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Cost Reduction Techniques and Social Performance of Food Production Companies in Nigeria

Ayodeji Temitope Ajibade[1] & Tunde Muyideen Alabi[2]
[1] *Senior Lecturer, Department of Accounting, Babcock University, Ilisha, Sagamu, Ogun State*
[2] *Research Student, Department of Accounting, Babcock University, Ilisha, Sagamu, Ogun State*

Abstract: This study sought to investigate the effect of cost reduction techniques on the social performance of food production companies in Nigeria. A survey questionnaire was used to collect data from 15 different food production companies drawn from Nigeriagallories.com. The respondents interviewed were the accountants, supervisors, marketing and sales, managers, and finance. Descriptive and inferential statistics were adopted. The inferential include the Pearson's correlation and multiple linear regression. The study revealed that budgetary costing, standard costing, and activity-based costing had a positive significant effect on social performance. The result also revealed that value analysis and target costing showed no significant effect on social performance. The findings, however, revealed that cost reduction techniques had a significant effect on the social performance of food production companies in Nigeria and thereby recommended that a standard and budgetary costing reference for food production companies in Nigeria in terms of implementing cost reduction strategies as this would help them to achieve their aims and objectives as sustainable performance.

1. Introduction

Every organization making profit can implement cost-lessening techniques to make a considerably higher overall revenue on its administrations. Effective and efficient management of cost is not only necessary to meet the profit objective of the company but also the going concern status of the entity.

Globally, one of the primary ways organizations compete is through low production to increase the profit of an organization, thereby a cost reduction mechanism should be put in place (Ogunnaike, 2010). Alireza and Mahdi, (2012) described cost reduction as an important tool for companies to constantly stay ahead of the increased competition in the business environment. This is because to be able to maximize profit, cost reduction techniques must be put in place and cost must be reduced to the minimum stage. It means the way toward searching for, finding, and expelling baseless costs from a business to build the benefit without negatively affecting product quality (Gaurav, Jain, Kapoor &Nateriya, 2013).

Cost reduction is also defined by the Chartered Institute of Management Accountants, London as the achievement of real and permanent reduction in the unit cost of goods and services rendered without damaging the ability of the goods to serve the purpose for which it was intended. This idea of searching for new ways and reducing costs needs to be promoted at all levels of business, which means that the business has a strategic approach to the issue of cost reduction as well as cost control (Figar & Ivanoic, 2015).

Cost reduction must continually be in the minds of managers of an organization (McWatters, Morse, & Zimmerman, 2001). It is a planned approach to reduce expenditure, hence used as a corrective function. It is regarded as a continuous process of examining critically all elements of cost and each aspect of the business to improve business efficiency. Cost reduction is the process of cutting down costs incurred by an organization to make a profit. It starts when cost control ends and considers that no cost is at its optimum level. According to Adeniyi (2001), cost reduction starts with an assumption that current cost levels or planned cost levels are too high although cost control may be good and organizations experiencing high-efficiency levels.

In this research, the cost reduction technique is measured using variables such as budgetary costing, target costing, standard costing, value analysis, and activity-based costing. These variables reduce social performance in food production companies in Nigeria. Therefore, the research aimed at examining the cost reduction techniques on the social performance of food production companies in Nigeria.

2. Empirical Review of Literature

Dias, (2020) carried out a study on Corporate social performance and the cost of capital. This study analyses the association between Corporate Social Responsibility (CSR) and Cost of Capital for companies

listed in the STOXX Europe 600 index, from 2002 to 2018. A measure of Corporate Social Performance (CSP) was computed using the Combined ESG (Environmental, Social, and Governance) Score from Refinitiv. Results suggest that CSP is priced by both debt and equity markets. Furthermore, a negative relationship between CSP and cost of equity is found, while the relationship between CSP and cost of debt is positive. Additional tests suggest that equity markets penalize firms lagging in CSP when compared with industry peers, while debt markets penalize industry leaders in CSP. The results are robust for alternative measures of CSP, cost of equity, and cost of debt. Furthermore, the associations do not hold during periods of crisis, suggesting CSP is not valued relevant during such periods.

Research conducted by Keger and Nzulwa (2018) examined the effect of cost reduction strategies on the performance of the Kenya Forest Service. A questionnaire was used for data collection and the data was analyzed using descriptive statistics and correlation techniques. The study found out that planned recruitment and training has enhanced the performance of the Kenya Forest Service through improved operations and reduction of conflict between the staff and members of the public as well as defining the job holder's position.

La Rosa, Liberatore, Mazzi, and Terzani (2018) carried out a study on the impact of corporate social performance on the cost of debt and access to debt financing for listed European non-financial firms. The study addresses the controversial issue of how non-financial performance affects the cost of debt capital and access to it. The relationship between corporate social performance and two measures of debt cost (accounting-based and market-based) and the measure of debt access are analyzed employing a multi-theoretical framework combining economics with social theories. By observing a sample of listed European non-financial firms over 8 years from 2005 to 2012, the study found a negative relationship between corporate social performance and interest rate. Consistent with this result, a positive relationship between corporate social performance and debt rating was discovered. Thus, corporate social performance has a positive role in reducing the cost of debt capital. Moreover, firms with better corporate social performance are more attractive to lenders in terms of leverage allowance. Overall, the findings provide deeper insight into the reasons why companies should improve their corporate social performance.

Magnanelli and Izzo, (2017) also worked on a study titled corporate social performance and cost of debt: the relationship. The paper investigated the link between corporate social performance (CSP) and the cost of debt financing. Despite academic debate has focused on the link between corporate social responsibility (CSR) and CSP (expressed through accounting and market measures of profitability), few empirical types of research have analyzed the relations between CSR, cost of debt, and its relation with the risk profile of a firm. The literature on the cost of debt determinants generally documents a negative association between measures of the risk of the firm and its cost of debt. The literature on CSR defines risk reduction as one of the potential benefits related to CSR activities. Thus, the expectation is that high CSP scores are inversely related to the cost of debt. The results show a positive relation between CSP and the cost of debt, demonstrating that CSR is not a value driver with an impact on the firm's risk profile.

Akeem (2017) critically examined cost control and cost reduction in organizational performance. The analysis of the data collected was undertaken by applying appropriate statistical tools. Regression analysis was used to test the hypothesis. Based on the findings, it was evident that cost control has a positive impact on organizational performance, and also the style of management has a positive impact on organizational performance.

Atikiya, Mukulu, Kihoro, and Waiganjo (2015) investigated the effect of cost leadership strategy on the performance of manufacturing firms in Kenya. They adopted Pearson's correlation and regression analysis. The findings revealed that the performance of manufacturing firms is significantly influenced by cost leadership strategy. Meanwhile, Oluwagbemiga, Olugbenga, and Zaccheua (2014) investigated the relationship between cost management practices and a firm's performance in manufacturing organizations. The result indicates that a positively significant relationship exists between cost management practices and a firm's performance in the manufacturing organization. It is therefore recommended that a cost reduction strategy with an emphasis on production overhead cost and administrative overhead cost should be embarked upon if their profit maximization and wealth creation objective must be achieved.

Oikonomou, Brooks, and Pavelin, (2014) carried out a study on the effects of corporate social performance on the cost of corporate debt and credit ratings. The study investigates the differential impact that various dimensions of corporate social performance have on the pricing of corporate debt as well as the assessment of the credit quality of specific bond issues. The empirical analysis, based on an extensive longitudinal data set, suggests that overall, good performance is rewarded, and corporate social transgressions

are penalized through lower and higher corporate bond yield spreads, respectively. Similar conclusions can be drawn when focusing on either the bond rating assigned to a specific debt issue or the probability of it being considered to be an asset of speculative-grade.

Callan and Thomas (2009) carried out a study on corporate financial performance and corporate social performance: an update and reinvestigation. The paper responds to these issues with an updated study of the CSP–CFP relationship, testing two approaches to measuring CSP, controlling for key variables identified in the literature, and testing for the nonlinearity of certain independent variables. Chief among the findings is a positive CSP–CFP relationship, which supports proponents of stakeholder theory. It was also determined that empirical models specifying two CSP component measures are stronger than those using a fully aggregated measure. Lastly, it was found that control variables must be properly specified to avoid bias and that some of these measures are quadratically related to CFP.

Brammer and Millington (2008) carried out a study on Does it pay to be different? An analysis of the relationship between corporate social and financial performance. The study explores the relationship between corporate social performance (CSP) and corporate financial performance (CFP) within the context of a specific component of CSP: corporate charitable giving. A model of the determinants of the extent of corporate charitable giving is estimated and used as the basis of classification that groups firms according to the difference between their actual and their predicted intensity of gift-giving. The financial performance attributes of the classification are explored. It was found that firms with both unusually high and low CSP have higher financial performance than other firms, with unusually poor social performers doing best in the short run and unusually good social performers doing best over longer time horizons.

3. Data and Methods

3.1 Data

Fifteen (15) food production companies were randomly selected from the list of food production companies in Nigeria (Nigeriagalleria.com). The study adopted the use of primary data collected from 15 food production companies in Nigeria. The companies selected include Nestle Nigeria Plc, Unilever Nigeria Plc, Flourmill of Nigeria, Chi Limited, Dufil Prima Foods, Boloxxi Industries Limited, Dangote Group, UAC Foods, Dansa Food Limited, Deli Foods, Honeyland Foods Limited, Cadbury Nigeria Plc, Leventis Foods, Envoy Oil Industries, and Honeywell food. The respondents include accountants, finance, managers, sales and marketing, and supervisors. A total questionnaire of 152 was retrieved from the respondents out of the sample size of 161 questionnaires distributed among the 15 food production companies in Nigeria. The validity and the reliability test showed that the variables used for the analysis were consistent for analysis. The variables Cronbach's Alpha coefficient ranges from 0.7 – 0.9.

3.2 Methods

The statistical methods used in the analysis are the descriptive and inferential methods of data analysis. The descriptive statistics include mean, standard deviation, minimum, maximum, and number of observations of each variable. The inferential statistics used were correlation analysis and regression analysis. Pearson's correlation coefficient is a type of correlation analysis used to investigate the degree of relationship between cost reduction techniques variables and social performance while regression analysis used multiple linear regression to investigate the significant relationship between the cost reduction techniques (budgetary costing, value analysis, standard costing, target costing, and activity-based cost) on the social performance of food production companies in Nigeria. However, the dependent variables used in the research were social performance while the independent variables were budgetary costing, target costing, value analysis, activity-based costing, and standard costing.

The model is given as thus:

$$SP_i = \beta_0 + \beta_1(BC_i) + \beta_2(SC_i) + \beta_3(VA_i) + \beta_4(ABC_i) + \beta_5(TC_i) + \varepsilon_{i;}$$

where;

SP_i is dependent variable (Social Performance); BC, SC, VA, ABC, TC are the independent variables (budgetary costing, standard costing, value analysis, activity-based costing, and target costing); β_0 = intercept or constant;β_1, β_2, β_3, β_4= the coefficient of the explanatory variables, budgetary costing, standard costing, value analysis, activity-based costing, and target costing; ε is the error term of the model, and i = cross-sectional variable.

4. Empirical Results

The study findings depicted that budgetary costing has the highest mean of 3.2305 with the standard deviation of 0.9235 as compared with other variables having the mean and the standard deviation of the following: standard costing (3.1186 mean; 0.8855 std); target costing (3.1092 mean; 0.7953 std); activity-based costing (3.0150 mean; 0.8900 std), and value analysis (2.9936 mean; 0.7904 std). Moreover, the dependent variable (social performance) has a mean of (3.2408) and a standard deviation of (0.8439).

Table 1: Descriptive Statistics of the Independent Variables.

Variable	*Mean*	*Std. dev*	*Minimum*	*Maximum*	*Obs. (N)*
BC	*3.2305*	*0.9235*	*1.33*	*5*	*152*
SC	*3.1186*	*0.8855*	*1.33*	*5*	*152*
VA	*2.9936*	*0.7904*	*1.33*	*4.67*	*152*
ABC	*3.0150*	*0.8900*	*1.33*	*4.67*	*152*
TC	*3.1092*	*0.7953*	*1.33*	*5*	*152*
SP	*3.2408*	*0.8439*	*1.20*	*5*	*152*

Where BC = budget cost, SC = standard cost, VA = Value analysis, ABC = activity-based costing, TC = target cost, SP – Social Performance, std. dev indicates standard deviation and Obs. Indicates observation.

Source: Researcher's Field Survey, 2021.

Correlation Analysis

The result of the Pearson's correlation coefficient which indicates the strength of the relationship between the variables is displayed in Table 2.The result shows that social performance has a strong correlation with budgetary costing, standard costing, and activity-based costing with the value of 0.6264, 0.6289, and 0.6157 respectively. A weak correlation is said to occur between social performance and target costing (r=0.4554) as well as value analysis (r = 0.4570) at r < 0.5. This reveals that an increase in budgetary costing, standard costing, and activity-based costing might lead to an increase in social performance. Likewise, an increase in value analysis and target costing leads to an increase in social performance but a minimal value.

Table 2: Correlation Analysis

Variable	*BC*	*SC*	*VA*	*ABC*	*TC*	*SP*
BC	*1.0000*					
SC	*0.5903*	*1.0000*				
VA	*0.4929*	*0.4370*	*1.0000*			
ABC	*0.6551*	*0.6807*	*0.5073*	*1.0000*		
TC	*0.5521*	*0.5228*	*0.5283*	*0.5648*	*1.0000*	
SP	*0.6264*	*0.6289*	*0.4570*	*0.6157*	*0.4554*	*1.0000*

Where BC = Budget cost, SC = standard cost, VA = Value analysis, ABC = Activity base costing, TC = Target cost, SP = Social performance, and VIF = Variance Inflation factor.

Regression Analysis

Table 3 presents the model summary of the regression analysis consisting of the coefficient of determination (r squared) showing 51.98% of cost reduction techniques explained in social performance with considering the error terms. The adjusted r square shows 50.33% of the cost reduction techniques are being explained in the change of social performance while the remaining 49.67% are lost to other factors excluded from the model or an error term. The degree of freedom of the total variables is 5, the degree of freedom for error term is 146, and the degree of freedom from total observations is 151 with the mean square error of 0.3538.

Table 3: Model Summary

	SS	***df***	***MS***
Model	*55.8977*	*5*	*11.1795*
Error	*51.6494*	*146*	*0.3538*
Adj. R-square	*0.5033*	*R square*	*0.5198*

Source: Researcher's Field Survey, 2021,

In this section, hypothesis was tested at P-value < 0.05 (5% significance level), approximately 95% confidence interval. The null hypothesis tested stated that the cost reduction technique has no significant effect on the social performance of food production companies in Nigeria. The decision rule stated that if the P-value < 0.05, reject the null hypothesis, otherwise, do not reject the null hypothesis.

The model explains that three variables including budgetary costing, standard costing, and activity-based costing contribute positively to the social performance of food production in Nigeria. These three (3) variables are found to have a positive significant effect on social performance. The implication is that budgetary costing (β_1 = 0.2668; p=0.001), standard costing (β_2 = 0.2855, p=0.000), and activity-based costing (β_4 =0.1698, p=0.048)increase, the social performance of food production will also increase. Meanwhile, a unit increase in budgetary costing, standard costing, and activity-based costing leads to an increase in social performance by 0.2668 budgetary costing, 0.2855 standard costing, and 0.1698 activity-based costing. The result also shows that value analysis and target control do not have a significant effect on social performance since the p-value (0.1660 and 0.8310) is greater than 0.01, 0.05, and 0.1 respectively. This implies that value analysis and target control do not have any effect on social performance.

Table 4: Cost Reduction Technique and Social Performance

SP	*Coeff*	*Std. Error*	*t-value*	*P-value*
Constant	*0.7112*	*0.2296*	*3.1000*	*0.0020****
BC	*0.2668*	*0.0750*	*3.5600*	*0.0010****
SC	*0.2855*	*0.0784*	*3.6400*	*0.0000****
VA	*0.1067*	*0.0767*	*1.3900*	*0.1660*
ABC	*0.1698*	*0.0851*	*1.9900*	*0.0480***
TC	*-0.0174*	*0.0814*	*-0.2100*	*0.8310*

*Where BC = Budget cost, SC = standard cost, VA = Value analysis, ABC = Activity base costing, TC = Target cost, and SP = Social performance.. Also, *** indicates P-value < 0.01 (1% level of significance), ** indicates P-value < 0.05 (5% level of significance), and * indicates P-value < 0.1 (10% level of significance).*
Source: Researcher's Field Survey, 2021.

The study hypothesized that the cost reduction technique has no significant effect on the social performance of food production companies in Nigeria. From Table 5, the result indicates that the null hypothesis is rejected at P-value (0.000) < 0.05 (5% significance level), and the alternative hypothesis is explained showing that cost reduction techniques have a significant effect on the social performance of food production companies in Nigeria. The F statistics are used to test the model goodness of fit as displayed in Table 5, where F statistics show the value of 31.60 indicating that the β coefficient is not zero.

Table 5: Test of Hypothesis

Model	***F (5, 146)***	***Prob > F***	***Remarks***
	31.60	*0.000****	*Reject the null hypothesis*

Where *** indicates P-value < 0.01 (15 significance level); ** indicates P-value < 0.05 (5% significance level), and * indicates P-value < 0.1 (10% significance level).
Source: Researcher's Field Survey, 2021.

5. Discussion of findings

The result of the regression analysis indicated that the cost reduction technique has a significant effect on the social performance of food production companies in Nigeria. This result implies that companies employing a cost reduction technique such as budgetary costing, standard costing, and activity-based costing are said to have an average performance compared to companies who adopted the techniques of value analysis, and target costing. Another implication is due to the cost leaders, in a competitive environment, have an average performance because they are not focusing on acquiring new things, hence cost reduction enhances social performance. A similar finding was found by and Lumpkin and Dess (2006).Some of the previous studies that have found a significant effect between cost reduction techniques and social performance and were consistent with our findings include the study of oluwagbemiga, Olugbenga, and Zaccheaus, (2014) who researched the relationship that exists between cost management and a firm's performance in the manufacturing organization. The result found that a positively significant relationship exists between cost management practices and a firm's performance in the manufacturing organization and was consistent with our findings. Furthermore, the relationship between profitability and the direct material cost was positive. This result was in disagreement with the postulation of Ayinde (2006) which affirmed that profit can be improved by cost reduction. This implies that an increase in independent variable direct material by one unit causes an increase in profitability by 0.1441. The study of Akeem, (2017) also found out that cost control had a positive impact on organizational performance. Magnanelli, and Izzo, (2017) which carried out a study on corporate social performance and cost of debt show a positive relationship between corporate social performance and cost of debt, demonstrating that corporate social responsibility is not a value driver with an impact on the firm's risk profile.

But the research of Callan & Thomas, (2009) negated our findings where Callan & Thomas, (2009) examined the study on corporate financial performance and corporate social performance using two different approaches to measure corporate social performance. The result found out that the control variables must be properly specified to avoid bias and that some of these measures are quadratically related to corporate financial performance. The findings of Forsaith, Tilt and Xydias-Lobo, (2003) which perceived a link between social performance and direct was not supported by our findings. The result found a negative significant effect when compared with our findings. It indicates that cost reduction shows a negative effect when compared with social performance.

6. Conclusion

The main objective is to investigate the effect of cost reduction techniques on the social performance of food production companies in Nigeria. The empirical evidence from this research infers that cost reduction techniques such as budgetary cost, standard costing, value analysis, activity-based costing, and target costing have a significant effect on food production companies in Nigeria. The results of this study, therefore, provide standard and budgetary costing reference for food production companies in Nigeria in terms of implementing cost reduction strategies as this would help them to achieve their aims and objectives as sustainable performance.

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