model is equivalent to the fixed effect or LSDV regression model as specified in (4). On the other hand, if z_i is uncorrelated with the explanatory variables, then the model is equivalent to the random effect model as specified in (6). It is therefore good reason to consider two hypotheses. First, the pooled regression model may be appropriate to capture the broad relationship of interest. Second, the random effect model may be



appropriate to capture any unobserved heterogeneity across firms.

Analysis and Discussion

Descriptive Statistics

Some statistics that describe some of the distributional properties of the data are presented in table 1. The statistics presented are mean, median, maximum, minimum, standard deviation, skewness, kurtosis and Jarque-Bera. For ROE, the mean value is 48.57 while the standard deviation is 34.4. The minimum and maximum are 1.500405 and 135.7133. The table shows that the series is not normally distributed values, with Jarque-Bera statistic clearly rejecting the null

hypothesis of normality at 5% level of significance. For the explanatory variables, the mean values of natural log of revenue per employee, natural log of staff costs and natural log of directors' emoluments are 10.75, 15.16 and 11.23 with standard deviations of 34.4, 0.61, 1.07 and 0.88 respectively. Although, none of the three variables has zero skewness and a kurtosis of 3, the table however, also shows that they are all normally distributed, with the Jarque-Bera statistic failing to reject the null hypothesis of normal distribution at all conventional levels. A normal distribution has a zero-skewness coefficient and a kurtosis coefficient of 3

Table 1: Descriptive statistics; p-values are in parenthesis

Statistic	ROE	Revenue per employee	Staff costs	Directors' emolument
Mean	48.56511	10.75319	15.16125	11.23167
Median	42.36427	10.81784	15.40899	11.14850
Maximum	135.7133	12.00371	17.13499	13.00906
Minimum	1.500405	9.470012	13.29590	9.602653
Std. Dev.	34.39560	0.611039	1.066043	0.880381
Skewness	0.862597	-0.101794	-0.259140	0.158265
Kurtosis	3.066503	2.521702	1.907740	2.134549
Jarque-Bera	8.445358 (0.0147)	0.720577 (0.6975)	3.897724 (0.1424)	2.264526 (0.3223)
Observations	68	64	64	64
Missing	2	6	6	6

Analysis and Results

The discussion of findings focuses on the implications of results and how they are related to previous studies outlined in the literature.

Table 2: Results of the estimated pooled regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-175.1392	87.17151	-2.009133	0.0490
LRP	4.627952	6.960950	0.664845	0.5087
LSC	5.831854	5.120622	1.138896	0.2593
LDE	7.793519	6.087549	1.280239	0.2054
R-squared	0.135962	Mean dependent var		50.57849
Adjusted R-squared	0.092760	S.D. dependent var		34.46496
S.E. of regression	32.82758	Akaike info criterion		9.880877
Sum squared resid	64659.01	Schwarz criterion		10.01581
Log likelihood	-312.1881	Hannan-Quinn criterion.		9.934033
F-statistic	3.147127	Durbin-Watson stat		0.348416
Prob(F-statistic)	0.031496	JB stat 22.293	<i>p</i> -value	0.0035



Pooled regression model

This model ignores unobserved heterogeneity across firms and assumes that errors are identically and independently distributed. The results of the estimated pooled regression model are presented in table 2. From table 2, all the estimated slope coefficients are individually statistically insignificant indicating that the included regressors namely, revenue per employee, staff cost and directors' emolument cannot individually affect ROE. However, the F-statistic is significant at 5% level. The value of R^2 is 0.136 indicating that only about 13.6% of changes in ROE can be explained by the changes in revenue per employee, staff costs and directors' emolument. Thus, the regression line is poorly fitted. The estimated Durbin-Watson statistic is quite low (0.348416) suggesting that there is positive autocorrelation in the data. The JB statistic is significant at 1% level suggesting that the residuals are not normally distributed. This is strong evidence that the model is not well specified. As stated in chapter 3, the specification error may be due to unobserved firm-specific effects that may be correlated with the included regressors but are not accounted for by the pooled model. Thus, the OLS estimators are biased and inconsistent, and the true dynamic relationships are distorted.

Fixed Effects Model (FEM) Estimation

To capture the unobserved effects across firms, the fixed effects model is estimated using the least square dummy variable approach LSDV. The fixed effects model assumes that the unobserved firm specific effects are correlated with the explanatory variables. To avoid dummy variable trap, 9 dummy variables (D_2, D_3, \dots, D_{10}) are used since there are 10 cross-sectional units (firms). $D_2 = 1$ if the observation belongs to Dangote Sugar, 0 otherwise; $D_3 = 1$ if the observation is for Guinness, 0 otherwise; $D_4 = 1$ if the observation is for HoneyFlour, 0 otherwise; $D_5 = 1$ if the observation belongs to NASCON, 0 otherwise; $D_6 = 1$ if the observation belongs to Nestle, 0 otherwise; $D_7 = 1$ if the observation belongs to PZ, 0 otherwise; $D_8 = 1$ if the observation belongs to Unilever, 0 otherwise; $D_9 = 1$ if the observation belongs to FlourMill, 0 otherwise; and $D_{10} = 1$ if the observation belongs to Dangote flour, 0 otherwise. Nigerian Breweries (NB) is used as the benchmark (reference) company, hence, there is no dummy variable assigned to it. The results are reported in table 3. For the dynamic relationship of interest, all the slope coefficients have the expected signs. The coefficient of RPE is not significant implying that revenue per employee has no significant impact on ROE. By contrast, the effects of staff cost and director's emoluments on ROE are significantly different from zero at 1% and 10% levels respectively. ROE is a positive function of directors' emolument which means that an increase in directors' emolument would lead to an increase in organisational performance. ROE is a negative function of staff cost which means that an increase in staff costs would lead to a decrease in organisational performance as measured by ROE.

Comparing these results with those in table 3, the value of R^2 is 0.825751 indicating that the regression line is very well fitted; about 83% of the changes in ROE are explained by the changes in revenue per employee, staff costs and directors' emoluments. The F-test shows that the estimated regression or R^2 is significant at less than 1% level. The Durbin-Watson statistic is also much higher than that in table 2, providing support that the pooled model is mis-specified. The Jarque-Bera statistic cannot reject the null hypothesis that residuals are normally distributed at conventional levels, with the p -value being reasonably high. This indicates that the fixed effect model is correctly specified.

Also from Ttable 3, the intercept values of the 10 companies are 686.22. Hence these differences in intercepts reflect the differences in companies in terms of company-unique features such as management style.

Table 3: results of the estimated fixed effects model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NB (α_i)	686.2170	126.7880	5.412317	0.0000
LRP	12.85933	9.787688	1.313827	0.1948
LSC	-54.59275	10.39258	-5.253049	0.0000
LDE	12.78397	6.783845	1.884472	0.0652
Dangote Sugar (D_2)	-134.5546	24.19387	-5.561518	0.0000
Guinness (D_3)	-63.13379	11.70694	-5.392852	0.0000
HoneyFlour (D_4)	-197.1331	26.42996	-7.458697	0.0000
NASCON (D_5)	-154.5595	24.11771	-6.408547	0.0000
Nestle (D_6)	16.44624	10.46026	1.572258	0.1221
PZ (D_7)	-95.66633	13.73334	-6.965993	0.0000
Unilever (D_8)	-84.60535	17.07310	-4.955476	0.0000



FlourMill (D_9)	-65.41315	13.56009	-4.823946	0.0000
DangoteFlour (D_{10})	-182.3244	22.34256	-8.160409	0.0000
R-squared	0.825751	Mean dependent var	50.57849	
Adjusted R-squared	0.784751	S.D. dependent var	34.46496	
S.E. of regression	15.99000	Akaike info criterion	8.560997	
Sum squared resid	13039.69	Schwarz criterion	8.999520	
Log likelihood	-260.9519	Hannan-Quinn criterion.	8.733754	
F-statistic	20.14033	Durbin-Watson stat	1.418610	
Prob(F-statistic)	0.000000	JB stat	1.7778	p -value 0.4112

Fixed Effects Model vs Pooled Regression Model

To compare the fixed effect model with the random effect model, the likelihood ratio test is used. Under the null hypothesis of pooled model, the likelihood ratio test is an F-test of joint significance of the coefficients on the dummy variables. Table 4 reports the results of the likelihood ratio test. The results indicate that the coefficients on the dummy variables are jointly significant, with both the F-statistic and the chi sq. statistic rejecting the null hypothesis of pooled model at less than 1% level. This is clear evidence that all the estimated intercepts in the fixed effects model are statistically, individually and jointly significant. This confirms that the pooled regression model was mis-specified, hence, could not capture the true dynamic relationships of interest.

Table 4: the results of the likelihood ratio test

Test	Statistic	Degree of freedom	p -value
F-test	22.43	9, 51	0.0000
Chi-sq. test	102.47	9	0.0000
R^2 of fixed effect (unrestricted) model		0.825751	
R^2 of pooled (unrestricted) model		0.135962	
Log likelihood function of fixed effects model (L_u)		-260.952	
Log likelihood function of the pooled model (L_r)		-312.188	
LR statistic = $-2(L_r - L_u) \sim \chi^2(9)$		$-2[-312.188 - (-260.952)] = 102.47$	

Random Effects Model (REM) Estimation

Table 5 reports the results of the estimated random effects model. This model assumes that the unobserved firm-specific effects are uncorrelated with the explanatory variables. As this table shows, the slope coefficients have signs that are similar to those obtained from fixed effects model in table 3. The coefficient on staff costs is negative and significant at 1% level indicating that staff cost has a significant negative effect on ROE. An increase in staff cost would lead to a decrease in corporate performance. By contrast, the coefficients on revenue per employee and director's emoluments are positive but not significant at conventional levels. The value of the intercept is 311.3716 with a p-value of 0.0027, indicating that the overall (common) mean is positive and highly significant.

The value R^2 is 0.121884 implying that the regression line is poorly fitted; only about 12% of the changes in ROE can be explained by the changes in revenue per employee, staff costs and directors' emoluments. Although, the value of R^2 is quite low, the F-statistic is 2.776, with a p -value of 0.0048942 suggesting that the overall regression is significant at 5% level. The estimated Durbin-Watson statistic is 0.878289 indicating that there is the presence of positive autocorrelation in the residuals of the estimated model. The value of Durbin-Watson statistic is higher than that obtained from the estimated pooled model reported in table 2. However, it is lower than that of fixed effects model in table 3. The Jarque-Bera statistic is 2.3444 with a p -value of 0.3097 suggesting that the residuals are normally distributed. Thus, the null hypothesis that errors are normally distributed cannot be rejected. This provides evidence that the estimated random effects model is correctly specified.



Table 5: Results of the estimated random effects model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	311.3716	99.51893	3.128768	0.0027
LRP	1.989429	8.406194	0.236662	0.8137
LSC	-23.34572	7.738320	-3.016898	0.0037
LDE	6.041558	6.126130	0.986195	0.3280
R-squared	0.121884	Mean dependent var		50.57849
Adjusted R-squared	0.077978	S.D. dependent var		19.23014
S.E. of regression	18.58060	Sum squared resid		20714.31
F-statistic	2.776029	Durbin-Watson stat		0.878289
Prob(F-statistic)	0.048942	JB stat	2.3444	p-value 0.3097

Fixed Effects Model vs Random Effects Model

To choose between random effects model and fixed effects model, the Hausman test is used. The Hausman test has an asymptotic chi-square distribution and is performed under the null hypothesis that the unobserved (firm-specific) effects are uncorrelated with the explanatory variables (i.e. H_0 : random effect model). The results are reported in table 6. As this table shows, the test statistic is significant at less than 1% level, thus, rejecting the null hypothesis that the unobserved effects are uncorrelated with the explanatory variables. This implies that the random effects model is not appropriate. There is therefore strong evidence that the fixed effects model is the most appropriate. Thus, the results given by the fixed effects model as reported in table 3 are reliable.

Table 6: Hausman specification test

Test	Test statistic	p-value
χ^2 with 3 degree of freedom	24.221849	0.0000

DISCUSSION OF FINDINGS

The empirical focus of this study has been to examine the effects of human resource (HR) efficiency and compensation system on organizational financial performance. The discussion of results focuses on the implication of findings on the literature review

Unobserved firm-specific effects and Firm Performance

To capture the unobserved firm-specific effects on firm performance, the three panel data models are estimated and their results are compared. The purpose is to choose the model that is best supported by the data. First, comparing the pooled OLS and the fixed effects model, the F-test in table 4 rejects the null hypothesis of pooled OLS in favour of the fixed effects model at 1% level of significance. This implies that there is heterogeneity bias in the pooled OLS model, and thus, its estimates in table 3 are not statistically reliable, that is, they are biased upward. This is consistent with the argument that unobserved differences in companies, such as management styles, have significant effects on firm performance. Furthermore, comparing the random effects model with the fixed effects model, the Hausman test in table 6 rejects the random effects model in favour of the fixed effects model at 1% level of significance. This implies that the unobserved firm-specific effects are correlated

with the observed human resource factors (revenue/employee, staff costs and director’s emolument) that are included as independent variables. From econometric perspective, the fixed effects model, which gives consistent estimates, is the best model in capturing both the unobserved effects (i.e. the differences in management styles) and the observed human resource management factors that affect firm performance. The estimates provided by fixed effects model are also much higher in size than those from either pooled OLS or random effects model. For example, while the coefficient on revenue/employee in the estimated fixed effects model is 12.86, it is 4.63 in pooled OLS model and 1.99 in random effects model. There is therefore, consistent evidence that the results found by most of the studies in the literature are biased upward. This result is consistent with the findings of Huselid and Becker (1996).

Human resource factors and firm’s performance

Since fixed effects model outperforms both pooled OLS and random effects models, the discussion of the effects of human resource efficiency and compensation on firm financial performance focuses on the results in table 3. Table 3 shows that employee compensation has a strong negative influence on firm’s performance. The coefficient on staff cost and the corresponding p-value are -54.59275 and 0.0000 respectively implying that a



1% increase in staff cost will significantly reduce the firm profitability by about 55%. This is in line with the expectation *a priori* and the findings of previous studies. For example, Gidado et al. (2014) found a negative but insignificant relationship between staff costs (wages and salaries) and firm performance. The implication of this result is that a firm that wants to increase its financial profitability should reduce its expenses on wages and salaries.

Table 3 also indicates that the directors' compensation has a weak positive influence on firm financial performance. The coefficient on director's emolument is positive (12.78397) and significant at 10% level (p -value = 0.0652), indicating that a 1% increase in director's compensation will lead to about 13% increase in the firm financial performance. This is consistent with the results found by Ozkan (2011) and Miyianda et al. (2013). Also, the result in table 3 shows that the revenue per employee has a positive (12.85933) but insignificant (p -value = 0.1948) relationship with firm financial performance. This implies that a 1% increase in revenue per employee will lead to about 13% increase in firm profitability.

On balance, table 3 shows that human resource factors can significantly influence the firm financial performance, with the value of adjusted R^2 being 0.784751 and the F-statistic being significant at 1% level or less. About 78% of the total variation in the firm financial performance (profitability) can be explained by the joint influences of employee efficiency and compensation system in the Nigerian consumer food sector. There is therefore, consistent evidence that efficiency in the use of human resources and the compensation system can significantly influence organisation financial performance. The pattern of these results is also in line with previous studies and the expectation *a priori*.

CONCLUSIONS

This paper investigates the effects of employee aggregate efficiency on organisational financial performance in Nigeria. The study is undertaken using three panel data estimation models, namely, pooled regression model, fixed effects model and random effects model. The data consists of ten selected companies that are listed under the consumer goods index of the Nigerian stock exchange NSE. The study covers a period of seven years from 2007 to 2013. However, the panel data is unbalanced as there are missing observations due to unavailability of data. Thus, the sample size is 50 instead of 70. The dependent variable is return on equity (ROE) which serves as a proxy to organisational performance while human resource factors namely, revenue per employee, staff costs and directors emoluments are used as the regressors. The main conclusions are as follows: when

the estimates of the fixed effects model are compared with those of the pooled OLS model, there is strong evidence that the unobserved firm-specific effects such as management styles and management philosophy have significant influence on firm financial performance. Also, when the fixed effects estimates are compared with random effects estimates, there is also strong evidence that these unobserved firm-specific effects are correlated with the organizational human resource factors namely, revenue per employee, staff costs and directors' emoluments.

For the fixed effects model, the diagnostic tests indicate that the model is well specified. There is strong evidence that the unobserved effects are both individually and jointly significant in influencing firm financial performance. There is strong evidence that staff costs and financial performance are negatively related. An increase in staff costs would lead to a decrease in the firm financial performance. There is weak evidence that directors' emoluments and organisational financial performance are positively related. An increase in directors' emolument would lead to an increase in organisational financial performance. Thus, organisations desiring to enhance their financial performance should increase the remunerations of their directors. However, the effect of revenue per employee on organisational performance is positive but not significant.

Overall, the regression line is very well fitted and highly significant. The revenue per employee, staff costs and directors' emolument can explain as much as 83% of the changes in organisational performance. Thus, the objectives of this dissertation have all been achieved. The motivation for undertaking this study is therefore justified.

RECOMMENDATIONS

1. Reassessing human resources development for Longterm benefits: Firms must emphasize less in cutting cost to effective and innovative HR investments. Considering that high wage cost impact profitability, a more efficient way of allocating funds on employee development and productivity would be more beneficial in fostering continuous performance.
2. Regulate Staff Costs without compromising Value; findings have shown that a 1% marginal rise in staff costs can negatively affect profitability by 55%, therefore, organizations must ensure a more stringent measure in scrutinizing payroll. Performance-oriented pay, lean staffing models and staff growth should be emphasized more than common wage inflation.



3. Connect Top Management Pay to Results; the compensation of top management staff must show a fair and positive relationship to firm's performance hence; top management should be transparently and strategically compensated ensuring that their pay reflect inputs made and consequent results.
4. Crack Efficiency with Smarter Systems; the individual contribution of an employee has a positive correlation with profitability though some may argue that it may not be very significant however, Management can invest more on machines, methods and processes that increase digital podiums, competence, robotics and workload restructuring to enhance productivity and profit link.
5. Adapt Employees Management Policies to Culture and Context; it is a common knowledge that management style and culture pointedly regulate performance. The "one-best-method" of employee management strategies may not be feasible; businesses should develop people-oriented policies that replicate their exclusive DNA, integrating control, culture and other goals.
6. Human Resources must be seen as a Strategic Growth Driver; With approximately 78% of profitability difference explained by employee efficiency and compensation systems in use, Management should note that human resources is not an overhead but a strategy therefore, building human resources activities into the overall business plan would make employees the core of competitive advantage.
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