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Human Capital Efficiency and Corporate Performance: The Nigerian Perspective

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Abstract:

The paper provides evidence of the impact of Human Capital Efficiency on Corporate Performance of industrial goods companies listed in the Nigerian Stock Exchange Market. For a period of 6 years (2009-2014,) the effect of Human Capital Efficiency on Performance was examined by applying the Human Capital component of the Value Added Intellectual Coefficient (VAIC) methodology. Multiple Linear regression models were used for analyzing the relationship between the variables of interest; Employees' growth (EG), Earnings per Share (EPS), Return on Assets (ROA), Human Capital Efficiency (HCE), lagged Human Capital Efficiency and Size of the firms. The finding survived a number of robustness check and the result indicates that there is positive significant relationship between Human Capital Efficiency on ROA and EPS, and an insignificant negative relationship between Human Capital Efficiency on Size, lagged Human Capital Efficiency and Number of Employee Growth. This study contributes to the existing Human Capital theories by revealing the HCE of Industrial goods companies and its impact on Corporate Performance.

Keywords: Human Capital efficiency, value added intellectual coefficient, return on asset, corporate performance, value added, earnings per share.

1. Introduction

Human Capital has long been acknowledged to be an important factor for the productivity of individuals (Schultz, 1961; Becker, 1962; Aurora 2002) and more recently has been increasingly identified as a factor influencing the competitiveness of firms (Bartel, 1989; Senker and Brady, 1989; Howell and Wolff, 1991; Prais, 1995).

In today's knowledge based economy, many researchers claim that "People are our greatest asset". According to Fitz-enz (2000) "people are the most powerful factor in value creation of every corporation." Shohren and Geert (2015) further opined that significant increase in knowledge of Human Capital is considered as an effective tool for achieving sustainable competitive advantage. More so, for any tangible asset to add value in any organization it will need to be put to use by the human asset of such organization. Hence, to develop a competitive advantage, it is important that firms truly leverage on the workforce as a competitive weapon to actualize the firm's objective. Yusuf (2013) argued that the ability of a corporate organization to successfully implement business strategies solely depends on efficient use of intangibles asset, particularly Human Capital.

According to Becker, Huselid and Ulrich (2002) "the degree to which employees contributes to effective implementation of the organization strategy is linked to Human Capital performance." Hence, they believed that Human Capital performance is indeed performance behaviors that affect customers buying experience and one can conclude that it is the basis of the company's financial performance.

Bontis (1998) highlighted that the dominance of intangibles and knowledge workers are the distinguishing characteristics of the emerging economy and have developed as a consequence of global competition. Shohren and Geert (2015) has further observed that in most companies including large companies in developing nation, Human Capital represents almost 70% of total operating expenses. One could ask the question, why should "our greatest asset" represent the highest expenses of our companies?

Also measuring Human Capital performance is one of the most controversial topic in accounting, it is difficult for human resource unit to represent knowledge workers on the balance sheet (Fitz-enz 2000; Gan and Saleh 2008; Santoso 2011; Milost 2012).

One can deduce from the above scholar that measuring Human Capital performance has become an essential issue for companies in today's business world and may help them to get the right perspective on Human Capital if being valued based on its performance. Using a proper performance measurement tool could provide the firms with the necessary information for creating an action plan in order to improve Human Capital contribution to the organizational success. Hence, the primary objective of this paper is to see how efficient management of Human Capital can impact on Corporate Financial Performance of industries in Nigeria.

2. Review of Literatures

2.1. Concept of Human Capital

The contributions of the Human Capital of an organization is very important because it's the skills, competency and knowledge possessed by the Human Capital, and the efficient management of such, that will determine how other resources of the organization will be utilized to achieve organizational goals and objectives. Therefore, the human element is very crucial in determining corporate performance.

Kamal, Mat, Rahim Husain and Ismail (2012) defined Human Capital "as employee's competence in creating both tangible and intangible assets by contributing in the continuous generation of knowledge and ideas". According to Micah, Ofurum, and Ihendinihu (2012) Human Capital was defined as "the energies, skills, talents and knowledge of people which are, or which potentially can be applied to the production of goods or rendering useful services."

Ting and Lean (2009) identified Human Capital to include "innovation, capacity, creativity, know-how and previous experience, teamwork capacity, employee flexibility, tolerance for ambiguity, motivation, satisfaction, learning capacity, loyalty, formal training and education." Muhammad (2009) stated that more emphasis is being placed on the skills and knowledge of employees rather than on the physical assets of a company. This is because the skills, knowledge, competence and intellect an employee possess will determine how the physical assets will be utilized to achieve organizational objectives. Pulic (2000) explained that the knowledge held by employees are the primary source of value creation so therefore employees' expenses should be seen as investments rather than costs.

2.2. Concept of Human Capital Efficiency (HCE)

Human Capital Efficiency (HCE) is one of the three components of Value Added Intellectual Coefficients as postulated by Pulic 1998. Human Capital Efficiency measures the value added by the Human Resources of an organization. Value Added Intellectual Coefficient (VAIC) is a method used to measure the value creation Efficiency of a company by using its accounting based figures (Pulic, 2000).

VAIC is based on the relationship of three major components: Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE). VAIC is considered as a "universal indicator showing abilities of a company in value creation and representing a measure for business Efficiency in a knowledge-based economy" (Pulic, 1998). According to Sveiby (2001) the purest measure to produce economic value in a knowledge-based company is the Value added per individual's contribution. As suggested by Pulic (2004), this monetary measuring system could be useful in providing objective information to stakeholders about company's real value and performance. In addition, it allows comparison and future predictability in respect of the companies' Intellectual Capital performance (Chu, et al., 2011).

This study will be limiting its focus to examining the relationship between value added by the Human Capital and corporate performance. To measure Human Capital Efficiency this study adopted Pulic formula for measuring Human Capital Value Added.

Human Capital Efficiency (HCE) is computed as the ratio of Value Added (specifically by the human assets) to Human Costs (which indicates personnel expenses salaries and benefits for company.)

2.3. Human Capital Efficiency and Organizational Performance

Previous studies have shown that there is a significant relationship between Human Capital Efficiency and organizational performance (Goh 2005; Makki et al. 2008; Gan and Saleh 2008; Ting and Lean 2009; Phusavant et al. 2011; Mondal and Gosh 2012; Komneninc and Pokrajcic 2012). Human capital positively affect organizational performance because it can generate significant value for companies and provide them with sustainable competitive advantage (Plink and Barning, 2010)

Yusuf (2013) investigated "The Relationship between Human Capital Efficiency and Financial Performance: An Empirical Investigation of Quoted Nigerian Banks". The study concluded that efficient utilization of Human Capital does not have any significant impact on the return of equity of banks and that the impact of human capital Efficiency on the earnings per share of the banks exist although not significant. On the other hand, evidence was able to prove that efficient utilization of Human Capital and the size of the bank have significant impact on the earnings per share of the banks. Some banks were identified to have experienced inefficient Human Capital utilization.

Ekwe (2013) examined 'The Relationship between Intellectual Capitals and Growth in Revenue of Deposit Money Banks in Nigeria' the Value Added Intellectual Coefficient (VAIC) model was used to investigate if there is a positive and significant relationship between the Intellectual Capital indices (such as Human Capital Efficiency, Structural Capital Efficiency and the Capital Employed Efficiency) and growth in revenue of selected banks in Nigeria. The results showed that there was positive and significant relationship between components of VAIC and the growth in revenue of the banks in Nigeria.

Parham and Heling (2015) investigated "The Efficiency of Human Capital and its impact on the Financial Performance of Dutch production companies". Using data from 33 Dutch production companies for a period of 6 years (2007-2012) and applying the Human Capital component of the VAIC methodology the monetary value created by the companies' knowledge workers is measured. The study results revealed that there is positive relationship between HCE and all three corporate performance measures, amongst which it should be referred to the strongly statistically significant relationship between HCE and Employee Productivity (EP)

Iranmahd, Moeinaddin, Shahmoradi and Heyrani (2014) carried out a study on "The Effect of Intellectual Capital on Cost of Finance and Firm Value" data was gathered from 84 manufacturing companies listed on Tehran Stock exchange for an eight-year period. And the result showed that the value added of capital applied, value added of intellectual capital, and the value added of intellectual capital coefficient negatively influence weighted average cost of capital, yet they had no effect on enterprise value.

3. Research Methodology

3.1. Research Hypothesis

- H01: There is no positive relationship between Human Capital Efficiency (HCE) and Employees' Growth (EG) of industrial goods Companies in Nigeria
- H02: There is no positive relationship between Human Capital Efficiency (HCE) and Earnings per Shares (EPS) of industrial goods Companies in Nigeria.
- H03: There is no positive relationship between Human Capital Efficiency (HCE) and Return on Asset (ROA) of industrial goods Companies in Nigeria.

3.2. Research Method

This study is an empirical study and investigated the relationship between Human Capital Efficiency and Corporate Financial Performance. Therefore, the Human Capital component of Value Added Intellectual Coefficient (VAIC) is the center of attention in this study. Data required were extracted from the annual reports and financial statements of sample units for the period of 6 years from 2009 to 2014. The population of this study consists of all companies listed on the Nigerian Stock Exchange (NSE). The sample of the study is the industrial goods companies which comprises companies primarily dominated by the production of goods for commercial use. The choice of industrial goods companies in Nigeria is because there is presently no study in that sector that examined the Human Capital Efficiency and performance of such organizations. 6 companies were randomly selected.

3.3. Research Model

Guided by the perceived functional relationship between Human Capital Efficiency and corporate financial performance, a link was forged between each set of the relationship. This is expressed as follow:

EG = f (Value Added Intellectual Coefficient, Lag1 Value Added Intellectual Coefficient, Size)

EPS = f (Value Added Intellectual Coefficient, Lag1 Value Added Intellectual Coefficient, Size)

ROA = f (Value Added Intellectual Coefficient, Lag1 Value Added Intellectual Coefficient, Size)

➤ Model Specification

→ $EG = \lambda_0 + \lambda_1 VAHC_t + \lambda_2 VAHC_{t-1} + \lambda_3 Size + \mu_3$Model 1

→ $EPS = \beta_0 + \beta_1 VAHC_t + \beta_2 VAHC_{t-1} + \beta_3 Size + \mu_2$Model 2

→ $ROA = \alpha_0 + \alpha_1 VAHC_t + \alpha_2 VAHC_{t-1} + \alpha_3 Size + \mu_1$Model 3

$\alpha_0, \beta_0, \lambda_0$, are the intercepts; $\alpha_1, \beta_1, \lambda_1$ are the coefficients of the explanatory variables; $\alpha_i = (i = 1, 2, 3)$, $\beta_i = (i = 1, 2, 3)$, $\lambda_i = (i = 1, 2, 3)$ are the coefficients of the moderating variables and $\mu_i = (i = 1, 2, 3)$, are the error or disturbance term that absorbs the influence of omitted variables in the proxies used.

Where

EG = Employees' growth

EPS = Earnings per Share

ROA = Return on assets

VAHC_t = Human Capital Efficiency (HCE)

VAHC_{t-1} = lagged Human Capital Efficiency (HCE)

Size = Size of the firms

3.4. Variable Definition

3.3.1. Dependent Variables

- Employees' Growth (EG) this is determined as the amount of increase in the new number of employee after growth less the original number before the growth divided by the original number of employees. This is used as a measure of firm's growth. Santos and Brito (2012).
- Earnings per Share (EPS) is the portion of a company's profit allocated to each outstanding share of shareholder. EPS stand as a measure of market value. Net income to outstanding number shares (Santos and Brito, 2012). Johannes (2013) stated that it is used as a measure of market performance.

$$\text{Earnings per Share} = \frac{\text{Net Profit attributable to Shareholders}}{\text{No of Shares in Issue}}$$

- Return on Assets (ROA) is measured as the ratio of the pre-tax income to total assets and clarifies the extent to which a company's revenue exceeds over expenses (Firer & Williams 2003; Chen, Cheng & Hwang 2005, Shohren and Geert 2015).

$$\text{Return on Asset} = \frac{\text{Profit after tax}}{\text{Total Asset}}$$

3.3.2. Independent Variable

The independent variable used in this research is Human Capital Efficiency, which is a component of Value Added Intellectual Coefficient developed by Public (1998). Human Capital Efficiency (HCE) measures the value added by the human resources of an organization. Human Capital Efficiency (HCE) is computed as the ratio of Value Added (VA) to Human Costs (HC). The algebraic equation is as follows:

$$\text{Human Capital Efficiency (HCE)} = \frac{\text{Value Added (VA)}}{\text{Human Capital (HC)}}$$

Where

$$\begin{aligned} \text{HC} &= \text{personnel expenses (salaries and benefits)} \\ \text{VA} &= \text{Total Revenue} - (\text{Operating Expenses} - \text{Salaries}) \end{aligned}$$

Therefore,

$$\text{HCE} = \frac{\text{Total Revenue} - (\text{Operating Expenses} - \text{Salaries})}{\text{Personnel expenses (salaries and benefits)}}$$

3.3.3. Control Variable

Control variable was also included in order to eliminate bias. In defining the linear regression models the following control variable is considered to isolate the contribution of Human Capital to corporate performance of the companies: the study controlled for the size of firm, which is believed to have a significant impact on the Human Capital as well as performance of the firm. In line with this the natural logarithm of total assets was adopted as the control variable for firm size (Xiaoyan 2008). We also introduced lagged

4. Data Analyses and Discussion of Result

This section is concerned with the presentation of analyzed data and discussion of result.

	SIZE	ROA	LAG1HCE	HCE	EPS	EG
Mean	7.808123	0.061452	7.255667	7.202345	1.736923	-0.011848
Median	7.821252	0.055130	7.445512	7.258590	1.717275	-0.014158
Maximum	7.854469	0.090723	7.956048	7.956048	2.257425	0.051530
Minimum	7.746036	0.041889	6.342497	6.342497	1.261161	-0.090776
Std. Dev.	0.036673	0.019299	0.545287	0.510870	0.434697	0.054068
Skewness	-0.539382	0.418023	-0.530109	-0.256542	0.037790	-0.114250
Kurtosis	2.024591	1.504544	2.276260	2.285150	1.113063	1.463425
Jarque-Bera	3.172730	4.403039	2.059825	1.161399	5.349363	3.619914
Probability	0.204668	0.110635	0.357038	0.559507	0.068929	0.163661
Sum	281.0924	2.212288	217.6700	259.2844	62.52924	-0.426521
Sum Sq. Dev.	0.047071	0.013035	8.622802	9.134581	6.613647	0.102316
Observations	36	36	30	36	36	36

Table 1: Descriptive statistics of the Variables
Source: Author's Computation (2016)

4.1. Preliminary Analyses

The preliminary characteristics of the data and summary of the statistics of the variable are presented in Table 1. There is no evidence of significant variation over the period of consideration. This is showed by the closely cluster between minimum and maximum values of the series. As regards the statistical distribution of the series, the result show that the series are negatively skewed earnings per share and return on assets. All the variables are platykurtic in natures since their values for kurtosis are less than 3. This indicates a higher than normal distribution.

The Jarque- Bera statistic is a goodness of fit of whether sample data have the skewness and kurtosis matching a normal distribution. It is a test of normality that combines kewness and kurtosis. From the probability for the Jarque-Bera, all variables under discussion are within the threshold of 0 and 3, and hence it is normally distributed.

4.2. Result of Model Estimation

Employee Growth Regression Model I					Earnings Per Share Regression Model II				Return on Asset Regression Model III			
EG					EPS				ROA			
Variable	Coefficient	Std. Error	t-Stat.	Prob.	Coefficient	Std. Error	t-Stat	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.717	3.303	-1.731	0.095	81.988	19.934	4.113	0.000	4.0783	0.6890	5.9191	0.0000
SIZE	0.703	0.411	1.710	0.099	-9.636	2.479	-3.887	0.001	-0.4924	0.0857	-5.7461	0.0000
LAG1HCE	0.001	0.019	0.050	0.961	-0.509	0.115	-4.410	0.000	-0.0171	0.0040	-4.2768	0.0002
HCE	0.027	0.017	1.556	0.132	-0.183	0.104	-1.756	0.091	-0.0067	0.0036	-1.8745	0.0721
R ²	0.163				0.494				0.590			
Adj.R ²	0.066				0.436				0.542			
F-stat	1.688				8.470				12.456			
Prob(F-stat)	0.194				0.000				0.000			

Table 2: Result of Multiple Regression Analysis
Source: Authors' Computation using E-view

From Table 2, Dependent variables = C +HCE+ LAG HCE+ SIZE

Therefore,

$$EG = -5.717 + 0.027 + 0.001 + 0.703 \dots \dots \dots (1)$$

$$EPS = 81.988 - 0.183 - 0.509 - 9.636 \dots \dots \dots (2)$$

$$ROA = 4.0783 - 0.0067 - 0.0171 - 0.4924 \dots \dots \dots (3)$$

Equation (1), $EG = -5.717 + 0.027 + 0.001 + 0.703$, means that the coefficient of size, lag Human Capital Efficiency and human capacity Efficiency are positively statistically insignificant at 5 percent level, which implies that corporate number of employee growth of manufacturing companies is insignificantly affected by the level of their size, Human Capital Efficiency and one period lagged Human Capital Efficiency. In term of magnitude, this implies that every 1 percent increase or decrease in size, Human Capital Efficiency and lagged Human Capital Efficiency on the average will lead to 0.027, 0.001 and 0.703 increase (decrease) in performance of industrial goods companies respectively. Of all the three variables, the influence exacted by Size is the most pervasive. The second partition of the table 2 reveals the quality of the result. The coefficient of determination (R^2) = 0.163 reveals that the variables, Human Capital Efficiency, lagged Human Capital Efficiency and size, accounts for 16% in explaining the variation in the industrial goods companies' performance. Furthermore, the nature of F-stat of 1.688 and probability value of 0.194 reveals the insignificant of the independent variable and the control variable on the dependent variable.

In effect, the null hypothesis that there is no positive relationship between the Human Efficiency capital and Number of employee growth in the industrial good sector is accepted since the P-value 0.194 is less than 0.05 at 95 percent confidence level.

Also Equation (2), $EPS = 81.988 - 0.183 - 0.509 - 9.636$, shows that the coefficient of size and lag Human Capital Efficiency are statistically significant at 5 percent. Which implies that Earnings per Share is affected by the level of size and lagged Human Capital Efficiency. Human Capital Efficiency is also statistically significant at 10 percent level, although the coefficient showed a negative association. Hence, in terms of magnitude, the result implies that every 1 percent increase or decrease in size, Human Capital Efficiency and lagged Human Capital Efficiency on the average will lead to -9.636, -0.509, and -0.183 decrease in the earnings per share.

The coefficient of determination (R^2) = 0.494 reveals that the variables, Human Capital Efficiency, lagged Human Capital Efficiency and size accounts for 49% in explaining the variation in earnings per share of the industrial goods respectively. Furthermore, the nature of F-stat of 8.470 and probability value of 0.000 in Equation (2) means that there is a significant relationship between Earning per Share, Human Capital Efficiency, size and lag Human Capital Efficiency in the sector. This further explains that the overall goodness of fit of the model is satisfactory, (the model has a good fit which can be used for forecasting financial performance of industrial goods sector).

In effect, the null hypothesis that there is no positive relationship between Human Capital Efficiency (HCE) and Earnings per Shares (EPS) of industrial goods Companies in Nigeria is rejected since the P-value 0.00 is less than 0.05 at 95 percent confidence level.

Lastly, Equation (3), $ROA = 4.0783 - 0.0067 - 0.0171 - 0.4924$, shows that the coefficient of size, and lag Human Capital Efficiency are statistically significant at 5 percent implying that Return on Asset is affected by the level of their size, lagged Human Capital Efficiency. Human Capital Efficiency is also statistically significant at 10 percent level although the coefficients have a negative association. Hence, in term of magnitude, the result implies that every 1 percent increase or decrease in size, Human Capital Efficiency and lagged Human Capital Efficiency on the average will lead to -0.4924, -0.0171 and -0.0067 decrease in return on asset. The coefficient of determination (R^2) = 0.594 reveals that the variables, Human Capital Efficiency, lagged Human Capital Efficiency and size accounts for 59% in explaining the variation in Return on Asset of the industrial goods sector respectively. Furthermore, the nature of F-stat of 12.456 and probability value of 0.000 in Equation (3) means that there is a significant relationship between Returns

on Asset, Human Capital Efficiency, size and lag Human Capital Efficiency in the sector. This further explains that the overall goodness of fit of the model is satisfactory, (the model has a good fit which can be used for forecasting financial performance of industrial good sector).

In effect, the null hypothesis that there is no positive relationship between Human Capital Efficiency (HCE) and Return on Asset (ROA) of industrial goods Companies in Nigeria is rejected since the P-value 0.000 is less than 0.05 at 95 percent confidence level.

The finding that Human Capital Efficiency exerts a statistical significant effect in Nigerian industrial goods sector is consistent with the assertion of previous studies (Goh 2005; Makki et al. 2008; Gan and Saleh 2008; Ting and Lean 2009; Phusavant et al. 2011; Mondal and Gosh 2012; Komneninc and Pokrajcic 2012) which found a significant relationship between Human Capital Efficiency and financial performance. Also Plink and Barning, (2010) identified that organizational performance is positively influenced by Human Capital Efficiency because it can generate significant value for companies and provide them with sustainable competitive advantage.

The study of Parham and Heling (2015) revealed that there is positive relationship between Human Capital Efficiency and all three corporate performance measures, amongst which it should be referred to the strongly statistically significant relationship between HCE and Employee Productivity (EP). Although our finding is not consistent with the study of Yusuf (2013) who concluded that efficient utilization of Human Capital does not have any significant impact on the Return of Equity of banks and that the impact of Human Capital Efficiency on the Earnings per Share of the banks exist although not significant. He also provided evidence that showed that efficient utilization of Human Capital and the size of the bank have significant impact on the Earnings per Share of the banks. In the study some banks were identified to have experienced inefficient Human Capital utilization.

Also taking a closer look in model 1-3, the finding shows that one period lagged in Human Capital Efficiency had no short time shock in Employee Growth of sample firms while exerting long and short run effect on Earnings per Share and Return on Asset of sample firms.

5. Conclusion

This paper explored the current literature on Human Capital Efficiency and its impact on industrial goods sector performance. The conceptualization of Human Capitals is closely linked to some fundamentals of economics and firm performance. The literature review shows that there is reasonably strong evidence that Human Capital Efficiency can impact significantly on the corporate performance of firms in Nigeria.

From the analyses and the findings, this study therefore concludes that there is no positive relationship between Human Capital Efficiency and Number of Employee Growth but that there exists a positive relationship between Human Capital Efficiency (HCE) and Earnings per Shares (EPS) and also between Human Capital Efficiency (HCE) and Return on Asset (ROA) of industrial goods Sector in Nigeria.

In light of the above, the study recommends that since Human Capital Efficiency enhances performance, management of firms should not also capitalize on the phenomenon that only increase in profitability but the holistic transformation of the valuable assets in a bid to pave way for corporate performance of firms. Also recommends that Human Capital should be treated as the most valuable asset of industrial goods sector and that there is need for more study on a predictive model of determining the Efficiency of Human Capital. To ensure improvement in employees' productivity and performance, organizations should be committed to regular training and development of employees and ensuring the working environment is conducive for them.

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Appendix I

Dependent Variable: EPS
 Method: Panel Least Squares
 Date: 02/11/16 Time: 17:07
 Sample (adjusted): 2010 2014
 Periods included: 5
 Cross-sections included: 6
 Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	81.98814	19.93435	4.112907	0.0003
SIZE	-9.635799	2.479249	-3.886580	0.0006
LAG1HCE	-0.508681	0.115348	-4.409978	0.0002
HCE	-0.182751	0.104056	-1.756277	0.0908
R-squared	0.494267	Mean dependent var		1.632823
Adjusted R-squared	0.435913	S.D. dependent var		0.400990
S.E. of regression	0.301167	Akaike info criterion		0.561261
Sum squared resid	2.358237	Schwarz criterion		0.748087
Log likelihood	-4.418910	Hannan-Quinn criter.		0.621028
F-statistic	8.470172	Durbin-Watson stat		4.064331
Prob(F-statistic)	0.000431			

Appendix II

Dependent Variable: EG
 Method: Panel Least Squares
 Date: 02/11/16 Time: 17:08
 Sample (adjusted): 2010 2014
 Periods included: 5
 Cross-sections included: 6
 Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.716629	3.303441	-1.730507	0.0954
SIZE	0.702527	0.410851	1.709930	0.0992
LAG1HCE	0.000955	0.019115	0.049947	0.9605
HCE	0.026831	0.017244	1.556001	0.1318
R-squared	0.162999	Mean dependent var		-0.023620
Adjusted R-squared	0.066422	S.D. dependent var		0.051653
S.E. of regression	0.049908	Akaike info criterion		-3.033699
Sum squared resid	0.064761	Schwarz criterion		-2.846873
Log likelihood	49.50548	Hannan-Quinn criter.		-2.973931
F-statistic	1.687763	Durbin-Watson stat		4.064331
Prob(F-statistic)	0.194106			

Appendix III

Dependent Variable: ROA
 Method: Panel Least Squares
 Date: 02/11/16 Time: 17:10
 Sample (adjusted): 2010 2014
 Periods included: 5
 Cross-sections included: 6
 Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.078314	0.689005	5.919137	0.0000
SIZE	-0.492392	0.085692	-5.746065	0.0000
LAG1HCE	-0.017051	0.003987	-4.276847	0.0002
HCE	-0.006742	0.003597	-1.874492	0.0721
R-squared	0.589703	Mean dependent var		0.055598
Adjusted R-squared	0.542361	S.D. dependent var		0.015387
S.E. of regression	0.010409	Akaike info criterion		-6.168642
Sum squared resid	0.002817	Schwarz criterion		-5.981816
Log likelihood	96.52964	Hannan-Quinn criter.		-6.108875
F-statistic	12.45625	Durbin-Watson stat		4.064331
Prob(F-statistic)	0.000031			