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Examination of Fair Value Measurement in Determination of Profitability of Listed Manufacturing Firms in Nigeria

AKWU, ONYEKACHI DAVID
PG/M.Sc/2011/60564

DEPARTMENT OF ACCOUNTANCY, FACULTY OF BUSINESS ADMINISTRATION, UNIVERSITY OF NIGERIA

September, 2014
Examination of Fair Value Measurement in Determination of Profitability of Listed Manufacturing Firms in Nigeria

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PG/M.Sc/2011/60564

BEING A DISSERTATION PRESENTED TO THE DEPARTMENT OF ACCOUNTANCY, FACULTY OF BUSINESS ADMINISTRATION, UNIVERSITY OF NIGERIA, ENUGU CAMPUS. IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE (M.Sc) DEGREE IN ACCOUNTANCY

Supervisor: Dr. (Mrs.) G. N. OFOEGBU FCA

September, 2014

DECLARATION
The work incorporated in this dissertation is original and has not been submitted either in part or in full for the award of any other degree or diploma in this institution or any other institution of higher learning.

Liability(ies) arising from this study is/are entirely mine and not that of my supervisor and/or the University.

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Dr (Mrs.) G. N. OFOEGBU FCA
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(HEAD OF DEPARTMENT)

DEDICATION
This work is dedicated to all those who have sacrificed their shoulders as a ladder for my climbing to success; particularly my father - Catechist Fidelis Chukwuike Akwu - who died in the active service of raising his children. I love you all.

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ABSTRACT
Examination of fair value measurement in determination of profitability of listed manufacturing firms in Nigeria was influenced by the adoption of International Financial Reporting Standard (IFRS) in Nigeria. IFRS are a set of accounting standards developed by the International Accounting Standards Board (IASB) that is becoming the global standard for the preparation of public company financial statements. The standard favours a basis of valuing assets and liabilities known as Fair Value, different from Historical Cost promoted by Statement of Accounting Standards (SAS) and the former International Accounting Standards (IAS). The Fair Value measurement values assets and liabilities at their current market price as though the business is at liquidation and trying to realise its assets and dispose its liabilities, while the Historical Cost convention values assets and liabilities at their original costs of purchase or transfer thereby assuming a stable monetary unit disposition. The IFRS also presents with reclassification of returnable packaging material (RPM) as long term asset, and the depreciation of the components of a machine, instead of the whole machine. Previous research has shown that method of valuation may significantly influence reported profit; the problem therefore is, what effect would this newly adopted way of valuing assets and liabilities have on profitability? Thus, the study sought to: (i) ascertain the influence of depreciation on profitability of the manufacturing firms in Nigeria using fair value measurement and historical cost convention, (ii) examine the effect of inventory on reported profit of manufacturing firms in Nigeria under fair value measurement and historical cost convention, (iii) determine the relationship between volume of tax and reported profit of manufacturing firms in Nigeria using fair value measurement and historical cost convention and (iv) compare the mean of the two sampled populations. The ex-post facto research design was adopted for this study. A cross sectional data from the financial reports of manufacturing companies quoted on the 1st tier security market of the Nigerian Stock Exchange for Pre-IFRS of 2011 and Post IFRS of 2012 periods were used. The dependent variable is profitability while the independent variables are depreciation, inventory and taxation. The five companies studied were those that have complied with IFRS and they include: Champion Breweries Plc, Guinness Breweries Plc, International Breweries Plc, Nigerian Breweries Plc and 7-up Bottling Company Plc. The simple least square regression technique, correlation coefficient, and t-statistic were analytical tool were used; using Econometric Views (EViews) statistical software. Depreciation has positive and significant impact on profitability using fair value measurement (R² = 0.959; AR² = 0.945; p-value = 0.0036) and historical cost convention (R² = 0.997; AR² = 0.996; p-value =0.0001). Inventory has positive and significant effect on profitability under fair value measurement (R² = 0.939; AR² = 0.918; p-value = 0.0066) and historical cost convention (R² = 0.983; AR² = 0.977; p-value = 0.0010). A positive and significant relationship exist between taxation and profitability using fair value (r = 0.998) and historical cost convention (r = 0.979). The two populations from which sample were taken have the same mean (t_cal = 0.467 < t_critical = 2.306, 0.05 significant level). Conclusively, depreciation, cost of sales, and Taxation has significant and positive impact, effect and relationship respectively on what is reported as profit under historical cost convention and under fair value measurement. Thus, indicating that fair value measurement can serve as a replacement to historical cost convention. As such, fair value should be encouraged.
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# CHAPTER ONE
INTRODUCTION

1.1 Background to the Study:
The 20th century witnessed a shift in the accounting practice, from the reporting entity unilaterally setting its own generally accepted accounting practice (GAAP) to an independent body/board setting the financial reporting standards, in a bid to satisfy the users of accounting information, and enhance the ‘information to be disclosed and comparison need’ of the financial statements (Emerson, Karim & Rutledge, 2010; Ezejelue, 2008; Glautier & Underdown, 2001; Wood & Sangster, 1999; Zeff & Keller, 1985). This shift is greatly in response to the dynamism in the business environment and it was partly responsible for the birth of the Accountants International Study Group (AISG) in 1967 and subsequently, the formation of the International Accounting Standard Committee in 1973 (Emerson, et al, 2010; Ezejelue, 2008; Glautier & Underdown, 2001). The International Accounting Standards Committee (IASC) eventually became the International Accounting Standard Board (IASB) in 2001 (ICAN, 2009a).

The International Accounting Standard Board was established to develop and issue accounting standards that should guide the preparation and presentation of financial statements globally. Since the establishment of this Board, it has been able to issue not less than forty-one (41) statements or pronouncements bothering on sensitive accounting topics like depreciation, construction contract, deferred taxation, business combination, property plant and equipment (ICAN, 2010; ICAN, 2009a; Alfredson, Leo, Picker, Pacter, & Radford, 2005). In the year 2005, the Accounting world witnessed the widespread migration (adoption/adaptation) to a ‘capital market-oriented financial reporting standards’ i.e. the International Financial Reporting Standards (IFRS) (Epstein & Mirza, 2006). The adoption/adaptation of IFRS in 2005 made it the first time the services of IASC (otherwise known as IASB), are packaged to satisfy the need of direct client(s) i.e. International Organisation of Securities Commission (IOSCO), Basel Committee on Banking Supervision, International Association of Insurance Supervisors (Epstein & Mirza, 2006; Alfredson, et al, 2005). The reason for the introduction was that IFRS should be the common denominator for companies that wish to be accepted for secondary listing into the International Stock Exchange (Epstein & Mirza, 2006; Alfredson, et al, 2005).
Meanwhile in Nigeria, in the year 2010, the Federal Executive Council directed the adoption of International Financial Reporting Standards (IFRS) (in response to the recommendation of the Roadmap Committee - a committee set up for the adoption or adaptation to IFRS), effective January 1, 2012; to strengthen this adoption, the Financial Reporting Council of Nigeria (FRCN) Act no. 6, 2011 was passed to create an enlarged and enhanced Nigerian accounting regulatory body with enormous powers. This new Act replaced the Nigeria Accounting Standard Board (NASB) Act 2003. In view of this, NASB is now referred to as FRCN (Ewoma, 2013; Olanrewaju, 2012; Federal Government of Nigeria, 2011). The Roadmap Committee also recommended implementation processes. The adoption of IFRS positioned Nigeria as one of the disciples/campaigners of IFRS amidst the international community.

The International Financial Reporting Standards (IFRS) including International Accounting Standards (IAS) are a set of accounting standards that can be used to bring about uniformity in financial reporting on a global basis. The need for international standards arises from the increasing internationalisation of business and, in particular, the growth of international capital markets, in which there is demand for accounting information that are comparable across companies that are located in different countries (Floropoulos, 2006). IFRS is a principle based set of standards as against the rule based standards (under the former IAS regime). In other words, it permits the judgement and subsequently choice of the reporting entity, on the accounting principles that best suit the reporting entity, provided they are within the stated allowable principle and practice of reporting finance and financial activities. However, the IFRS preach consistency, and/or full disclosure of the slightest change in processes and procedures adopted or otherwise, at any material point in time, such that the substance is reported and not compulsorily the form, and the principle is maintained (Matis & Bonaci, 2008).

Financial reporting under IFRS is anchored on the principle of Fair Value (Mark-to-Market) as against the Historical Cost Convention/Accounting that is promoted by the old GAAP i.e. International Accounting Standard (IAS) (Matis & Bonaci, 2008). Historical Cost Accounting (HCA) which has been in practice before the introduction of Fair Value Accounting (Karen & Alan, 2011), is the traditional method of recording assets (liabilities) at their original cost. It is the original monetary value of an economic item. This system of accounting is based on the stable measuring unit assumption i.e. assets and liabilities may be shown at their original cost of purchase, as if there had been no change in value since the date of acquisition (Bessong &
Charles, 2012). The balance sheet value of the item may therefore differ from the true value. Using this method of accounting, profit is determined by comparing sales revenue with the historical cost of the asset (Meigs, 1984).

The HCA approach of valuation allows for consistency and relative certainty in the value of asset reported that gave rise to the profit. It does not permit manipulation of asset or liabilities. Value assigned to assets (liabilities), using the HCA method of valuation are verifiable from the document that proves property right over the assets e.g. promissory notes, invoice, or a debt instrument, as such it is objective, it is reliable, free from bias, and easily understandable to it users (Tearney, 2004). However, for the fact that it is carried on the cost as at the time of purchase of the asset, it is inadequate for accounting during price level changes, this situation becomes worsen at an incessant inflationary trend (Ewoma, 2013; Jennings, 1986).

On the other hand, the essential of what is labelled “fair value accounting” includes: (1) asset and liability recognition, (2) the treatment of income as a residual, and (3) the expectation that balance sheet values sum to the market valuation of the company (Emerson, et al, 2010). In determining fair value, an entity uses the assumptions that market participants would use when pricing the asset or liability under current market conditions, including assumptions about risk. As a result, an entity’s intention to hold an asset or to settle or otherwise fulfil a liability is not relevant when measuring fair value (IASB, 2011). But where a market price does not exit, an alternative measurement technique(s) is used to approximate fair value. The alternative measurement bases which may be applied for assets (or liabilities) which market value are not readily available require that the carrying value of the assets (or liability) be updated to the market price (mark-to-market). It would therefore be acceptable for an entity to revalue its assets (or liabilities) (Epstein & Mirza, 2006; IASB, 2011). Magnan (2009) argued that this alternative way of calculating fair value could possibly lead to subjectivity in the value of the asset, thereby “masking” the firm’s true economic performance. He argues further that, if markets become volatile, as has been the case in recent months, reported earnings also become more volatile, it may allow managers to delay the day of recognition as well as distorted investors and regulators’ perceptions of financial performance and stability at the time of the financial bubble.

Furthermore, research has shown that method of valuation may significantly influence the ability to report profit vis a vis the going concern of a firm (Bessong & Charles, 2012). Where
the fundamental objective of financial statements is to provide true and fair information about the financial position, performance and changes in financial position of a reporting entity, that will assist a wide spectrum of users of financial information in making sensitive and useful economic decisions (ICAN, 2009a), one cannot but ask, (having known relatively, the likely effect historical cost accounting would have on the ability of a firm to report profit), what influence would fair value measurement have on the profitability of firms in general, and the going concern of a firm in particular? This research is necessary particularly at a time like this when Nigeria is making her first outing on IFRS. This forms the background of this study.

Although there has been research on IFRS and Fair Value in other parts of the world, but very little research on this topic has been done in Nigeria. Bessong and Charles (2012) carried out a comparative examination of the effect of fair value accounting and historical cost accounting on the reported profits, concentrating on manufacturing companies in Nigeria. Based on their findings, they concluded that the profit measurement method (i.e. method of accounting) adopted directly influences the amount calculated as depreciation, determines the amount charged as taxes and stipulates the amount paid as dividend from the reported profit of a given period. In that work of Bessong and Charles (2012), data gathered were analyzed using the multiple regression technique to measure the relationship between the dependent and the independent variables for a particular year 2010. Also, data were gathered at a time (2010) when the country was still undecided whether to adopt or adapt to IFRS. But this particular research has adopted a cross sectional analysis of the profit of manufacturing firms quoted on the Nigerian Stock Exchange in pre-IFRS period of 2011 and post-IFRS of 2012 financial year; and using the Ordinary Least Square Regression technique and t-statistic to examine whether Fair Value is really a fair basis for determining manufacturing firms' profitability such that it replaced Historical Cost Accounting in Nigeria.

1.2 Statement of the Research Problem:
The objective of an organisation is the end which the organisation intends to achieve and which investment and financing decisions encourage it to achieve (Unamka & Ewurum, 1995). There are many objectives which an organisation can pursue. However many, they can be impliedly captured under financial and non-financial objectives; it is generally accepted that there should be one overall objective with all other objectives giving support so that the overall objective can be achieved (ICAN, 2009b). Pandey (2004), corroborated this position by positing that in a business (economic) organisation with the motive of making profit, shareholders wealth maximization (i.e. financial objective) is generally taken as the overall
objectives. Drucker (1954), as cited in Unamka and Ewurum (1995), summarised by saying that objectives are needed in every area where performance and results directly affect the survival and prosperity of the business. Furthermore, empirical study on shareholders wealth maximisation demonstrated that there is a positive relationship between profitability and shareholders wealth maximisation (Bhunia, 2012; Gul, Sajid, Razzaq, Iqbal, & Khan, 2012).

On the other hand, one of the objectives of accounting is to render stewardship to the stakeholders of a business e.g. investors, employees, lenders, suppliers, customers, government, and the public (Glautier, Morris, & Underdown, 2011; Okafor, 2000; Wood & Sangster, 1999; Barton, 1977). This objective has become more important than other objective(s) of accounting with the spread of ownership in corporate businesses that separated ownership from management. The managers of the business as stewards are responsible for protecting the interests of the owners as well as the assets of the business (ROHTAK, 2004). The fundamental objective of accounting in such cases includes:

- To measure the resources (e.g. man, money, machine, and material) in the control of the entity;
- Protection of equities i.e. to measure the claim (i.e. income) against those resources (e.g. capital); and
- To measure the results and financial status of the business (ROHTAK, 2004).

Preliminary investigation revealed that the notion(s) of capital and income, and subsequently wealth creation are largely dependent on valuation concepts. By implication however, the method of valuation (i.e. Historical Cost, Current Market Value, Adjusted Historical Cost, Fair Value, Exit Price) of assets and liabilities adopted by the company may significantly influence the ability of a company to report profit vis-a-vis the true value, and by extension the going concern (Glautier et al, 2011); thereby affecting the objective of shareholders wealth maximisation (Diewert, 2005; Jennings, 1986).

Thus, it becomes inevitably a problem, where investors and/or other users of accounting information takes sensitive financial decisions relying on the information contained in the financial statements built on asset valuation method that is capable of eroding the value of the company; or, better still, not giving a true value of the company. Consequently, it becomes imperative to examine fair value measurement in determination of manufacturing firms’ profitability, since we are moving from known (historical cost convention) to unknown (fair
value measurement), now that the phases of IFRS adoption in Nigeria is still on-going, with the first and second phase implemented.

1.3 Objectives of the Study:
The broad objective of this study is to examine empirically the relationship between fair value measurement, and historical cost convention in determining profitability of manufacturing firms in Nigeria. Specifically, the study strived amongst other things to:

i) ascertain the influence of depreciation on reported profit of manufacturing firms in Nigeria using the fair value and historical cost convention;

ii) examine the effect of inventory on reported profit of manufacturing firms in Nigeria under fair value measurement and historical cost convention;

iii) determine the relationship between volume of tax and reported profit of manufacturing firms in Nigeria using fair value measurement and historical cost convention; and

iv) investigate the difference in reported profit using fair value measurement and historical cost convention.

1.4 Research Questions:
The study was carried out in such a way that it was able to answer the following questions:

a) To what extent does depreciation influence profitability of the manufacturing firms under the fair value and historical cost convention?

b) To what extent does inventory impact the reported profit of manufacturing firms under the fair value and historical cost?

c) What relationship exists between tax volume and reported profit of manufacturing firms under the fair value and historical cost convention?

d) How does reported profit differ using fair value measurement and historical cost convention?

1.5 Research Hypotheses:
The research hypotheses that the researcher focused on to achieve the above stated objective are:

i. Depreciation has no significant positive impact on profitability of manufacturing firms under the fair value measurement and historical cost convention;

ii. Inventory has no significant positive impact on reported profit of manufacturing company under fair value regime and historical cost regime;
iii. The tax volume has no significant positive relationship with reported profit of manufacturing firms under the fair value measurement and historical cost.

iv. The reported profit is the same using fair value measurement and historical cost convention.

1.6 Scope of the Study:
The scope of this study is on the relationship between fair value measurement and profitability. This study concentrated essentially on Nigeria, and used corporate financial statements of manufacturing companies quoted on the Nigerian Stock Exchange between the pre-IFRS 2011 and post-IFRS 2012 periods. The variables in determinant of profitability of a firm are depreciation, inventory and taxation, in particular.

1.7 Significance of the Study:
IFRS is new to Nigeria. All the concerned parties are doing all in their power to get an understanding of this new system that has come to stay. This study is to fill the knowledge gap that is associated with a new phenomenon. The examination of fair value measurement in determination of manufacturing firms’ profitability in Nigeria is therefore of great benefit to the following:

a) Investors:
The outcome of this study revealed that method of valuation could actually influence what is reported as profit. It brought to bear that investors should watch out for method of valuation/recognising asset and liabilities in a typical economic organisation, particularly in this dispensation of IFRS before committing their hard earned finance.

b) The Government:
Policy makers such as government and its agencies would benefit from this study. Before now, capital allowance is granted on the historical cost accounting. The research pointed to fact that there is need for a rethink on the approach. This might help the government and its agencies in adopting a policy that may lead to tax-payer friendly tax revenue.

c) The Body of Academic:
To the body of academic, this study will serve as a search light indicating area of further research(es) on this topic. This research work will serve as a turning point in the study of IFRS, particularly as it concern fair value measurement.

d) To Managers and Other Stakeholders in a Given Business Environment:
A company is an integral part of the society and cannot be separated from the environment (internal and external) in which it operates. It therefore, owes stakeholders
both within and outside the company certain social and ethical obligations. Managers should not be rewarded on the basis of changes in the market price of material, but for adding value (earnings) i.e. buying the input (raw material) favourably, transform it, and selling it to customers with a mark-up (Penman, 2007). The outcome of this research would conscientize managers on the need for their input and not trying to create value by arbitraging market prices.

1.8 Conceptual Definition of Terms:
The term(s) in use in title are Examination; Fair Value Measurement; Determination; Profitability; and Listed Manufacturing Firms’ in Nigeria. In this study, they are taken to mean the following:

a) Examination: in the context of this work shall be deemed to mean the third definition proffered by the Oxford Advanced Learner’s Dictionary, new 7th edition, that is, “a close look at something or somebody, especially to see if there is anything wrong or find the cause of a problem”.

b) Fair Value Measurement: the definition adopted is that proffered by International Accounting Standard Board (IASB) in their IFRS 13 on Fair Value Measurement, that is, “the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (i.e. an exit price)”. Although this definition may look similar to that of current market price, the term ‘at the measurement date’ gives this definition a more specificity.

c) Determination: similarly, the work adopted the second definition proffered by the Oxford Advanced Learner’s Dictionary (2005), that is, “the process of deciding something officially”.

d) Profitability: this is one term that has enjoyed the attention of so many scholars. Essentially, it is seen as the reward for entrepreneurship, and could assume any form depending on the determinant of profit. E.g. where the determinant of profit is owner’s equity, it becomes profit after interest and tax. For the purpose of this work profitability is taken to mean profit after interest and tax, and it shall be used interchangeably with the term ‘reported profit’.

e) Listed Manufacturing Firms’ in Nigeria: the term listed manufacturing firms in Nigeria is another way of saying, ‘manufacturing companies quoted on the Nigerian Stock Exchange’.
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CHAPTER TWO
REVIEW OF RELATED LITERATURE

2.0 Introduction:
For many years, accounting discourse has been concerned with the measurement of attributes of accounting events. The concept of measurement forms one of the central pillars on which the preparation of financial statements is based. For example, financial statements can only be prepared if economic events meet the definition of an element of the financial statements and have a cost or value that can be measured with reliability. This has created the belief that accounting practices are practices of measurement (Musvoto, 2008a).

This chapter reviews literature on the phenomenon – measurement, particularly, as it affect accounting both in the past and the contemporary world. It shall amongst other things look at:-

1) Conceptual Review;
2) Theoretical Review;
3) Empirical Review; and
4) Summary.

2.1 Conceptual Review:
2.1.1 Brief History of Measurement:
John Quincy Adams in his report to the American congress in 1821 as sited by National Institute of Standard and Technology (NIST) (1974), describes the usefulness of the standard called measurement, which is a prerequisite in viewing things before there can be said to be variation or difference. He opined that, weights and measures were among the earliest tools invented by man. Primitive societies needed rudimentary measures for many tasks: constructing dwellings of an appropriate size and shape, fashioning clothing and bartering food or raw materials. He explains measurement in these words:

Weights and measures may be ranked among the necessaries of life to every individual of human society. They enter into the economical arrangements and daily concerns of every family. They are necessary to every occupation of human industry; to the distribution and security of every species of property; to every transaction of trade and commerce; to the labours of the husbandman; to the ingenuity of the artificer; to the
studies of the philosopher; to the researches of the antiquarian; to the navigation of the mariner, and the marches of the soldier; to all the exchanges of peace, and all the operations of war. The knowledge of them, as in established use, is among the first elements of education, and is often learned by those who learn nothing else, not even to read and write. This knowledge is riveted in the memory by the habitual application of it to the employments of men throughout life.

Man understandably turned first to parts of his body and his natural surroundings for measuring instruments. Early Babylonian and Egyptian records, and the Bible, indicate that length was first measured with the forearm, hand, or finger, and that, time was measured by the periods of the sun, moon, and other heavenly bodies. When it was necessary to compare the capacities of containers such as gourds or clay or metal vessels, they were filled with plant seeds that were then counted to measure the volumes. With the development of scales as a means for weighing, seeds and stones served as standards. For instance, the "carat," still used as a mass unit for gems, is derived from the carob seed (NIST, 1974).

As societies evolved, measurements became more complex. The invention of numbering systems and the science of mathematics made it possible to create whole systems of measurement units suited to trade and commerce, land division, taxation, and scientific research. For these more sophisticated uses, it was necessary not only to weigh and measure more complex things, it was also necessary to do it accurately time after time and in different places. However, with limited international exchange of goods and communication of ideas, it is not surprising that different systems for the same purpose developed and became established in different parts of the world - even in different parts of the same country (NIST, 1974).

2.1.2 Meaning of Measurement/Measurement Theory:
A measurement tells us about a property of something. It might tell us how heavy an object is, or how hot, or how long it is. A measurement gives a number to that property. Measurements are always made using an instrument of some kind. Rulers, stopwatches, weighing scales, and thermometers are all measuring instruments. The result of a measurement is normally in two parts: a number and a unit of measurement, e.g. ‘How long is it? It is two metres’ (Bell, 2001). Krebs (1987) defines measurement as the assignment of numbers to events according to rules. Stevens (1951), in Krebs (1987), notes that measurement theory primarily concerns the rules of measurement, because these rules link the researcher's ideas to the concrete
arithmetic notations that typically are reported as "data." He note further that measurement juxtaposes science and philosophy, because only through measurement does science approach real life. Jones (1971) in Krebs, (1987), also notes that measurement theory must reflect real life and conform to the tenets of epistemology — the philosophy of meaning and knowledge. Thus, common sense and clear thinking often are more important than technical knowledge in generating useful measurements.

There are some processes that might seem to be measurements, but are not. For example, comparing two pieces of string to see which is longer is not really a measurement. Counting is not normally viewed as a measurement. Often, a test is not a measurement: tests normally lead to a ‘yes/no’ answer or a ‘pass/fail’ result, (however, measurements may be part of the process leading up to a test result) (Bell, 2001). The usefulness and truthfulness of assessments, depends on valid measurements. Measurement theory is the thought process and interrelated body of knowledge that form the basis of valid measurements. Translation of measurement theory to behaviours helps to ensure the integrity and relevancy of tests and the data that result from them. In the final analysis, useful and truthful data depend for their existence on scalable and detectable events being translated into pertinent, valid, and reliable measurements. The rules by which numbers are assigned to events form the basis of measurement theory (Krebs, 1987). He notes further that measurement theory is the conceptual foundation of all scientific decisions. If the measurements are erroneous, no amount of statistical or verbal sophistry can right them. For example, if rules are not obeyed, then research decisions based on those range-of-motion measurements probably will lead to incorrect, possibly even harmful conclusions.

2.1.3 Uncertainty of Measurement:
The uncertainty of a measurement tells us something about its quality (Bell, 2001). Bell (2001) went further to say that uncertainty of measurement is the doubt that exists about the result of any measurement. E.g. you might think that well-made rulers, clocks and thermometers should be trustworthy, and give the right answers. But for every measurement - even the most careful - there is always a margin of doubt, this might be expressed as ‘give or take’ e.g. a stick might be two metres long with ‘give or take a centimetre’ as uncertainty margin. Factors that could improve the level of uncertainty in measurement, making it relevant to the result produce are: (a) the objectivity of the measurement, and (b) the relevance of the measurement. Objectivity is trying to get the measurement correct as they
were without any form of bias, while relevance is trying to give a true value of the measurement.

### 2.1.3.1 Expressing Uncertainty of Measurement:

Bell (2001) opined that, “since there is always a margin of doubt about any measurement, we need to ask ‘How big is the margin?’ and ‘How bad is the doubt?’ Thus, two numbers are really needed in order to quantify an uncertainty. One is the width of the margin, or interval. The other is a confidence level, and states how sure we are that the ‘true value’ is within that margin. For example: We might say that the length of a certain stick measures 20 centimetres plus or minus 1 centimetre, at the 95 percent confidence level. This result could be written: 20 cm ±1 cm, at a level of confidence of 95%. The statement says that we are 95 percent sure that the stick is between 19 centimetres and 21 centimetres long. There are other ways to state confidence levels”. This implies that measurement has never been without challenges.

### 2.1.3.2 Error versus uncertainty:

It is important not to confuse the terms ‘error’ and ‘uncertainty’. Error is the difference between the measured value and the ‘true value’ of the thing being measured. Uncertainty is a quantification of the doubt about the measurement result. Whenever possible we try to correct for any known errors: for example, by applying corrections from calibration certificates. But any error whose value we do not know is a source of uncertainty (Bell, 2001).

In accounting systems, great caution is taken to minimize errors. The double entry system contains some inherent system of checks and controls. Yet errors obviously do occur. The chief concern is not the existence of error, but rather how to account for and/or control error. This concern motivates the comparison of alternative measurement procedures that exhibit different degrees of reliability (Mock & Grove, 1979).

### 2.1.3.3 Reason for Uncertainty of Measurement:

Studying uncertainty of measurement may become necessary simply because there may be need to make good quality measurements and to understand the results. However, there are other more particular reasons for thinking about measurement uncertainty, which according to Bell (2001) include, making the measurements as part of a:
- **Calibration** - where the uncertainty of measurement must be reported on the certificate;
- **Test** - where the uncertainty of measurement is needed to determine a pass or fail;
- **Tolerance** – where it is necessary to know the uncertainty before deciding whether the tolerance is met, or it may be important to read and understand a calibration certificate or a written specification for a test or measurement.

### 2.1.3.4 Sources of Errors and Uncertainties:

In the words of Bell (2001), many things can undermine a measurement. Flaws in the measurement may be visible or invisible. Because real measurements are never made under perfect conditions, errors and uncertainties can come from:

i) **The measuring instrument** - instruments can suffer from errors including bias, changes due to ageing, wear, or other kinds of drift, poor readability, noise (for electrical instruments) and many other problems;

ii) **The item being measured** - which may not be stable, (Imagine trying to measure the size of an ice cube in a warm room);

iii) **The measurement process** - the measurement itself may be difficult to make. For example measuring the weight of small but lively animals present particular difficulties in getting the subjects to co-operate;

iv) ‘**Imported’ uncertainties** - calibration of your instrument has an uncertainty which is then built into the uncertainty of the measurements you make. (But remember that the uncertainty due to not calibrating would be much worse);

v) **Operator skill** - some measurements depend on the skill and judgement of the operator. Visual alignment is an operator skill. A movement of the observer can make an object appear to move. ‘Parallax errors’ of this kind can occur when reading a scale with a pointer. One person may be better than another at the delicate work of setting up a measurement, or at reading fine detail by eye. The use of an instrument such as a stopwatch depends on the reaction time of the operator (but gross mistakes are a different matter and are not to be accounted for as uncertainties);

vi) **Sampling issues** - the measurements you make must be properly representative of the process you are trying to assess. If you want to know the temperature at the work-bench, do not measure it with a thermometer placed on the wall near an air conditioning outlet. If you are choosing samples from a production line for measurement, do not always take the first ten made on a Monday morning.

vii) **The environment** - temperature, air pressure, humidity and many other conditions can affect the measuring instrument or the item being measured. Where the size and effect of an error are known (e.g. from a calibration certificate) a correction can be applied to the measurement result.
In general, uncertainties from each of these sources, and from other sources, would individually be contributing to the overall uncertainty in the measurement.

2.1.4 Reliability and Validity of Measurement/Measuring Instrument:

Reliability is concerned with random errors. A reliable instrument gives the same results when repeated under similar conditions. The random errors occur due to chance and cause measurements to fluctuate in both directions. The 4 common types of reliability are inter-rater, intra-rater, test-retest and internal consistency. Inter-rater and intra-rater reliability looks at the random error associated with the person administering the measure. Test-retest reliability looks at the random error associated with administering the test over multiple occasions and internal consistency looks at the inter-relatedness of the items within the measure (Li, 2013). He also notes that validity is concerned with systematic errors. If an instrument is valid, it measures what it is intended to measure. If it does not, it would yield errors in the measurement that differs conceptually with what is intended, which gives rise to the systematic nature in which the errors are committed. He notes further that, “while there have been much debate over how to classify the various forms of validity, it has been acknowledged that a unified frame-work of validity is needed for two main reasons. The first is that the distinctions between traditional concepts of validity (content, criterion-related and construct) are unclear. Secondly, the implications of the measurement as a basis for action and the consequences of its intended use need to be considered together with the various forms of validity”.

2.2. Theoretical Review

2.2.1 Theory of Measurement in Accounting:

Accounting measure a business entity's assets, liabilities, and stockholders' equity and any changes that occur in them, by assigning the effects of these changes to particular time periods (periodicity), they can find the net income or net loss of the accounting entity for those periods. They measure some changes in assets and liabilities, such as the acquisition of an asset on credit and the payment of a liability. Other changes in assets and liabilities, such as those recorded in adjusting entries, are more difficult to measure because they often involve estimates and/or calculations. The accountant must determine when a change has taken place and the amount of the change. These decisions involve matching revenues and expenses (Hermanson, Edwards, & Maher, 1998). Hermanson, et al (1998) further notes that, ‘a unit of exchange and measurement is necessary to account for the transactions of business enterprises in a uniform manner. The common denominator chosen in accounting is the
monetary unit. Money is the common denominator in terms of which the exchangeability of goods and services, including labour, natural resources, and capital, are measured. Money measurement postulate holds that accounting is a measurement and communication process of the firm that are measurable in monetary terms. By implication, financial statements should indicate the money used’.

Mock and Grove, (1979), posits that a measuring system varies, depending on events and/or object, and may be defined as a specified set of procedures that assigns numbers to objects and events with the objectives of providing valid, reliable, relevant, and economical information for decision maker. There are four key aspects to this definition. First, the measures are expected to be valid, i.e. to be representative of actual attributes of the organisations or entities of interest. The second factor is the reliability of a measurement and measurement information, i.e. the information from measurement should not be quick change. The third factor is that measures must be relevant to the decision problem. Finally, measures are expected to be economical, i.e. their benefit to the decision maker should outweigh their cost.

The concept of objectivity is fundamental to all measurement. Horgren, Sundem and Elliot, (1996) notes that measurement should be objective in its communities of discussion; it must be made in the same way by all the individuals in a specific community of reference. By implication, measurements are socially constructed. Luce, Krantz, Suppes and Tversky (1971) notes that the empirical relational structure and its associated empirical properties formulated as axioms should be invariant. They contend that a set of axioms leading to the representational and uniqueness theorems of fundamental measurement may be regarded as a set of qualitative (that is, non-quantitative) empirical laws. It can be inferred from this that the objects of measurement themselves should be viewed in the same way by all individuals, irrespective of their frame of reference. This also means that, given the structure of physical attributes, any physical law that is defined in terms of these attributes must also be invariant. Numerical representations of objects of measurement must therefore be objective in the same way as the underlying object of measurement. However, given that there is consensus the accounting discipline has not succeeded in creating a theory of accounting measurement from the observation of accounting practices of measurement, it can be inferred that the objectivity of the accounting concept of measurement is questionable (Mustovo, 2008b).
Money measurement postulate implies two limitations of accounting. First, accounting is limited to the production of information expressed in terms of a monetary unit; it does not record and communicate other relevant but non-monetory information, i.e. accounting does not record or communicate the state of Chairman’s health, nor the attitude of the employees, nor the relative advantage of competitive product. Accounting therefore does not give a complete account of the happenings in a business or an accurate picture of the condition of the business. Accounting information is perceived as essentially monetary and quantified, while non-accounting information is non-monetary and not quantified. Although accounting is a discipline concerned with measurement and communication of monetary activities, it has been expanding into areas previously viewed as qualitative in nature. In fact, a number of empirical studies refer to the relevance of non-accounting information compared with accounting information.

Secondly, the monetary unit postulate concerns the limitations of the monetary unit itself as a unit of measure. The primary characteristic of the monetary unit – i.e. purchasing power, or the quantity of goods or services that money can acquire – is of great concern. Traditionally, accounting theory has dealt with this problem by stating that the unit of measure postulate is also a “stable monetary postulate” in the sense that the postulate assumes either that the purchasing power of the monetary unit is stable over time or that the changes are not significant. While still accepted for financial reporting, the stable monetary unit postulate is the object of continuous and persistent criticisms (ROHTAK, 2004). This has given rise to different methods of valuation that could possibly address the changes in theory of measurement in accounting as purchasing power of money changes in response to time and inflation or deflation (price level changes).

2.2.2 Theory of Valuation in Accounting:
The process of attaching money measurement to accounting events and items is essentially a process of valuation. Valuation enters into accounting measurements in two senses. First, the money standard of measurement is affected by changes over time. I.e. one Pound today does not have value as one Pound yesterday, neither one Pound tomorrow, particularly where the purchasing power of money over commodities changes. Second, the use of money measurements in accounting implies a choice between one of several different valuation bases. It is possible to represent the original cost of acquisition of an asset by the enterprise as a representation of a past financial effort. Equally, it is possible to represent the value of an asset to the enterprise in terms of the future net benefits it represents (Glautier, Underdown, &
Also, it is possible to represent the value of an asset to the enterprise in terms of its current market value or fair value; this forms the theoretical underpinning of this study. Glautier, et al, (2011) observed further, that accounting for changes in the value of money is a subject which has long occupied the attention of accounting researchers. The Sandilands Report of 1975 triggered response from accountants generally. The ensuing lively debate illustrated the problem of producing a convergence regarding the best method of dealing with price level changes, one of the reasons being that a consensus on the fundamental objective of financial reports can not be reached by accountants.

As traditional accounting measurement has emphasized only physical and monetary measures, the contemporary accounting measurement is beginning to consider a variety of measurement problems. For instance, the following decisions needs are generating a demand for corresponding measurement techniques (Mock & Grove, 1979):

<table>
<thead>
<tr>
<th>Specific Decision Needs</th>
<th>Corresponding Measurement Techniques</th>
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<tr>
<td>1 Input and output measures of attributes other than historical cost</td>
<td>Fair value accounting measurement methods</td>
</tr>
<tr>
<td>2 Service output measures for performance evaluation</td>
<td>Cost-nonmonetary measurement methods</td>
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<tr>
<td>3 Social accountability measures</td>
<td>Social accounting measurement methods</td>
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<tr>
<td>4 Human resource measures</td>
<td>Human resource accounting measurement methods</td>
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Adopted from Mock and Grove (1979)

The fact that traditional accounting has been concerned with a small subset of these measurement problems (i.e. having measures for items and events) emphasizes the rapid change in accounting and information systems. In attempting to keep abreast of and reflect a changing environment, the accounting discipline has relied upon its traditional expertise, namely assigning measure to represent the cost of economic resources. The inherent danger in this strategy is that this expertise may be inadequate to measure new attributes desired by society, such as those mentioned above (Mock & Grove, 1979). For the purpose of this work we shall be concentrating more on ‘the input and output measures of attributes.'
2.2.3 Input and Output Measurement Techniques/Assets and Liabilities Valuation:

According to Glautier, Underdown, and Morris (2011), “the importance of understanding the interaction and interdependence between valuation and measurement is apparent in such important area of accounting as income determination and asset valuation. In this sense, the notions of capital and income, and subsequently wealth creation are largely dependent on valuation concepts”.

In this section, we shall be looking at the many possible methods for asset valuation that could be used within the ambit of monetary measurement. Particularly, the following methods listed below. But for the purpose of this research much concentration would be given to method (1) and (8):

1. Historical Cost Valuation/Accounting;
2. Current Purchasing Power Adjusted Historical Cost;
3. Net Realizable Values or Exit Values;
4. Replacement Costs or Entry Values;
5. Discounted Future Cash Flows/Present value;
6. Current Value Accounting;
7. Deprival Value; and
8. Fair value or mark to market

2.2.3.1 Historical Cost Accounting/Valuation: The History Cost Valuation or Accounting (HCV or HCA) is a system of valuation of the firm’s field, including financial accounting measurement, based on the principle of exchange value (Villa, 1870) in (Gonnella, 2010); i.e. cost of purchase/acquisition otherwise known as exchange value is the appropriate basis for initial accounting recognition of all assets acquisitions, services rendered or received, expenses incurred, creditors’ and owners’ interest, and it also holds that subsequent to acquisition, cost values are retained throughout the accounting process (Ugwoke, 2000). Also known as ‘Acquisition Cost’ of an asset is the amount of cash payment (or cash equivalent value of other forms of payment) made in acquiring the asset (Davidson, Stickney, & Weil, 1985). Historical cost is the original monetary value of an economic item. Historical cost is based on the stable measuring unit assumption. In some circumstances, assets and liabilities may be shown at their historical cost, as if there had been no change in value since the date of acquisition. The balance sheet value of the item may therefore differ from the "true" value. While historical cost is criticised for its inaccuracy (deviation from "true" value), it remains in use in most accounting systems. Various corrections to historical cost are used, many of
which require the use of management judgment and may be difficult to implement or verify. The trend in most accounting standards is a move to more accurate reflection of the fair or market value, although the historical cost principle remains in use, particularly for assets of little importance.

Depreciation affects the carrying value of an asset on the balance sheet. The historical cost will equal the carrying value if there has been no change recorded in the value of the asset since acquisition. Improvements may be added to the cost basis of an asset. Historical cost does not generally reflect current market valuation. Alternative measurement bases to the historical cost measurement basis, which may be applied for some types of assets for which market values are readily available, require that the carrying value of an asset (or liability) be updated to the market price (mark-to-market valuation) or some other estimate of value that better approximates the real value. Accounting standards may also have different methods required or allowed (even for different types of balance sheet variable real value non-monetary assets or liabilities) as to how the resultant change in value of an asset or liability is recorded, as a part of income or as a direct change to shareholders' equity.

Under the historical cost basis of accounting, assets and liabilities are recorded at their values when first acquired. They are not then generally restated for changes in values. Costs recorded in the income statement are based on the historical cost of items sold or used, rather than their replacement costs. For example: –

- a company acquires an asset in year 1 for N160;
- the asset is still held at the end of year 1, when its market value is N200;
- the company sells the asset in year 2 for N175.

At the end year 1 the asset is recorded in the balance sheet at cost of N160. No account is taken of the increase in value from N160 to N200 in year 1. In year 2 the company records a sale of N175. The cost of sales is N160, being the historical cost of the asset. This gives rise to a profit of N15 which is wholly recognised in year 2.

**Measurement under the Historical Cost Basis:**

**Inventory:** It is the standard under the historical cost basis to write down the value of inventory (stock) to a lower cost and net realisable value. As a result (SAS 4): -

(i) A downward movement in the realisable value of inventory below cost is recognised immediately;
(ii) An upward movement in the realisable value of inventory is not recognised until the inventory is sold;

(iii) Summation of value of the component part constitute the value of inventory (including WIP). Longevity in the life of any of the component of inventory does not lead to reclassification.

**Property, plant and equipment:** Property, plant and equipment (PPE) is recorded at cost under the historical cost basis. Cost includes:- (i) Purchase price, including import duties and non-refundable purchase taxes, after deducting trade discounts and rebates; (ii) Any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating. These can include site preparation, delivery and handling costs, installation, assembly, testing, professional fees and the costs of employees directly involved in these activities.

**Assets and liabilities denominated in foreign currency:** Monetary items such as cash balances, receivables and payables which are denominated in foreign currency are reported using the closing exchange rate.

**Exceptions to the historical cost basis of accounting:**

**Revaluation of property, plant and equipment**
It is acceptable for an entity to revalue properties, plant and equipment as the company deemed appropriate. However, company must of a necessity be consistent in the choice of policy. The revaluations must be made with sufficient regularity to ensure that the carrying value does not differ materially from market value in subsequent years. A surplus on revaluation would be recorded as a capital reserve.

**Advantages and disadvantages of historical cost accounting**

**Advantages**
- Historical cost accounts are straightforward to produce
- Historical cost accounts do not record gains until they are realized
- Historical cost accounts are still used in most accounting systems;
- It is not subjective; it takes the value of the asset at acquisition.

**Disadvantages**
- Historical cost accounts give no indication of current values of the assets of
Historical cost accounts do not record the opportunity costs of the use of older assets, particularly property which may be recorded at a value based on costs incurred many years ago;

Historical cost accounts do not measure the loss of value of monetary assets as a result of inflation.

2.2.3.2 Current Purchasing Power/Adjusted Historical Cost: is basically an adjusted historical cost concept, in which adjustments are made to recorded historical cost values for changes in purchasing power of money by means of a consumer price index (Glautier, Underdown, & Morris, 2011).

2.2.3.3 Net Realisable Value/Exit Value: the net realisable value estimates the value of an asset to the enterprise as the amount which would be realized from its sale, after adjusting for selling expenses (Glautier, Underdown, & Morris, 2011).

2.2.3.4 Replacement Cost/Entry Values: this is where the value of an asset is determined by the current cost of replacing the asset, and using the replacement to maintain the same service to the enterprise. It requires current market price data as a basis for preparing financial reports (Glautier, Underdown, & Morris, 2011).

2.2.3.5 Discounted Future Cash Flows/Present Values: the discounted cash flow is a concept which relates the value of an asset to the decision to hold it and to derive its utility from using it in the production of income. It is defined as the sum of the future expected net cash flow associated with the use of the asset, discounted to their present value (Glautier, Underdown, & Morris, 2011).

2.2.3.6 Current Value Accounting: the current value accounting is a system of valuation which combines the concept of current replacement cost and net realisable value in determining whether selling (exit) or buying (entry) prices should used for the purposes of establishing the value to the business. In a way the current value accounting has the same ideology with the fair value accounting (Glautier, Underdown, & Morris, 2011).

2.2.3.7 Deprival Value: This method of measurement considers value to be the loss that an entity would suffer if it were deprived of an asset. It is the lower of replacement cost and
recoverable amount on the measurement date, with recoverable amount being the higher of value in use and net realizable value. The deprival value framework holds that the value of an asset to a business entity is the economic loss that the entity would suffer if deprived of the asset. It is reasoned that the loss to the entity could not exceed the most economic current cost to replace the productive capacity or service potential of an asset. The upper boundary of an asset’s deprival value is its replacement cost because, when (as will usually be the case) an entity expects a return from the asset in excess of its replacement cost, the entity will not lose that return since it can replace the asset for a lower amount (Glautier, Underdown, & Morris, 2011).

2.2.3.8 Fair Value Measurement: Fair value accounting applies to asset and liabilities for which a fair value is required for reporting purposes (Glautier, Underdown, & Morris, 2011). The fair value of an asset is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (i.e. an exit price) (IASB, 2011). That definition of fair value emphasises that fair value is a market-based measurement, not an entity-specific measurement. When measuring fair value, an entity uses the assumptions that market participants would use when pricing the asset or liability under current market conditions, including assumptions about risk. As a result, an entity’s intention to hold an asset or to settle or otherwise fulfil a liability is not relevant when measuring fair value. The IFRS explains that a fair value measurement requires an entity to determine the following:

(a) The particular asset or liability being measured;

(b) For a non-financial asset, the highest and best use of the asset and whether the asset is used in combination with other assets or on a stand-alone basis;

(c) The market in which an orderly transaction would take place for the asset or liability; and

(d) The appropriate valuation technique(s) to use when measuring fair value. The valuation technique(s) used should maximise the use of relevant observable inputs and minimise unobservable inputs. Those inputs should be consistent with the inputs a market participant would use when pricing the asset or liability.

Fair value is a market-based measurement, not an entity-specific measurement. For some assets and liabilities, observable market transactions or market information might be available. For other assets and liabilities, observable market transactions and market information might not be available. However, the objective of a fair value measurement in
both cases is the same—to estimate the price at which an orderly transaction to sell the asset or to transfer the liability would take place between market participants at the measurement date under current market conditions (i.e. an exit price at the measurement date from the perspective of a market participant that holds the asset or owes the liability). When a price for an identical asset or liability is not observable, an entity measures fair value using another valuation technique that maximises the use of relevant observable inputs and minimises the use of unobservable inputs. Because fair value is a market-based measurement, it is measured using the assumptions that market participants would use when pricing the asset or liability, including assumptions about risk. As a result, an entity’s intention to hold an asset or to settle or otherwise fulfil a liability is not relevant when measuring fair value.

The IFRS and Fair Value introduced a change in assets recognition. For example, while the definition of inventory is given to include the cost of bringing the manufactured good for sale to its final state, i.e., cost of packaging etc., as presented by Statement of Accounting Standard (SAS) 4 (produced by the NASB), under the historical cost accounting, the IFRS and the fair value regime in IAS 16 provide that items that are expected to be used for more than a year equally qualify as tangible assets and by extension, Property Plant and Equipment (PPE). This additional criterion has expanded the type of assets that can qualify as tangible assets. For instance, Returnable Packaging Materials (RPMs), such as containers, bottles, and crates etc, before now classified as inventory (under SAS), now qualify as fixed asset (Onyenkpa, Obayemi, Ogungbenro, Aibangbee & Alao, 2011).

Applying Historical Cost Accounting, depreciation is determined as follows: once a useful life for an asset has been estimated and a corresponding depreciation schedule has been determined, the initial purchase cost of the asset is allocated across accounting periods as a sum of periodic depreciation allowances. The corresponding historical cost value of the asset at the end of an intermediate accounting period is simply the initial purchase cost less the accumulated depreciation allowances over prior periods (Diewert, 2005). This method would produce a relatively anticipated level of expenses, thereby allowing for profit planning and target setting. On the contrary, under the latest IFRS (Fair Value Accounting), a ‘component approach’ is adopted for cost allocation into period of useful life. Thus, a heating plant may have an expected useful life of twenty years, the roof a life of fifteen years, and the basic structure itself a life of forty years. Depreciation is thus calculated on the different components in recognition of it useful life (Epstein & Mirza, 2006).
Companies income tax are chargeable on the income of all companies operating in Nigeria except those specifically exempted under the Companies Income Tax Act (CITA), CAP C21 LFN 2004 (ICAN, 2009a). The introduction of IFRS has resulted in a wide gap between accounting and tax treatments of some transactions, which can be explained by the fact that while tax laws are drafted on the assumption that the underlying financial statements would be prepared based on certain rules (which do not and give significant latitude to discretion), IFRS is principle-based (Onyenkpa et al, 2011). This could have a great effect on the profitability of a firm for example where there is no adjustment on tax laws (e.g. granting capital allowance for RPM) to accommodate our example on inventory above, tax payable is likely to be higher.

Advantages and Disadvantage of Fair Value Measurement

Advantages
- Fair Value Accounting give indication of current values of the assets of a business;
- It lower the likelihood for earnings management;
- The relevance of accounting information presented to investors is on the increase;
- It does not assume that income monetary value would remain constant;

Disadvantages
- Fair Value accounts are not straightforward to produce;
- Fair value accounting do identify and record gains before they are realized;
- It is relative subjective, i.e. where there is no market for the commodity, an estimated value is used. The value could be subjective.

2.2.4 The Theory of Profitability

Profitability is the ability of a company or an individual to earn profit from its business activities and make adequate returns to the investors, the higher the profit ratio per Naira sales made the better (Nwude, 2004). Notwithstanding there are many reasons for investing ones fund, the principal reason why investors invest their hard earned funds to work is so that they can earn a satisfactory return and also the security of their investment (Chadwick & Kirkby, 1995).

The term ‘profitability’ and ‘return’ are taken to mean the same thing, and is seen as referring to the relationship between the profit and the value of the net assets/capital used to generate that profit. The measurement of profit is probably the most important function of financial
accounting. Profit represents the difference between revenues and expenses. The profit and loss account reports for a specific period of time, the items that comprise the total revenue and expenses and the resulting net profit or profit for the accounting period (Glautier & Underdown, 2001).

ICAN (2009), explains that profitability maximization (which takes into account both profits and the assets utilised in generating such profits) is a better financial objective than profit maximization (this objective refers to accounting profits and it means that financial managers should attempt to make profits as possible) as it takes into account both profits and the assets utilised in generating such profits. Measures of profitability include Return on Investment (ROI), Return on Capital Employed (ROCE), or Return on Equity (ROE) and Earnings per Share (EPS). Although better than profit maximization, profitability maximization has the following short-coming:

i) Problem of definitions; that is, which profits and capital are to be used;
ii) The uncertainty that goes with the earning of the profits (risk) is ignored
iii) Time value of money is also ignored; and
iv) It fails to provide an operational feasible measure for ranking alternative courses of action in term of their economic efficiency.

Pandey (2004) and ICAN (2009b) emphasize that as an alternative to profit maximisation and profitability maximisation, the shareholders wealth maximisation (SWM) should be pursued. That the shareholders wealth maximisation takes care of the timing (i.e. time value of money) and uncertainty of benefit problem (i.e. streams of benefits may possess different degree of certainty). And that the objective of SWM is appropriate and operationally feasible criterion to choose among the alternative financial actions.

2.2.5 Ordinary Least Square Regression Model

Ordinary least-squares (OLS) regression model is considered suitable for this study. It is a generalized linear modelling technique that may be used to model a single response variable which has been recorded on at least an interval scale. The technique may be applied to single or multiple explanatory variables and also categorical explanatory variables that have been appropriately coded (Hutcheson, 2011). At a very elementary level, the relationship between a continuous independent variable (Y) and a continuous dependent variable (X) may be represented using a line of best-fit, where Y is predicted, at least to some degree, by X. If this
relationship is linear, it may be appropriately represented mathematically using the straight line equation 'Y = α + βx'. The relationship between variables Y and X is described using the equation of the line of best fit with ‘α’ indicating the value of Y when X is equal to zero (also known as the intercept) and β indicating the slope of the line (also known as the regression coefficient). The regression coefficient β describes the change in Y that is associated with a unit change in X. Included in the equation above is ‘e_i’ which indicate the deviation of Y_i around the expected value. Where the deviation e_i is an unobservable random variable taking positive or negative values. Technically, it is known as the stochastic disturbance or stochastic error term (Gujarati & Porter, 2009). The OLS regression model is stated thus:

\[ Y = \alpha + \beta x + e_i \]

By implication, \[ Y = F(X) \]

Where Y is the dependent variable and X the independent variable. In the case of the study, Y is reported profit, and X is interchangeably depreciation, inventory, and taxation.

2.3 Empirical Reviews

The primary function of accounting is the provision of information necessary for the evaluation of past business decision and business decision consist of current operating profit and realizable cost savings (Edward & Bell, 1991). The information contained in the financial report need to be free from all encumbrances such that they are valid, reliable, relevant, and economical (Mock & Grove, 1979). The proponents of fair value accounting cite three advantages associated with the method: (a) the significance of limitations associated with the alternative accounting framework (i.e. historical cost), (b) increased relevance of information presented to investors under fair value accounting, and (c) lower likelihood for earnings management (Lefebvre, Simonova, & Scarlat, 2009).

Beke, (2011), traced the benefits of international accounting standards and their contribution to harmonization in business economics and financial practice. The goal is to describe and summarize how the accounting standards promote financial decisions and influence the business environment in a global scale. He notes that it is expected that the unified, standardized accounting information system will lead to new types of analysis and data, furthermore with the possible integration of new indicators from the business economics and financial practice of certain countries. Standardization of financial accounting has tended to follow the integration of the markets served by the accounts. The present impetus for global accounting standards follows the accelerating integration of the world economy. The global
accounting standards would enable the world’s stock markets to become more closely integrated. And, that it is important for companies to develop coherent and consistent financial strategies and to utilize international accounting methods to support strategic planning, decision-making and control.

Wirtanen (2009) did a study on the influence of IFRS implementation on business management in Finnish-born globals. The main objective of this study is to understand whether the implementation of the International Financial Reporting Standards influences Finnish born global companies’ business management. The study aims to present benefits and drawbacks experienced by Finnish BGs. Particular focus was placed on understanding how the adoption of external reporting standards may influence internal processes, planning, and ways of action within an organization. This study utilizes the existing research literature of Born Global companies, international harmonization of accounting standards, and the convergence of financial and management accounting. In the empirical part, the results of semi-structured interviews in three Finnish Born Global companies were introduced. Two of the companies have already adopted IFRS while one of them is still reporting according to the Finnish Accounting Standards. The study was performed as an exploratory, qualitative field-study. He concluded saying that the findings of the study show that positive effects from the adoption of the IFRS by Finnish born globals are to be found. More so, the IFRS financial statements are seen as a comprehensive information package; the management gets improved financial information easier for their decision-making needs.

Reis and Stocken (2007), executed a study on Strategic Consequences of Historical Cost and Fair Value Measurements; in their 6th proposition they noted that ‘Expected firm profits are higher, expected consumer surplus is lower, and, in aggregate, expected social welfare is higher when firms use fair value than when they use historical cost. Firms can better coordinate their prices when their accounting reports are prepared using fair value rather than historical cost. Accordingly, when firms use fair value, they obtain higher prices, manufacture more inventories, and obtain higher expected profits. Amongst other things they conclude saying, ‘We analyze a model where firms make sequential manufacturing and pricing choices in a duopoly. After manufacturing inventory but before naming prices, firms report their inventory at either historical cost or fair value. In the absence of cost uncertainty, a report prepared using either measurement completely reveals a firm’s inventory level. In contrast, the presence of cost uncertainty reduces the informativeness of a report prepared using
historical cost whereas one prepared using fair value continues to completely reveal a firm’s inventory holding.

The research executed by Ezeani and Oladele, (2012), the study examined the extent to which adoption of international financial reporting standards (IFRS) can enhance financial reporting system in Nigerian Universities. The population of the study comprised 160 senior accountants and internal auditors. A survey design was adopted for the study. The mean scores and Z-Test was used in analyzing the data generated for the study. The findings indicated that there are a lot of accounting areas the accountants and auditors should focus in discharging their duties. And as well a lot of implications are also involved. Mostly accountants, auditors, bursars, financial analyst, etc, are the personnel involve in the IFRS financial instruments. They recommended among others that the curricula of our institutions should be reviewed to incorporate IFRS, so that accountants and auditors will be acquainted with IFRS guidelines and standards. The implementation of this recommendation would reduce if not completely remove the uncertainties associated with using fair value as a base for valuation/measurement of profitability.

In the study of Rodríguez-Pérez, Slof, Solà, Torrent and Vilardell, (2011), assessing the Impact of Fair-Value Accounting on Financial Statement Analysis, the paper addresses the question of whether a change from historical cost to fair value affects the analysis of financial statements and, particularly, to which extent it modifies users’ (or analysts’) perceptions of a firm’s efficiency and profitability, without using stock market data. The paper attempts to shed some light on this issue by restating the financial investments and tangible fixed assets of a sample of 85 Spanish insurance companies, applying fair value instead of historical-cost-based valuations and by simulating analyst perception of these companies’ efficiency and profitability for both sets of data using data envelopment analysis (DEA). They found that the numbers on the face of the financial statements change considerably and observe that the magnitude of these changes varies between companies and classes of assets. However, only in a few cases does a change in the valuation basis lead to a relevant change in DEA scores; within our sample, the overall assessment of companies with regard to efficiency and profitability remains largely the same under both valuation bases. These findings seem to indicate that a change from historical-cost to fair-value accounting could alter analyst perceptions of a limited number of companies but likely will not have a major impact on the appraisal of the majority of them.
The study of Nelson, (1996) on Fair Value Accounting for Commercial Banks: An Empirical Analysis of SFAS No. 107. The study examines whether fair value estimates required by Statement of Financial Accounting Standards No. 107, "Disclosures about Fair Value of Financial Instruments" (SFAS No. 107) are associated with the market value of banks' common equity (i.e. the wealth of the firms). The study evaluates the association between the market value of banks' common equity and fair value estimates disclosed under Statement of Financial Accounting Standards No. 107, "Disclosures about Fair Value of Financial Instruments." The results suggest that only the reported fair values of investment securities have incremental explanatory power relative to book value. No reliable evidence of incremental explanatory power is found for the fair value disclosures of loans, deposits, long-term debt or net off-balance sheet financial instruments. After controlling for two competing indicators of value captured by the accrual accounting system, ROE and growth in book value, the fair value of securities no longer exhibits a significant association with market value. Results from estimating a returns specification, which may implicitly control for correlated omitted variables, also exhibit no reliable evidence of significant incremental explanatory power in the fair value estimates.

Looking at fair-value-income measurement and equity analysts' risk and value judgments, Hirst, Hopkins and Wahlen, (1996), in their ‘Fair Values Income Measurement and Bank Analysts' Risk and Valuation Judgments’ examine how fair-value-income measurement affects commercial bank equity analysts' risk and value judgments. Normatively, holding information and other underlying economics constant, bank analysts' risk and valuation assessments should distinguish between banks with different risks, but should not depend on how banks measure income. In their experiment, they vary income measurement-full-fair-value (all fair-value changes recognized in income) versus piecemeal-fair-value (some fair-value changes recognized in income, others disclosed in the notes). They also vary interest-rate-risk exposure (exposed versus hedged). They found that bank analysts' risk and value judgments distinguish banks' exposure to interest-rate risk only under full-fair-value-income measurement. Their evidence contributes to research concerned with financial performance reporting, risk, and fair-value accounting by demonstrating that differences in income measurement affect fundamental judgments of specialist analysts. Their findings are striking because they: (1) point toward an important role for measurement and recognition of fair-value gains and losses in income, and (2) suggest that note disclosure is not a substitute for financial-statement recognition (even for professional analysts specializing in banks and working in a context that involves assessment of core operations of a bank). These results
should be of interest to accounting standard setters as they evaluate whether to require full-fair-value-income measurement.

Awang and Mokhtar (2012), researched on the comparative analysis of current values and Historical Cost in Business Zakat Assessment: An Evidence from Malaysia. The aim of the paper was to compare the use of current values as opposed to historical cost in Zakat valuation. They note that the proponents of current value accounting foresee that several problems might occur if computation of Zakat is based on the historical cost financial statement. They note further that their finding was supported by previous studies which conclude that the use of historical cost data may lead to negative wealth transfer from the rich to the poor. Furthermore, they posit that in contemporary financial accounting practice, the valuations of inventories as well as the problem of valuation of receivables need to be reconciled between Zakat rules and the generally accepted accounting principles by which balance sheets conform to Anglo-American accounting conventions.

In the study of Bleck and Liu (2007), on the relationship market transparency (opacity) has on the prices of assets both under historical accounting and mark-to-market (fair value) system of accounting, they find out that, the greater the transparency of the financial market the more frequent and more severe crashes in asset prices under the historical cost accounting regime. Also, that the historical cost accounting can make the financial market more rather than less volatile, which runs counter to the conventional wisdom, and that historical accounting will not only “incentivize” but also “enable” the manager to mask the firm’s true performance. They argue further that many theoretical compensation structures are hardly feasible in reality, particularly given the illiquidity and inefficiency of many financial markets.

In expressing his opinion on Fair Value Measurement, Sun (2010), argued that China could actually generate an Accounting data with high quality using fair value measurement. In driving his point home, he explained fair value measurement in four perspectives to enhance better understanding of fair value. They are: first, the ultimate direction of fair value measurement is the measurement of assets. i.e., under the circumstance of satisfying specified assets, that, measurement of fair value on other factors (i.e. asset, liability, ownership interest, income, expense, and profit) should be based on the fair value measurement on assets produced in the transaction. Since, among the three static accounting factors (asset, liability and ownership interest), asset is the central position all the time, and changes of liability and ownership interest can both be expressed by assets. Second, fair value measurement is a sort
of initiative measurement, but not passive measurement. Initiative measurement factor refers to the accounting factor whose measurement amount can only be confirmed based on measurement on other factors (including measurement attributes and value of measurement). From the perspective of factor of static financial situation, assets and liabilities can be regarded as initiative measurement factor, and ownership interest can be seen as passive measurement factor. Considering the accounting reform in the past several years in China, it is measurement on assets and liabilities that have been mainly standardized, especially measurement on assets.

Third, fair Value Measurement is a process. Since it is less than three years to 2010 China started the reporting on fair value measurement, magic should not be expected. That the process would be better understood when viewed in the following light: (i) fair value measurement is a progress and is developmental direction of accounting. (ii) Fair value measurement is a process of continually testing professional judgment of accounting staff. (iii) In a narrow sense, amount of fair value of an item of asset is always changing, and accounting measurement need to track the process of changes so as to realise measurement of the overall process of fair value. Fourth, fair value refers to fairness of value in special time, and it has no meaning at all without the concept of time. Citing the work of Yu (2009), he observed that a certain relationship may exist between measurement attributes (including fair value), but not the relationship of exclusiveness. In summary, he preached that the use of fair value should be boldly advocated.

2.4 Summary:
Attempt has been made to discuss the concept of measurement, the theory of accounting measurement, the theory of profitability and empirical reviews. The reviewed literature form a substantial theoretical background for the study and issues associated with it.

Where the fundamental of financial reporting is to provide information about an economic entity as to the true and fair view of the activities of the reporting entity, then the big question is, (having known relatively, the likely impact of historical cost accounting on the profitability of a firm), what effect would fair value have on the profitability of the reporting firm(s)? Bessong and Charles, (2012) carried out a comparative examination of the effect of fair value accounting and historical cost accounting on the reported profits, concentrating on manufacturing companies in Nigeria. Based on their findings, they concluded that the profit measurement method (i.e. method of accounting) adopted directly influences the amount
calculated as depreciation, determines the amount charged as taxes and stipulates the amount paid as dividend from the reported profit of a given period. In the study of Bessong and Charles, (2012), data gathered were analyzed using the multiple regression technique to measure the relationship between the dependent and the independent variables for a particular year 2010.

Also, data were gathered at a time (2010) when the country was still making up her mind as to whether to adopt or adapt to IFRS; explanatory variables used in their study were depreciation, taxation, and dividend; data gathered in 2010 were adjusted to present a ‘fair value view’ of financial statements ab-initio prepared under historical cost. But this study adopt cross sectional analysis of the profit of manufacturing firms quoted on the Nigerian Stock Exchange, for the pre-IFRS of 2011 and post-IFRS of 2012 periods. Explanatory variable adopted for this study are depreciation, inventory, and taxation; and the simple linear regression technique, correlation coefficient, and t-statistics used for the analysis. The choice of manufacturing company becomes inevitable as Nigeria is seriously campaigning for poverty alleviation and the creation of employment opportunities and the manufacturing companies are known for their ability to create employment opportunities (Malik, Teal & Baptist, 2006).
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CHAPTER THREE
METHODOLOGY

3.1 Research Design:
The blueprint or format that guided the researcher in this investigation and analysis is the ex-post facto research design (Onwumere, 2009: 113; Murthy, 2009; ICAN, 2006). Within the ambit of the ex-post facto research design, the research adopted a cross sectional analysis of the financial report of the manufacturing companies quoted on the 1st tier security market of the Nigerian Stock Exchange between pre-IFRS 2011 and post-IFRS 2012 periods. The periods of 2011 and 2012 was chosen particularly because of the availability of data from annual report prepared on old GAAP and IFRS. The choice of the manufacturing company became pertinent as the manufacturing industries are considered vital to economic growth and development (Sangosanya, 2011).

3.2 Nature and Sources of Data:
Quantitative data was applied in this investigation. Osuala (2001), and Fayeye and Ojo (1997), support the use of quantitative data when they posited that when items vary in respect to some measurable characteristics, a quantitative classification is appropriate. Meanwhile, data was sourced from the secondary source, which was essentially and specifically, the annual financial report covering the aforementioned periods.

3.3 Population under Investigation:
The population investigated was the manufacturing sector. The manufacturing sector was mirrored in thirty-five (35) manufacturing companies quoted on the Nigerian Stock Exchange. The choice of manufacturing companies quoted on the stock exchange were considered necessary and appropriate particularly because, companies in this group were included in the first phase of implementation of the adoption of International Financial Reporting Standard (IFRS) as recommended by the IFRS Implementation Committee in the year 2010 and these firms are statutorily required to submit their published annual financial statements to the Securities and Exchange Commission (SEC) for validation.

3.4 Sample Size:
Surprisingly, our observation revealed that the classification of sectors in the security market (i.e. Agriculture; Conglomerates; Construction/Real Estates; Consumer goods; Financial
was not in consonance with our expectation, i.e. we had expected that all the companies in the manufacturing oriented businesses would be classified under one heading - ‘manufacturing’, but this wasn’t so. Further observation revealed that outside the companies in the Financial Services sector, Oil and Gas sector, and the Services sector, the rest companies quoted on the Stock Exchange are manufacturing oriented. It became necessary that we concentrated our investigation on the companies listed in Beverages subsection of the Consumer Goods sector of the Stock Exchange. Companies in this subsector are directly associated with the three variables of our interest (i.e. depreciation, inventory and taxation) and have prepared their annual report in consonance with the recommendation of IFRS as directed by the Roadmap Committee. More so, they are directly affected by the reclassification of Returnable Packaging Materials (RPMs) recommended by the provisions of IFRS on Property, Plant and Equipment (IAS 16) as it affect bottles, which may in return affect Inventory (Stock). Also these companies have complied with the recommendation of the Roadmap Committee by preparing it financial statement in line with the dictates of IFRS. They are:

- Champion Breweries PLC;
- Guinness Nigeria PLC;
- International Breweries PLC;
- Nigerian Breweries PLC; and
- 7-Up Bottling Company PLC.

3.5 Sample Technique/Method:
The sampling technique adopted for the purpose of this research is the judgment sampling technique (Onwumere, 2009; Murthy, 2009; ICAN, 2006). In the case of this study, the ‘typical conditions’ stated above that necessitated our choice of the five companies informed our judgment.

3.6 Description of Research Variables:
The variables adopted in this study are separated into dependent and independent variables.

3.6.1 Dependent Variable:
Profitability forms the dependent variable of this study. Profitability is the primary goal of all business ventures (Unamka and Ewurum, 1995). Without profitability the business will not survive in the long run. It is the return on ‘capital employed’ or ‘investment’ or ‘equity’ (ICAN, 2009). In the context of this work, we shall be taking profitability to be ‘Profit after
Interest and Taxation’. The reason being that ‘Profit after Interest and Tax’ is free from encumbrances i.e. all indebtedness associated with the running of the business has been taken care of, except for dividend and retained earnings and other indebtedness which the company wishes to defer payment, which is absolutely the discretion of the directors of the company.

3.6.2. Independent Variables:
The explanatory variables used in this study were: the actual depreciation charged for the year; taxation due for the year under review excluding deferred tax and other taxes not associated with the year under consideration; and inventory traded for the realisation of the said profit and other random (stochastic) variables like dividend, capital allowance, the market size.

3.6.2.1. Depreciation
Fixed assets or long term non-current asset such as motor vehicle, plant and machinery, etc. do not last forever, they depreciate (i.e. wear-off) as they are put in continuous use for the generation of income (Paton, 2000; Wood and Sangster, 1999). Put in other words, the rate of depreciation of an asset should be proportional to the income it generates, other things being equal. Our choice of Depreciation as one of the explanatory is informed by the change introduced by IFRS in the depreciation process i.e. composite depreciation.

3.6.2.2. Taxation
Accounting income is the aggregate income or loss for a period including unusual items as reported in income statements before deducting related income tax expense or adding selected income tax savings (Aborode, 2004). This variable measures the finance benefit a company could enjoy from tax (Okafor, 2000). That is, tax savings such as capital allowance, available to corporate organisation could be a source of finance for the replacement of assets after their useful life and therefore a potential source of income for expansion. Tax is paid on earned profit; in Nigeria the proportional tax system i.e. pay as you earn (PAYE) is adopted, creating this linearity in relationship between profit and taxation. Where there is a gap (see chapter 2) between the IFRS and the tax computation, the benefit might be denied.

3.6.2.3. Inventory/Stock
Inventory accounting method and management practices can become profit – enhancing tools. Inventory effects on profits are more noticeable when business activity fluctuates. In manufacturing companies, inventory can be raw materials, work-in-process, and finished
goods. Inventories consist of costs that have been incurred in an earnings process that is held an asset until the earnings process is complete. It may include a wider range of costs incurred and held in an inventory account for matching against revenue that will be recognized later. Items that may be capital assets to one company may be inventory to another. The major classifications of inventories depend on the operations of the business (Mathew and Perera, 1996; Gay, 1993). However, for the purpose of this work inventory shall be viewed to be the cost of goods sold (COGS). The reason for the choice of COGS is that COGS considers inventory at the beginning and at the close of financial year to arrive at inventory actually sold for the generated profit/loss.

3.6.2.4. Stochastic Disturbance

The stochastic disturbances in this case, are those variables/factors that can affect/influence the profitability of a firm but are not taken into account explicitly (Onwumere, 2009; Gujarati and Porter, 2009). They include dividend, capital allowance, the skills of the staff, and the market size.

3.7 Model and Technique for Analysis

The researcher used simple least square regression technique to test hypothesis (i) and (ii). The justification for adopting this analytical technique rest on fact that the ordinary least square is assumed to be the best linear unbiased estimator (Gujarati and Porter, 2009; Koutsoyiannis, 1977) and it has minimum variance (Onwumere, 2009); related works in other jurisdiction adopted a similar technique in their study. The simple regression model is stated thus:

\[ Y = \beta_1 + \beta_2 X + e_i \]

Where: \( Y \) = dependent variable  
\( X \) = explanatory variable  
\( \beta_1 \) = intercept of \( Y \)  
\( \beta_2 \) = slope coefficients  
\( e_i \) = stochastic variables. (Gujarati and Porter, 2009; Onwumere, 2009; Ujunwa, 2008)

The Pearson’s Product-Moment Correlation Coefficient was used to test hypothesis (iii), the justification for the use is that Pearson’s Product Moment correlation coefficient is designed to detect linear relationship between variable where they exist (ICAN, 2006). And, the student t-statistic was adopted for hypothesis (iv), the justification is that the t-test statistic is
used to test the significance of difference between the two independent means particularly when the size of observation is less than 30 (in this case it is 5 observations) (Hanke and Reitsch, 1991). Using a cross section data from pre-IFRS period of 2011 and post-IFRS period of 2012, the requisite test were carried out on profitability and the different explanatory variables; holding constant other factors that may affect profitability for example dividend, capital allowance, market size. The results classified in two heading pre and post IFRS were compared.

3.8 Model Specification:
To bring the model to fit into this work, the following alphabets were used to denote the respective variables.

\[ \begin{align*}
RP_{HC} &= \text{Reported profit at Historical Cost} \\
RP_{FV} &= \text{Reported profit at Fair Value} \\
DEP &= \text{Depreciation} \\
TAX &= \text{Taxes} \\
INV &= \text{Inventory} \\
\beta_1, \beta_2 &\geq 0
\end{align*} \]

Hypothesis I
Starting with our first hypothesis which states that, “depreciation has no significant positive impact on profitability of the manufacturing firms under the fair value measurement and historical cost convention”.

\[ \begin{align*}
RP_{HC} &= \beta_1 + \beta_2 DEP_{HC} + \epsilon_i \tag{1a} \\
RP_{FV} &= \beta_1 + \beta_2 DEP_{FV} + \epsilon_i \tag{1b}
\end{align*} \]

Hypothesis II
Inventory has no significant positive impact on the reported profit of manufacturing firms under fair value regime and historical cost regime.

\[ \begin{align*}
RP_{HC} &= \beta_1 + \beta_2 INV_{HC} + \epsilon_i \tag{2a} \\
RP_{FV} &= \beta_1 + \beta_2 INV_{FV} + \epsilon_i \tag{2b}
\end{align*} \]

Hypothesis III
The tax volume has no significant positive relationship with reported profit of manufacturing firms under the fair value measurement and historical cost.

\[ r_{HC} = \frac{N \cdot \Sigma RP_{HC} \cdot TAX_{HC} - \Sigma RP_{HC} \cdot \Sigma TAX_{HC}}{\sqrt{\left\{N \cdot \Sigma TAX_{HC}^2 - (\Sigma TAX_{HC})^2\right\} \left\{N \cdot \Sigma RP_{HC}^2 - (\Sigma RP_{HC})^2\right\}}} \]
\[ r_{FV} = \frac{N \cdot \Sigma RP_{FV} \cdot TAX_{FV} - \Sigma RP_{FV} \cdot \Sigma TAX_{FV}}{\sqrt{\{N \cdot \Sigma TAX_{FV}^2 - (\Sigma TAX_{FV})^2\} \{N \cdot \Sigma RP_{FV}^2 - (\Sigma RP_{FV})^2\}}} \]

Where:

- \( N \) = number of observation
- \( \Sigma RP \cdot TAX \) = summation of the product of reported profit and taxation
- \( \Sigma RP \) = summation of the values of the variable called reported profit
- \( \Sigma TAX \) = summation of the values of the variable called taxation
- \( \Sigma TAX^2 \) = summation of the square of the values of the variable called taxation
- \( \Sigma RP^2 \) = summation of the square of the values of the variable called reported profit
- \( FV \) = variables at fair value
- \( HC \) = variable at historical cost

**Hypothesis IV**

The reported profit is the same using fair value measurement and historical cost convention.

\[ t = \frac{M_1 - M_2}{\sqrt{(N_1-1)(S_1)^2 + (N_2 - 1)(S_2)^2} \cdot \frac{1}{N_1} + \frac{1}{N_2}} \]

Where:

- \( M_1 \) = the mean of the particular explanatory variable using FV
- \( M_2 \) = the mean of the particular explanatory variable using HCA
- \( (S_1)^2 \) = the variance of the particular explanatory variable using FV
- \( (S_2)^2 \) = the variance of the particular explanatory variable using HCA
- \( N_1 \) = is the sample size using FV
- \( N_2 \) = is the sample size using HCA

Maintaining a \( N_1 + N_2 - 2 \) as the degree of freedom, and the level of significance being tested is 0.05 (ICAN, 2006; Hanke and Reitsch, 1991).

The t-test statistic was used to test the significance of the difference between the two independent means from the two populations from which sample were drawn. That is, the mean of the dependent variable (reported profit) of data drawn under fair value, shall be compared with the mean of the dependent variable (reported profit) of data drawn using historical cost convention. The purpose is to check if: (i) the differences in outcome of the regression have significant control on the reported profits; (ii) the difference in the mean and variance reported as the outcomes of the descriptive statistics for historical cost and fair value are significant. The formula quoted above is best suited for comparing difference between two means when the sample sizes are unequal/equal.
References:
CHAPTER FOUR
PRESENTATION AND ANALYSIS OF DATA

This chapter dealt with the gathering of data, presentation and analyses of the relevant data obtained in the course of this study. Also, the four hypotheses formulated as indicated in the previous chapter were tested/analysed.

4.1 DATA GATHERING:
Data gathered is a reflection of balances in the financial statements; the annual report of International Breweries for 2012 was prepared to reflect financial period of fifteen (15) months (i.e. from the end of 2011 financial year, the report was written for a period of 15 months, ending 31st March, 2013). We assumed that the transactions/profits for 2012 financial year happened uniformly to enable us prorate the transactions vis a vis the profit to reflect 12 calendar months. The outcome is thus what is reflected in the tables. Also, the Champion Breweries Plc tax ₦-576.21m and ₦-592.17m for 2011 and 2012 were in minus because these amounts were added to the loss sustained, effect is a reduction in the loss sustained for those years instead of increasing its loss position; this was read to mean a relief.

At the time data was gathered, we could not have access to the annual report of Champion Breweries Plc and Nigerian Breweries Plc for 2008. Profitability, Taxation, and Inventory was obtained from the 2008 comparative figures stated in 2009 annual report. The 2009 annual report did not state the specific depreciation figure for 2008 financial year; therefore estimate of the 2008 specific depreciation was gotten thus: (i) Champion Breweries 2008 Depreciation equals to the difference between Champion Breweries accumulated depreciation as at 31st December, 2007 (₦1,281,612,000.00) and Champion Breweries accumulated depreciation as at 1st January, 2009 (₦1,778,092,000.00), the outcome is ₦496,480.00. (ii) Nigerian Breweries 2008 Depreciation equals to the difference between Nigerian Breweries Plc accumulated depreciation as at 31st December, 2007 (₦31,881,949,000.00) and accumulated depreciation as at 1st January, 2009 (₦37,646,572,000.00), the outcome is ₦5,764,623,000.00.

We observed that not all the companies prepared their annual reports on IFRS as prescribed by the Road Map for the adoption of IFRS. Figures from annual reports prepared with IFRS are asterisked in the tables below.
### Table 4.1 Reported Profits (RP) (dependent variable) of the five companies.

<table>
<thead>
<tr>
<th>Company</th>
<th>2008 □’000,000</th>
<th>2009 □’000,000</th>
<th>2010 □’000,000</th>
<th>2011 □’000,000</th>
<th>2012 □’000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBPlc</td>
<td>(851.03)</td>
<td>(1,015.79)</td>
<td>(1,237.20)</td>
<td>(1,825.76)</td>
<td>*(1,336.69)</td>
</tr>
<tr>
<td>GBPlc</td>
<td>11,860.88</td>
<td>13,541.19</td>
<td>13,736.36</td>
<td>17,927.93</td>
<td>14,671.20</td>
</tr>
<tr>
<td>IBPlc</td>
<td>63.50</td>
<td>(285.55)</td>
<td>199.13</td>
<td>147.35</td>
<td>*2,917.41</td>
</tr>
<tr>
<td>NBPlc</td>
<td>25,700.59</td>
<td>27,910.09</td>
<td>30,332.12</td>
<td>38,408.85</td>
<td>*38,042.71</td>
</tr>
<tr>
<td>7-up BCPlc</td>
<td>7,676.57</td>
<td>8,335.92</td>
<td>8,984.51</td>
<td>11,387.18</td>
<td>*11,272.63</td>
</tr>
</tbody>
</table>

**Source:** Annual reports of the companies for the stated years

### Table 4.2 Depreciations (DEP) (independent variable) of the five companies.

<table>
<thead>
<tr>
<th>Company</th>
<th>2008 □’000,000</th>
<th>2009 □’000,000</th>
<th>2010 □’000,000</th>
<th>2011 □’000,000</th>
<th>2012 □’000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBPlc</td>
<td>496.48</td>
<td>448.51</td>
<td>449.15</td>
<td>774.65</td>
<td>*782.13</td>
</tr>
<tr>
<td>GBPlc</td>
<td>3,125.95</td>
<td>3,565.32</td>
<td>4,053.30</td>
<td>4,499.17</td>
<td>5,393.84</td>
</tr>
<tr>
<td>IBPlc</td>
<td>48.57</td>
<td>208.26</td>
<td>533.04</td>
<td>938.24</td>
<td>*1,033.46</td>
</tr>
<tr>
<td>NBPlc</td>
<td>5,764.62</td>
<td>6,794.66</td>
<td>7,000.83</td>
<td>8,108.66</td>
<td>*16,840.78</td>
</tr>
<tr>
<td>7-up BCPlc</td>
<td>1,694.86</td>
<td>2,076.62</td>
<td>2,621.45</td>
<td>2,877.09</td>
<td>*4,254.16</td>
</tr>
</tbody>
</table>

**Source:** Annual reports of the companies for the stated years

### Table 4.3 Inventory (INV) (independent variable) of the five companies.

<table>
<thead>
<tr>
<th>Company</th>
<th>2008 □’000,000</th>
<th>2009 □’000,000</th>
<th>2010 □’000,000</th>
<th>2011 □’000,000</th>
<th>2012 □’000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBPlc</td>
<td>1,395.22</td>
<td>1,192.54</td>
<td>1,591.57</td>
<td>2,169.12</td>
<td>*2,251.72</td>
</tr>
<tr>
<td>GBPlc</td>
<td>35,611.02</td>
<td>46,509.60</td>
<td>61,672.05</td>
<td>68,619.52</td>
<td>70,088.25</td>
</tr>
<tr>
<td>IBPlc</td>
<td>545.44</td>
<td>1,099.33</td>
<td>3,030.37</td>
<td>6,785.01</td>
<td>*7,749.92</td>
</tr>
<tr>
<td>NBPlc</td>
<td>74,561.95</td>
<td>88,734.44</td>
<td>98,694.86</td>
<td>117,151.71</td>
<td>*127,222.07</td>
</tr>
<tr>
<td>7-up BCPlc</td>
<td>18,058.65</td>
<td>20,631.99</td>
<td>24,008.84</td>
<td>31,894.10</td>
<td>*38,116.60</td>
</tr>
</tbody>
</table>

**Source:** Annual reports of the companies for the stated years
At the proposal stage of this work, we proposed using a time series figure data from the relevant years (i.e. three years pre-IFRS and two years post-IFRS). We had expected that the financial statement would be prepared in 2011 to comply with IFRS, to aid the transition in 2012, thus bringing the number of years of compliance to IFRS to 2 years. But it wasn’t so. Along the line it was also researched that 3 and 2 observations for pre and post IFRS respectively might not be enough for regression. As a result of this, a cross-section data of the companies of our consideration (see 3.4) for 2011 and 2012 to reflect pre-IFRS and post-IFRS were used as the data for this study.

### 4.2 DATA PRESENTATION

#### Table 4.5 Pre-IFRS (2011) data of the dependent and independent variables

<table>
<thead>
<tr>
<th>Company</th>
<th>RP&lt;sub&gt;HIC&lt;/sub&gt;</th>
<th>DEP&lt;sub&gt;HIC&lt;/sub&gt;</th>
<th>INV&lt;sub&gt;HIC&lt;/sub&gt;</th>
<th>TAX&lt;sub&gt;HIC&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>□’000,000</td>
<td>□’000,000</td>
<td>□’000,000</td>
<td>□’000,000</td>
</tr>
<tr>
<td>CBPlc</td>
<td>-1,825.76</td>
<td>774.65</td>
<td>2,169.12</td>
<td>-576.21</td>
</tr>
<tr>
<td>GBPlc</td>
<td>17,927.93</td>
<td>4,499.17</td>
<td>68,619.52</td>
<td>8,249.03</td>
</tr>
<tr>
<td>IBPlc</td>
<td>147.35</td>
<td>938.24</td>
<td>6,785.01</td>
<td>42.99</td>
</tr>
<tr>
<td>NBPlc</td>
<td>38,408.85</td>
<td>8,108.66</td>
<td>117,151.71</td>
<td>18,709.19</td>
</tr>
<tr>
<td>7-up BCPlc</td>
<td>11,387.18</td>
<td>2,877.09</td>
<td>31,894.10</td>
<td>247.54</td>
</tr>
</tbody>
</table>

**Source:** Annual report of the companies for the stated year

The table above display the respective balances of reported profit, depreciation, inventory and taxation for the pre-IFRS period of 2011. The data above is represented in a multiple bar chart to show the relationship between variables. Different colours of bars are used to represent each variable. The highest bar is inventory which is slightly below □120,000 and least bar is
profitability, slightly below the origin. The diagram below shows that the higher the inventory (cost of sales) the higher the profit, the higher the depreciation the higher the profit, and the higher the profit the higher the tax thereof; other things being equal.

![Multiple bar charts showing relationship between data of variables under Pre-IFRS (Historical Cost Accounting).](image)

**Figure 4.1a:** Multiple bar charts showing relationship between data of variables under Pre-IFRS (Historical Cost Accounting).  **Source:** Excel output window

The chart above is a multiple bar chart representing the data in table 4.5 above, each of the multiple bars presents a pictorial view of the relationship between reported profit, depreciation, inventory, and taxation. The charts above are further represented in a line graph to bring to bear the relationship that exit between the variables more vividly.
Similarly, the post-IFRS data gathered from the year 2012 (post-IFRS) financial activities is presented in the table below:

<table>
<thead>
<tr>
<th>Post-IFRS (Fair Value)</th>
<th>RP&lt;sub&gt;FA&lt;/sub&gt;</th>
<th>DEP&lt;sub&gt;FA&lt;/sub&gt;</th>
<th>INV&lt;sub&gt;FA&lt;/sub&gt;</th>
<th>TAX&lt;sub&gt;FA&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBPlc</td>
<td>-1,336.69</td>
<td>782.13</td>
<td>2,251.73</td>
<td>-592.18</td>
</tr>
<tr>
<td>GBPlc (dummy)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>IBPlc</td>
<td>2,917.41</td>
<td>1,033.46</td>
<td>7,749.92</td>
<td>70.35</td>
</tr>
<tr>
<td>NBPlc</td>
<td>38,042.71</td>
<td>16,840.78</td>
<td>127,222.07</td>
<td>17,581.65</td>
</tr>
<tr>
<td>7upBCPlc</td>
<td>2,068.53</td>
<td>4,254.16</td>
<td>38,116.60</td>
<td>859.98</td>
</tr>
</tbody>
</table>

**Source:** Annual report of the companies for the stated year

The table above display the respective balances of reported profit, depreciation, inventory and taxation for the post-IFRS period of 2012. The data above is represented in a multiple bar chart to show the relationship between variables. Different colours of bars are used to represent each variable. The highest bar is inventory which is above 120,000 and least bar is
profitability, slightly below the origin. The diagram below shows that the higher the cost of sales the higher the profit, the higher the depreciation the higher the profit, and the higher the profit the higher the tax thereof; other things being equal. Activities of Guinness Breweries Plc were represented with dummy.

Figure 4.2a: Multiple bar charts showing the relationship between variables Post-IFRS (Fair Value Accounting).  

Source: Excel output window

The chart above is a multiple bar chart representing the data in table 4.6 above, each of the multiple bars presents a pictorial view of the relationship between reported profit, depreciation, inventory, and taxation. The charts above are further represented in a line graph to bring to bear the relationship that exit between the variables more vividly.
4.3 DESCRIPTIVE STATISTICS

Table 4.7 Descriptive Statistics Result (Historical cost)

<table>
<thead>
<tr>
<th></th>
<th>RP&lt;sub&gt;HC&lt;/sub&gt;</th>
<th>DEP&lt;sub&gt;HC&lt;/sub&gt;</th>
<th>INV&lt;sub&gt;HC&lt;/sub&gt;</th>
<th>TAX&lt;sub&gt;HC&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>13209.11</td>
<td>3439.562</td>
<td>45323.89</td>
<td>5334.510</td>
</tr>
<tr>
<td>Median</td>
<td>11387.18</td>
<td>2877.090</td>
<td>31894.10</td>
<td>247.5400</td>
</tr>
<tr>
<td>Maximum</td>
<td>38408.85</td>
<td>8108.660</td>
<td>117151.7</td>
<td>18709.20</td>
</tr>
<tr>
<td>Minimum</td>
<td>-1825.760</td>
<td>774.6500</td>
<td>2169.120</td>
<td>-576.2100</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>16257.85</td>
<td>3024.814</td>
<td>48036.08</td>
<td>8309.495</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.681300</td>
<td>0.689037</td>
<td>0.613246</td>
<td>0.940682</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.164797</td>
<td>2.113619</td>
<td>1.914477</td>
<td>2.277440</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>0.532134</td>
<td>0.559325</td>
<td>0.558884</td>
<td>0.846171</td>
</tr>
<tr>
<td>Probability</td>
<td>0.766388</td>
<td>0.756039</td>
<td>0.756206</td>
<td>0.655023</td>
</tr>
</tbody>
</table>

Source: Eviews estimation output window
### Table 4.8 Descriptive Statistics Result (Fair Value)

<table>
<thead>
<tr>
<th></th>
<th>RP&lt;sub&gt;FV&lt;/sub&gt;</th>
<th>DEP&lt;sub&gt;FV&lt;/sub&gt;</th>
<th>INV&lt;sub&gt;FV&lt;/sub&gt;</th>
<th>TAX&lt;sub&gt;FV&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>8338.392</td>
<td>4582.106</td>
<td>35068.06</td>
<td>3583.960</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>2068.530</td>
<td>1033.460</td>
<td>7749.920</td>
<td>70.35000</td>
</tr>
<tr>
<td><strong>Maximum</strong></td>
<td>38042.71</td>
<td>16840.78</td>
<td>127222.1</td>
<td>17581.65</td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>-1336.690</td>
<td>0.000000</td>
<td>0.000000</td>
<td>-592.1800</td>
</tr>
<tr>
<td><strong>Std. Dev.</strong></td>
<td>16689.67</td>
<td>7042.923</td>
<td>53746.20</td>
<td>7841.967</td>
</tr>
<tr>
<td><strong>Skewness</strong></td>
<td>1.462126</td>
<td>1.317240</td>
<td>1.231029</td>
<td>1.483855</td>
</tr>
<tr>
<td><strong>Kurtosis</strong></td>
<td>3.200184</td>
<td>2.970833</td>
<td>2.821877</td>
<td>3.228220</td>
</tr>
<tr>
<td><strong>Jarque-Bera</strong></td>
<td>1.789859</td>
<td>1.446112</td>
<td>1.269471</td>
<td>1.845705</td>
</tr>
<tr>
<td><strong>Probability</strong></td>
<td>0.408636</td>
<td>0.485267</td>
<td>0.530076</td>
<td>0.397384</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

**Source:** Eviews estimation output window

Tables 4.7 and 4.8 displayed the outcomes of the descriptive statistics of the two sets of data, when the companies used historical cost convention, and fair value measurement, as a basis of valuing its assets. Comparing the mean RP<sub>FV</sub> (₦8,338.39m) with the mean RP<sub>HC</sub> (₦13,209.11m), it was observed that the mean RP<sub>HC</sub> is higher in value than the RP<sub>FV</sub>; meanwhile, the mean inventory that generated the mean reported profit, INV<sub>HC</sub> (₦45,323.89m) is higher than INV<sub>FV</sub> (₦35,068.06m). On the hand, in the wear and tear (depreciation) of the long term non-current assets that generated the inventories and as well profits; the mean DEP<sub>HC</sub> (₦3,439.562m) is lower than DEP<sub>FV</sub> (₦4,582.11m). In the case of taxation that resulted from the reported profit, TAX<sub>HC</sub> (₦5,334.51m) is higher than TAX<sub>FV</sub> (₦3,583.96m).

Further analysis of the outcomes of tables 4.7 and 4.8 using simple ratio/percentage revealed the ratio of ‘mean-depreciation’ to ‘mean-inventory’ under historical cost convention of 0.08(8%), and 0.13(13%) under fair value. Also, ratio of ‘mean-depreciation’ to ‘mean-profit’ of 0.26(26%) under historical cost convention and 0.55(55%) under fair value measurement; both points to the fact that more provision for replacement of existing assets is made under fair value measurement than historical cost convention. The ratio of ‘mean-profit’ to ‘mean-inventory’ is 0.29(29%) under historical cost and 0.24(24%) under fair value; reflecting that more profit is made and declared using historical cost than when fair value is in use. The consequence is the payment of more tax under historical convention than fair value. This is evidenced in the ratio of ‘mean-tax’ to ‘mean-inventory’, which reflect 0.12(12%) under historical cost and 0.10(10%) at fair value.

The outcomes displayed in tables 4.7 and 4.8 are represented graphically, thus:
The line graph above revealed a higher inventory (cost of sales) level under pre-IFRS than under post IFRS, consequent upon this high inventory, should be a higher depreciation but the depreciation of post-IFRS is higher than that of pre-IFRS. Similarly, the high profit led to high taxation. By implication, pre-IFRS period of 2011 has higher profit, lesser depreciation, higher inventory, and more tax compared to the post-IFRS period of 2012. It will be easier to replace depreciated asset under post-IFRS period since this period charge large part of the profit for future expansion than the pre-IFRS period. Furthermore, since there is no adequate provision for depreciation, taxes paid could in the long run deplete shareholders fund.

The tables 4.7 and 4.8 also displayed other results such as, median, standard deviation (SD), skewness, Kurtosis etc., all explaining the mean (ICAN, 2006; Hanke and Reitsch, 1991) \( \text{RP}_{HC} \) median is \( \text{₦11,387.18m} \) while that of \( \text{RP}_{FV} \) is \( \text{₦2,068.53m} \). The least and highest reported profit is \( \text{₦-1,825.76m} \) and \( \text{₦38,408.85m} \) respectively under historical cost, and \( \text{₦-1336.69m} \) and \( \text{₦38,042.71m} \) respectively under fair value. The SD for reported profit under historical cost convention is \( \text{₦16,257.85m} \) and under fair value measurement is \( \text{₦16,689.67m} \).

From the Eviews results, \( \text{RP}_{HC} \) data skewness is positive and slightly away from symmetry at 0.68; same applies to the \( \text{RP}_{FV} \) data though with a higher skewness of 1.46. A kurtosis of 2.16 for \( \text{RP}_{HV} \) shows that \( \beta_2 - 3 < 0 \) (-0.84) meaning a negative kurtosis (lighter tail and a flatter
peaked distribution). RP\textsubscript{FV} kurtosis of 3.20 shows $\beta_2 - 3 > 0$ (0.20) meaning a positive kurtosis (heavier tails and a higher peak); both kurtosis and not far from zero (close to normal) (DeCarlo, 1997).

For the purpose of comparing the historical cost with the fair value, the researcher considered the mean essential.

4.4 TEST OF HYPOTHESES

The hypotheses of the study stated in chapter one of this work is tested in this section. To test a hypothesis, it is stated in both the null and alternate forms (Onwumere, 2009). The following steps are taken in arriving at the decision on the hypotheses tested:

i) Statement of the hypothesis in both null and alternate forms
ii) Analysis of the respective results of hypothesis tested.
iii) Decision.

4.4.1 TEST OF HYPOTHESIS ONE

$H_0$: Depreciation has no significant positive impact on profitability of manufacturing firms under the fair value measurement and under historical cost convention.

$H_1$: Depreciation has significant positive impact on profitability of manufacturing firms under fair value accounting and under historical cost convention.

Dependent Variable: RP\textsubscript{FV}
Method: Least Squares
Sample: 1 5
Included observations: 5

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEP\textsubscript{FV}</td>
<td>2.320442</td>
<td>0.277528</td>
<td>8.361104</td>
<td>0.0036</td>
</tr>
<tr>
<td>C</td>
<td>-2294.120</td>
<td>2161.834</td>
<td>-1.061191</td>
<td>0.3665</td>
</tr>
</tbody>
</table>

R-squared 0.958852
Mean dependent var 8338.392
Adjusted R-squared 0.945136
S.D. dependent var 16689.67
S.E. of regression 3909.220
Akaike info criterion 19.66924
Sum squared resid 45845993
Schwarz criterion 19.51301
Log likelihood -47.17309
F-statistic 69.90805
Durbin-Watson stat 1.274273
Prob(F-statistic) 0.003587

Table 4.9 Regression result on the impact of depreciation on reported profit under fair value regime

Source: EViews estimation output window

Model equation $RP_{FV} = -2294.12 + 2.32DEP_{FV} + e_i$
Table 4.10 Regression result on the impact of depreciation on reported profit under historical cost regime

Source: EViews estimation output window

Model equation \( \text{RP}_{\text{HC}} = -5251.19 + 5.37\text{DEP}_{\text{HC}} + \epsilon \)

The outcomes displayed in tables 4.9 and 4.10 revealed that depreciation has a positive and significant impact on profitability of manufacturing firms under fair value (\( R^2 = 0.959; \ AR^2 = 0.945; \ t\text{-value} = 8.36; \ F\text{-stat} = 69.908; \ DW = 1.274; \ p\text{-value} 0.0036 < 0.05 \)) and under historical cost convention (\( R^2 = 0.997; \ AR^2 = 0.996; \ t\text{-value} = 32.16; \ F\text{-stat} = 1034.45; \ DW = 0.979; \ p\text{-value} 0.0066 < 0.05 \)). The t-statistics is the ratio of an estimated coefficient to its standard error, is used to test the hypothesis that a coefficient is equal to zero. To interpret the t-statistic, the critical t-value (\( t_c \)) is obtained, it is value that separates the "acceptance" region from the "rejection". The hypothesis that the coefficient is zero is rejected at the 5% significance level if the calculated t-value is greater than the critical t-value (Johnson, n.d.). In this case \( t_{\text{calculated}} \) of 8.36 (FV) and 32.16 (HC) is greater than \( t_{\text{critical}} \) 2.31 (df= N+ N-2). The t-statistic outcome is further backed-up by probability of observing the t-statistic given that the coefficient equals zero. The probability value (p-value/prob./marginal significance level) denotes the probability of drawing a t-statistic as extreme as the one actually observed, under the assumption that the errors are normally distributed, or that the coefficients are asymptotically normally distributed. It represents the probability of making a Type I error if the null hypothesis, that the coefficient is zero, is rejected. The rule is, a p-value lower than significance level of .05 (5%) suggests rejection of the null hypothesis (Markovic, 2002); in this case, the p-value is 0.0036 under fair value and 0.0066 under historical cost convention, the p-value are lower than 0.05, reject the null hypothesis.
F-statistic tests the hypothesis that all of the slope coefficients (excluding the constant) are zero. It can be explained by the p-value printed just below the F-statistic in the EViews regression output, denoted Prob(F-statistic), represents the marginal significance level of the F-test. The rule is if the p-value is less than the significance level of 0.05; reject the null hypothesis that all slope coefficients are equal to zero. In this case, p-value (0.003587 at fair value and 0.000066 at historical cost) is less than significance level of 0.05; therefore the null hypothesis is rejected.

Durbin-Watson (DW) statistic measures the serial correlation in the residuals. The rule is, if the DW is less than 2, there is evidence of positive serial correlation. In this case, DW is 1.274 under historical cost data and 0.979 under fair value data, both are less than 2.

R-squared measures the success of the regression to predict the values of the dependent variable within the sample. In standard setting, may be interpreted as the fraction of the variance of the dependant variable explained by the independent variables. The statistic will equal one if the regression fits perfectly, and zero if it fits no better than the simple mean of the dependent variable (Markovic, 2002). $R^2$ (0.958852 at fair value and 0.997108 at historical cost) shows a strong ability of the independent variable to predict the dependent variable.

Adjusted R-squared penalises for the addition of repressor which do not contribute to the explanatory power of the model. The $AR^2$ is never larger than the $R^2$, can decrease as you add repressors and poorly fitted models, may be negative (Markovic, 2002). In this case, $AR^2$ (0.945 under fair value and 0.996 under historical) shows the effect of repressor.

Therefore, we reject the null hypothesis and accept the alternate hypothesis that depreciation has significant positive impact on profitability of manufacturing firms under fair value accounting and under historical cost convention. Hence an increase in depreciation would lead to a significant positive increase in profitability under fair value and under historical cost convention.

**4.4.2 TEST OF HYPOTHESIS TWO**

$H_0$: Inventory has no significant positive impact on reported profit of manufacturing company under fair value regime and under historical cost regime;

$H_1$: Inventory has significant and positive impact on reported profit of manufacturing firms under fair value and under historical cost regime.
Dependent Variable: RP
Method: Least Squares
Sample: 1 5
Included observations: 5

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INV&lt;sub&gt;FV&lt;/sub&gt;</td>
<td>0.300855</td>
<td>0.044399</td>
<td>6.776200</td>
<td>0.0066</td>
</tr>
<tr>
<td>C</td>
<td>-2212.002</td>
<td>2641.890</td>
<td>-0.837280</td>
<td>0.4639</td>
</tr>
</tbody>
</table>

| R-squared | 0.938671 | Mean dependent var | 8338.392 |
| Adjusted R-squared | 0.918229 | S.D. dependent var | 16689.67 |
| S.E. of regression | 4772.527 | Akaike info criterion | 20.06831 |
| Sum squared resid | 68331047 | Schwarz criterion | 19.91209 |
| Log likelihood | -48.17078 | F-statistic | 45.91689 |
| Durbin-Watson stat | 1.303833 | Prob(F-statistic) | 0.006569 |

Table 4.11 Regression result on the impact of Inventory on reported profit under fair value regime
Source: EViews estimation output window

Model equation RP<sub>FV</sub> = -2212 + 0.3009INV<sub>FV</sub> + e<sub>i</sub>

Dependent Variable: RP<sub>HC</sub>
Method: Least Squares
Sample: 1 5
Included observations: 5

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INV&lt;sub&gt;HC&lt;/sub&gt;</td>
<td>0.335503</td>
<td>0.025731</td>
<td>13.03864</td>
<td>0.0010</td>
</tr>
<tr>
<td>C</td>
<td>-1997.213</td>
<td>1606.977</td>
<td>-1.242839</td>
<td>0.3022</td>
</tr>
</tbody>
</table>

| R-squared | 0.982660 | Mean dependent var | 13209.11 |
| Adjusted R-squared | 0.976879 | S.D. dependent var | 16257.85 |
| S.E. of regression | 2472.079 | Akaike info criterion | 18.75268 |
| Sum squared resid | 18333520 | Schwarz criterion | 18.59646 |
| Log likelihood | -44.88170 | F-statistic | 170.0061 |
| Durbin-Watson stat | 1.051178 | Prob(F-statistic) | 0.000974 |

Table 4.12 Regression result on the impact of Inventory on reported profit under historical cost regime
Source: EViews estimation output window

Model equation RP<sub>HC</sub> = -1997.21 + 0.3355INV<sub>HC</sub> + e<sub>i</sub>

Table 4.11 and 4.12 established that inventory has positive and significant impact on profitability under fair value measurement (R<sup>2</sup> = 0.939; AR<sup>2</sup> = 0.918; t-value = 6.78; F-stat = 45.917; DW = 1.304) and under historical cost convention (R<sup>2</sup> = 0.983; AR<sup>2</sup> = 0.977; t-value = 13.04; F-stat = 170.006; DW = 1.051). Reference to the explanation proffered in test of hypothesis one above, p-value of the t-statistic (0.0066 for fair value and 0.0010 for historical cost) is less than significant level 0.05; reject the null hypothesis. F-statistic probability (0.006569 for fair value and 0.000974 for historical cost) is less than significant level 0.05;
reject the null hypothesis. Durbin-Watson statistic (1.304 under fair value and 1.051 under historical cost) is less than 2; we reject the null hypothesis. $R^2$ (0.9387 at fair value and 0.9827 at historical cost) shows a strong ability of the independent variable to predict the dependent variable.

Therefore, we reject the null hypothesis and accept the alternate hypothesis that inventory has significant positive impact on profitability of manufacturing firms under fair value accounting and under historical cost convention. Hence an increase in inventory would lead to a significant positive increase in profitability under fair value and under historical cost convention.

### 4.4.3 TEST OF HYPOTHESIS THREE

$H_0$: The tax volume has no significant positive relationship with reported profit of manufacturing firms under the fair value measurement and under historical cost.

$H_1$: The tax volume has significant positive relationship with reported profit of manufacturing firms under fair value measurement and under historical cost.

Table 4.13 Correlation matrix of the various variables using historical cost

<table>
<thead>
<tr>
<th></th>
<th>$R_{HC}$</th>
<th>$DEP_{HC}$</th>
<th>$INV_{HC}$</th>
<th>$TAX_{HC}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R_{HC}$</td>
<td>1.000000</td>
<td>0.998553</td>
<td>0.991292</td>
<td>0.958669</td>
</tr>
<tr>
<td>$DEP_{HC}$</td>
<td>0.998553</td>
<td>1.000000</td>
<td>0.996232</td>
<td>0.968628</td>
</tr>
<tr>
<td>$INV_{HC}$</td>
<td>0.991292</td>
<td>0.996232</td>
<td>1.000000</td>
<td>0.974490</td>
</tr>
<tr>
<td>$TAX_{HC}$</td>
<td>0.958669</td>
<td>0.968628</td>
<td>0.974490</td>
<td>1.000000</td>
</tr>
</tbody>
</table>

Source: Eviews estimation output window

Table 4.14 Correlation matrix of the various variables using fair value

<table>
<thead>
<tr>
<th></th>
<th>$R_{FV}$</th>
<th>$DEP_{FV}$</th>
<th>$INV_{FV}$</th>
<th>$TAX_{FV}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R_{FV}$</td>
<td>1.000000</td>
<td>0.979210</td>
<td>0.968851</td>
<td>0.997493</td>
</tr>
<tr>
<td>$DEP_{FV}$</td>
<td>0.979210</td>
<td>1.000000</td>
<td>0.997949</td>
<td>0.983364</td>
</tr>
<tr>
<td>$INV_{FV}$</td>
<td>0.968851</td>
<td>0.997949</td>
<td>1.000000</td>
<td>0.972981</td>
</tr>
<tr>
<td>$TAX_{FV}$</td>
<td>0.997493</td>
<td>0.983364</td>
<td>0.972981</td>
<td>1.000000</td>
</tr>
</tbody>
</table>

Source: Eviews estimation output window

The boxed values in the outcomes displayed in the table above show the correlation of reported profit and taxation. It shows that there is a positive and significant relationship between $RP$ and $TAX$ under historical cost and under fair value.

Therefore, we reject the null hypothesis and accept the alternate hypothesis that Taxation has significant and positive relationship with profitability of manufacturing firms under fair value.
accounting and under historical cost convention. Hence an increase in profitability would lead to a significant positive increase in taxation under fair value and under historical cost convention.

### 4.4.4 TEST OF HYPOTHESIS FOUR

H$_0$: The reported profit is the same using fair value measurement and historical cost convention.

H$_1$: The reported profit is not the same using fair value measurement and historical cost convention.

<table>
<thead>
<tr>
<th>Method</th>
<th>df</th>
<th>Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>t-test</td>
<td>8</td>
<td>0.467448</td>
<td>0.6526</td>
</tr>
<tr>
<td>Anova F-statistic</td>
<td>(1, 8)</td>
<td>0.218507</td>
<td>0.6526</td>
</tr>
</tbody>
</table>

Analysis of Variance

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>Sum of Sq.</th>
<th>Mean Sq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>1</td>
<td>59309735</td>
<td>59309735</td>
</tr>
<tr>
<td>Within</td>
<td>8</td>
<td>2.17E+09</td>
<td>2.71E+08</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>2.23E+09</td>
<td>2.48E+08</td>
</tr>
</tbody>
</table>

Category Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Count</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Std. Err. of Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>RP$_{HC}$</td>
<td>5</td>
<td>13209.11</td>
<td>16257.85</td>
<td>7270.731</td>
</tr>
<tr>
<td>RP$_{FV}$</td>
<td>5</td>
<td>8338.392</td>
<td>16689.67</td>
<td>7463.849</td>
</tr>
<tr>
<td>All</td>
<td>10</td>
<td>10773.75</td>
<td>15743.64</td>
<td>4978.577</td>
</tr>
</tbody>
</table>

Table 4.15 Test for Equality of Means between series of the RP$_{FV}$ and RP$_{HC}$ various variables using fair value

Source: Eviews estimation output window

The table above shows the $t_{calculated}$ (0.467) is less than the $t_{critical}$ (2.306) we accept the null hypothesis that the two populations from which samples were taken have the same mean. This is further explained in the probability of t-test, which shows that the probability of t-test (0.6526) is greater than the significant level (0.05)
Therefore, we accept the null hypothesis (the two populations from which samples were taken have the same mean) and reject the alternate hypothesis that the two populations from which samples were taken does not have the same mean. Hence the profit generated using fair value has no significant difference with the profit generated using historical cost convention.

4.5 Discussion of Research Findings:
The major findings of this study were discussed after stating the objective. The research also has the following findings:

4.5.1 Finding Based on Road Map Recommendation:
The road map recommended all publicly listed entities and significant public interest entities to mandatorily prepare their financial statements using applicable IFRS by January 1, 2012; at the time of this research, not all the publicly listed entities met with this demand.

4.5.2 Findings Based on Descriptive Statistics:
Comparing the mean $\text{RP}_{\text{FV}}$ (₦8,338.39m) with the mean $\text{RP}_{\text{HC}}$ (₦13,209.11m), it was observed that the mean $\text{RP}_{\text{HC}}$ is higher in value than the $\text{RP}_{\text{FV}}$; meanwhile, the mean inventory that generated the mean reported profit, $\text{INV}_{\text{HC}}$ (₦45,323.89m) is higher than $\text{INV}_{\text{FV}}$ (₦35,068.06m). On the other hand, in the wear and tear (depreciation) of the long term non-current assets that generated the inventories and as well profits; the mean $\text{DEP}_{\text{HC}}$ (₦3,439.562m) is lower than $\text{DEP}_{\text{FV}}$ (₦4,582.11m). In the case of taxation that resulted from the reported profit, $\text{TAX}_{\text{HC}}$ (₦5,334.51m) is higher than $\text{TAX}_{\text{FV}}$ (₦3,583.96m).

4.5.3 Findings Based on Objectives:
4.5.3.1 Objective One:
To ascertain the influence of depreciation on profitability of manufacturing firms in Nigeria under the fair value and under historical cost convention.
The regression results which showed that the relationship between depreciation and reported profit was positive and significant under fair value and under historical cost convention, confirmed that this objective has been met. The results provide a proof that the size of depreciation would determine the ability of a manufacturing firm to report profit, thereby contributing to the maximization of shareholders wealth other things being equal. The descriptive statistic revealed that under historical cost accounting manufacturing firms made lower depreciation to be charged against revenue than in fair value accounting; lower depreciation could affect negatively, the ability of the firm to replace the asset when the need
arises. The finding is consistent with the work of Bessong and Charles (2012), whose analyses showed that the depreciation charged to the revenue using historical cost were low as compared to current cost method thereby making reported profit to be overstated.

4.5.3.2 Objective Two:
To examine the effect of inventory on reported profit of manufacturing firms in Nigerian under fair value measurement and under historical cost convention.
The regression results which showed that inventory has a positive and significant effect on reported profit under fair value and under historical cost convention, confirmed that this objective has been met. The results provide a proof that the size of inventory would determine the ability of a manufacturing firm to report profit, thereby contributing to the maximization of shareholders wealth. The descriptive statistic result revealed that under historical cost accounting manufacturing firms made lower cost of sales (inventory) than the cost of sales (inventory) when fair value is in use. The finding is consistent with the finding of Reis and Stocken (2007) and Bessong and Charles (2012); whose analyses showed that, the presence of cost uncertainty reduces the informativeness of a report prepared using historical cost whereas one prepared using fair value continues to completely reveal a firm’s inventory holding.

4.5.3.3 Objective Three:
To determine the relationship between volume of tax and reported profit of manufacturing firms in Nigeria under the fair value measurement and under historical cost convention.
The correlation coefficient results which showed that the relationship between taxation and reported profit was positive and significant under fair value and under historical cost convention, confirmed that this objective has been met. The results provide a proof that the size of reported profit would determine the volume of tax and the ability of a manufacturing firm to pay tax and as well enjoy benefit that comes with taxation (e.g. tax holiday etc), thereby contributing to the societal development and maximization of shareholders wealth. Also, it was revealed that under historical cost accounting manufacturing firms has more tax obligation than in fair value accounting. Using the historical cost reported profit to meet this obligation may lead to the companies touching their capital which could be a threat to the going concern of the firms. The finding is consistent with the findings of Tearney (2004) and Teemu (1991) as incorporated by Bessong and Charles (2012), that any attempt to use historical cost method may lead to the reduction in capital.
4.5.3.4 Objective Four:
Investigate the difference in reported profit using fair value measurement and historical cost convention.

The t-statistics results which showed that the two populations (i.e. fair value and historical cost) from which sample were taken have the same mean, confirmed that this objective has been met. The results provide a proof that Fair Value Measurement can be use to replace Historical Cost Convention; that the reported profit of a manufacturing firm using Fair Value might not be significantly different from the same manufacturing firm using historical cost convention; and that Fair Value Measurement might not affect the company’s of shareholders wealth maximization negatively. The test is consistent with the findings of Rodriguez-Perez, Slof, Sola, Torrent, and Vilardell (2011) whose analysis amongst other things showed that the overall assessment of companies with regard to efficiency and profitability remains the same under both valuation bases.
References:
CHAPTER FIVE
SUMMARY OF FINDINGS, CONCLUSION AND
RECOMMENDATIONS

This section summarizes the various findings emerging from the study and aligns such findings with the objectives of this research. Conclusions and necessary recommendations were subsequently drawn based on the finding of the study.

5.1 Summary of Findings:
At the time of this research, not all the publicly listed entities prepared their account as recommended; the regression results which showed that the relationship between depreciation and reported profit was positive and significant under fair value and under historical cost convention, the results provide a proof that the size of depreciation would determine the ability of a manufacturing firm to report profit, thereby contributing to the maximization of shareholders wealth other things being equal. The descriptive statistic revealed that under historical cost accounting manufacturing firms made lower depreciation to be charged against revenue than in fair value accounting; lower depreciation could affect negatively, the ability of the firm to replace the asset when the need arises.

The regression results which showed that inventory has a positive and significant effect on reported profit under fair value and under historical cost convention. The results provide a proof that the size of inventory would determine the ability of a manufacturing firm to report profit, thereby contributing to the maximization of shareholders wealth. The descriptive statistic result revealed that under historical cost accounting manufacturing firms made lower cost of sales (inventory) than the cost of sales (inventory) when fair value is in use.

The correlation coefficient results which showed that the relationship between taxation and reported profit was positive and significant under fair value and under historical cost convention, the results provide a proof that the size of reported profit would determine the volume of tax and the ability of a manufacturing firm to pay tax and as well enjoy benefit that comes with taxation (e.g. tax holiday etc), thereby contributing to the societal development and maximization of shareholders wealth. Also, it was revealed that under historical cost accounting manufacturing firms has more tax obligation than in fair value accounting. Using
the historical cost reported profit to meet this obligation may lead to the companies touching their capital which could be a threat to the going concern of the firms.

The t-statistics results showed that the two populations (i.e. fair value and historical cost) from which sample were taken have the same mean. The results provide a proof that Fair Value Measurement can be use to replace Historical Cost Convention; that the reported profit of a manufacturing firm using Fair Value might not be significantly different from the same manufacturing firm using historical cost convention; and that Fair Value Measurement might not affect the company’s of shareholders wealth maximization negatively.

5.2 Conclusion
The main objective of this study is to examine empirically the relation between fair value measurement, and historical cost convention in determining profitability of manufacturing firms using data from the Nigerian jurisdiction. The effort was spurred by the adoption of IFRS as a base for reporting financial activities of publicly and privately owned business entities.

Using the OLS simple regression, correlation coefficient and t-statistic, and using reported profit as a proxy for performance, depreciation as a proxy the ability for continuity and expansion, inventory (cost of sales) as a proxy for manager’s effort, and taxation as a proxy for return to the society.

The empirical findings provide strong support for the proposition that the historical cost convention could in the long run lead to the erosion of shareholders fund and that fair value accounting gives a more conservative view of the activity of an economic entity and as such, should be encouraged. Other key factor as indicated in the results is that profitability is influenced by the wear and tear (depreciation) and cost of sales (inventory) and has relationship with taxation.

Our results also suggest that, although profitability is important, when it is compared with variables (e.g. depreciation, inventory etc) that create enabling environment for profit to happen, a better decision is made thereafter. It is also necessary to remember that the change is necessitated by incessant inflation.
5.3 RECOMMENDATIONS

The result of this study have provided enough evidence to make a convincing case that fair value measurement produces a more conservative accounting information that will encourage the going concern of a firm than historical cost convention. In view of the foregoing, the following recommendations were made:

i) Companies should prepare their financial report using fair value measurement since it gives a more conservative view of the financial state such that the accounting principle of prudence is upheld.

ii) Accounting bodies in Nigeria should organise workshops for accountants and managers of companies to create adequate awareness on international financial reporting standard vis-à-vis fair value measurement and the need to avoid historical cost convention particularly during inflationary period.

iii) The local standard setting body i.e. should see to it that compliance to IFRS it total in consonance with the provisions of the road map; already spelt out sanction should be implemented of defaulters. Also subsequent implementation of sensitive issues as this should not be in a hurry. For example, the Road Map Committee sent in their recommendation in 2010 and the first set of compliance was in 2012. Two years is too short for a company with complex systems to comply.

iv) The head of accounting departments of tertiary institutions and other institution where accounting is taught should ensure that illustrations are done using the relevant IFRSs to prepare the students for challenges ahead.

v) The Securities and Exchange Commission of Nigeria should make account prepared on fair value measurement a precondition for filing annual returns in the commission. Also, the submission of accounts and financial statements prepared on fair value accounting is made a prerequisite for firms to be listed on the stock market. By this action, the interests of naive and experienced investors alike are protected especially in this period of incessant inflation.

5.4 SUGGESTIONS FOR FURTHER RESEARCH

The findings of this study have exposed other areas of research that will help the understanding of fair value and profitability, vis-à-vis the maximisation of shareholders wealth.

- The research did not say whether financial statement prepared on any of the two methods of valuation has impact on the share price of the company. The available information suggests that fair value gave a more conservative view that could aid the
going concern of the firm. Future research could focus more on the impact method of valuation has on the share price of companies.

- Although the study shed light on the difference in the amount of reported profit, depreciation, inventory, and taxation, it did not reveal what occasioned the difference. Further research could shed more light on this area.
- The research considered data from two particular years 2011 and 2012, further research could focus on trend analysis particularly as it affect differences in the value of variables under consideration and the magnitude.
- The research did not answer the question whether fair value could lead to subjectivity in placing value on assets whose exit price cannot be determined at a measurement date. Further research could make effort on this question.

5.4 CONTRIBUTION TO KNOWLEDGE

This research work made the following contributions to knowledge:

i) The results of this study provide empirical evidence to the question, ‘Whether fair value is good enough to be the bases upon which the assets of manufacturing companies are valued to determine profitability?’

ii) Data from both periods (pre-IFRS i.e. 2011 and post-IFRS i.e. 2012) were used in the study. The research did not adjust account prepared on historical cost convention to reflect fair value, it used data from both periods the way they were, different from how previous researchers handled related study.

iii) The researcher introduced the use of inventory (cost of sales) in addition to the use of depreciation and taxation as variables for the study.

iv) Our findings were obtained after using more than one analytical tool, unlike other research on this topic.
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