

**EFFECTS OF STANDARD COSTING ON THE PROFITABILITY OF  
MANUFACTURING COMPANIES  
(A CASE STUDY OF NIGERIAN BREWERIES PLC,AMA, UDI LOCAL  
GOVERNMENT OF ENUGU STATE)**

**BY**

**ONWURAH VIRGINIA NGOZI**

**ACC/2009/548**

**DEPARTMENT OF ACCOUNTANCY**

**FACULTY OF MANAGEMENT AND SOCIAL SCIENCES**

**CARITAS UNIVERSITY, AMORJI – NIKE, EMENE**

**ENUGU STATE**

**AUGUST, 2013**

**TITLE PAGE**

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**A PROJECT PRESENTED TO THE DEPARTMENT OF ACCOUNTANCY**

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**AUGUST 2013**

**APPROVAL PAGE**

This project on effects of standard costing on the profitability of manufacturing companies in Nigeria was supervised and approved in partial fulfillment of the requirements for the Award of Bachelor of Science (B.Sc) Degree in Accountancy.

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**Mr.Enekwe Chinedu .I.**

Project supervisor

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Date

.....

**Dr Frank Ovute**

Head of department

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Date

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**External examiner**

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Date

## **DEDICATION**

This project is dedicated to God Almighty, the originator and end of all knowledge.

I am also dedicating this project to my parents Mr./Mrs. Innocent Onwurah for their encouragement, morally and financial support throughout my academic pursuit in Caritas University.

## **ACKNOWLEDGEMENT**

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I am also grateful to my class mates who helped me in different ways to make this project a success.

## **ABSTRACT**

The topic of this research is effects of standard costing on the profitability of a manufacturing company. The purpose of this study was to discover if the application of standard costing techniques have any effect on profitability, to explore the relationship between standard costing and the profitability of manufacturing companies and also to determine whether standard costing techniques and principles are being adopted and practiced in Nigerian manufacturing companies (Nigerian breweries, Ama Eke, Udi local government of Enugu state). The design of this study is descriptive survey method and the study was conducted at Nigerian breweries, Ama which is the case study of this research work. The instrument of data collection was analyzed using the chi-square method. The researcher discovered the following as her data findings that proper accounting records are kept and are significantly necessary in the management of the company. That the company employs standard costing in costing their product and decisions are made with the standard costing information obtained in the company. That accounting reports are prepared and presented to the company's management and that actions are taken promptly on the information given in the report. That effective application of standard costing has effect on the profitability of the company. That the company benefit in a significant way through the use of standard costing especially in the improvement of profit. The researcher came to a conclusion that standard costing is widely used in Nigerian manufacturing companies and that standard costing enhances adequate planning, control and decision making processes in the company. That standard costing aids manufacturing companies in the elimination of unprofitable products, provision of costing information and cost control.

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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 BACKGROUND OF THE STUDY**

The effect of standard of standard costing on profitability has been a problem to manufacturing companies in Nigeria. The standard costing as a tool for either improving or not improving profitability. Unlike its contemporaries in the field of science, it deals with human beings and calculation significant information.

Lucey (2002) defines standard costing as a technique which establishes pre determined cost estimates of the cost of products and services and then compares these pre determined costs with actual costs as they incurred. Standard cost represent an estimated or pre determines total cost of product per unit for an organization. Adeniji (2009) argues that the process of estimating the total cost of production per unit is described as standard costing technique.

Standard costing as a long established concept is the management function of planning and control. In effect, yardstick has been of vital importance for planning and control exercise. As a matter of fact, problems

associated with production and earning a profit was recognized for many years before the concept of standard costing was invented. Standard costing appeared in the early twentieth century when transaction volumes were overwhelming the record keeping system in the use at that time. Since then, prevalent use of computer systems and automated data entry systems have reduced the need for standard costing, though not entirely eliminated.

These standard costs reveals goals, spur actions and efforts for effective management and equally provide checks such that exceptional profit oriented goal performance can be achieved and the reserve adequate punishment to be exercised for bad performance. Standard cost cause appraisal to be made over production facilities and form management intentions and capabilities and is a first step strength and weakness appraisal. These led to the preference of standard costing system in 1920's. it was brought into the system such that total variances might be accumulated as well as detailed variances. These steps gave rise to formal expression that significant costs were not actual and historical cost but standard or planning cost and their variances.

## **1.2 STATEMENT OF THE PROBLEM**

In Nigeria today, the economy is extremely bad. In this respect, a lot of measures have been taken to measure the destining economic situation.

Among the measures taken to revamp the economy includes;

Structural adjustment program (SAP)

Second tier foreign exchange market

Ban on importation etc

These measures have adverse effect on the buying attitude of the consumers. Cost of production has increased in manufacturing sector of the economy which in effect has resulted to high prices of manufacturing goods. In effect, no applicable level of demand could be recorded by most manufacturers as the buyer's purchasing power could no longer meet up with the rising price level. Most of the manufactured products were consumed by civil servants, public servants and other wage earners whose take home pay pocket can no longer take them home. In this regards, consumers utilize their little purchasing power mainly on foodstuff to sustain themselves first before luxury. With the economic reason, greater efforts should be made to keep cost to the lowest minimum through

efficient and effective utilization of both human and material resources. The above mentioned does not end it up, more problems still come up from such areas like;

1. Irregular supply of water: The power holding company of Nigeria (PHCN) does not render adequate services to manufacturers. PHCN will take off power and the production would stop unscheduled thereby resulting to much damages which the costs are added to cover all productions.
2. Inadequate supply of water: water is always in short supply and in most cases, water board does not supply water manufacturers need it. The manufacturers resort to buy water needed for their production from the open market to see the manufacturing activities are going on. In this respect, the price of getting water is costlier than from water board in most cases, whether water is supplied or not, water board will require them to pay a reasonably monthly water rate.
3. Bad roads: in respect of transporting raw materials used from the extraction area and evacuation of finished goods from the manufacturing industry to the market where it is demanded, high

transport costs are made due to bad roads in Nigeria with special reference to Eke, Udi LGA of Enugu state in particular.

4. Foreign competition: most of the indigenous manufacturers are not given protection from foreign competitors and in most cases are deprived of tax holidays.

There has been decreased profitability resulting from increased costs. In effect, requires a greater cost reduction and profit optimization. This can only be achieved through setting reliable standards, ensuring that such standards are mentioned and variances not adversely very large (significant) without proper cause. The system helps cost reduction to increase profitability. Another major problem centers on lack of adequate control of scarce resources by indigenous manufacturers. Most of the resources used require special storage facilities where they are stored before they are utilized to avoid spoilage. In most cases, the storage facilities might be beyond the reach of some manufacturers. Along the line, most manufacturers do not have adequate control over the resources as they are easily impact on the government. Government policies may be favorable or unfavorable to manufacturers in Nigeria; they can be evidenced to restriction an total ban as most of them are being imported.

The use of unqualified and inexperienced accountants by some industries pose a greater problems to such industries for the accountant cannot adequately apply the accounting techniques required of them on standard costing.

### **1.3 OBJECTIVES OF THE STUDY**

While carrying out this research, the following aspects were borne in mind;

1. To discover if the application of standard costing techniques have any effect on the profitability of manufacturing companies.
2. To explore the relationship between standard costing and profitability in manufacturing companies in Nigeria.
3. To determine whether standard costing techniques and principles are being adopted and practiced in Nigerian manufacturing industries.

### **1.4 RESEARCH QUESTIONS**

1. Does the application of standard costing techniques have any effect on the profitability of manufacturing companies?



2. What are the relationship between standard costing and profitability in manufacturing companies in Nigeria?
3. Are the principles of standard costing and standard costing techniques being adopted and practiced in Nigeria?

### **1.5 HYPOTHESIS OF THE STUDY**

To achieve the objectives of this study which is on the effect of standard costing on the profitability of a manufacturing company, the researcher formulated three hypotheses that will be tested in the process of this study. They are as follows;

1.  $H_0$ : The application of standard costing techniques has no effect on the profitability of manufacturing companies in Nigeria.

$H_1$ : The application of standard costing has effect on the profitability of manufacturing companies in Nigeria.

2.  $H_0$ : There is no relationship between standard costing and profitability in manufacturing companies in Nigeria.

$H_1$ : There is a relationship between standard costing and profitability in manufacturing companies in Nigeria.

3.  $H_0$ : The principle of standard costing and the standard costing technique are not being adopted and practiced in Nigerian manufacturing companies.

$H_1$ : The principle of standard costing and the standard costing technique are being adopted and practiced in Nigerian manufacturing industries.

## **1.6 SIGNIFICANCE OF THE STUDY**

It is believed that standard costing aids management to plan for the future, and if any justification is required for this research project on the effect of standard costing on the profitability of manufacturing industries, the view of Robert Appleby, one of the early British industrialist should be released on. Appleby regards the key to managerial success as the setting of standards for all business activities and measurement of performance against the standards. He states that financial measurement should penetrate into any cranny of the enterprise and in doctrine all management in their working habit. In this regards, there is need to prove whether standard costing is a more viable and preferable option to other costing methods adopted for each products produced. There is a limit to the price charged to production.

In effect, cost should be given maximum attention since revenue less cost gives a balance of profit. Profit should be increased as it is every industry is aiming at.

## **1.7 SCOPE AND LIMITATION OF THE STUDY**

This research project is restricted to the manufacturing industries of Nigerian breweries plc. The researcher focused on the Ama Brewery located at Eke, udi local government area of Enugu state as this industry operates under similar conditions as its counterparts within Nigeria and will present similar problems.

As regarding the limitations on this research project, it would be impossible to include all manufacturing industries of Nigeria brewery plc at every location, therefore, this study was limited to Ama brewery, Eke, Enugu state.

Time constraint was another strong factor that posed as a limitation to this research because the study was carried out when the researcher had so much work load. Thus, it was difficult for the researcher to meet up some of the appointment with respondents.

Another limiting factor to this research project was the uncooperative of some staff(s). Some of the staff(s) of the company taken into consideration refused to be interviewed for the fear of official reprisal, if they give out some committed information. This made it difficult for the researcher to collect much primary information.

## **1.8 DEFINITION OF TERMS**

The concept of standard costing as predetermined or forecast estimates of cost is wide and varied. The terms used in this research work intend to have the same understanding with the definition of the standard cost by the institute of cost and management accounting (ICMA) as "the predetermined cost calculated in relation to the prescribed set of working condition. Co-relating technical specification and scientific measurements of materials, labor and wage rate expected to apply within the period which the standard relates within an addition of appropriate share of budgeted overhead. Its main purpose is to provide basis for control through variance accounting for the valuation of stock and work in progress, and exceptional

cases for fixing selling prices. Some of the words used in this research project are defined as follows;

- Standard costing: implies setting up standard costs for goods and services.
- Standards and budgets: both standards and budgets are concerned with setting performance and cost levels for control purposes.
- Costing standards: meaningful standards which can be used for control purposes rest on a foundation of properly and standardized methods and procedures and comprehensive information system.
- Material standards: this implies setting the material content of a product.
- Labor standard: implies predetermining the exact grades of labor to be used as well the times involved. Planned labor time can be expressed in standard hours.
- Overhead standard: predetermined overhead absorption rates are the standards of overhead for each cost center using budgeted standard hours determined.

- Standard hour: this is defined as the quantity of work achievable at standard performance, expressed in terms of standard unit of work in a standard period of time.
- Variance accounting: this is an account that centers on future planning activities of an organization as compared with the historical activities, the activities being expressed in budgets, standard cost, standard selling price, standard profit margin and difference between those and the comparable actual results to be accounted to the management periodically and the responsibility centers, the analysis centering on the operating profit variance.
- Variance analysis: it is concerned with the section of variance accounting that relates to the analysis into constituent section and variances between planned and actual performance.
- Cost variance: this refers to the difference between the standard (planned) cost and the comparable actual and historical cost incurred during the specified time period.
- Controllable variance: it is a cost variance which can be identified as the primary responsibility of a specified person.

- Sales variance: this is the difference between the budgeted value of sales and the actual value of sales in a given period of time.
- Profit and loss variance: this is the difference between the planned profit and actual profit and loss.
- Profitability: this means the ability to make profit from all business activities of an organization, firm, company or an enterprise.
- Profit: this refers to the total income earned by the enterprise during the specified period of time

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## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.1 CONCEPT OF STANDARD COSTING**

Ama (2001) states that standard costs are predetermined costs, target costs or carefully pre planned costs which management endeavors to achieve with a view to establishing or attaining maximum efficiency in the production process. According to him, standard costs are cost plans relating to a single cost unit. Because standard cost purports to be what cost should be, any deviation represent a measure of performance. The predetermined costs are known as standard costs and the difference between the standard costs and actual costs are known as a variance.

Drury (2000) defines standard costs as predetermined cost; they are cost that should be marred under efficient operating conditions. The standard cost may be determined on a number of bases. The main uses of standard cost are in performance measurement, control, stock valuation and in the establishment of selling prices. A standard cost is a target cost which should be attained. The buildup of a standard cost is based on sound technical and engineering studies, known production methods and layouts,

work studies and work measurement, materials specification and wage and material price projections. A standard cost is not an average of previous costs. They are likely to contain the results of past inefficiencies and mistakes. Furthermore, changes in methods, technology and costs make comparison with the past of doubtful value for control purposes.

In order to assist management in cost control, the standard costing system must first of all indicate what is attainable by efficient performance and then highlight any area where attainable efficiency is not being achieved.

Standard costing is therefore defined by Nweze (2010) as a system of accounting which makes use of predetermined costs relating to each element of cost layout, materials and overhead for each line of product manufactured or service supplied. Standard costing technique therefore represents an integral part of management accounting control technique which will also include budgeting system and responsibility accounting statement.

The definition of standard costing as per the institute of chartered accountants official terminology is "a predetermined calculation of how

much cost should be under specific working conditions. It is built up from an assessment of the value of cost element and correlates technical specifications and the quantification of materials, labor and other costs to prices and/or wages expected to apply during the period which the standard cost is expected to be used.

Lucey (2002) argues that for standard costing to be successful, it requires reasonable stability and the existence of repetitive work. These conditions can be found across many sectors of the economy. For example, in manufacturing, in service industries such as transport, computing and banking, in parts of the public sector (e.g. street cleaning, refuse disposal) and so on. She went on to define standard costing as a technique which establishes predetermined estimates of the cost of products and services and then compares the predetermined cost with actual costs as they are incurred. The predetermined costs are known as standard costs and the difference between actual cost and standard cost is known as variance. The process by which the total difference between actual cost is broken down into different elements is known as variance analysis. Standard costing in practice is a detailed process and requires considerable development work before it is a useful tool.

Adeniji (2009) states that standard costing represents an integral part of management accounting control techniques which also include budgeting system and responsibility accounting statement. According to him, standard costing technique may be either viewed from the perspective of marginal costing technique or absorption costing technique. By relating standard costing technique with marginal costing technique, variance will be determined on the total relevant cost of product excluding fixed overhead. But if it is viewed in the context of absorption costing, then variance analysis will involve the total cost of product to the organization.

According to Adeniji (2009), the basic steps involved in standard costing techniques include:

- Identify the long term corporate objective of a business outfit.
- Determine the short term achievable objective from the corporate objective.
- Conduct a market research to identify the needs of the consumers.
- Obtain top management support for standard costing technique.
- Design a particular product or service that will be used to satisfy the needs of the consumer.

- Identify the quantity as well as quality of raw materials required in producing a unit of a product.
- Estimate normal loss in the course of production.
- Identify labor rate per hour together with standard hour required in producing a unit.
- Adopt a specific method of absorbing both variable and fixed production overhead into product costing.
- Prepare a standard cost card specifically itemizing the standard cost of production per unit.

Costs are classified under historical and actual or predetermined costs. Historical cost is concerned with the past while predetermined cost is concerned with future cost. Unlike predetermined costs, historical costs cannot be used in control mechanism. If it is used as a standard for future operations and comparison, inefficiency will be perpetuated.

Equally, predetermined costs can be of great benefit to cost planning, coordination and control. The guidance and regulation of executive and actions of the cost of operating and undertaking which ensures that a target planned is achieved most effectively and efficiently.

The objectives of standard costing according to Adeniji (2009) includes:

- To provide a basis for estimating.
- To provide guidance on possible ways of improving performance.
- To provide a formal basis for assessing performance and efficiency.
- To assist in setting standards.
- To control costs by establishing standards and analyzing variances.
- To enable the principle of management by exception to be practiced at the detailed operational level.
- To motivate staff and management.
- The standard cost can be used for stock and work in progress valuation, profit planning and decision making.
- To assist in assigning responsibility for advance variance of non performance in order to correct deficiencies or to maximize the benefits associated with favorable variances.

Omolehinwa (2000) also argues one of the purposes of standard costing is to assist in setting standards of performance and to provide feedback information for control purposes.

## **2.2 FEATURES OF STANDARD COSTING**

There are some essential features that are attributed to standard costing. This may include the following:

### **2.2.1 TYPES OF STANDARD**

#### **1. IDEAL STANDARD**

This may be described as an established standard specifically designed on the basis of maximum productive capacity of the organization i.e. standard established without providing adequately for any negative factor that may inhibit the attainment of the standard. For example, labor standards established without the provision for lateness, absenteeism, industrial action, annual leave, maternity leave etc.

#### **2. ATTAINABLE STANDARD**

Also referred to as practical standards. This will represent an established standard specifically premised on what is considered practicable within the organization. Practical standards are established with adequate provision for negative factors that may affect the attainment of the established standards. For example, in establishing production standards, adequate provision is given to ideal time or loss of production

due to machine breakdown, loss of power, lack of raw materials, repairs and maintenances etc.

### 3. CURRENT STANDARD

This will be described as an established standard specifically based on the prevailing working condition within the organization or the industry at large. Current standards are however subject to frequent changes in order to reflect the current position within the organization.

### 4. BASIC STANDARD

This will represent an old established standard designed principally to satisfy a given objective. Basic standards are not subject to frequent alterations, therefore, outdated in nature.

## **2.2.2 SETTING STANDARDS**

According to Lucey(2002), the realistic standards which can be useful for control purposes rest on a foundation of properly organized, standardized methods and procedures and a comprehensive information system. It is little point trying to develop a standard cost for a product if the production method is not decided upon. A standard cost implies that a target or standard exist for every single element which contributes to the product, the types, usage and prices of material and parts, the grades,



rates of pay and times for the labor involved, the production methods, the tools and jigs and so on. Considerable efforts are involved in establishing standard costs and keeping them up to date. The following paragraphs explain some of the detailed procedures involved in setting standards.

**MATERIAL STANDARD:** The material content of a product, raw materials, sub assemblies, piece parts, finishing material etc, is derived from technical and engineering specifications, frequently in the form of a Bill of materials. This standard quantities required normally include an allowance for normal and inevitable losses in the production, that is, machining losses, evaporation and expected level of breakages and rejections.

The process of analysis is valuable in itself because savings and alternative materials and ways of using materials are frequently discovered. The responsibility for providing material prices is that of the buying department. The prices used are the past cost but the forecast expected cost for the relevant budget period. The expected cost should take into account, trends in material prices, changes in purchasing policies, quantity and cash discounts, carriage and packaging charges and any factor that will influence material costs.

**LABOUR STANDARDS:** Without detailed operation and process specification, it would be impossible to establish standards and labor times. The technique of work measurement are involved, frequently combined with work study projections based elemental analysis when a part is not yet in production. The labor standards must specify the exact grades of labor to be used as well as the times involved. Planned labor times are expressed in standard hours (or standard minutes). The concept of standard hour/minute is important and is defined by Lucey(2002) as the quantity of work achievable at standard performance in an hour or minute. Once the times a grade of labor is established, a forecast can be made of the relevant wage rates for the appropriate future periods. This is usually done by the personnel department.

**OVERHEAD STANDARDS:** These predetermined overhead absorption rates become the standards for overhead for each cost centre using the budgeted standard labor hours as the activity base. For realistic control, overheads must be analyzed into their fixed and variable components and separate absorption rates calculated for both fixed and variable overhead, thus;

Standard variable OAR =  $\frac{\text{Budgeted variable overhead for cost center}}{\text{Budgeted standard labor hour for cost center}}$

Standard fixed OAR =  $\frac{\text{Budgeted fixed overhead for cost center}}{\text{Budgeted standard labor hour for cost center}}$

The level of activity adopted, expressed in standard labor hours, is the budgeted expected annual activity level which is the basis of the master budget.

### **2.2.3 REVISION OF STANDARDS**

Lucey (2002) argues that to show the trends and be able to compare performance and costs between different periods, standards would be rarely changed. On the other hand, for day to day control and motivation purposes, standards which reflect the most up to date position are required and most consequently revisions would need to be made continually.

The above positions reflect the extremes of the situation. There is no doubt that standard which are right up to date provide a better target and are more useful for the foremen and managers concerned, but the extent and frequency of standard revision is a matter of judgment. Minor changes in rates, prices and usage are frequently ignored for a time but their cumulative effect soon become significant and changes need to be made.

Prior to compute maintained standard cost files, standard cost revisions were a time consuming chore as it was necessary to ensure that all the effect of a change were recorded. For example, a change in the price of a common raw material which necessitate alterations to;

- a) The standard cost cards of all products, parts and assemblies using the materials
- b) Any price lists, stock sheets and catalogues involving the material and products derives from the material.

Because of such factors, it is common practice for all standard cost to be revised together at regular, periodic intervals such as six or twelve months, rather than on an individual, random basis.

#### **2.2.4 STANDARD COST CARD**

Lucey (2002) argues that the process of setting standard results in the establishment of the standard cost for the product. The make-up of standard cost is recorded on a standard cost card. In practice, there may be numerous detail cards together with a summary card for a given product, or the standard cost details may be on a computer file. The principle, however, remain the same. A standard cost card is a record that

provides detailed information on products. They project the tabulations of standard cost in form suitable for cost control and other purposes. Each product sub assemble made requires standard cost card. It is vital to provide a separate cost card for each process that constitutes a final the final cost of the product. In a sound given standard cost card, the quantity and prices of all the materials used must be shown.

The labor grades, time and cost per hour of each card must be well shown on the card. The overhead absorption must equally be shown indicating each category of overhead rate used, that is showing each component of fixed or variable overhead recovery rate in effect, the calculation is just extended to show material labor and overhead sub costs that make up the grand total.

As it is completed, it is filed and stored up by the cost accountant. He ensures that the relevant department through the committee get information on standard cost card completed.

The following is a simplified version of the layout of a standard cost card. An actual card would itemize the individual component in the product.

	UNITS	COST
Materials	X	X
Labor	X	X
Overhead	X	X
Total	Xx	Xx

### **2.2.5 ACCOUNTING VARIANCES**

A cost variance is defined by Eze and Ani (2009) as the difference between the standard or budgeted cost and the comparable actual cost. The process by which the total difference between standard and actual cost is subdivided is known as variance analysis, which they defined as the analysis of performance by means of variances, used to promote management action at the earliest possible stages.

Variations, therefore, arise as a result of differences between standard and actual prices, variations may be either favorable or adverse, minus or plus.

## **2.2.6 VARIANCE ANALYSIS**

Variance analysis is defined by Ama (2001) as the process of analyzing the total difference between planned and actual performance into its constituent parts, variance analysis can also be defined as a sign post which alerts management to the need for inquiry into cause of off standard results.

Eze and Ani (2009) indicates that the variance analysis involves the analysis of the causes of variance on three major elements of costs viz; material, labor and overhead. The basic variances will be computed by looking at the components of the total cost of material, labor and overheads. These components are quantity and money value for materials while the components of labor and overhead costs are hours worked and money value. Consequently, there are possible ways of analyzing the basic variances;

➤ **Material cost variance (MCV)**

It is a principal material variance which occurs when the actual material cost is at variance from the standard material cost, in fact, it is the

difference between the standard cost for material and actual material costs.

It is determined thus;

MCV= actual cost –standard cost

$$(AQ \times AP) - (SQ - SP)$$

Where;

AQ= actual quantity

AP = actual price

SQ = standard quantity

SP = standard price

➤ Direct material price variance (DMPV)

This is caused by paying a higher or lower price than the standard price set for material, while the actual quantity hold constant. In equation form, the material price variance is;

$$DMPV = (AP - SP) AQ$$

➤ Direct material usage variance (DMUV)



This is caused by using more or less of the standard amount of materials to produce a product or complete a process where the standard cost holds constant.

In equation form, the material usage variance is

$$\text{DMUV} = (\text{AQ} - \text{SQ}) \text{SP}$$

➤ Direct labor total variance (DLV)

This is a principal variance. It occurs as a result of the difference between the actual wage pay and standard wage pay.

$$\text{DLV} = (\text{SH} \times \text{SR}) - (\text{AH} \times \text{AR})$$

➤ Direct labor rate variance (DLRV)

This is caused by paying a higher or lower rate of pay than standard to produce a product or complete process. The direct labor rate variance is computed by multiplying the difference between the actual direct hour rate paid (AR) and the standard direct labor rate allowed (SR) by the hours of direct labor services required (AH).

In equation form, direct labor rate variance is

$$\text{DLRV} = (\text{AR} - \text{SR}) \text{AH}$$

➤ Direct labor efficiency variance (DLEV)

It is caused by using more or less of than the standard amount of direct labor hours to produce a product or complete a process. The direct labor efficiency variance is computed by multiplying the difference between the actual direct labor hours required (AH) and the standard direct labor allowed (SH) by the standard direct labor hour rate per hour (SR).

In equation form,

$$\text{DLEV} = (\text{AH} - \text{SH}) \text{SR}$$

➤ Variable overhead expenditure variance

It is the difference between the actual variable overheads incurred and the allowed variable overhead based on the actual hours worked.

VOEV= Actual variable overhead- (actual labour hour x overhead absorption rate)

➤ Variable overhead efficiency variance

This is the difference between the allowed variance overhead and the absorbed variable overhead.

VOEV= (Actual labour hours – standard labor hours) x variable overhead expenditure rate

➤ Fixed overhead expenditure variance

This is the difference between the actual fixed expenditure attributed and charged to a particular production period and the budget cost allowance for that production period. Alternatively, it is the difference between actual fixed overhead and allowed or budgeted fixed overheads.

Fixed overhead expenditure variance= Actual variable overhead x (actual labour hour x variable overhead absorption rate).

➤ Fixed overhead efficiency variance

This is part of the fixed production overhead volume variance. It is the difference between the actual direct labor hours worked times by the standard hourly absorption rate; and the standard cost absorbed in the production accomplished.

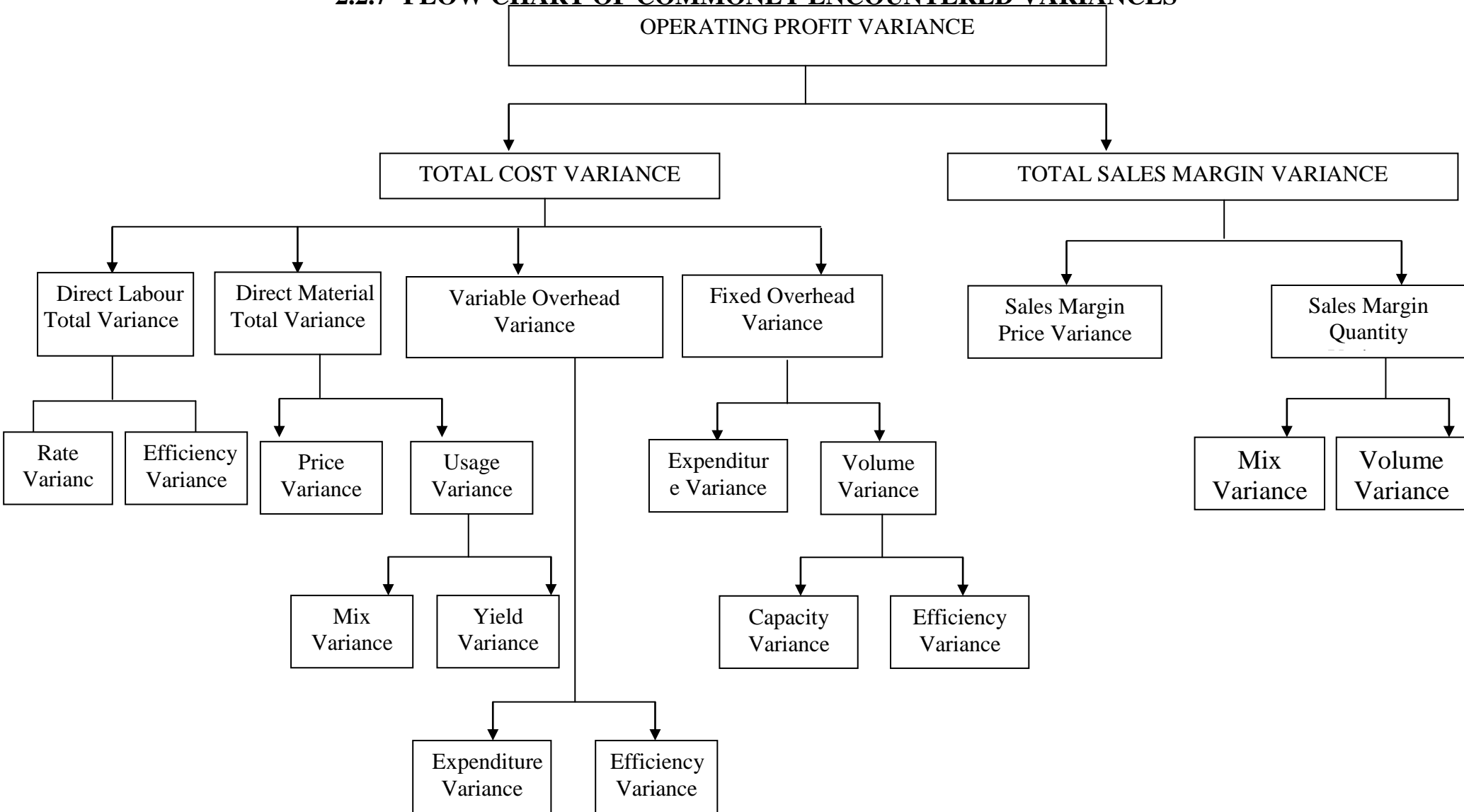
Fixed overhead efficiency variance= Actual labour hours – standard labour hours) x variable absorption rate

➤ Fixed overhead capacity variance :

This is part of the fixed production overhead volume variance. It is the difference between the actual direct labor hours worked times by the standard hourly absorption rate at the budgeted cost allowance for the period.

➤ Fixed overhead capacity variance = (actual hours x fixed overhead absorption rate) – budgeted expenditure

## 2.2.7 FLOW CHART OF COMMONLY ENCOUNTERED VARIANCES



Source: Adapted from Ama, G.A.N (2001). Management and cost accounting – current theory and practice – Abia State. Amasons publications ventures.

## **2.3 ADVANTAGES AND DISADVANTAGES OF STANDARD COSTING**

According to Eyisi (2009), the advantages of standard costing are as follows;

- ❖ Acts as a yardstick: standard cost acts as a yardstick against actual are compared with standard costs. This means that standard costing provides basis whereby performance may be measured on the basis of what product to produce, how much quantity to use and the expected levels of activity which are compared with the actual results obtained.
- ❖ Provides a basis for regular checks on expenditure incurred: This provides a basis for regular checks and control materials, price usage, labour costs and overhead expenditures.
- ❖ Provides quickly and readily available reports for management decisions:  
The provision of record makes the interpretation of management reports easier and thereby providing quickly and readily necessarily information for management actions.
- ❖ Cost control and cost reduction: By comparing actual cost and standard cost, cost can be controlled and reduced through constant monitoring measure and comparing results.

- ❖ Performance measurement: This is a recognizable method of monitoring and appraising performance through variance analysis, analyzing causes of shortfall and improving method and procedures for the future.
- ❖ Motivation of workers: By creating a realistic target, standard costing creates a realistic target motivating workers to achieve goals and standards that have been laid down.
- ❖ Helps in formulating production price even before goods are produced.
- ❖ It provides a basis for budgeting and forecasting.
- ❖ Helps in tackling internal problem with emphasis being given to likely price

changes, standard costing is likely to be the most suitable system for solving internal problem rising from inflation.

The disadvantages of standard costing are as follows:

- ❖ Unattainable standards: When a standard costing is badly designed.

This

likely may result to unattainable standards. In other words, such standards will not be attained (achieved) due to poor design. Nweze (2010) states that any system which is to be valued should be designed to deal with the

problems which exist. Thus, it means that standard costing which is not designed to solve existing problems is of no relevance as such is valueless. Hence, standard costing which is designed not to solve specific problem will result to unattainable standards and will be useless since this does not solve any specific problem.

- ❖ User's resentment: As people have different views and understanding thus,

it may be very difficult for managers and their workers to adhere to and achieve standards which have been set by the organization. Hence, managers and other individual workers may resent to carrying out their operation thereby making the standards set to be a mere tool which is not attainable but a threat to their freedom of action.

- ❖ Administrative inconvenience: The problem associated with accurate estimation of normal loss and recording of prices, rates, times and quantity may be posed administrative inconvenience to managers and all workers that are involved in designing and carrying out operations for standards set.

- ❖ Changes in technology: Frequent changes in technology may lead to



outdated standards or obsolete standards. In other words, standards set may be out of date due to technological developments or changes.

- ❖ Problem of stock valuation: The valuation of stocks is based on unrealistic

standards prices and may present difficulties as value of stocks (ie both opening and closing) are based on predetermined price. Hence, questions to resolve on whether to carry stock forward at the same figure or adjust to the new standard prices poses problems in stock valuation.

- ❖ Persistent increase in inflation: Standards set are being affected by persistent changing prices inflation hence making standard costing a mere tool which is unattainable.

## **2.4 CONCEPT OF PROFITABILITY**

Pandey (2010) defines profit as the difference between revenues and expenses over a period of time, (usually one year). Profit is the ultimate output of a company and it will have no future if it fails to make sufficient profit. Therefore, the financial manager should continuously evaluate the

efficiency of the company in terms of profit. Terms with similar meanings includes earnings, income and margin.

A company should earn profit to survive and grow over a long period of time. Profits are essential, but it could be wrong to assume that every action initiated by management of a company should be aimed at maximizing profit, irrespective of concern for customers, employees, suppliers or social consequences. It is unfortunate that the word 'profit' is looked upon as a term of abuse since some firms always want to maximize profit at the cost of employees, customers and the society. Except such infrequent cases, it is a fact that sufficient profits must be earned to sustain the operations of the business to be able to obtain funds from the investors for expansion and growth and to contribute towards the social overheads for the welfare of the society.

Ezeamama (2010) agrees that profit is the difference between revenues and expenses over a period of time. Therefore, profitability is the ability to make profits from all business activities of the company, organization, firm or an enterprise. It shows how efficiently the management can make profit by using all the resources available in the market. However, the term 'profitability' is an index of efficiency and is

regarded as a measure of efficiency and management guide to greater efficiency. Though, profitability is an important yardstick for measuring the efficiency, the extent of profitability cannot be taken as a final proof for efficiency. Sometimes, satisfactory profits can mark inefficiency and conversely, a proper degree of efficiency can be accompanied by an absence of profit. The net profit figure simply reveals a satisfactory balance between the values received and values given. The change in operational efficiency is merely one of the factors on which profitability of an enterprise largely depends; moreover, there are many other factors besides efficiency which affects profitability ranging from the degree of competition that a firm faces, market competition, the strength of demand, the state of the demand, the advertising campaign, substitutes, Costing methods to the efficiency of the company.

According to Emekekwe (2008), profitability ratio measures the profitability of a firm. He noted that profitability ratio will interest the government (because taxes are based on profits), the management, equity investors and preferred stock holders. Creditors have a marginal interest in these ratios. This is because profit or no profit, their interest payment must be made. However, the future income in the form of interest payment will

not be assured if a given firm persistently makes big losses. Creditors do not as a rule invest in a firm because they want to exercise their power to fore-close the company when it defaults. They invest because they expect to receive income. As a result of this, they are also interested in ensuring that the firm makes at least, enough profit to cover financial charges.

## **2.5 MEASUREMENT OF PROFITABILITY**

Ezeamama (2010), adds that profitability is measured by the following ratios;

- ❖ Gross profit margin (GPM): this shows the profit relative to sales after direct production costs are deducted. It can be used as an indicator of the efficiency of the production operation and the relationship between selling price and production cost.

GPM is given by the formula;

$$\frac{S - CGS}{S} \times 100$$

$$S \quad 1$$

Where:

GPM= gross profit margin

S= sales

CGS= cost of goods sold

- ❖ Mark up on cost: this is another ratio used to analyze the trading profitability of a firm. It shows the profit relative to direct cost of production. The formula is given thus;

$$\text{MUC} = \frac{\text{GP}}{\text{CGS}} \times 100$$

CGS

Where:

MUC= mark up on cost

GP= gross profit

CGS= cost of goods sold

- ❖ Profit margin: this ratio helps in measuring the relationship between sales and operating profit. It measures the profit made on sales after all the running expenses have been deducted from the gross profit. If the percentage of this rate has fallen, while gross profit has remained

the constant, then increase in running costs should be investigated and efforts be made to reduce them. The formula is thus:

$$PM = \frac{OI}{S} \times \frac{100}{1}$$

Where:

PM= profit margin

OI= operating income

S= sales

❖ Net profit margin: this ratio is obtained when operating expense, interest and taxes are subtracted from the gross profit. The formula is thus;

$$NPM = \frac{PAT}{S} \times \frac{100}{1}$$

Where:

NPM= net profit margin

PAT= profit after tax

S= sales

- ❖ Basic earnings ratio: it measures the returns achieved by a firm in relation to its assets. The formula is shown below;

$$\text{BEP} = \frac{\text{EBIT} \times 100}{\text{TA} \times 1}$$

Where;

BEP= basic earnings ratio

EBIT= earnings before interest and tax

TA= total assets

- ❖ Return on investments: This measures the overall effectiveness of a firm in generating profit with available assets. The formula is shown below;

$$\text{ROI} = \frac{\text{NPAT} \times 100}{\text{TA} \times 1}$$

Where;

ROI= return on investment

NPAT= net profit after tax

TA= total assets

- ❖ Return on investment: This ratio reveals the actual return to shareholders only as payments of interest to long term lenders has been deducted. The formula is shown below;

$$\text{ROE} = \frac{\text{NPAT} \times 100}{\text{SE}}$$

Where;

ROE= return on equity

NPAT= net profit after tax

SE= shareholders equity

## **2.6 PROFIT AND PROFITABILITY**

Sometimes, the term 'profit' and 'profitability' are used interchangeably. But in real sense, there is a difference between the two. Profit is an absolute term, whereas, profitability is a relative concept. However, they are closely related and mutually interdependent having different roles in business.

Pandey (2010), defines profit as the difference between revenue and expenses over a period of time( usually one year) while profitability refers



to the operating efficiency of the enterprise. It is the ability of an enterprise to make profit on sales. It is the ability of an enterprise to get sufficient return on the capital and the employees used in the business operation.

Profit is the test of efficiency and a measure of control to the owners, a measure of worth of investments to the creditors, the margin of safety to the government, a measure of taxable capacity and a basis of legislative action to the country. Profit is an index of economic progress. National income generated and the rise in the standard of living while profitability is an outcome of profit. In other words, no profit drives towards profitability.

Firms having same amount of profit may vary in terms of profitability. That is, profit in two separate business concern may be identical, yet, many a times, it usually happens that there profitability varies when measured in terms of size of investments.

## **2.7 AREAS WHERE STANDARD COSTING IMPROVE PROFITABILITY**

- ❖ Cost reduction and cost control
- ❖ Pricing

- ❖ Stock valuation
- ❖ Salary valuation
- ❖ Cost estimation
- ❖ Measurement of profits
- ❖ Business planning

### **2.7.1 COST REDUCTION AND COST CONTROL**

Through standard costing, managers make efforts to monitor, evaluate and trim expenditure. These efforts might be part of a formal, company-wide program or might be informal in nature and limited to a single individual or department. In either case, however, cost control is a particularly important area of focus for small businesses, which often have limited amount of time and money. In small businesses, the focus is often on selling and servicing the customers. This leaves the task of purchasing slightly side tracked. For items like fixed supplies, telephone bills or overnight delivery services can add up for small businesses. On the plus side, these minor expenditures can often provide sources of cost savings thereby improving profitability.

## **2.7.2 PRICING**

Fixing product prices is fraught with difficulties but much reliance is placed on cost as basis for pricing especially when the product demand is elastic.

Cost alone does not determine selling prices. Competitions often determine prices so that the main task of a manufacturer is to control costs. There should be based on cost, but with necessary adjustments made to allow for market conditions. In many fields where contract works are involved, the estimated cost is often the only information available on which to base prices. Many jobbing and contract businesses are relatively unaccepted, the customer accepts and the work is done. There is a distinct relationship between cost and price but the extent of this will be determined by the circumstances and the length of period being considered.

On the length of period involved, a number of accountants have advocated that the marginal costs are more meaningful than those given by total or absorption cost methods. This assertion is based primarily on the difficulties with the allocation and absorption of fixed overhead costs.

Prices are made up of cost and profit which are not related and therefore should be treated separately to develop a theory of marginal costs. The concern here is with marginal costing insofar as it may be employed for ascertaining prices that is the use of marginal cost within a standard costing system. With marginal costing, the selling price is determined by reference to the variable cost. These are not distorted by changes in the volume of output as a fixed cost.

The marginal costing approach is selling price minus marginal cost equals contribution ( $SP - MC = C$ ). If selling price makes contribution, then price may be regarded satisfactory. This form of pricing gives the greater flexibility. The pricing executive has more attitudes and can estimate the price and volume which would maximize profits.

### **2.7.3 STOCK VALUATION**

There is the desire to show the true and fair view of the operations for a particular year in terms of profit and changing the basis of valuing stock of raw material or work in progress can affect figures shown for profit. There is a general agreement that once the most suitable method of valuing stock has been determined, it should be used consistently, and

then much work can be avoided by valuing the stocks at these values. A further advantage is that material stock can be recorded in terms of quantities only. This can result in clerical saving and speedier postings to the stock records. Actual costs are not typical and less clerical is involved when standard values are used.

#### **2.7.4 SALARY VALUATION**

A salary scale has positive link with the standard costing system and therefore standard cost supervisors are paid for the authority and responsibility required to control a portion of the company's money in form of wages, materials and manufacturing expenses. In the[is respect, it is recommended that job evaluation should be used. Job values would be determined by the reference to controllable cost and a bonus then paid to the efficiency achieved in controlling these.

#### **2.7.5 COST ESTIMATION**

The use of standard cost greatly facilitates estimating for new products. When standard costs are installed, a thorough analysis of all operation is necessary and this results to greater accuracy. One of the earliest uses of cost accounting was to provide figures for estimating

prices. This is one of the most important functions. Costs have to be predetermined for raw materials, equipment usage and labour time, standard costs can be extremely useful for the estimating of controls. When using predetermined costs of any kind, a manager should be made aware of their nature and limitations if not there is a real danger that losses will be made by quoting unrealistic prices.

### **2.7.6 MEASUREMENT OF PROFIT**

The question of correct approach of calculating profit is very much related to stock valuation and the method of dealing with the absorption of fixed overhead costs. It is inevitable that there should be discord of the most suitable form of accounts to employ whether marginal or total amount should be used when total standard costing is employed, the stock would be valued at standard costs not some actual cost which have been affected by an unexpected fluctuation in the volume of output.

When speaking of profit, it is necessary to consider if there has been a current matching of cost and revenue. This process is vital for the calculation of profit for each year showing cost as current figure with sales at current value is the only logical method of calculating the result of a

year's operation with profit determination, any principle followed should be used consistently and varied to change the nature of accounting, but flexibility and adaptability are also essential. Standard costing gives recognition to consistency by adopting a well defused principle for equation, economic and technical sacrifices in terms of financial values. Assuming standard costing is extended to the whole field of selling and profit planning, then standard revenue and standard costs are being compared, any variances may properly be regarded as inefficiencies.

### **2.7.7 BUSINESS PLANNING**

Business planning includes budgeting and the effect of changing cost-price-volume relationship. These are so inter related that they should be included. The classification of fixed and variable cost and the adoption of marginal costing system can be useful in appropriate circumstances.

The essentials of profit improvement plans should include;

- a. Specific proposal and the expected profit of each.
- b. A minimum rate of return for each division and the standard of performance.

- c. The plan should include all aspect of the business and be based on the organizational units.
- d. Reports should be part of the system as to control the deviations from the profit target.

## **2.8 BRIEF HISTOORICAL BACKGROUND OF THE CASE STUDY**

Nigerian breweries plc, the pioneer and largest brewing company in Nigeria was incorporated in 1946. In June 1949, the company recorded a landmark when the first bottle of STAR lager beer rolled off its Lagos brewery bottling lines. The first brewery in Lagos has undergone several optimization processes and as at today boasts as the most modern brew house in the country.

In 1957, the company commissioned its second brewery in Aba. A Kaduna brewery was commissioned in 1963 while Ibadan brewery came on stream in 1982. In 1993, the company acquired the fifth brewery in Enugu. On October 2003, a sixth brewery sited at Ama Eke in udi local government area of Enugu state was commissioned and christened Ama brewery. Ama brewery is today, the largest brewery in Nigeria. Operations in the old



Enugu brewery were however discontinued in 2004, while the company acquired a malting plant in Aba in 2008.

In October 2011, Nigerian brewery acquired the majority equity interest in Sona systems associates business management limited (sona system) and life breweries limited from Heineken N.V. this followed Heineken's acquisition of controlling interests in five breweries in Nigeria from sona group in January 2011.

Sona system's two breweries in Ota and Kaduna, and life breweries in Onitsha have now become part of Nigerian breweries plc, together with the three brand; Goldberg lager, Malta gold and life continental lager.

## **NIGERIAN BREWERIES BRAND PORTFOLIO**

Nigerian breweries have a rich portfolio in quality brand. Star lager beer, the first in its portfolio, was launched in 1949 followed by gulder lager beer in 1970. Maltina, the nourishing malt drink was introduced in 1976, followed by legend extra stout in 1992. Amstel Malta was launched in 1994 while Heineken lager beer was re-launched into Nigerian market in 1998. Maltina sip-it packaged in tetra packs was launched in 2005 while

fayrouz was launched in 2006. In 2007, the company introduced star, Heineken, and amstel Malta in cans. In 2011, the company sold a total of 29 stocks keeping units including gulder can, legend can, Heineken magnum, maltina can, fayrouz can, fayrouz P.E.T, climax energy drink as well as Goldberg lager, Malta gold and life continental lager which became part of the family in October 2011.

Nigerian breweries plc has an increasing export businesses that dates back to 1968. The company currently exports to the united kingdom, European union and the west African sub region.

As a major brewery concern, the company establishes the establishment of ancillary businesses. Many of the organizations and individuals depend largely on the company for their means of livelihood. These includes manufacturers of bottle, crown corks, labels, cartons, plastic crates and such service providers as hotels, clubs, distributors, transporters, event managers, advertising and marketing communication agencies etc.

## SOCIAL RESPONSIBILITY

Nigerian breweries plc is socially responsible corporate organization with a good track record of corporate social initiatives in identified and strategic areas. The company's social responsibilities are driven by a vision to always win with Nigeria. Over the years, Nigerian breweries plc has been very active in supporting our national development aspiration in line with our commitment in winning with Nigeria.

We have continued to identify and respond to major challenges confronting our nation through our corporate special investment especially in the areas of education, the environment, water, youth empowerment, talent development and sport, amongst others.

The company in 1994 established an educational trust fund with a takeoff grant of 100 million to take more active part in funding of educational and research activities in instruments of higher learning, all in an effort to provide and encourage academic excellence in Nigeria. This is an addition to its secondary and university scholarship programs for children of its employees.

Nigerian breweries plc is the foremost sponsor of sports in the country with sponsorship covering football, athletics, tennis, cycling, chess, gulf, squash, sailing, amongst others. The aim is to develop Nigerian sport men and women to participate in national and international sports and boost the sports profile of the country.

The company is also involved in the development of leadership, musical and movie talents, through various programs. Some of these activities are captures in the company's social and environment report.

#### HEADQUARTER

Igamu house, Abebe village roads, Igamu

P.O.BOX 545

Email: [info@nbplc.com](mailto:info@nbplc.com)

#### BREWERY LOCATIONS

Lagos brewery, Abebe village road, Igamu

P.O.BOX 86, APAPA LAGOS

Aba brewery Industry road, P.O.BOX 496, Aba

Kaduna brewery

PP.O.BOX 80, Kaduna

Ibadan brewery

Ibadan/ ife road. P.O.BOX 12176, IBADAN

Ama brewery

Ama eke, Ngwo, 9<sup>th</sup> mile corner

P.O.BOX 01781, ENUGU

**NIGERIAN BREWERIES BRANDS**

Star

Gulder

Legend

Heineken

Maltina

Amstel

Fayrouz

Goldberg

Malta gold

Life

## FINANCIAL REPORTS

Nigerian breweries declared a total of 28.5 billion Naira as profit before tax for the half year (six months) ended 30<sup>th</sup> June 2012. This represents an increase of 1.25% over the 28.3 billion Naira declared as profit before tax for the same period in 2011. The provision (audited) result for the half year ended 30<sup>th</sup> June 2012, show a turnover of 136.5 billion naira representing an increase of 23.9% over the 110.2 billion Naira achieved for the corresponding period of 2011. The growth in revenue growth reflects the continuous improvement in the supply of the company's product as well as benefits arising from the sustained investment in our brands.

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## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 RESEARCH DESIGN**

According to Eze and Agbo (2005), research design is the specification of procedures for collecting and analyzing the data necessary to help solve the problem at hand, such that the difference between the cost and obtaining the various levels of accuracy and the expected value of information associated with each level of accuracy is maximized. It is a model or proof that allows for inferences to be drawn by the researcher concerning causal relation among the variables under investigation the research instrument used to carry out this study is the questionnaire.

#### **3.2 SOURCES OF DATA**

To every research work, there is always a reliable source from which data are collected. The two sources of data available to the researcher are listed and explained below:

#### a. PRIMARY SOURCES OF DATA

Primary sources of data is defined by Bordens and Abbott (2000), as those data containing the full research report including all details necessary to duplicate the study. Primary data are first hand data obtained from the source regarded as the original. They are usually collected for specific purposes. The source guarantees the authenticity of information required is obtained. The primary data used in this research was gathered from the questionnaire.

#### b. SECONDARY SOURCES OF DATA

These are data collected from other sources other than the primary

Source other than the primary source. It covers published materials and information gathered by other agencies for their own purposes but which incidentally is of use to the researcher. It includes textbooks, websites, journals and lecture notes etc as it is being used for this work.

### **3.3 RESEARCH INSTRUMENTS**

The instrument used in data collection in this study is the questionnaire which involves the list of questions structured using open ended and closed ended questions. These questionnaires were structured in a manner that suggested for immediate and easy and response.

### **3.4 RELIABILITY AND VALIDITY OF RESEARCH INSTRUMENT**

Validity on instrument is the process of finding out the degree to which a researcher measures or a text indeed measure what it intends to measure. Therefore, in order to make sure that the information contained in the questionnaire were collected from the respondent after they have been duly responded to, such data collected were further reduced into quantified form, in order to analyze the information very well.

Reliability of instrument used is based on the statistical tool employed or used for data analysis. Here, the frequency of each item was presented in a table and the percentage of each was calculated.

### 3.5 POPULATION

Okeke (2002) defines population as the collection of elements, units or individuals for which information is sought.

Also, population in research statistics is the target of the study for the collection of data. The numerical value of the workers is approximately sixty.

The population of Nigerian breweries plc, Ama eke in Udi local government of Enugu state, Nigeria is grouped below according to their respective departments.

Department	Population
Administration	18
Brewing	12
Sales	10
Finance	8
Marketing	12
Total	60

Source: field survey 2013

### 3.6 SAMPLE SIZE/ TECHNIQUES

A sample size is a subset of the population. In research, a sample size is drawn through a definite procedure from selecting statistically valid samples as well as generalizing from such samples to the total population. The sample size is determined using Yaro Yamare (1962) formula of finite population.

$$\text{Formula } n = \frac{N}{1 + N(e)^2}$$

Where:

n= sample

N= population

e= level of significance or error = 0.05 or 5%

Df= degree of freedom= (r-1) (c-1)

1= constant

n= 60

e= 0.05

$$\frac{60}{1+60(0.05)^2}$$

$$n = \frac{60}{1+60(0.0025)}$$

$$n = \frac{60}{1.15} = 52$$

$$n = 52$$

Sample size was distributed to each departments using Bowley's proportional method or formula.

$$\text{Formula} = \frac{NH \times n}{N}$$

Where nh= population of each department

n= sample size of the study

N= total population

Therefore, the allocation will be as follows;

Department	Population	Sample size
Administration	18	$18(52)/60=16$
Brewing	12	$12(52)/60=10$
Sales	10	$10(52)/60=9$
Finance	8	$8(52)/60=7$
Marketing	12	$12(52)/60=10$
Total	60	52

### **3.7 ADMINISTRATION OF RESEARCH INSTRUMENT**

The researcher administered the questionnaire to the staff(s) of the Nigerian breweries plc, Ama Eke in Udi local government area of Enugu state through the help of some staff of the organization , if which questionnaires were delivered and returned to the researcher.

### 3.8 METHOD OF DATA ANALYSIS

The method of data analysis adopted in this study was that of the use of simple tables in the analysis of data collected, while chi-square was used for testing the hypothesis.

Formula

$$X^2 = \sum \frac{(F_o - F_e)^2}{F_e}$$

Where;  $x^2$  = calculated value of chi-square

$\sum$  = summation

$F_o$  = observed frequency

$F_e$  = expected frequency

Df = degree of significance (c-1) (R-1) or (column -1) (row-1)

### 3.9 DECISION OF CRITERION FOR VALIDATION OF DATA

In taking a decision, the null hypothesis and alternative hypothesis is accepted if the critical or table value is greater than the compared value of



$\chi^2$ , alternatively if the compared value of  $\chi^2$  is greater than the critical value.

That is, if  $\chi^2 > \chi^2_e$ , reject  $H_0$  (null hypothesis)

If  $\chi^2 < \chi^2_e$ , accept  $H_1$  (alternative hypothesis)

Where;  $\chi^2 =$  critical value or table value

$\chi^2_e =$  calculated value.

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## CHAPTER FOUR

### DATA PRESENTATION AND ANALYSIS

#### 4.1 DATA PRSESENTATION

In this chapter, all the data collected from the questionnaire are presented and interpreted

Table 4.1.1 QUESTIONNAIRE DISTRIBUTION AND COLLECTION

Number of questionnaire distributed	52
Number of questionnaire returned	45
Number of questionnaire not returned	7

Source: field survey, 2013

For the analysis, the researcher will be making use of the number of returned questionnaire which is 45.

Table 4.1.1 GENDER

Option	Number of respondents	Percentage of respondents
Male	32	71
Female	13	29
Total	45	100

Source: field survey, 2013

From the above analysis, it can be seen that 71% representing 32 respondents were male, while the remaining 29% representing 13 respondents were female. This shows that male employers, perhaps due to the nature of the company, dominate the organization.

Table 4.1.3 MARITAL STATUS

Option	Number of respondents	Percentage of respondents
Single	20	44
Married	25	56
Total	45	100

Source: field survey, 2013

The above analysis shows that greater percentage of the respondents were married at 56% representing 25 respondents while 44% representing 20 respondents were single.

Table 4.1.4 AGE

Option	Number of respondents	Percentage of respondents
Below 15	–	–
15-25	6	13
26-35	22	49
36-45	10	22
Above 45	7	16
Total	45	100

Source: field survey, 2013

The above analysis portrayed that 13% representing 6 respondents were between 15-25 years bracket, 49% representing 22 respondents were within 26-35 years bracket, 22% representing 10 respondents were within 36-45 years bracket, the remaining 16% representing 7 respondents were above 45 years of age who are likely to retire very soon and no respondents were below 15 years.

Table 4.1.5 EDUCATIONAL QUALIFICATION

Option	Number of respondents	Percentage of respondents
WAEC	7	15
OND/NCE	5	11
HND	12	27
BSC or its equivalents	7	16
Others	14	31
Total	45	100

Source: field survey, 2013

From the above analysis, it is obvious that 15% representing 7 respondents have secondary school certificate and this constitutes mainly the employees in the brewing departments, 11% representing 5 respondents have OND/NCE certificate, 27% representing 12 respondents have HND, 16% representing 7 respondents have B,sc or its equivalent and finally the remaining 31% representing 14 respondents were made up of employees with other certificates above the B,sc degree.

Table 4.1.6

QUESTION 5: DO YOU AGREE YOUR COMPANY KEEPS ACCOUNTING RECORDS?

Option	Number of respondents	Percentage of respondents
Strongly agree	26	58
Agree	10	22
Strongly disagree	2	4
Disagree	3	7
Undecided	4	9
Total	45	100

Source: field survey, 2013

From the above analysis, it shows that 58% representing 26 respondents strongly believe that the company keeps accounting records, 22% representing 10 respondents agree, 4% representing 2 respondents strongly disagree, 7% representing 3 respondents disagree and 9% representing 4 respondents are undecided with this statement.



Table 4.1.7

QUESTION 6: DO YOU AGREE YOUR COMPANY EMPLOY STANDARD COSTING TECHNIQUES?

Option	Number of respondents	Percentage of respondents
Strongly agree	12	27
Agree	15	33
Strongly disagree	6	13
Disagree	4	9
Undecided	8	18
Total	45	100

Source: field survey, 2013

The above analysis shows that 27% representing 12 respondents strongly agree to the above question, 33% representing 15 respondents agree, 13% representing 6 respondents strongly disagree, 9% representing 4 respondents disagree while the remaining 18% representing 8 respondents are undecided.

Table 4.1.8

QUESTION 7: THERE ARE ARGUMENTS AGAINST THE USE OF STANDARD COSTING IN YOUR COMPANY?

Option	Number of respondents	Percentage of respondents
Strongly agree	13	29
Agree	8	18
Strongly disagree	7	16
Disagree	12	26
Undecided	5	11
Total	45	100

Source: field survey, 2013

From the above analysis, 29% representing 13 respondents strongly agree that there are arguments against the use of standard costing in the company, 18% representing 8 respondents agree, 16% representing 7 respondents strongly disagree, 26% representing 12 respondents disagree and the remaining 11% representing 5 respondents were undecided.

Table 4.1.9

QUESTION 8: DO YOU AGREE THAT DECISIONS MADE IN YOUR COMPANY ARE MADE THROUGH THE USE OF STANDARD COSTING INFORMATION?

Option	Number of respondents	Percentage of respondents
Strongly agree	15	33
Agree	10	22
Strongly disagree	8	18
Disagree	5	11
Undecided	7	16
Total	45	100

Source: field survey, 2013

From the analysis, 33% representing 15 respondents strongly agree that decisions are made through the use standard costing information, 22% representing 10 respondents agree, 18% representing 8 respondents strongly disagree, 11% representing 5 respondents disagree, while the remaining 16% representing 7 respondents were undecided.

Table 4.1.10

QUESTION 9: DO YOU AGREE THAT THE USE OF STANDARD COSTING IS USEFUL IN YOUR COMPANY?

Option	Number of respondents	Percentage of respondents
Strongly agree	20	44
Agree	11	24
Strongly disagree	2	4
Disagree	7	16
Undecided	5	11
Total	45	100

Source: field survey, 2013

In the analysis above, it is obvious that the use of standard costing has been seen to be useful to the company as 44% representing 20 respondents strongly agree to it, 24% representing 11 respondents agree, 4% representing 2 respondents strongly disagree, 6% representing 7 respondents disagree and the remaining 11% representing 5 respondents were undecided.

Table 4.1 11

QUESTION 10: DO YOU AGREE THAT STANDARD COSTING METHOD IMPROVES THE PROFIT MADE IN YOUR COMPANY?

Option	Number of respondents	Percentage of respondents
Strongly agree	18	40
Agree	13	29
Strongly disagree	2	4
Disagree	7	16
Undecided	5	11
Total	45	100

Source: field survey, 2013

The above analysis shows majority, 40% representing 18 respondents strongly agree to the view that standard costing methods improves the organization's profit, 29% representing 13 respondents agree, 4% representing 2 respondents strongly disagree, 16% representing 7 respondents disagree, 11% representing 5 respondents are undecided.

Table 4.1.12

## QUESTION 11: STOCKS ARE VALUED AT STANDARD COSTS?

Option	Number of respondents	Percentage of respondents
Strongly agree	12	27
Agree	8	18
Strongly disagree	6	13
Disagree	9	10
Undecided	10	22
Total	45	100

Source: field survey, 2013

The above analysis indicates clearly that a greater percentage of the company which is 27% representing 12 respondents strongly agrees that their stocks are valued at standard cost, 18% representing 8 respondents agree, 13% representing 6 respondents strongly disagree, 10% representing 9 respondents disagree and the remaining 22% representing were undecided.

Table 4.1.13

QUESTION 12: ACCOUNTING REPORTS ARE PRESENTED TO MANAGEMENT?

Option	Number of respondents	Percentage of respondents
Strongly agree	18	40
Agree	14	31
Strongly disagree	4	9
Disagree	2	4
Undecided	7	16
Total	45	100

Source: field survey, 2013

This analysis shows that 40% representing 18 respondents strongly agree that accounting reports presented to management, 31% representing 14 respondents agree, 9% representing 4 respondents strongly disagree, 4% representing 2 respondents disagree, 16% representing 7 respondents were undecided.

Table 4.1.14

QUESTION 13: ACTIONS ARE TAKEN PROMPTLY ON THE INFORMATION TO THE REPORTS?

Option	Number of respondents	Percentage of respondents
Strongly agree	8	18
Agree	10	22
Strongly disagree	12	27
Disagree	6	13
Undecided	9	20
Total	45	100

Source: field survey, 2013

Going by the result from the above analysis, it is evident that 18% representing 8 respondents strongly agree that actions are taken promptly on the information to the report, 22% representing 10 respondents agree, 27% representing 12 respondents strongly disagree, 13% representing 6 respondents, 20% representing 9 respondents were undecided with the statement.



Table 4.1.15

## QUESTION 14: DO MANAGERS OBJECT TO STANDARD COSTING?

Option	Number of respondents	Percentage of respondents
Strongly agree	4	9
Agree	6	13
Strongly disagree	17	38
Disagree	8	18
Undecided	10	22
Total	45	100

Source: field survey, 2013

The above table shows that 9% representing 4 respondents strongly agree that managers object to standard costing, 13% representing 6 respondents agree, 38% representing 17 respondents strongly disagree, 18% representing 8 respondents disagree, 22% representing 10 respondents were undecided.

Table 4.1.16

QUESTION 15: DO YOU AGREE THAT VARIOUS STANDARDS HELPS IN ACHIEVING GREATER PROFITS WHICH IS A TRUE MEASURE OF THE PROFITABILITY OF YOUR COMPANY?

Option	Number of respondents	Percentage of respondents
Strongly agree	18	40
Agree	13	29
Strongly disagree	2	4
Disagree	7	16
Undecided	5	11
Total	45	100

Source: field survey, 2013

The above table shows that 40% representing 18 respondents strongly agree that the various standards aids in achieving greater profits, 29% representing 13 respondents agree, 4% representing 2 respondents strongly disagree, 16% representing 7 respondents disagree while the remaining 11% representing 5 respondents were undecided.

Table 4.1.17

QUESTION 16: THE APPLICATION OF STANDARD COSTING TECHNIQUES HAS EFFECTS ON THE PROFITABILITY OF MANUFACTURING COMPANIES?

Option	Number of respondents	Percentage of respondents
Strongly agree	20	44
Agree	13	29
Strongly disagree	7	16
Disagree	3	7
Undecided	2	4
Total	45	100

Source: field survey, 2013

Going by the result of this analysis, it is evident that a greater percentage of the respondents which is 44% representing 20 respondents strongly agree that the profitability of their company is been affected by standard costing, 29% representing 13 respondents agree, 16% representing 7 respondents strongly disagree, 7% representing 3 respondents disagree, 4% representing 2 respondents were undecided.

Table 4.1.18

QUESTION 17: DO YOU AGREE THAT THERE IS A RELATIONSHIP BETWEEN STANDARD COSTING AND PROFITABILITY OF MANUFACTURING COMPANIES?

Option	Number of respondents	Percentage of respondents
Strongly agree	5	11
Agree	18	40
Strongly disagree	11	24
Disagree	4	9
Undecided	7	16
Total	45	100

Source: field survey, 2013

It can be deduced from the above table that 11% representing 5 respondents strongly agree that there is a relationship between standard costing and profitability, 40% representing 18 respondents agree, 24% representing 11 respondents strongly disagree, 9% representing 4 respondents disagree, 16% representing 7 respondents were undecided.

Table 4.1.19

QUESTION 18: DO YOU AGREE THAT THE PRINCIPLE OF STANDARD COSTING AND THE STANDARD COSTING TECHNIQUES ARE BEING ADOPTED AND PRACTISED IN NIGERIAN MANUFACTURING COMPANIES?

Option	Number of respondents	Percentage of respondents
Strongly agree	10	20
Agree	16	36
Strongly disagree	3	7
Disagree	11	24
Undecided	5	11
Total	45	100

Source: field survey, 2013

From the above table, it is clear that 20% representing 10 respondents strongly to this statement, 36% representing 16 respondents agree, 7% representing 3% respondents strongly disagree, 24% representing 11 respondents disagree and the remaining 11% representing 5 respondents were undecided.

## 4.2 TESTING OF HYPOTHESES

In testing of hypotheses, the chi-square ( $X^2$ ) was used.

$$X^2 = \sum \frac{(F_o - F_e)^2}{F_e}$$

Where;  $x^2$  = calculated value of chi-square

$\Sigma$  = summation

$F_o$  = observed frequency

$F_e$  = expected frequency

$Df$  = degree of significance  $(c-1)$   $(R-1)$  or  $(\text{column} - 1)$   $(\text{row} - 1)$

The result is reported below:

HYPOTHESIS 1:

$H_0$ : The application of standard costing techniques has no effect on profitability of manufacturing companies in Nigeria.

$H_1$ : The application of standard costing techniques has effects on the profitability of manufacturing companies in Nigeria.

This hypothesis was verified by analyzing the number 16 in the research questionnaire.

Question 16: The application of standard costing techniques have effects on the profitability of manufacturing companies?

Table 4.2.1

Option	Number of respondents	Percentage of respondents
Strongly agree	20	44
Agree	13	29
Strongly disagree	7	16
Disagree	3	7
Undecided	2	4
Total	45	100

Source: field survey, 2013

Table 4.2.2

Option	F0	Fe	F0-Fe	(F0-Fe) <sup>2</sup>	(F0Fe) <sup>2</sup> /Fe
Strongly agree	20	9	11	121	13.4
Agree	13	9	4	16	1.8
Strongly disagree	7	9	-2	4	0.4
Disagree	3	9	-6	36	4
Undecided	2	9	-7	49	5.4
Total	45	-	-	-	25

$$Fe = \frac{45}{5} = 9$$

$$X^2 \text{ calculated} = 25$$

When  $x^2$  calculated  $>$   $x^2$  tabulated, reject H0

Level of significance = 0.05 or 5%

$$Df = \text{degree of freedom} = 5-1 = 4$$

$$X^2 \text{ tabulated} = 9.49$$



## Decision Rule

When  $\chi^2$  calculated is greater than  $\chi^2$  tabulated, reject the null hypothesis,  $H_0$  and accept  $H_1$  if  $\chi^2$  calculated is less than  $\chi^2$  tabulated. Since  $\chi^2$  calculated is 25 and is greater than  $\chi^2$  tabulated 9.49, the null hypothesis  $H_0$  is rejected and the alternative hypothesis  $H_1$  is accepted. The implication of this is that the application of standard costing techniques has effects on the profitability of manufacturing companies in Nigeria.

HYPOTHESIS 2:

$H_0$ : There is no relationship between standard costing and profitability in manufacturing companies in Nigeria.

$H_1$ : There is a relationship between standard costing and profitability in manufacturing companies in Nigeria.

This hypothesis was verified by analyzing the question 17 in the research questionnaire.

Question 17: Do you agree that there is a relationship between standard costing and profitability of manufacturing companies?

Table 4.2.3

Option	Number of respondents	Percentage of respondents
Strongly agree	5	11
Agree	18	40
Strongly disagree	11	24
Disagree	4	9
Undecided	7	16
Total	45	100

Source: field survey, 2013

Table 4.2.4

Option	F0	Fe	F0-Fe	(F0-Fe) <sup>2</sup>	(F0Fe) <sup>2</sup> /Fe
Strongly agree	5	9	-4	16	1.8
Agree	18	9	9	81	9
Strongly disagree	11	9	2	4	0.4
Disagree	4	9	-5	25	2.8
Undecided	7	9	-2	4	0.4
Total	45	-	-	-	14.4

$$Fe = \frac{45}{5} = 9$$

$$X^2 \text{ calculated} = 14.4$$

When  $x^2$  calculated >  $x^2$  tabulated, reject H0

Level of significance = 5% or 0.05

$$Df = \text{degree of freedom} = 5 - 1 = 4$$

$X^2$  tabulated = 9.49

### **Decision rule**

Since  $x^2$  calculated is 14.4 and is greater than  $x^2$  tabulated 9.49, we reject the null hypothesis. This implies that there is a relationship between standard costing and the profitability of manufacturing companies in a significant way.

### **HYPOTHESIS 3:**

$H_0$ : The principle of standard costing and standard costing techniques are not being adopted and practiced in Nigerian manufacturing companies.

$H_1$ : The principle of standard costing and standard costing techniques are being adopted and practiced in Nigerian manufacturing companies.

This hypothesis was verified by analyzing the question 18 in the research questionnaire.

Question 18: Do you agree that the principle of standard costing is being adopted and practiced in Nigerian manufacturing companies?

Table 4.2.5

Option	Number of respondents	Percentage of respondents
Strongly agree	10	20
Agree	16	36
Strongly disagree	3	7
Disagree	11	24
Undecided	5	11
Total	45	100

Source: field survey, 2013

Table 4.2.6

Option	F0	Fe	F0-Fe	(F0-Fe) <sup>2</sup>	(F0-Fe) <sup>2</sup> /Fe
Strongly agree	10	9	-1	1	0.1
Agree	16	9	7	49	5.4
Strongly disagree	3	9	-6	36	4
Disagree	11	9	2	4	0.4
Undecided	5	9	-4	16	1.8
Total	45	-	-	-	11.7

$$Fe = \frac{45}{5} = 9$$

When  $\chi^2$  calculated >  $\chi^2$  tabulated, reject H0

Level of significance = 5%

Df = degree of freedom = 5-1 = 4

$\chi^2$  tabulated = 9.49

**Decision rule**

We reject the null hypothesis  $H_0$ , because the  $\chi^2$  calculated 11.7 is greater than the  $\chi^2$  tabulated 9.49. This implies that the principles of standard costing are being adopted and practiced in Nigerian manufacturing companies.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 SUMMARY OF FINDINGS**

In the course of this study, the findings were formulated from the chapter four of this research project. The summaries are as follows:

- ❖ That most of the staff for Nigerian breweries plc were male.
- ❖ That a greater number of the staff is married.
- ❖ That a greater number of the staff was between 26-35 years bracket.
- ❖ A greater number of staff believe that the company keeps accounting records.
- ❖ A greater number of staff believes that the company adopts standard costing system.
- ❖ That there are arguments against the use of standard costing in the company.
- ❖ That decision is made through the use of standard costing information.
- ❖ That stocks are valued are standard cost.
- ❖ That accounting reports are presented to management.



- ❖ That the various standards help in achieving greater profits which is a true measure of profitability in the company.
- ❖ That the application of the standard costing techniques has effect on the profitability of manufacturing companies.
- ❖ That there is a relationship between standard costing and profitability in manufacturing companies.
- ❖ That the principle of standard costs and standard costing technique is being adopted and practiced in Nigerian manufacturing companies.

## **5.2 CONCLUSION**

Having examined in details the effect of standard costing on the profitability of manufacturing companies, one can conclude that standard costing is extremely necessary in every manufacturing company in Nigeria. If the principles and techniques of standard costing is being adopted and practiced in Nigerian manufacturing companies, it serves as a tool for improvement of profitability. This is so because it enhances adequate planning, control and decision making processes in the company.

It should be noted that there is a dire need to keep proper accounting record in the company so as to measure the extent to which standard costing improves profitability.

The findings of this research shows that when the principles and techniques of standard costing are consistently applied in the company, it aids in the decision making process of the management, helps in achieving greater profits, it extremely helps in cost control, helps in the elimination of unprofitable products, and also strengthens the relationship between standard costing and profitability in manufacturing companies.

It can also be out rightly concluded based on the findings of this research that the application of standard costing have greater effects on the profitability of manufacturing companies and that the principle of standard costing and standard costing techniques are being adopted and practiced in Nigerian manufacturing companies.

### 5.3 RECOMMENDATIONS

On the whole, the findings of this study support the general conclusion that standard costing aids in the improvement of profit in manufacturing companies.

In the light of the findings made, the following are recommended:

- ❖ That the company should provide a cost unit to take the responsibility of standard costing.
- ❖ That the cost unit should exclusively be responsible for providing standard costing information in the company.
- ❖ That the managers who object to standard costing should be educated on the relevance of standard costing to the company.
- ❖ Adherence to the standard costing information should be practiced by the top management as it is a tool for the improvement of profit in the company as concluded in this chapter.
- ❖ Since standard costing helps in profit improvement, the researcher recommends the employment of more qualified cost accountant so that comparative analysis of different costing techniques will be assured.

- ❖ The researcher also recommends that stocks be valued at standard costs.
- ❖ That managers should take appropriate actions based on the information to the report.
- ❖ The researcher also recommends consistency in the application of standard costing.

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## **APPENDIX**

DEPARTMENT OF ACCOUNTANCY  
CARITAS UNIVERSITY  
AMORJI NIKE, EMENE  
ENUGU STATE

DEAR SIR/MADAM

### **REQUEST TO COMPLETE A QUESTIONNAIRE FORM FOR 2012/2013 ACADEMIC SESSION**

I am an undergraduate of the above mentioned department, Caritas University. I am currently carrying out a research project work on the effect of standard costing on the profitability of manufacturing companies using your company as my case study.

Please, would you help me by completing the following questionnaires as objectively as possible to the best of your knowledge?

All your sincere responses to the question will be held in strict confidence and use only for the purpose of this project research work is purely for an academic requirement for Award of BSC degree in Accountancy.

Your maximum co- operation is highly solicited.

Yours faithfully,

ONWURAH NGOZI

(Project researcher)

## QUESTIONNAIRE

Please kindly read and respond

Part A:

1. Gender

Male ( ) Female ( )

2. Marital status

Single ( ) Married ( )

3. Age

Below 15 years ( ) 15-25 years ( )

26-35 years ( ) 36-45 years ( )

Above 45 years ( )

4. Academic qualification

WAEC ( ) OND ( ) NCE ( ) HND ( ) BSC and its  
equivalent ( )

Part B:

Please respond using the following letters

SA: strongly agree



A: agree

SD: strongly disagree

D: disagree

U: undecided

5. Does your company keep accounting records?

SA [    ]    A [    ]    SD [    ]    D [    ]    U [    ]

6. Does your company employ standard costing techniques?

SA [    ]    A [    ]    SD [    ]    D [    ]    U [    ]

7. Are there arguments against the use of standard costing?

SA [    ]    A [    ]    SD [    ]    D [    ]    U [    ]

8. Are the decisions made in your company made through the use of standard costing information?

SA [    ]    A [    ]    SD [    ]    D [    ]    U [    ]

9. Do you consider the use of standard costing useful in your company?

SA [    ]    A [    ]    SD [    ]    D [    ]    U [    ]

10. Do you think that standard costing method improve the profits made in your company?

SA [    ]    A [    ]    SD [    ]    D [    ]    U [    ]

11. Are stocks valued at standard costs?

SA [ ] A [ ] SD [ ] D [ ] U [ ]

12. Are accounting reports presented to management?

SA [ ] A [ ] SD [ ] D [ ] U [ ]

13. Are actions promptly taken on the information?

SA [ ] A [ ] SD [ ] D [ ] U [ ]

14. Do managers object to standard costing?

SA [ ] A [ ] SD [ ] D [ ] U [ ]

15. Do the various standards help in achieving greater profit which is a true measure of profitability of your company?

SA [ ] A [ ] SD [ ] D [ ] U [ ]

16. Does the application of standard costing technique have any effect on the profitability of manufacturing companies relating to your company?

SA [ ] A [ ] SD [ ] D [ ] U [ ]

17. Do you think there is a relationship between standard costing and profitability of manufacturing companies?

SA [ ] A [ ] SD [ ] D [ ] U [ ]

18. Do you think the principles of standard costing and the standard costing techniques are being adopted and practiced in Nigerian manufacturing companies?

SA [ ] A [ ] SD [ ] D [ ] U [ ]