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## Value Accounting and Corporate Performance. A Study of Paint Manufacturing Companies in Nigeria

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*Quality management systems require companies to operate a formal design review process. This is to ensure that the quality of a product is best assured. The quality accreditation system is monitored and audited by external agencies. As such, companies that fail to comply with quality assurance procedures will not qualify for quality award and may lose business as a result. This is the thrust of value accounting. In this regard, the key variables of this study are value accounting and financial performance, with focus on paint companies in Nigeria. Data analysis involved the use of descriptive statistics and regression method. The results in terms of proxies of the variables indicated that there is significant positive relationship between the variables. Based on the conclusions, it is recommended that industrial executives should do more to promote value accounting through operation, component and economic analyses for financial performance improvement.*

**Keywords:** Cost reduction, Financial returns, Value analysis.

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### Introduction

The process of value accounting seeks to review product designs so that any weakness found could be addressed. The problems that confront the designer could also cause frustration for managers and discontent for so many employees. The frustration caused by poor design activities also

impact on the engineers in the factory who have to try and manufacture the product in a less than optimal way. Furthermore, companies with high cost and relatively fixed market price will command less profit if costs are not managed properly and reduced continuously. The value accounting process addresses the need to manage and continuously seek ways of reducing products cost. The new information and communication technology available to customers has made product marketing a global affair. Therefore, in order to maintain meaningful relationship with existing customers and to protect this relationship, enhancing the value and lowering the costs of existing products are vital. This calls for a structured approach to the management of production and administration costs.

The discovery and invention of new processes and materials means that innovation can be incorporated within existing product designs such that reliability and quality of products are improved whilst simultaneously reducing cost. Market intelligence and the ability to take advantage of innovation for product designs are equally vital to improving the performance of products. Growing awareness of environmental issues is reshaping the buying behaviour of customers in many economies. It is effectively redefining the esteem value of a product and can affect what materials can be used in production. In addition, many industries, notably vehicle producers, have begun to direct attention towards reducing the weight of purchased parts to meet environmental and efficiency targets.

Over the years, the accounting perspective of value accounting has not been well considered in many studies in recent times. This study therefore seeks to address value accounting to further aid industrial managers in making decisions that will improve the profitability of their firms. In this light, the following are specific objectives of the study:

- i. To evaluate the effect of cost of developing alternative means of production on earning per share; and
- ii. To evaluate the effect of cost of developing alternative mean of production on return on asset.

## Literature review

Value accounting is directed at promoting cost efficiency and effectiveness. Cost refers to consideration given up in exchange for a benefit while profit is revenue less cost incurred. Profit may be improved either by increasing the

sales value/quantity or reducing the cost or both (Ofurum & Egbe, 2014; Okorafor, 2012). However, in most cases, sales revenue depends on market forces which are beyond the control of managers. Real increase in cost has to be passed on to customers because of fall in demand and the need to reduce price to boost sales. A portion of the costs is borne by the manufacturer as well as well. Accordingly, it is not easy to improve profit by increasing the sales value. Cost reduction remains the conventional alternative for improving the profitability of a product. Generally, experts regard problems involved in cost control in industries as quite complex and becoming more complicated by the day (Okorafor, 2012; Bigsten & Soderbom, 2006; Emaobong, 2003)).

This complexity is also due to international competition, fast changing systems and paradigm shift in favour of information and communication. They also argue that traditional budgeting mechanisms have become more mechanical while trend-based decisions are highly emphasized at the top. The techniques applied in cost control include budgetary control and standard costing. By setting expected standard or predetermined cost and comparing actual cost with it, management is able to know when the limit is being exceeded, so that steps can be taken to check excesses. If this is done regularly during a budget period, management ensures that the cost is not exceeded (Ofurum & Egbe, 2014; Okorafor, 2012; Idornigie, 2003). If the actual cost differ from planned cost by a significant amount, cost control becomes very necessary.

While basic techniques assist to ensure that cost does not escalate, they may not fully result in the reduction of cost. The more effective cost reduction programs relate to those which embrace all aspects of industrial operations, systems and products. These programs usually have full top management support. Cost reduction may simply achieved be by the application of common sense but there are several formal techniques which have been found to be more effective in improving product, reducing waste, streamlining systems and thereby reducing cost. Cost reduction is operationally differentiated from cost control, in the sense that the former is the systematic approach to achieving real reduction in the unit cost of producing goods or services without sacrificing quality (Idornigie, 2003). Examination of product range may show that some products are quite expensive while some are uneconomical because of their small quantities. It is often cost effective to produce a range of finished products from a

common, relatively small pool of components. In general fewer varieties make for longer production runs, increase the scope for automation and is likely to reduce cost. The sales and marketing aspects of variety reduction must also be closely considered otherwise any production gains may be nullified (Idornigie, 2003; Ojowu, 2003).

There are many reasons that necessitate the adoption of structured approach in ensuring logical cost reduction in industrial management. They have to do with key factors within the industry and those that are stimulated by the market for the product or service. For issues within the industry, value accounting is conducted to enhance the design process and control systems for review of product performance once it is at the production stage. Some of the problems associated with a lack of proper design review systems have to do with the fact that the designer may not be aware of best way to develop an optimal design. The designer may also be unaware of the cost implications of one design over another due to insufficient information or poor understanding of new materials and technologies relating to the product (Alos, 2000; Okorafor, 2012). The review process, therefore, allows the opportunity to incorporate these new sources of cost reduction.

The process also offers vital information feedback to the designer regarding the performance of the design in production. The designer may have produced a drawing that was intended for technology that has been replaced since the product went into full production. The value accounting process allows these changes to be incorporated formally. Traditional thinking and customary practice may have led the designer to believe that a particular solution was the best without questioning the logic. This relates to the belief that a traditional and proven solution will always be adequate for a client, so the firm offers products that do not effectively provide the value sought by the client. Value accounting ensures critical review which forces the designer and other professional managers to assess what the customer wants and the solutions being provided by the company. The designer, in times of pressure may create designs for immediate production and sale, by cutting corners and paying insufficient attention to the design itself. Therefore insufficient or inadequate analysis may have been undertaken during the planning of the product characteristics and the relative cost of different designs. Therefore the pressure is on the designer to sell a physical product and collapse the time from the drawing board to the selling point. This may force designers to compromise the quality of the

design in order to simply meet the commercial pressure to release products to the market (Anyanwu, 2000; Agundu & Ohaka, 2010; Okorafor, 2012).

## Methods

The data used in this study are basically from secondary sources. They were collected from the published financial statements of the companies under study. These were supported by data from the Nigerian Stock Exchange (NSE) fact book over a period of five years. The independent variable in this study is value accounting, measured in terms of cost of developing alternative means of production. The dependent variable is financial performance, measured in terms of earnings per share (EPS) and return on assets (ROA). In the model specification, these variables were functionally expressed for analysis (Asika, 1991; Okorafor, 2012). Accordingly, the functional relationships between the variable are generally presented as follows:

$$\begin{aligned} \text{ROA} &= F(\text{CAMP}) \\ \text{ROA} &= F(\text{CPPTIF}) \\ \text{ROA} &= F(\text{CIS}) \\ \text{EPS} &= F(\text{CAMP}) \\ \text{EPS} &= F(\text{CPPTIF}) \\ \text{EPS} &= F(\text{CIS}) \end{aligned}$$

Where:

$$\begin{aligned} \text{ROA} &= \text{Return on assets} \\ \text{EPS} &= \text{Earnings per share} \\ \text{CAMP} &= \text{Cost of alternative means of production} \\ \text{CPPTIF} &= \text{Cost of placing a price tag on identified function} \\ \text{CIS} &= \text{Cost of improved service} \end{aligned}$$

From the above, the econometric models are specified as follows:

$$\begin{aligned} \text{ROA} &= a_0 + a_1 \text{BDS} + U_{1t} \\ \text{EPS} &= b_0 + b_1 \text{BDS} + U_{2t} \\ \text{ROA} &= h_0 + h_1 \text{BDH} + U_{4t} \\ \text{EPS} &= k_0 + k_1 \text{BDH} + U_{5t} \\ \text{RCA} &= a_0 + a_1 \text{BDI} + U_{7t} \\ \text{EPS} &= m_0 + m_1 \text{BDI} + U_{8t} \\ \text{ROA} &= q_0 + q_1 \text{DIRQ} + U_{10t} \\ \text{EPS} &= Y_0 + Y_1 \text{DIRQ} + U_{11t} \end{aligned}$$

$$RCA = P_o + P_i AUG + U_{13}t$$

$$EPS = u_o + u_i AUG + U_{14}t$$

Where: ROA and EPS are as earlier stated;  $U_{1t}$  is the error term, which is constant; and the variables are normally distributed. Also,  $a, b, w, h, k, \lambda, \alpha, m, \beta, q, Y, z, P, u,$  and  $x$  are parameter estimates. The functions are further expressed as follows:

$$ROA = a_o + a_1 BDS$$

$$EPS = b_o + b_1 BDS$$

$$ROA = h_o + h_1 BDH$$

$$EPS = K_o + K_1 BDH$$

$$ROA = a_o + a_1 BDI$$

$$EPS = m_o + m_1 BDI$$

$$ROA = q_o + q_1 DIRQ$$

$$EPS = Y_o + Y_1 DIRQ$$

$$ROA = P_o + P_i AUC$$

$$EPS = U_o + U_1 AUC$$

From the above, it is expected that  $a, b, w, h, k, \lambda, \alpha, m, \beta, q, y, z, p, u,$  and  $x, > 0$ . The apparent expectations are as follows:

BDS to increase ROA and EPS

BDH to increase ROA and EPS

BDI to increase ROA and EPS

DIRQ to increase ROA, EPS

AUC to increase ROA and EPS

## Results

Analysis of data collected for this study involved the use of descriptive statistics and regression method. The presentation of financial data of the Paint Companies is made in Tables 1 to 24, as follows:

**Table 1:** African Paints (Nig.) PLC

YEAR	COST OF DEVELOPING ALTERNATIVE MEANS	COST OF PLACING PRICE TAG
1.	0.03	0.94
2.	0.04	0.78
3.	0.02	0.80
4.	0.03	0.79

5.	0.01	0.82
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Source: Company Annual Report/NSE Fact Book (various years).

**Table 2:** Berger Paints PLC

YEAR	COST OF DEVELOPING ALTERNATIVE MEANS	COST OF PLACING PRICE TAG
1.	0.06	1.24
2.	0.03	0.99
3.	0.04	0.94
4.	0.03	0.83
5.	0.03	0.53

Source: Company Annual Report/NSE Fact Book (various years).

**Table 3:** Chemical and Allied Products PLC

YEAR	COST OF DEVELOPING ALTERNATIVE MEANS	COST OF PLACING PRICE TAG
1.	0.40	0.13
2.	0.22	0.61
3.	0.23	0.11
4.	0.21	0.80
5.	0.44	1.26

Source: Company Annual Report/NSE Fact Book (various years).

**Table 4:** DN Meyer PLC

YEAR	COST OF DEVELOPING ALTERNATIVE MEANS	COST OF PLACING PRICE TAG
1.	0.06	0.83
2.	0.06	0.99
3.	0.12	0.61
4.	0.02	0.95
5.	0.06	0.93

Source: Company Annual Report/NSE Fact Book (various years).

**Table 5:** International Paint West Africa PLC

YEAR	COST OF DEVELOPING ALTERNATIVE MEANS	COST OF PLACING PRICE TAG
1.	3.41	0.45
2.	3.18	0.25
3.	4.44	0.55
4.	3.48	0.53
5.	8.48	0.54

Source: Company Annual Report/NSE Fact Book (various years).

**Table 6:** Nigeria-German Chemical PLC

YEAR	COST OF DEVELOPING ALTERNATIVE MEANS	COST OF PLACING PRICE TAG
1.	0.63	1.26
2.	0.53	0.89
3.	0.43	0.72
4.	0.37	0.64
5.	0.36	0.63

Source: Company Annual Report/NSE Fact Book (various years).

**Table 7:** Paints and Coatings Manufacturing PLC

YEAR	COST OF DEVELOPING ALTERNATIVE MEANS	COST OF PLACING PRICE TAG
1.	0.66	0.54
2.	1.54	0.57
3.	0.89	0.66
4.	0.38	0.68
5.	0.16	0.67

Source: Company Annual Report/NSE Fact Book (various years).

**Table 8:** Portland Paints and Product (Nig.) PLC

YEAR	COST OF DEVELOPING ALTERNATIVE MEANS	COST OF PLACING PRICE TAG
1.	0.06	0.88
2.	0.05	0.80
3.	0.04	0.70



4.	0.04	0.64
5.	0.04	0.64

Source: Company Annual Report/NSE Fact Book (various years).

**Table 9:** Premier Paints PLC

YEAR	COST OF DEVELOPING ALTERNATIVE MEANS	COST OF PLACING PRICE TAG
1.	0.47	2.36
2.	0.65	2.86
3.	0.35	2.36
4.	0.13	0.72
5.	0.08	0.70

Source: Company Annual Report/NSE Fact Book (various years).

**Table 10:** Saclux Paint Nig. LTD

YEAR	COST OF DEVELOPING ALTERNATIVE MEANS	COST OF PLACING PRICE TAG
1.	0.001	0.06
2.	0.002	0.71
3.	0.009	0.94
4.	0.001	0.61
5.	0.001	0.62

Source: Company Annual Report/NSE Fact Book (various years).

**Table 11:** Daconic Industries LTD

YEAR	COST OF DEVELOPING ALTERNATIVE MEANS	COST OF PLACING PRICE TAG
1.	0.04	1.06
2.	1.04	0.87
3.	0.05	0.83
4.	0.03	0.85
5.	0.05	0.91

Source: Company Annual Report/NSE Fact Book (various years).

**Table 12:** Gritco Nig. LTD

YEAR	COST OF DEVELOPING ALTERNATIVE MEANS	COST OF PLACING PRICE TAG
1.	0.001	0.97
2.	0.001	1.04
3.	0.001	0.09
4.	0.001	0.87
5.	0.01	0.80

Source: Company Annual Report/NSE Fact Book (various years).

**Table 13:** African Paints (Nig.) PLC

YEAR	EARNING PER SHARE (EPS)	RETURN ON ASSETS (ROA)
1.	10.30	0.04
2.	2.64	0.02
3.	24.57	0.07
4.	30.43	0.12
5.	32.80	0.08

Source: Company Annual Report/NSE Fact Book (various years).

**Table 14:** Berger Paints PLC

YEAR	EARNING PER SHARE (EPS)	RETURN ON ASSETS (ROA)
1.	408	0.28
2.	223	0.15
3.	967	0.46
4.	452	0.33
5.	330	0.15

Source: Company Annual Report/NSE Fact Book (various years).

**Table 15:** Chemical and Allied Products PLC

YEAR	EARNING PER SHARE (EPS)	RETURN ON ASSETS (ROA)
1.	12.61	0.34
2.	14.81	0.21
3.	19.08	0.25
4.	20.81	0.42
5.	26.67	1.06

Source: Company Annual Report/NSE Fact Book (various years).

**Table 16:** DN Meyer PLC

YEAR	EARNING PER SHARE (EPS)	RETURN ON ASSETS (ROA)
1.	64	9.10
2.	105	0.08
3.	(25)	7.52
4.	(12)	9.14
5.	142	0.09

Source: Company Annual Report/NSE Fact Book (various years).

**Table 17:** International Paint West Africa PLC

YEAR	EARNING PER SHARE (EPS)	RETURN ON ASSETS (ROA)
1.	0.05	0.25
2.	(0.09)	0.18
3.	0.07	0.09
4.	0.03	0.06
5.	(0.09)	0.29

Source: Company Annual Report/NSE Fact Book (various years).

**Table 18:** Nigeria – German Chemicals PLC

YEAR	EARNING PER SHARE (EPS)	RETURN ON ASSETS (ROA)
1.	3	0.026
2.	8	0.031
3.	6	0.046
4.	6	3.19
5.	(13)	0.058

Source: Company Annual Report/NSE Fact Book (various years).

**Table 19:** Paints and Coating Manufacturers PLC

YEAR	EARNING PER SHARE (EPS)	RETURN ON ASSETS (ROA)
1.	66	0.17
2.	244	0.12
3.	84	1.09
4.	38	0.07

5.	118	0.15
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Source: Company Annual Report/NSE Fact Book (various years).

**Table 20:** Portland Paint Products (Nig.) PLC

YEAR	EARNING PER SHARE (EPS)	RETURN ON ASSETS (ROA)
1.	314	0.28
2.	298	0.29
3.	343	0.29
4.	399	0.29
5.	323	0.28

Source: Company Annual Report/NSE Fact Book (various years).

**Table 21:** Premier Paints PLC

YEAR	EARNING PER SHARE (EPS)	RETURN ON ASSETS (ROA)
1.	4	0.19
2.	15	0.39
3.	9	0.13
4.	6	0.08
5.	2	0.03

Source: Company Annual Report/NSE Fact Book (various years).

**Table 22:** Saclux Paint Nig. LTD

YEAR	EARNING PER SHARE (EPS)	RETURN ON ASSETS (ROA)
1.	49	0.49
2.	70	0.59
3.	62	0.27
4.	83	0.31
5.	1.04	0.38

Source: Company Annual Report/NSE Fact Book (various years).

**Table 23:** Daconic Industries LTD

YEAR	EARNING PER SHARE (EPS)	RETURN ON ASSETS (ROA)
1.	60	0.13
2.	111	0.19
3.	54	0.18

4.	14	0.11
5.	150	0.02

Source: Company Annual Report/NSE Fact Book (various years).

**Table 24:** Gritco Nig. LTD

YEAR	EARNING PER SHARE (EPS)	RETURN ON ASSETS (ROA)
1.	182	0.37
2.	110	0.24
3.	94	0.18
4.	62	0.10
5.	90	0.15

Source: Company Annual Report/NSE Fact Book (various years).

The test of hypotheses mainly involved the use of regression - ordinary least square (OLS) method. This was aimed at determining the effect each value accounting variable has on the Paint Company's financial performance, in terms of EPS and ROA. The results are shown in Tables 25 and 26, as follows:

**Table 25:** Test of Hypothesis 1

VARIABLE	CO-EFFICIENT	T-VALUE	PROB
Constant (c)	93.3	3.15	0.05
ACPM	14.96	0.34	0.76

Source: Research Data (2012)

**Table 26:** Test of Hypothesis 2

VARIABLE	CO-EFFICIENT	T-VALUE	PROB
Constant	2.80	1.74	0.18
ACPM	2.63	1.09	0.36

Source: Research Data (2012)

From Table 25 which relates to Hypothesis 1, the results show a positive relationship between the variables. The F-value of 0.11 implies that the model overall is significant at 5 percent level of significance. Table 26,

which relates to Hypothesis 2, has F-value of 1.19, and this also affirms that the model overall is significant at 5 percent level of significance.

## Discussion

The findings of the study have further underscored relevance of value accounting in industrial organizations. It also implies that the significance of proper work study in productive organizations cannot be over-emphasized. These processes and techniques are used by factories to determine the most efficient methods of using labor, materials and machinery. The main components of work study are method study and work measurement. Method study involves the recording and analysis of existing methods of doing work and comparing them with proposed methods in order to implement new and more effective procedures. Work measurement, on the other hand, refers to a process of establishing time for which a qualified worker can carry out a task at a defined level of performance. It is imperative that work study provides the functional basis for standard costing. According to Idornigie (2003), work study is a valuable technique for improving efficiency and reducing waste in factories. It could be applied in many productive areas including:

- i. Factory layouts and work flow,
- ii. Materials handling tool design,
- iii. Scheduling,
- iv. Line balancing,
- v. Workspace methods, and
- vi. Layout.

## Conclusions

The findings of this study have further established the relationship between VA and industrial financial performance, anchored on proper organizational standards and methods. These operationally border on method study and work measurement. Bearing on these are the implications of cost. Basically, administration/overhead cost constitutes significant proportion of cost in an organization and should therefore be taken into critical consideration in cost reduction programs. Critically, organization and methods emphasize systematic analysis of administrative and office procedures that lead to more

efficient results. This is realized through the process of investigation, analysis, design and implementation of improved methods, utilization of equipment's and adoption of procedures (Idornigie, 2003; Okorafor, 2012). Accordingly, the areas where these undertakings apply include:

- i. Designing office layout/departmental procedures,
- ii. Office mechanization,
- iii. Work flow,
- iv. Paperwork elimination, and
- v. Telephone and communication services, etc.

From the fore-going, it is evident that enhancement of value analysis goes with beyond mere cost control and reduction intentions. It requires adopting strategies which would result in the development of alternative production means that is relatively more economical. To enhance financial performance of the companies, it is recommended that industrial managers should professionally undertake:

- i. Operations analysis in the course of development of alternative means of production, considering the associated cost implications in relation to profit targets;
- ii. Product/service component analysis to reveal vital aspects that could be successfully eliminated without reducing value and quality; and
- iii. Cost/economic analysis of identified functions of product or service, reconciled with the value, in order to sustain customer satisfaction.

As industrial executives adopt these practices, in addition to effective training and re-training of production and administration functionaries, more quality products and higher profitability will be sustained.

## References

- [1]. Alos, A. (2000). Creating value under uncertainty: The Nigerian experience. *Journal of African Business*, 1(1), 9-24.
- [2]. Agundu, P. U. C. & Ohaka, J. (2010). Cost – volume – profit analysis and industrial productivity management in Nigeria. *International Journal of Management Science*, 2(4), 1-5.
- [3]. Anyanwu, C. M. (2000). *Productivity in the Nigerian Manufacturing Industry*. CBN: Research Department.

- [4]. Asika, N. (1991). *Research Methodology in the Behavioral Sciences*. Lagos: Longman Nigeria Plc.
- [5]. Bigsten, A & Soderbom, M. (2006). What have we learned from a decade of manufacturing enterprises surveys in African? *The World Bank Research Observer*, 21(2), 241-265.
- [6]. Emaobong, A (2003). *Manufacturing Association of Nigerian (MAN): Nigeria's imperative in the new World Trade Order*. Workshop Report, AERC, Nairobi.
- [7]. Idornigie G. (2003). *Principles of Cost and Management Accounting*. Nigeria.
- [8]. Ofurum, C. O. & Egbe, S. (2014). *Advanced Financial Accounting*. Port Harcourt: David Stones Global Resources.
- [9]. Ojowu, N. (2003). Paper presented on Nigeria's imperative in the new World Trade Order, Workshop Report, AERC, Nairobi.
- [10]. Okorafor, L. N. (2012). *Value Analysis and Financial Performance of Manufacturing Companies: A Survey of Paint Manufacturing Companies in Nigeria (Unpublished MSc Thesis)*, University of Port Harcourt, Choba, Nigeria.