

SAFETY COSTS AND PROFITABILITY OF CONSTRUCTION COMPANIES IN NIGERIA: SURVEY OF FIRMS FROM THE NIGER DELTA STATES.

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ABSTRACT

This paper investigates the nature of relationship between safety costs and the profitability of construction companies in Nigeria. It specifically looked at the effects of costs of providing Personal Protective Equipment(PPE) and costs incurred in providing staff safety trainings on the Gross profit margin and Return on total assets respectively; of construction firms. Data were obtained by means of well-structured and validated questionnaire and distributed to 250 respondents, comprising staff of 10 construction companies operating in the Niger Delta region; out of which 243 were received and used for the study. Analyses were performed using Simple Regression and Pearson's product moment coefficient of correlation in SPSS. The study revealed that there was a statistically significant but negative correlation between safety costs incurred by construction companies and their profitability. Further, safety costs negatively influenced the Gross Profit Margin (GPFM) and Return on Total Assets (ROTA) of the companies used for the study. The study recommends continuous monitoring/control of safety costs by all construction firms to avoid eating deep into their profitability.

Keywords: Safety costs, Performance, Profitability, Construction companies.

INTRODUCTION

Construction companies are usually involved in the building of houses, bridges, roads, and others. In doing that, they incur huge operational costs, which include safety costs (of making their staff, the company's property, and the environment safe).A study recently carried out in the UK by indicates that UK businesses paid an average of £115,440 in fines for being found guilty of a health and safety breach in 2016 Executive (Richards 2017).He posits that, most suspended prison sentences there came from manufacturing and construction companies. The case in Nigeria is not different, if not worse, as there seem not be available records. The implication is that companies can manage or control their safety expenditure. If not well-managed, could have very far negative consequences emanating from injuries, fatalities, property damages, loss of goodwill, lack of jobs, fines for defaulting, etc.

Safety costs include expenditures incurred in ensuring accident free work place. Further, they include but not limited to; the expenditure incurred on the provision of personal protective equipment for staff, costs of international safety auditing, costs of providing first aid kits, cost of safety inspections and provision of safety manuals, safety trainings, etc.

There is no known empirical work so far carried out on the effect of safety costs on the performance of construction companies in Nigeria. This paper therefore departs from the extant empirical works; as it focuses on the influence of safety costs on the profitability of construction companies. It is expected that the study will not only fill that gap, but will also provide the platform for researchers, managers of construction companies and other policy makers in checking and managing unnecessary safety costs.

2.0 LITERATURE REVIEW

2.1 Safety costs

Safety costs as earlier mentioned entails costs incurred to ensure a safe work place. They include cost providing safety equipment, compliance costs and cost of trainings/awareness. Notable areas where organizations incur huge operational costs are: cost of providing safety alarm systems, cost of providing staff personal protective equipment(PPEs), expenditure on safety information communication, cost of equipment repairs, checks/ integrity tests, cost of providing well stocked and managed first aid kit, expenditure incurred on providing clinical services, costs of firefighting equipment, expenditure on process containment systems and costs of ignition control measures and detection systems. These costs may constitute a large chunk of the operating expenses of construction firms and needs to be properly controlled.

2.2 Profitability

Profitability is an indicator of performance. It means the ability of a firm to generate income over and above of its costs of operation (direct and indirect). Profitability is usually measured using various models including gross profit margin (by expressing the gross profit to turnover or revenue), operating profit margin(an expression of the relationship between the operating profit and turnover in percentage), return of total assets (by expressing the ratio of net profit to the total assets of the firm), return on equity (by looking at the relationship between the net profit and the shareholders fund or equity) and the return on capital employed (looking at net profit to capital relationship), etc. This paper adopts the gross profit margin and the return on total assets as measures of profitability of construction companies in Nigeria.

2.3 Overview of the construction Industry in Nigeria

The construction industry may be viewed as that sector of the economy which, through planning, design, construction, maintenance and repair, and operation, transforms various resources into

constructed facilities (Isa et al, 2013). This industry is mostly concerned with development of civil engineering works and heavy infrastructural projects (roads, bridges, railways, etc.), residential and commercial real estate and their maintenance therein.

The Nigerian construction industry contributes significantly to the nation's Gross Domestic Product. It consists of construction companies, professionals/consultants, suppliers, and the public/private sector clients. Nigeria also has a lot of regulatory bodies responsible for handling certain aspects of the construction industry. For instance, the Bureau for Public Procurement (BPP) controls and regulates the public procurement processes and provides general guidance to the private sector professionals regarding procurement of goods and construction works; it has a huge influence on the performance and effectiveness of the Nigerian construction industry. The Nigeria Institute of Quantity Surveyors (NIQS) regulates and controls the quantity surveying professions and membership. The Nigerian Institute of Architects (NIA), the Nigerian Institute of Builders (NIOB) and the Nigerian Society of Engineers (NSE) also regulates and controls the Architectural, Building, and Engineering professions respectively.

3.0 METHODOLOGY

The study adopted a Quasi experimental design approach. Data were collected through questionnaire drawn using Likert's Five-point scale, ranging from "very low" to "very high". The independent variable being Safety Costs (was measured using Cost incurred in the Provision of Personal Protective Equipment and Cost of Staff Safety Trainings as proxies) while the dependent variables, being profitability of firms, was measured using the Operating Profit Margin(GPFM) and the Return on Total Assets (ROTA) respectively.

The population of the study comprised of staff and management of construction companies in Nigeria. Through a pilot study, a total of 250 questionnaire were distributed to staff of 10 notable Construction firms operating in Port Harcourt Nigeria namely; RCC Nigeria Ltd, Monier Construction Nigeria Ltd, ProdecoNig Ltd, Lubrik Construction Company Nigeria Ltd, Strabag Nigeria Ltd, Julius Berger Nigeria Plc, China Construction Company Nigeria Ltd, Webster Groups Construction Company Nigeria Ltd, Dantata&Sawoe Company Nigeria Ltd, Brunelli Construction Nigeria Ltd and Rockson Engineering Nigeria Ltd. Out of this, 243 representing 97.2%, were returned and used for analyses. Respondents were requested to state the extent to which the independent variables affected the dependent variables. Based on our objectives of the study and the review of literature, two hypotheses were formulated thus:

H₀₁: There is no significant relationship between costs of Personal Protective Equipment(PPEs) and Gross Profit Margin (GPFM).

H₀₂: There is no significant relationship between Costs of Staff Safety Trainings and Return on Total Assets.

Responses from respondents were analyzed using the Pearson Product Moment Correlation and Regression Analysis via the instrumentality of the Statistical Packages for Social Science (SPSS).

4.0 DATA PRESENTATION AND ANALYSIS

The two formulated hypotheses were tested and analyzed thus;

Hypotheses 1

		PPEC	GPFM
PPEC	Pearson Correlation	1	-0.472**
	Sig. (2-tailed)		.000
	N	243	243
GPFM	Pearson Correlation	-0.472**	1
	Sig. (2-tailed)	.000	
	N	243	243

** . Correlation is significant at the 0.01 level (2tailed).

The results of Pearson product moment correlation as shown on table 4.1 above indicates that the coefficient of determination is -0.472** at a significant or probability value of less than 0.05 ($p = 0.000 < 0.05$). This indicates a significant but positive relationship between Construction companies' expenditure on personal protective equipment(PPE) and the Gross Profit Margin. The significant relationship implies that most of the variables used in the model are supported and that a rise in the naira amount of PPE expenses will result in a decrease in the Gross profit level of the companies. In the same vein, a reduction in the PPE costs will cause an increase in construction companies' Gross profit margin.

Regression Analysis

Table 4.2: Model Summary of Personal Protective Equipment Costs and Gross profit margin

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.800 ^a	.740	.635	.33647

a. Predictor: (Constant), PPE

The regression outcome on the table above shows the impact of the independent variables (costs of Personal protective equipment) on the Gross profit margin of Construction companies in Nigeria. The coefficient of determination R^2 indicates that 74.0% of changes or variations in the criterion or dependent variable (Gross Profit Margin) are attributable to changes or variations in the predictor or independent variables (Expenditure on provision of PPE for staff). The theoretical implication of this result is that 26.0% of variations in the Gross profit margin of construction companies are explained by other factors outside the model. The adjusted R^2 value of 63.5% is a little below R^2 of 74.0%.

Hypotheses 2

Table 4.3: Correlations between Staff Safety Trainings costs and Return on Total Assets

		SSTC	ROTA
SSTC	Pearson Correlation	1	-0.527**
	Sig. (2-tailed)		.000
	N	243	243
ROTA	Pearson Correlation	-0.527**	1
	Sig. (2-tailed)	.000	
	N	243	243

** . Correlation is significant at the 0.01 level (2-tailed).

The results of Pearson product moment correlation as shown on the table above is -0.527** and a significant value of less than 0.05 i.e $p=0.000 < 0.05$, indicating a negatively and moderately

significant relationship between Safety costs (expenditure on staff safety trainings) and profitability of construction companies in Nigeria. The strong but inverse relationship implies that most of the variables used in the model are supported. That means an increase in expenditure on Staff Safety Trainings will reduce the level of Return on assets of construction companies in Nigeria.

Regression Analysis

Table 4.4: Model Summary of Staff Safety Training Costs and Return on Total Assets				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.800 ^a	.760	.685	.33647
a. Predictor: (Constant), SSTC				

The regression outcome on the table above shows the impact of the independent variables (Staff Safety Training Costs) on the Return on Total Assets of Construction companies in Nigeria. The coefficient of determination R^2 indicates that 76.0% of changes or variations in the criterion or dependent variable (Return on Total Assets) are attributable to changes or variations in the predictor or independent variables (Expenditure on Staff Safety Trainings). The theoretical implication of this result is that 24.0% of variations in the Return on Total Assets of construction companies are explained by other factors outside the model. The adjusted R^2 value of 68.5% is a little below R^2 of 76.0%.

5.0 DISCUSSION OF FINDINGS

Results of our analyses reveal that there is a significant relationship between the expenditure on the provision of Personal Protective Equipment and Gross Profit Margin of firms. By implication, it means that if the companies incur more costs on PPEs for staff and visitors, there will be a drop-in profitability of the companies (in this case the gross profit margin).

Again, from our second hypotheses tested was revealed that was a significant relationship between Staff Safety Training costs and Return on Total Assets. The implication is that costs incurred on staff safety trainings will impact negatively on the companies, which will lead to a reduction of their profit (in this case Return on Total Assets).

6.0 CONCLUSION AND RECOMMENDATIONS

Safety costs impacts negatively on the performance (profitability) of construction firms in Nigeria. Findings indicate a statistically significant relationship between the independent and dependent variables. It was recommended that safety costs should be properly managed to ensure it does not eat deep into the profitability of the firms.

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