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Indirect Costs and Firm Performance of Quoted Companies in Nigeria

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ABSTRACT

This study evaluated the effect of indirect costs on corporate profitability of quoted companies in Nigeria. The indirect costs are measured by power and electricity, rent charges, and employees' salaries; while firm performance is measured by return on assets. The study used secondary data from the financial reports of the quoted companies. The study employed multiple regression analysis to test the hypothesized variables, and the explanatory variables showed p-values of 0.001<0.05 (PWE), 0.046 ≤0.05 (RNT) and 0.107>0.05(EMP) at 0.05 alpha level of significance. It was discovered that power and electricity has significant impact on return on assets, while rent charges, and employees' salaries have insignificant impact on return on assets of quoted companies studied. The regression line of ROA = 0.100 + 2.788PWE + 2.763RNT – 9.194EMP reveals that a unit change in power and electricity would result in 2.788 increase in ROA, a unit change in rent charges would lead to 2.763 increase in ROA, and a unit change in employees' salaries would result in 9.194 decrease in ROA. This implies that power and electricity has positive and significant impact on return on assets of quoted companies in Nigeria. The study recommends that quoted companies in Nigeria should look into their power and electricity costs with a view to applying innovative energy management solutions that are available today for reducing operational cost, and preventing device failure to improve profitability.

Key Words: *Corporate Profitability, Employees' Salaries, Indirect costs, Power and Electricity, Quoted Firms, Rent Charges, Return on Assets.*

Introduction

Every business is working hard to exhaust the possibilities of profits. The primary intention is optimum profitability including growth, corporate social responsibility, workers welfares, and so on. On the longer interval, it is the earning enlargement intention that will sustain the business in the energetic business atmosphere; and people naturally would invest in a profitable enterprise. This is enhanced by adequate control of cost.

Management of cost is critical in considering the performance of any company. The indirect rate cost structure plays a critical role in supporting strategic business model and consistent business operations. Profit making and not-for-profit, service-oriented manufacturing or combination of both, should reflect the operational expenses(Davidson, 2009).

Davidson, (2009) maintains that indirect costs allocatable to production include the 'costs of indirect labor, contract supervision, tools and equipment, supplies, quality control and inspection, insurance, repairs and maintenance, depreciation and amortization, and, in some circumstances, support costs, such as central preparation and processing of payrolls, repairs and maintenance, electricity, IT support'.

The indirect expenses cannot be charged direct to the job, such costs are charged instead to a service cost center and the cost of the service center is then apportioned between thevarious jobs to give the cost of each job including indirect expenses, (Wood and Sangster, 2002). Indirect costs are apportioned between the goods being manufactured in a commonsensical approach because there is no easily traceable direct connection with the goods being manufactured.

Adeniji, (2012) contends that indirect cost is sustained in the process of making a product, or service or running a department, but which cannot be outlined straight completely against the product, service or department. Firms with adequate cost configuration have more sophisticated tendencies of achieving its profit goal, (Robert, 2007).

Statement of the Problem

Indirect cost is least appreciated though it is a critical tool in strategic and tactical business planning (Oracle, 2015). There is increasing displeasure concerning orthodox cost formation regarding indirect costs distribution. A wide range of lack of knowledge of the basic costs of manufacturing a product or providing service would be proposing wrong profitability picture. Poor management of cost and profitability leaves out core cost drivers and allocate corporate overhead without predicting profitability on a complete cost basis and unbalanced allocation of indirect costs will cripple profit optimization objective.

There is low reliability of power supply resulting in economic inefficiency (Prada, 1999).

Unclear link between firm performance and wages will hamper employees' remuneration whichlooks comparatively insensitive to corporate performance; (Bell and Reenen, 2012). The possibility of ignoring the method of lease (rent) classification can create significant problem in measuring and comparing profitability (Damodaran, 2009).

It is against these backdrops that the researcher embarked on the study "Indirect Costs and Firm Performance".

Objectives of the Study

1. Ascertain the level at which power and energy cost affect firm performance in the quoted companies.
2. Determine the level at which rent charges affect firm performance in the quoted companies.
3. Evaluate the level at which employees' salaries affect firm performance in the quoted companies.

Research Questions

1. To what extent does power and energy cost affect performance of the companies under study?
2. To what extent has rent charges affected the performance of the companies under study?
3. To what extent do employees' salaries affect performance of the companies under study?

Statements of Hypotheses

H_{o1}:Power and energy cost does not significantly affect the performance of the companies studied.

H_{o2}:Rent charges do not significantly affect the performance of the companies studied.

H_{o3}:Employees' salaries do not significantly affect the performance of the companies studied.

Review of Related Literature Conceptual Review Indirect Costs

Eden, Lyon, Payne and Brink, (1986) define indirect costs as expenses that are not easily shared by more than one cost unit or project and for which it is challenging to determine how much each cost object should pay.

Sometimes their precise benefits to specific cost objects are difficult to trace, for instance, it may be difficult to determine exactly how the activities of the director of an organization benefit a specific project, even when all agrees that a benefit does accrue. Indirect costs include utilities, rent, grounds maintenance, custodian services administrative staff, and so on. A large weighty area of items such as telephone use, computer use, project clerical personnel, postages, stationery, office supplies, and office equipment are treated as direct charges by some organizations and as indirect costs by others; (Eden, Lyon, Payne and Brink,

1986). Also in some cases direct charging and indirect allocation may be combined, it may be more efficient to determine the aggregate charge of the shared item and then to specify a measure of each cost object's benefit by which to determine its fair share.

Sangster and Wood, (2002) admit that indirect manufacturing costs are not reported as expenses until the goods are sold. This is because they are embedded in product cost. Product costs are costs that 'attach' to the units that are produced. Indirect manufacturing costs entail indirect labour and indirect expenses plus depreciation connected with manufacturing. Indirect manufacturing costs

added to prime cost (direct material, direct labour and direct expenses)equals production cost.

Bridgwater, (1975) asserts that indirect cost is a form of costs that are semi-variable which may be randomlyallocated to the different classes of cost. Effiong and Oti, (2012) concede that'manufacturing cost consists of the raw material or direct material costsemployed in the manufacture of goods or services, labour or wages costs engaged directly or indirectly in turning the raw materials to finished products and the overhead costs which consist of the supervisor's salary, utilities, supplies and other incidental expenses which must be necessarily incurred in the production of these products'.

Novak and Popesko, (2014) comment that companies today are continually pressed to reduce costs and discover how to save some costs. Cash (2001) documents that 'without a full understanding of indirect costs, which primarily have two components: overhead and General and Administrative (G&A) expense; the regulatory aspects of it cannot be achieved'. The study demonstrate that overhead is that indirect cost related a particular part of the company or plant (e.g engineering or manufacturing) whereas general and administrative (G & A) expenses support the company as a whole (example: Chief Executive salary). Cost accounting standard distinguish between overhead and G & A expense through the use of certain allocation bases.

United State Agency International Development (USAID) (2014) describes indirect costs as *'costs which cannot be directly identified with a single contract or grant.*

Indirect costs are applied equitably across all of the business activities of the organization according to the benefits each gains from them. Examples are office space rental, utilities, and clerical and managerial staff salaries'.

Power and Electricity

Bridgwater, (1975) explains energy as power and fuel or utilities and includes vapor, energy, liquid, midair, petroleum, fume, oil, freezing, etc. In his study, he goes on to substantiate that some factors like place, quantity of production, political tensions, energy cost-effectiveness and others may lead to disparities in the cost of power and electricity.

Prada (1999) argues that electric energy is produced and delivered practically on real time and there is no convenient method to readily store it. This requires an incessant and virtually instantaneous equilibrium between production and consumption of electricity in power systems. 'It is needful to keep some margin of generation above the expected demand load such that the system can deal with unexpected mismatches between supply and demand leading to power shortages'; (Prada, 1999). There is relatively dearth of literature on the relevance of energy outlays as opposed to aggregate production cost. Peters and Timmerhaus, (1968) confirm that price of energy are 10-20 % of the distribution charge of a chemical.

American Society for Quality (ASQ) (2015) documents that 'with innovative energy management solutions that are available today, companies in all industries and locations are improving profits by increasing energy efficiency, reducing operational cost, and preventing device failure. Companies are eliminating waste like off-hours consumption and BMS overrides in real time. According to ASQ, (2015) knowledge gathered by totaling and analyzing data empowers companies to make informed energy efficiency decisions. Return on investment (ROI) can be increased by reducing energy costs. A 10% reduction in energy costs can increase net profit margin by 4%, (Panoramic-Power 2015). Retailers can reduce off-hours consumption costs by 8% and overall energy consumption by 15%. Effective energy management can lead to better understanding of productivity losses and operational inefficiencies. Overall equipment effectiveness (OEE) can be ensured by information and insights gathered when companies monitor systems and devices to enable companies improve production and operating processes'.

Rent Charges

Rent charges refer to the money you must pay a lessor every month or quarterly, depending on the lease agreement. Rent expense is part of the organization's fixed cost. It is an operating expense that allows a business to keep going. It is included as a product cost, in the manufacturing overhead and be allocated or assigned to the products. When goods are sold, the rent (part of fixed cost) will be expensed as part of the cost of goods sold (CGS).

Rent is an administrative function incurred as a period cost and expensed in the period when it occurred; and not allocated to the products for external financial statements. It is a fixed cost which can be managed by negotiations, and can be paid monthly instead of quarterly.

FAS 13 define a lease/rent as

> *'an agreement conveying the right to use property, plant or*
> *equipment (land and/or depreciable assets) usually for a stated period of time. It is a rental agreement in which the asset is tangible property'.*

FAS 13/ASC 840 explains that a rent is an arrangement necessitating lessee to pay the owner for using an asset for a specified period of time. Expenses incurred for the operating lease are charged explicitly without passing through the Statement of Financial Position either as asset or liability.

Sebik and Thompson, (2004) document that

> *'lease expense recognized on a straight-line basis over life of the lease, accrues rent expenses if rents are uneven.*
> *Initial direct costs (IDCs) are incurred by the lessor in negotiating the lease transaction, for instance, commissions, legal fees, and so forth'.*

Employees' Salaries

Salary is an amount paid a worker for a particular job, regardless of hours worked; whereas a wage is based on hours worked.

Organizations have continued to face mounting competitive pressures and at the same time seeking to do more with less cost and better quality. To achieve this objective, employee remuneration plays a major part for it is germane to service affiliation. Gerhart, Minkoff and Oslen, (1995) assert that employees hinge on remunerations, earnings, welfares, to guarantee security which is germane for their best input and employee functionality and, of course, enhanced performance'. Labour expenses and performance are fundamental factors while opting for plant installation.

Dobre, (2013) contributes that many organizations are contending to continue in this changing and aggressive business atmosphere; counting onincentive added to productivity of the workers being reasonable in attaining the long-run objectives of the organization. This implies that size and market cannot guarantee relevance and effectiveness of companies.

Bartol and Martin (1998) in Dobre (2013) maintain that motivation empowers behavior and prompts the propensity to survive. The study affirms that salaries are internal propellers that assure satisfactory productivity and realization of subjective goals. Human resources compare with financial resources to create a competitive advantage for an organization (Dobre, 2013).

Muogbo (2013) adds that good salaries for some year now have remained a functional policy capable of enhancing labor productivity. It is currently dawn on some organization or employers of labour to keep an eye on their employees' salaries in favour of competition in the industry. Employees should earn what is commensurate to the time and strength they are putting in their jobs.

Williams, (1998) asserts that improvement realized from good remuneration policy increases profitability, as a result of improvement in service standards through happy and committed staff. A source of added commitment by employees to the organization has been potentially misplaced due to the reluctance of many organizations to investigate remuneration strategies beneficial to staff within an organization, (Merricks and Jones, 1987).

Firm Performance

Firm performance refers to the profitability of the firm, which is the benchmark upon which economic, managerial efficiency and social objectives are appraised. Profitability is the concept of being able to make profits from all the business operations of an organization. Harward and Upton (1991); Nishanthini and Nimalathasan (2013) document that 'profitability is the ability of a given investment to earn a return from its use including the development of market for it'. It is excess of return over outlay. Profitability is the unique measure of corporate success and essential indicator of economic performance.

Profit is not profitability. While profit is an aggregate term, profitability or performance is a progressive view. Profit represents the total income

earned over a defined period of time by an organization, whereas profitability refers to the operating efficiency of the organization.

Performance refers to the ability of the organization to make profit on sales, get sufficient return on the capital and employees used in the business operation. Profits are generators of retained earnings within a firm. Weston and Brigham (1992) advocate that 'profit to the financial management is the test of efficiency and a measure of control; to the creditors it represents a margin of safety; to the government it is a measure of taxable capacity and a basis of legislative actions; to the country it is an index of economic progress, national income generated and the rise in the standard of living; whereas performance is an outcome of profit'. Therefore, profit and profitability or performance are closely related, but have distinct roles in business.

Ehi-Oshio, Adeyemi and Enofe (2013) further contend that 'corporate profitability is the degree to which an organization can effectively utilize it available funds and assets and convert them into profits. Profitability empowers an organization to resist adverse shocks and add to the sustainability of the businesses'.

Enyi, (2011) and Ademola, (2014) postulate that profitability is to business as circulation of blood is necessary to the human body in maintaining. It makes business to run effectively and efficiently; and management need to focus on what will make her earn more profits in order to remain solvent. Hence, understanding and measuring profitability of a business cannot be underplayed.

Return on Assets

Return on asset (ROA) measures the efficiency firm profitability in terms of its asset investments,(Heikal, Khaddafi and Ummah, 2014). It is a percentage of assets to profit margin. High ROA reflects capability of the firm to generate profits. Investors would like to invest in a company with high ROA. Managers are especially interested in the productivity of the asset utilization in a determination to enhance the performance of the business; (Siminicah, Circiumaru and Simion 2012).

Growing pressure exerted by shareholders and the limited resources send the managers to seek how to develop the usefulness of the assets in attempt to maintain competitiveness in the business environment. It is a sign of good or bad management implementation of control over its assets.ROA measures the rate of return on total assets after interest expense and taxes (Brigham and Houston, 2001; Heikal, et al, 2014).

Lindo, (2008) believes that ROA as a wide-ranging monetary drive is the metric measuring profit against investment needed to produce the income. The ROA per cent is a model for assessment of income element desired out of fresh venture.

Garlinger, (2000) opines that the returns of a firm are prejudiced by many factors; and knowing these variables permits the company management to apply appropriate measures for growth, perform short term or long-term forecasts.

According to Ibrahim and Hassan (2016) Return on Asset measures profits from all the property of the company employed in creating these profits. A high rate of RO implies that a firm is profitable whereas low ROA depicts less profitability. ROA is shown as

$$ROA = \frac{PAT}{\text{Total Assets}}$$

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Theoretical Framework

Theory of Constraint

Goldratt (1986) propounded the Theory of Constraints (TOC) which offers a direction to amendment through questions like 'What to change', 'what to change to' and 'how to formulate the change'. The theory informs decision-making progression in line with problem identification, construction of answer, determination of challenges, and implementation of remedy.

It methodically fishes out what constitute obstruction. In 1980, the theory was initially applied at an APICS Conference. Hrisak (1995) recommends the use of the TOC world over by firms of various sizes; adding that managers who regularly adopt it stand to gain sense of control and be equipped to act proactively. TOCaffords anunswerving outline for identifying and analyzing problem. All the system develop linkages or network of chains contributing to the general objective of the organization used interdependently to produce a whole.

The entire organization is assessed as strong as the feeblest limitation because it can obstruct the general performance of the business. Steps involved in the procedural application of the TOC are:

1. Finding the limiting factor
2. Exploiting or getting rid of the limiting factor
3. Subordinating or tying operations to the limiting factor
4. Elevating the constraint
5. Repeating the entire process to observe any change.

This theory best explains this work viewing inclusion of accurate indirect costs as the constraint. Managers should understand indirect costs accurate absorption techniques to come up with the true costs of their products and be better equipped to avoid random pricing. They can work towards acquiring better and more advanced technology by way of better equipment to enhance quality at most cost effective operations. This will contribute to provide better less defective and higher scales of production capable of satisfying and retaining customers resulting in increased sales leading to higher corporate profitability.

Empirical Review

Brody, Letoumeau, and Poirier, (1990) studied 'indirect cost theory of work accident prevention 'and established a firsthand graphical model presenting a documentation of indirect costs as motivator of cost-effective workers who enhance asset by preventing work accident.

Asaaf and Atiyah (2001) document that 'overhead cost practices of Construction Company' and revealed that ignoring overhead has required some contractors to quit their businesses. The work establishes that factors affecting firm indirect expenses include automobile and equipment charges, administrative expenses, labour related costs and financing costs.

Shelton (2002), finds that overhead expenses of contracts and factory or production cost must be divided from other indirect charges, such as general and administrative expenses. According to the study, indirect costs are to be systematically and rationally done depending on the prevailing situation by judgment. Manufacturing charges are projected as a ratio of direct labour or any other suitable base while general and administrative expenses are commonly anticipated as a ratio of volume completed, (Shelton, 2002).

Kim and Ballard (2000) worked on 'Case Study – Overhead Costs Analysis adding that generally indirect costs are relatively higher than direct costs; and suggest application of profit—point-analysis (PPA) in order to control indirect costs through activity-based costing (ABC).

Methodology

The study applied multiple regression research design in describing the statistical and testing of predictable relationships between the variables. Data are collected from secondary sources mainly from the financial reports of the selected companies, which have been audited and published by the companies in accordance to the law and accounting standards.

The independent variable of this study is indirect costs. Power and electricity costs, employees' salaries, and rent charges are used to proxy for indirect costs, while return on asset represents dependent variable in the study. The general model specification is shown thus:

$ROA = á + â_1PWE + â_2RNT + â_3EMP +$
å Where ROA = Return on Assets
á = a constant (the value of Return on Assets when all the independent variables are zero)
PWE = Power and Energy Costs
RNT = Rent Charges
EMP = Employees' Salaries
å = an error term normally distributed about a mean of 0.

Population of the Study

The population of this study comprises five (5) companies listed on the floor of Nigerian Stock Exchange. The study focused on these companies whose financial data are complete in the internet for the time reviewed (2011 – 2015).

The sampling technique used is judgmental purposive sampling. The sample size included five (5) companies thus: Dangote Cement PLC, Dangote Sugar PLC, Cadbury Nig. PLC, Unilever Nig. PLC, and Guinness Nig. PLC.

Analysis

Table 1 Descriptive Statistics of the variables

	PWE	RNT	EMP	ROA
Mean	9333289	1042360	4502347	0.1136
Std. Deviation	21041497	1286829	3472633	0.07826
Valid N	25	25	25	25

Source: IBM SPSS 20

The table above shows the mean values of the variables: Power and Electricity Costs (PWE), Rent Charges (RNT), Employees' Salaries (EMP) and Return on Assets (ROA) as 9333289, 1042360, 4502347, and 0.1136 respectively; with standard deviation of 21041497, 1286829, 3472633 and 0.07826. From the above table, it can be seen that data for Power and Electricity, Employees' Salaries and Return on Assets are reliable most especially the data for Return on Assets whereas data for Rent Charges are less reliable

Testing of Hypotheses

Table 2: **Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.689[a]	.475	.400	.06062

a. Predictors: (Constant), Employees' salaries, Power and electricity, Rent charges

Source: IBM SPSS 20

Table 3: **ANOVA** [a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.070	3	.023	6.331	.003[b]
	Residual	.077	21	.004		
	Total	.147	24			

a. Dependent Variable: Return on asset

b. Predictors: (Constant), Employees' salaries, Power and electricity, Rent charges

Source: IBM SPSS 20

Table 4: **Coefficients**[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.100	.020		4.941	.000
	Power and electricity	2.788E-009	.000	.750	3.980	.001
	Rent charges	2.763E-008	.000	.454	2.120	.046
	Employees' salaries	-9.194E-009	.000	-.408	-1.684	.107

a. Dependent Variable: Return on asset

Source: IBM SPSS 20

Table 1 above illustrates the combined effects of the independent variables (power and electricity, rent charges, and employees' salaries) on the dependent variable (return on assets) for the companies studied. The correlation coefficient (r) of 0.689 shows a positive and strong relationship between the independent variables (Power and electricity (PWE), Rent charges (RNT), Employees' salaries (EMP)) and the dependent variable (Return on assets (ROA)). The R squared (R^2) value of 0.475 shows that the predictor variables account for 48% of the variations in return on assets (ROA) of the companies studied.

From the 4.2.3 above, t-values are 3.980, 2.120, -1.684; and p-values are 0.001<0.05, 0.046≥0.05, 0.107>0.05. Only power and electricity (PWE) has significant impact on return on assets (ROA) of the companies studied. However, the combined regression model that can be used to define the function is as shown below:

ROA = 0.100 + 2.788PWE + 2.763RNT – 9.194EMP

This shows that the model is fit for the analysis. Interpretation

i. A unit change in power and electricity (PWE) would result in an increase of 2.788 in return on assets (ROA) in the companies studied.
ii. A unit change in rent charges (RNT) would result in an increase of 2.763 in return on assets (ROA) in the companies studied.
iii. A unit change in employees' salaries (EMP) would lead to a decrease of 9.194 in return on assets (ROA) in the companies studied.

Discussion of findings

The hypotheses were tested to ascertain the effect of indirect costs on corporate profitability in the quoted companies in Nigeria. Power and electricity costs have shown to have a significant impact on return on assets of the listed companies studied. The model explained 48% of the variations in the dependent variable, which means that the remaining 52% are attributable to other variables not captured in the model.

The implication of the finding is that these companies are impacted critically by power and electricity such that if power supply costs can be improved on, there will be a drastic reduction on the costs of their products and profit maximization

plans can be initiated to enhance profitability. The danger of not embarking on any modern innovative energy management solutions available today for reducing operational cost and preventing device failure and increasing efficiency as used by other companies world-over may lead to insolvency and possible liquidation.

Conclusion

This study was conducted to evaluate the impact of indirect costs on corporate profitability of quoted companies on the floor of Nigerian Stock Exchange (NSE). Five (5) companies were used over a five year period (2011 – 2015), and the multiple regression analysis was adopted for the purpose of the study. The findings of the study have shown that power and electricity exerts significant impact on return on assets as a measure of corporate profitability in listed companies in Nigeria. Also, rent charges, and employees' salaries exercises insignificant impact on return on assets as a measure of corporate profitability in listed companies in Nigeria. Based on the findings above, the researcher can rightly document that corporate profitability of companies on the floor of Nigerian Stock Exchange is related with power supply and has no significant relationship with rent charges, and employees' salaries.

Recommendations

The study recommends management of corporate organizations to look into their power and electricity costs with a view to applying innovative energy management solutions that are available today. Businesses in all industries are improving profits by increasing energy efficiency, reducing operational cost, and preventing devices failures. Wastes like off-hours consumption should be eliminated. Management is hereby advised to consider those variables that impact on corporate profitability such as electricity and power supplies, rent charges, other factors not captured by the model of this study like scale of operation, political pressures, inadequate capital, shareholders' interferences, and so forth.

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