VALUE RELEVANCE OF ACCOUNTING INFORMATION OF LISTED INDUSTRIAL GOODS FIRMS IN NIGERIA

BY

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M.Sc/ADMIN/5734/2011-2012

BEING A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, AHMADU BELLO UNIVERSITY, ZARIA, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE DEGREE (M.Sc) IN ACCOUNTING AND FINANCE

DEPARTMENT OF ACCOUNTING
AHMADU BELLO UNIVERSITY,

ZARIA

November, 2015

CERTIFICATION

This Dissertation entitled **VALUE RELEVANCE OF ACCOUNTING INFORMATION OF LISTED INDUSTRIAL GOODS FIRMS IN NIGERIA** by MUSA, Usman Mamuda (M.Sc/ADMIN/5734/2011-2012) meets the regulations governing the award of the degree of Master of Science in Accounting (M.Sc Accounting and Finance) of the Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

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DECLARATION

I declare that the work in this Dissertation entitled **VALUE RELEVANCE OF ACCOUNTING INFORMATION OF LISTED INDUSTRIAL GOODS FIRMS IN NIGERIA** has been done by me in the Department of Accounting under the supervisory committee of Dr Salisu Abubakar and Malam Muhammad Tahir Dahiru. The information derived from the literature has been duly acknowledged in the text and a list of references provided. To the best of my knowledge, no part of this Dissertation was previously presented for another Degree or Diploma at any University.

……..

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DEDICATION

This Dissertation is dedicated to my late father, Malam Mamuda Musa Sarkin Baji and my beloved mother Hajiya Fatima AbdulMumin Magaji. Father, may your soul rest in perfect peace, amin!

ACKNOWLEDGEMENTS

In the name of Allah, the Most Gracious, the Most Merciful. May His peace and blessings be upon His messenger Prophet Muhammad (SAW). Sincere and special thanks go to my major supervisor Dr Salisu Abubakar and his committee member Malam Muhammad Tahir Dahiru for their encouragement, assistance and guidance during the course of the research work. I remain grateful and thankful for taking the pains of ensuring that this Dissertation is finally through.

Sincerely speaking, I do acknowledge the immeasurable efforts and contributions of my supervisory committee for their time, guidance and meticulous assistance to this work. May Allah repay you abundantly. Thanks to my beloved wives and children for their patience and support throughout the programme. Also to my special friend and landlord Malam Ibrahim Yusuf (Lecturer, Department of Accounting, Ahmadu Bello University, Zaria) who contributed tremendously to the end of the struggle.

This acknowledgement will not be complete without my lecturers, Dr Ahmad Bello Dogarwa (present HOD), Dr Ahmad Bello (former HOD), Prof. Muhammad S. A. Bayero (Usman Danfodiyo University, Sokoto), Prof. Umar Sanda (Usman Danfodiyo University, Sokoto), Dr Salisu Mamman (Deputy Director, Congo Campus), Dr Shehu Usman Hassan (HOD Accounting, Kaduna State University, Kaduna), Dr S. Akanet, Dr. Muhammad Habibu Sabari, Dr L. Mailafiya and other respected lecturers in the department. In addition, my special thanks go to my reviewers from seminar to proposal levels whose immense contribution made this work to be completed successfully.

May I also use this avenue to say a big thank you to my respected M.Sc colleagues under the distinguish chairmanship of Mr Musa Adeiza Farouk, who has seen always a colleague in need. I

pray that Allah will see all of us through this programme so that our brothers and sisters coming up will benefit from us.

May I also extend my sincere gratitude to my brothers and sisters Nuhu Mamuda, Rabiatu Mamuda, Isa Mamuda, Adama Mamuda, Hauwau Mamuda, Hajara Mamuda, Haladu Mamuda, late Sani Mamuda, Abubakar Mamuda, Umaru Mamuda and all others that could not be mentioned. Also to my uncles, Alhaji Yakubu AbdulMumin (Marafan Ibi), Alhaji Isa Maigarim(Yariman Ibi) Alhaji Ridwanu A Saidu (Former Director Finance, Ibi LGUBEA), as well as late Malam Muhammad Kabir AbdulMumi who died when I needed him most. May his soul rests in perfect peace. Special thanks goes to my friends: Malam Idris Sulaiman, Hafiz Umar Bala, Malam Abdullahi Umar, and others for their prayers.

Behind every successful man, there are women. I must acknowledge the support I got from my wives, Malama Bilkisu Yakubu AbdulMumin and Malama Saratu Idris who have been very patient in my absence especially during our course work. I must acknowledge my students in person of Malama Juwairiyya Abdullahi Maykano (HAFIZA) and Malama Khadija AbduLLahi Maykano for their prayers and well wishes. To my nine children, I say may Allah bless you all.

Finally, I acknowledge my heavy indebtedness to all others that contributed either directly or indirectly to the success of this work, but whose names are not mentioned strictly due to space limitation and not that of omission.

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Abstract

Activities in the Nigerian Stock Exchange (NSE) in the past years show that the Nigerian Industrial Goods firms is one of the sectors that contributed to the drop in the Nigerian Stock Exchange Turnover Ratio from 21.86% in 2008 to 13.26% in 2009, attributing to the decline in stock prices.. Therefore, this study examined the extent to which share price of the Listed Industrial Goods firms in Nigeria are associated with fundamental accounting variables (that is, earnings per share, Book value per share and dividends per share). The thesis investigates the value relevance of accounting information in Listed Industrial Goods firms in Nigeria using data obtained from the Nigerian Stock Exchange (N S E) fact book 2011, annual report of the firms for the period 2007-2013, and daily price list on the Cash Craft website. The study is based on the semi-strong form of Efficient Market Hypothesis applying the Ohlson (1995) valuation model. Initially, Ordinary Least Square (OLS), Fixed Effects (FE) and Random Effects (RE) models were employed as tools of analysis but after conducting relevant tests, REM is used in testing the hypotheses of the study The population of the study consisted of all the twenty-five (25) firms that are listed on the Nigerian stock exchange under industrial goods sector of the economy. After applying filtering method, 16 firms were selected as sample of the study. The result revealed that all the explanatory variables statistically and significantly influence the explained variable. This implies that accounting information published by listed industrial goods firms in Nigeria have high value relevance to the investors in making their investment decision on the firms. Specifically, earnings per share are the most value relevant accounting information followed by dividend per share, then book value per share. It is therefore recommended that the management of Nigerian industrial goods firms should maintain stability and consistency in their earnings by maintaining uniform accounting policy and diversification of operations, which will go a long way in increasing market value of the firms. The accounting standards setters should also enhance the quality of the financial reporting in order to increase the value relevance of financial statements.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Accounting is regarded as the language of business used by corporate firms in communicating their financial positions to their users through the publication of annual financial statements containing the required financial accounting information. Financial accounting information is the product of corporate accounting and external reporting systems that measures and publicly discloses audited, quantitative data concerning the financial position and performance of publicly held firms. These financial statements, according to the Generally Accepted Accounting Principles (GAAP), have certain qualitative characteristics that should be met in order for it to succeed in its purpose. The statement should disclose reliable, relevant, comparable, timely and understandable information (ICAN, 2014).

For any accounting information to meet up with the above qualitative characteristics, it must be prepared and made public for the consumption of its target users. These users need different information at different times and as such, it is mandatory for preparers of these financial statements to prepare and present reliable information to assist them in their decision making (ICAN, 2014). Reliability has to do with the quality of information which assures that information is reasonably free from error and bias and faithfully represents what it is intended to represent. The International Accounting Standard Board (IASB) Framework (2011) shows that accounting information is only relevant when users

are able to evaluate past, present or future events in taking economic decisions. These users could be owners, managers, or employees.

Value relevance refers to the ability of accounting information to be reflected in stock values (Francis & Schipper, 1999). Value relevance has to do with the summarization of accounting information which affects stock values in such a way that the investors can come up with an informed decision, that has to do with an organization. Valuation study is mainly aimed at relating accounting numbers to a measure of firm value with a view to assessing the characteristics of accounting numbers and their relation to value of the firm (Barth, 2000). If accounting information is prepared in such a way that it plays the roles expected of it, it will lead the investors to come up with the right investment decision that at the end will give them higher returns on investment and minimize risks of the investment. Value relevance is seen as proof of the quality and usefulness of accounting numbers and as such, it can be interpreted as the usefulness of accounting data for decision-making process of investors and its existence is usually by a positive correlation between market values and book values (Takacs, 2012).

Studies on value relevance of accounting information are motivated by the fact that listed companies use financial statements as one of the major media of communication with their equity shareholders and public at large (Vishnani & Shah, 2008). For instance, in Nigeria, Companies and Allied Matters Act (CAMA, 1990) and the subsequent amendments require the Directors of all companies listed on the Nigerian Stock Exchange (NSE or the Exchange) to prepare and publish annually the financial

statements. Beyond this, the Exchange mandates all companies listed on first tier market to submit quarterly, semi-annual and annual statements of their accounts to the Stock Exchange. Companies on second tier market are to submit their statements of accounts annually to the Stock Exchange.

Accounting information is any information obtained from the accounting system of a firm whether contained in a financial statement, a special report, or verbal statement (William, 1968). However, for the purpose of this research, accounting information refers to written information contained in a complete or partial financial report, which include balance sheet and profit and loss account or fund flow statement. This study investigated whether these various items of financial statements are value relevant to investors/shareholders or not.

Individuals or organizations embark on investment decisions for several reasons. Some investors are only interested in the return on investment, that is, how far is the firm able to pay dividends to its stockholders. To these set of investors, dividend payment is their target whenever they are faced with investment decision. And as such, dividend per share will be the most value relevant accounting information. This means that there will be a significant impact of dividends per share on share price of the industry under consideration. Investors will always be keen and alert as to dividends announcement of their investing firms. Their investment decisions are always geared towards which firm

pays higher dividends and how stable is the trend of dividends payment (Karki & Adhikari, 2014).

Other investors consider value of the firm and how the firms gains wide acceptability from within and outside the country regardless of whether or not the firm pay dividend constantly. Proponents of this school of thought prefer long run benefits that accrue to them and therefore look at the firm's book value in their investment decision.

This study is meant to test whether accounting information used – earnings per share, book value per share and dividend per share has significant impact in the decision making of prospective investors to invest in a firm and the existing investors to retain or increase their investment in their firms.

1.2 Statement of the Problem

Accounting information value depends on how well it meets the need of the users in taking relevant decisions. Therefore, the flow of reliable information is crucial to the growth of the Nigerian Stock Exchange without which investors may decide to keep liquid cash rather than investing them in viable stocks that yield high returns on investment. Really, the exchange will not function well in the absence of relevant and reliable accounting information as required by Law of the Country (CAMA, 1990).

Activities in the exchange in the past years show that the Exchange has recorded a drop in its Turnover Ratio from 21.86% in 2008 to 13.26% in 2009, contributing to the decline in stock prices (NSE Fact book, 2011). The Industrial Goods sector is one of the sub sectors that recorded low turnover from 2008 to 2011 (NSE Fact book, 2012).

As a result of the nature of businesses of the Industrial Goods firms, it is expectd that their financial statement shall contain accounting information that shows the true and fair value of the firms' assets base. This will give prospective investors the ability to assess these firms based on the reported financial information. Notwithstanding, researches in the Industrial Goods Sector are minimal and focus mainly on some of its sub sectors not the sector as a whole. Some researchers focused on building materials only (Maradun, 2009), others studied some sampled firms in the NSE (Oyerinde, 2010; Abiodun, 2012; Olugbenga & Atanda, 2014) Abubakar (2010) used New Economy firms as domain of his study. There is the need to know what is actually happening in the sector which resulted to this low turnover in order to help the firms improve their performances.

While studies on the value relevance of the accounting information has focused on the developed markets in North America and Europe, in developing markets like Nigeria only few researches were conducted. Some of the few published studies in Nigeria are that of Oyerinde (2009), Abubakar (2010), Oyerinde (2011), Abubakar (2011), and Abiodun (2012). The period covered by these studies stopped at 2009, which is not current. While Oyerinde's (2009) period of study was 2001 to 2004, Abubakar (2011)

studied the period 2006 to 2008, and Abiodun's (2012) study covered the period of 1999 to 2009.

In addition, these studies produced mixed results individually and collectively on the relationship between accounting information and share price of various firms. While Oyerinde (2009) and Abubakar (2011) found that accounting information of some sampled firms in the NSE, especially earnings has value relevance, Abubakar (2010) documented that accounting information of listed new economy firms in Nigeria have no value relevance. On the other hand, the study of Abiodun (2012) revealed that, earning is more value relevant than book value. These mixed results were obtained because of different firms used in the studies.

Because of this lack of consensus in the literature, it can be said that the accounting information of Industrial Goods firms contained relevant information for decision making purposes? To what extent does the accounting information of Industrial Goods firms in Nigeria dictate or influence the share price of the firms? Is the value relevance of all accounting information of Industrial Goods firms in Nigeria the same? That is why investigation of the value relevance on financial information with relevance to the stock prices is an important issue for a developing country like Nigeria.

1.3 Objectives of the Study

The main objective of the study is to assess the value relevance of accounting information disclosed in the financial statements of firms listed in the Nigerian Industrial Goods sector. The specific objectives based on the identified problem are to:

a. evaluate the effect of earnings per share on share prices of firms listed in the Nigerian Industrial Goods sector;
b. determine the effect of book value per share on share price of firms listed in the Nigerian Industrial Goods sector;
c. assess the effect of dividends per share on share prices of firms listed in the Nigerian Industrial Goods sector;

1.4 Hypotheses of the Study

In order to validate data analysis, the following null hypotheses were tested:

$H_{01:}$ Share prices of firms listed in the Industrial Goods sector are not significantly affected by their earnings per share;

$H_{02:}$ Share prices of firms listed in the Industrial Goods sector are not significantly affected by their book value per share;

$H_{03:}$ Share prices of firms listed in the Industrial Goods sector are not significantly affected by their dividend per share;

1.5 Scope of the Study

The study examined value relevance of accounting information. It laid emphasis on firms listed in Nigeria under the Industrial Goods sector only and covered a period of seven years (2007-2013). This period was chosen because it is a period within which the Nigerian Industrial Goods sector recorded low turnover in the Exchange. The Nigerian Industrial Goods sector remains a minor catalyst in the growth and development equation within the period of our study. The sector contributed from 1.34% to 4.16% to Gross Domestic product in 2010 (NSE Fact book, 2012).

Share price is the dependent variable of the study while earnings per share, book value per share and dividends per share are independent variables of the study. Earnings per share is the ratio of earnings after tax but before extra-ordinary items to the latest outstanding ordinary shares in issue. Book value per share is the ratio of the shareholders' fund of each firm to the latest outstanding ordinary shares in issue. Dividend per share is the ratio of dividends declared for the year to outstanding ordinary shares in issue.

It is important to note that earnings per share and dividend per share are income statement figures which reflect activities of the firms within one accounting year, while book value per share is a balance sheet item which reflects activities of the firm beyond one accounting period. Therefore, this study covered branch of financial accounting with special reference to firms' financial reporting as specified by the IAS I.

Earnings per share, book value per share and dividend per share are not the only accounting information variables. But the study is limited to these three independent variables because most of the literature reviewed focused on a combination of two or all of these variables depending on the model chosen by the researcher. And as such, the research decided to use the three so as to enable a comparison of the work with the literature reviewed and arrive at conclusions.

The industrial Goods sector listed on the NSE comprises of four different sub sectors namely: building materials, the electrical and electronics products, the packaging/container, and the tool and machinery (NSE Fact book, 2012). The sector is made up of a category of companies that are involved in the tools, materials, components, machinery, and other products used in construction, manufacturing and other industrial applications. Their products are different from the consumer goods sector, which are meant to be bought by the general public. As at 2013, the sector is considered for expansion by the NSE because there are 100 companies currently eyeing listing in the sector. According to the than NSE Director General, Oscar Onyema, as part of the efforts to make the sector more attractive for investors thereby encourage more listings, the NSE introduced the NSE Industrial index. This index comprises the most capitalized and liquid companies in the industrial goods sector. It is because of this raft attention given to the industrial goods sector that our study aimed at studying the sector as a whole.

1.6 Significance of the Study

Industrial Goods sector in Nigeria is regarded as the bedrock of economic and technological advancement but yet, little is known about the ability of accounting information to explain changes to the security prices of firms listed in this sector. The little evidence obtained from value relevance researches in this area is obtained from the US or Western European countries whose markets are more sophisticated compared to most developing countries.

The significance of this study cannot be overemphasized. This study aimed at providing empirical evidence on the relationship between share price and accounting information under the Nigerian condition. This evidence will enlighten individual and corporate investors on their investment decision as well as aid planning of their investment. This research will help the preparers of accounting information and standards setters to further enhance value relevance of the most widely used accounting number by providing a guide as to which accounting data is or is not valued by investors.

Also, the study assisted in testing the application of existing valuation theories under intense conditions not present in developed economies where most of the prior studies were carried out. The research also assisted the national standards setters in setting uniform accounting standards based on the nature of demand placed on accounting information by their local investors, stakeholders and the general public. Specifically and more importantly, the Nigerian Accounting Standards Board will benefit from the study as it will serve as a feedback channel to the board on which accounting number is most

widely used for equity valuation in Nigeria. Finally, the study will fill the gap in the existing literature by investigating the value relevance of accounting data in the Nigerian Industrial Goods Sector.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literatures in relation to value relevance of earnings, book value of equity and dividends. This focus is in contrast to researches on stock markets conducted in the late 1960s which placed less emphasis on the precise structure of the relation between accounting data and firm value. For better understanding of the research work regarding the extent of relationship between accounting information and share price, this chapter deals with the conceptual framework, theoretical framework of the research and review of empirical literature.

2.2 Conceptualization of value relevance variables

The concept of value relevance has been defined by various researchers in different ways (Francis & Schipper, 1999; and Beisland, 2009). Amir, Harris, and Venuti (1993) were the first to define value relevance as the association between accounting numbers and security market values. Other related definitions were subsequently given by Barth, Beaver & Landsman (2000).

Francis and Schipper (1999) interpret value relevance from four different perspectives. First interpretation is that financial statement information affects stock prices by capturing intrinsic share values toward which stock prices drift. The second interpretation is that financial information is value relevant if it contains the variables used in a valuation model or assists in predicting those variables. The third and fourth interpretations considered value relevance as a statistical association between financial

information and prices or returns. The fourth interpretation of value relevance by Francis and Schipper's (1999) was considered in this study, and as such, defined value relevance of accounting information as the ability of accounting numbers to summarize information that affects the firm's value which can be measured by the aggregate market impact on accounting information.

Another definition given by Beisland (2009) considers value relevance as the ability of financial statement information to capture and summarize firm value. Value relevance is measured as the statistical association between financial statement information and stock market values or returns. Earnings and book value are regarded as the basis for firm valuation. However, earnings management affects the reliability and relevance of earnings in ascertaining firms' value. On the other hand, information perspective defines value relevance as the usefulness of financial statement information in equity valuation (Nilsson, 2003).

Some researchers regard ability of accounting information to summarize business transactions and other events (the measurement view of value relevance) as sufficient proof of value relevance of accounting data (Oyerinde, 2011). Other researches emphasize much on earnings prediction (the prediction view of value relevance) or information content of accounting data (the information view of value relevance). Value relevance of accounting information is the ability of any information contained in the financial statements to enable the financial statement users determines the value and performance of the company.

Value relevance is also defined as the ability of accounting numbers contained in the financial statements to explain the stock market measures (Beisland, 2009). Accounting data, such as earnings per share, is termed value relevant if it is significantly related to the dependent variable, which may be expressed by price, return or abnormal return (Gjerde, Knivsfla & Saettem, 2008). Value relevance studies aims at achieving two goals which lead to the proof of the quality and usefulness of accounting numbers. (Klimczak, 2009). One of the goals is to test whether accounting earnings are relevant for equity valuation in the local stock market. The second goal is to compare the results of the test with results obtained by previous researchers of rich countries and draw conclusions about the state of the local economy.

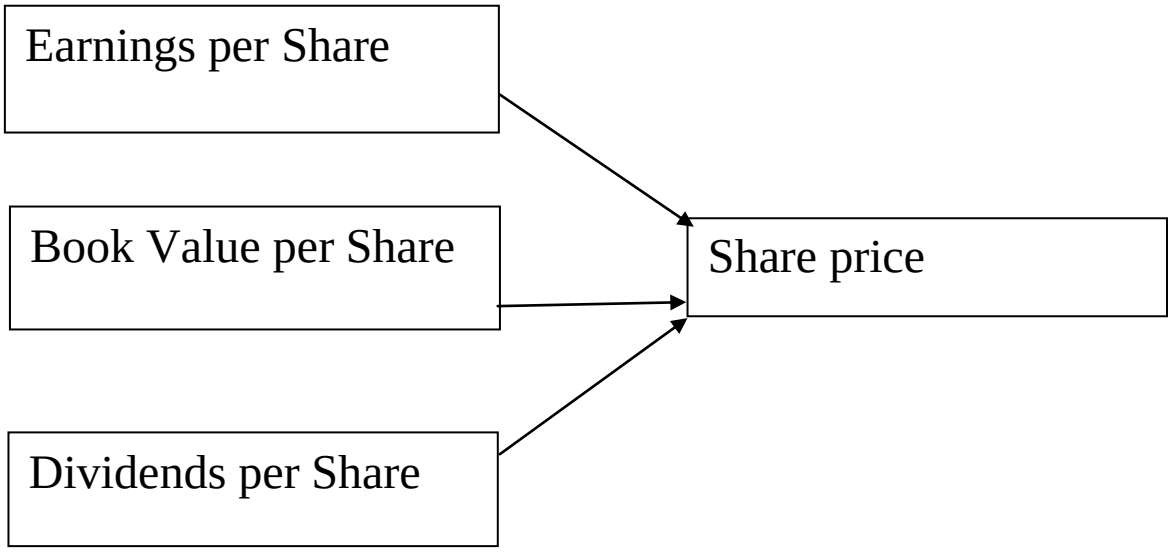
Corporate earnings refer to a company's profits after all relevant expenses have been paid. One of the key indicators used by financial analysts in evaluating a company is their earnings. The amount of profit a company produces during a specific period; usually presented on a quarterly (three calendar months) or annual basis. Earnings typically refer to after-tax net income. Ultimately, a business's earnings are the main determinant of its share price, because earnings and the circumstances relating to them can indicate whether the business will be profitable and successful in the long run. The concept of earnings per share is required in share market operations. Companies issue shares to garner resources from the market. Investors rely on several financial market parameters to determine the

shares that would be purchased. Earnings per share are one such ratio. It is used for the purpose of evaluating the prices of the shares.

Book value is taken from the Balance Sheet which is more commonly referred to as the Statement of Financial Position. It is calculated by subtracting total liabilities from total assets. It is also referred to as net assets or shareholders equity. Book value can also be expressed on a per share basis. This is calculated by dividing the book value of the company by the total number of shares on issue. This usually differs from the market price. This means that book value indicates what shareholders would have received had the company been wound up on the date the accounts were constructed. For this to hold true the Statement of Financial Position should accurately reflect the value of the company's assets. However this is rarely the case.

In addition the conceptual framework is set out in order to facilitate better understanding of the study. This will assist to outline possible courses of action or the preferred approach in this research. Based on the literature, it is evident that the financial information has an impact on market value of the firm (proxied by the Share price). Prior studies have considered some important value relevant information using different proxies for financial information depending on the theoretical framework of the researches. For the purpose of this study, earnings per share, book value per share and dividends per share shall be considered as proxies for accounting information. This can be depicted in figure 2.1 below:

Figure 2.1 – Conceptual Framework of models of the study



2.3 Value Relevance Research

2.3 Value Relevance Research

The value relevance literature is comprehensive and comes in different perspectives. There are four approaches in studying the value relevance of accounting information as identified by Francis and schipper (1999). These approaches are: the fundamental analysis view of value relevance, the prediction view of value relevance, the information view of value relevance, and the measurement view of value relevance.

2.3.1 The fundamental view of value relevance

This approach is related to fundamental analysis research in accounting. In this approach, firm's fundamental value is calculated without making reference to the firm's equity price being traded on the stock exchange. It is the accounting information that causes changes in stock prices by capturing values towards which market prices float. This approach allows for an efficient stock market because of lack of information flow in the market. Hence, investors might be able to earn abnormal returns using public accounting information depending on the degree of information efficiency. Most of the researches conducted indicated that accounting is useful in predicting future returns (Nilson, 2003).

2.3.2 The prediction view of value relevance

The prediction view of value relevance is also related to fundamental analysis research. This view focuses on predicting relevant variables to be used in valuation. It asserts that financial statement information is value relevant if it is able to forecast underlying value attributes derived from valuation theory. Hence, information is relevant only if it can be used to predict future earnings, dividends, or future cash flows (Nilson, 2003).

2.3.3 The Information View of Value Relevance

This view assumes that stock market is efficient which allows statistical association measures to be used to indicate whether investors actually make investment decision based on the available information. According to this view, value relevance of accounting information is established by the ability of investors to make adequate use of it in setting

prices (Francis & Schipper, 1999). Several studies on information view assume that the usefulness of accounting information can be ascertained by observing stock market reaction to specific information items (Ball & Brown, 1968; and Beaver, 1997).

Recently, the information view has dominated financial accounting theory by relying on one-man decision theory in predicting future firm performance and making investment decision (Oyerinde, 2011). Researches based on this view are numerous. The famous works of Ball and Brown (1968) and Beaver (1968) were the first work conducted in this field. Ball and Brown (1968) documented that a share price of a firm statistically response to reported net income. On the other hand, Beaver (1968) studied the stock trading volume effect of earnings announcements. By extension, the methodology employed in Ball and Brown (1968) and Beaver (1968) is still employed by many researchers today. Most of these works dwell on the relationship between earnings and its components and stock prices (Nilson, 2003).

2.3.4 The Measurement View of Value Relevance

Under this view, the value relevance of financial statement information is measured by its ability to capture or summarize information, regardless of sources, that affects stock value (Francis & Schipper, 1999). This interpretation is in line with measurement perspective in accounting. But this approach assumes that investors are not actually using the information under examination, or that the information is not timely. Measurement

perspective is based on the theoretical framework of equity valuation models (Ohlson, 1995 and Beisland, 2009). Early studies focused mainly on usefulness of accounting information which can be measured by the degree of volume of price change following release of information. The work of Ohlson (1995) showed that the value of a firm can be expressed as a linear function of book value, earnings and other value relevant information. But recent valuation models included book value of the equity by making reference to the Residual Income Model as their theoretical foundation (Oyerinde, 2011). This made the Residual Income measures the most frequently used in assessing financial performance of business.

Some researchers claimed that value relevance studies do not evaluate the usefulness of accounting number but how well accounting information is used by investors in valuing a firm's equity (Barth, Beaver & Landsman, 2000). They concluded in their study that the value relevance literature provides useful insights for standard setting process. Some of the value relevance studies are conducted on investigating the value relevance of accounting figures reported in financial statements. For example, Brief and Zarowin (1999) investigated the value relevance of dividends, book value and earnings in which they documented that book value and dividends have almost the same explanatory power with book value and reported earnings.

From the above view of value relevance researches, it can be deduced that value relevance can be measured either in short term event studies (Ball & Brown, 1968) or

long term association studies (Beisland, 2009). For the purpose of this study, emphasis was made on long term association between accounting information and firm's market values.

2.4 Review of Previous Studies on Value Relevance of Earnings, Book Value of Equity and Dividends

Value relevant of accounting information has been an area of concern by previous accounting researches for over four decades ago. This review of empirical studies is arranged based on the accounting information selected by various studies. The review is not segregated according to each of the independent variable because most of the studies reviewed document joint impact of two or more of the accounting information. Some studies claimed that accounting information is useful to investors in estimating the expected values and risks of security returns (Ball and Brown, 1968). This study provided evidence of security market reaction to earnings announcements. Their result has shown that earnings are value relevant.

Collins, Maydew, and Weiss (1997) investigated systematic changes in the value-relevance of earnings and book values over time. Contrary to claims in the professional literature, they found that the combined value-relevance of earnings and book values has not declined over the past forty years and, in fact, appears to have increased slightly. In addition, while the incremental value-relevance of earnings has declined, it has been replaced by increasing value-relevance of book values. They also established that much

of the shift in value-relevance from earnings to book values can be explained by the increasing frequency and magnitude of one-time items, the increasing frequency of negative earnings, and changes in average firm size across time. Further, they documented the relative value tradeoff between earnings and book value coefficients when earnings are negative. This research focused on the incremental powers of earnings and book values only while neglecting dividends.

This relationship is found to persist even after size, risk and earnings persistent are taken into account. Gee-Jung and Kwon (2009) conducted an empirical research and established that book value is the most value relevant variable and cash flows have more value relevance than earnings. Further it stated that combined value relevance of book value and cash flows is more value relevant than that of book value and earnings.

Frankel and Lee (1998) conducted a study using data from 20 countries to examine the relationships between share prices and accounting variables. They found that, on average, about 70% of the variability of share price is jointly explained by accounting information such as current earnings, current book value and earnings forecasts. King and Langli (1998) find that both book value and earnings are significantly related to share prices in Germany, Norway and the United Kingdom. However, the combined explanatory power of three variables is about 70% in the United Kingdom, 60% in Norway and 40% in Germany. They further found that explanatory power of the variables are differs in the accounting systems of the three countries. Book value explains more than earnings in Germany and Norway but less than earnings in United Kingdom. In another study of

international accounting differences, Graham (2000) examined value relevance of book value per share and current residual income in Indonesia, Malaysia, Phillippine, South Korea, Taiwan and Thailand. They found that coefficients of these variables are statistically significant for all the countries. The explanatory power of the model ranges from 24% in Thailand to 90% in Philippines.

On the other hand, Pathirawasm (2010) investigated the value relevance of earnings, book value and return on equity on share price in Colombo Stock Exchange (CSE). Sample of the study includes 129 companies selected from 6 major sectors in the CSE. Cross sectional and time series cross-sectional regressions are used for the data analysis. Study found that earnings, book value and return on equity have positive value relevance on market value of securities. The most value relevant variable is the earnings while the least value relevant variable is the return on equity in Sri Lanka. The explanatory power of the model has increased over the sample time. New technology adoption at the CSE in 2007 has considerably increased the value relevance of accounting based earning information (EPS and ROE) in 100 Journal of Competitiveness Sri Lanka. However, the incremental value relevance of the BVPS is negative during the period considered for the study.

On the basis of the superiority of earnings and book value on each other, a lot of researches have been conducted. Abiodun (2012) investigated the value relevance of accounting information in corporate Nigeria in which he employed simple descriptive statistics coupled with the logarithmic regression models to examine this interaction

between the period 1999 and 2009. Using 40 companies sampled from various sectors of the Nigerian economy, the researcher used a logarithmic regression model which is assumed more appropriate in investigating this relationship than any other model because it has some unique statistical properties over and above other models and tends to provides better results for analyses and evaluation. The researcher found that earnings is more value relevant than book values. This means that, the information contained in the income statements, as ably proxied by the earnings, dictates more the corporate values of firms in Nigeria than the information contained in the balance sheet, as ably proxied by the book values. Relevant information is such that it influences the economic decisions of users by helping them evaluate past, present and future events. The drawback of this study is that the sampling technique used is not scientific which questions the reliability of the research findings and subsequent generalization.

In another development, Suadiye (2012) examined empirically the impact of International Financial Reporting Standards (IFRS) on the value relevance of accounting information in Turkey. Turkish listed firms on the Istanbul Stock Exchange (ISE) are required to adopt IFRS in the preparation and presentation of their financial statements since 2005. Using the equity valuation model as suggested by Ohlson (1995), firstly, the value relevance of earnings and book values of equity produced under Turkish Local Standards (during 2000-2002) and under IFRS (during 2005-2009) is analyzed. The results showed that earnings and book value are, jointly and individually, positively and significantly related to stock price under the two different reporting regimes. Additionally, the results provided that book value of equity is more value relevant than earnings. When two

different reporting standards are compared, it is found that the adoption of IFRS increased the value relevance of accounting information for Turkish listed firms.

Agostino, Drago, & Silipo (2013) also conducted a study to investigate the market valuation of accounting information in the European banking industry before and after the adoption of IFRS using apply panel methods to a multiplicative interaction model in which the partial effects of earnings and book value on share prices are conditional on the adoption of IFRS. The study established that **IFRS introduction enhanced the information content of both earnings and book value for more transparent banks**. By contrast, less transparent entities did not experience significant increase in the value relevance of book value. In the same vein, Chalmers, Clinch & Godfrey (2011) investigated whether the adoption of IFRS increases the value relevance of accounting information for firms listed on the Australian Securities Exchange. Using a longitudinal study that covers pre-IFRS and post- IFRS periods during 1990–2008, they found that earnings become more value-relevant whereas the book value of equity does not.

In the same vein, Tsalavoutas, (2009) examined issues relating to the mandatory adoption of International Financial Reporting Standards (IFRS) by Greek listed companies. Initially, the impact of transition, as a result of differences between IFRS and Greek GAAP, on the first IFRS financial statements in 2005 is assessed. They established that there were no change in the value relevance of accounting information between 2004 and 2005.

Ahmed, Neel and Wang (2013) provided evidence on the preliminary effects of mandatory adoption of International Financial Reporting Standards (IFRS) on accounting quality for a relatively broad set of firms from 20 countries that adopted IFRS in 2005 relative to a benchmark group of firms from countries that did not adopt IFRS matched on the strength of legal enforcement, industry, size, book-to-market, and accounting performance. They found that **IFRS firms exhibit significant increases in income smoothing and aggressive reporting of accruals, and a significant decrease in timeliness of loss recognition while** there are no any significant differences across IFRS and benchmark firms in meeting or beating earnings targets.

In a related study, Chen, Young, & Zhuang, (2013) examined the externalities of mandatory IFRS adoption on firms' investment efficiency in 17 European countries. The study found that the spillover effect of a firm's ROA difference versus its foreign peers, but not domestic peers, on the firm's investment efficiency increases after IFRS adoption. They also found that increased disclosure by both foreign and domestic peers after IFRS adoption has a spillover effect on a firm's investment efficiency.

In their study, Alali and Foote (2012) examined the value relevance of accounting information under International Financial Reporting Standards (IFRS) in the Abu Dhabi Stock Exchange (ADX, henceforth). Based on models developed by Easton and Harris (1991), and Ohlson (1995) and using monthly market data from 2000 to 2006, this paper

investigated the value relevance of accounting information of firms traded on the ADX. It was documented that earnings scaled by beginning of period price are positively and significantly related to cumulative returns and that earnings per share and book value per share are positively and significantly related to price per share. The study also found that value relevance of accounting information has changed since the market inception in 2000. In a related study, Clarkson, Hanna, Richardson & Thompson, (2011) investigated the impact of IFRS adoption in Europe and Australia on the relevance of book value and earnings for equity valuation. Using a sample of 3,488 firms that initially adopted International Financial Reporting Standards (IFRS) in 2005, they established that IFRS enhances comparability.

Anandarajan & Hasan (2010) on the other hand investigate the value relevance of earnings and its components for a number of Middle Eastern and North African (MENA) countries and in addition examined how differences in levels of mandated disclosures, source of accounting standards, and legal systems moderate the informativeness of earnings to investors. The later found that mandated disclosure and source of accounting standard, (especially non-governmental source) are positively associated with earnings informativeness. Additionally, MENA countries with French civil law and systems have lower value relevance relative to countries in our sample with English and related legal codes. Further, the firms that have adopted international financial reporting standards have higher value relevance than firms in MENA countries which adhere to local standards.

In an attempt to determine the quality of countable information before and after the adoption of standards IFRS, Assidi & Omri (2012) conducted a study through the exposure of the positive theory of the accountancy which insists on the importance of information of quality for the investors in order to enable them to make the adequate decisions of investments. The results obtained showed that the adoption of standards IFRS makes improves quality of countable information. In particular, standards IFRS contribute improved quality information to diffuse it with the public and to increase his transparency, which makes it possible to attenuate asymmetries of information and the costs of agency.

In their paper, BYard, Li, & Yu (2011) examined the effect of the **mandatory** adoption of International Financial Reporting Standards (IFRS) by the European Union on financial analysts' information environment. They found that analysts' absolute forecast errors and forecast dispersion decrease relative to this control sample only for those mandatory IFRS adopters domiciled in countries with both strong enforcement regimes and domestic accounting standards that differ significantly from IFRS. Furthermore, for mandatory adopters domiciled in countries with both weak enforcement regimes and domestic accounting standards that differ significantly from IFRS, it is found that forecast errors and dispersion decrease more for firms with stronger incentives for transparent financial reporting. These results highlight the important roles of enforcement

regimes and firm-level reporting incentives in determining the impact of mandatory IFRS adoption. Another supporting study was that of Gebhardt, & Farkas (2011).

Another study examined the combined value relevance of book value of equity and net income before and after the mandatory transition to IFRS in Greece (Tsalavoutas, Andre and Evans 2012). And it was found that there was find no significant change in the explanatory power of value relevance regressions between the two periods. The coefficients on book value of equity and net income are positive and significant in both the pre-IFRS and post-IFRS periods. However, the coefficient on book value of equity is significantly greater under IFRS, but there was a decrease in the coefficient on net income. However, Tsalavoutas & Dionysiou (2014) found that the levels of mandatory disclosures are value relevant. Additionally, not only the relative value relevance (i.e. R2) but also the valuation coefficient of net income of high-compliance companies is significantly higher than that of low-compliance companies.

Also, Cordazzo (2013) conducted a research to provide empirical evidence of the nature and the size of the differences between Italian accounting principles and IFRS in order to show the major consequences of the conversion to IFRS on accounting outcomes. It was observed that there was a more relevant total impact of such a transition on net income than equity. But, the analysis of individual adjustments shows a greater discrepancy between Italian GAAP and IFRS in the accounting treatment of intangible assets, income taxes, and business combinations with reference to both net income and equity.

Another study examined the impact of IFRS adoption on the quality of accounting information within the Greek accounting setting (Dimitropoulos ,Asteriou, Kounsenidis and Leventis 2013). Using a balanced sample of firms listed in the Athens Stock Exchange (ASE) for a period of eight years (2001–2008) they found convincing evidence that the implementation of IFRS contributed to less earnings management, more timely loss recognition and greater value relevance of accounting amounts, compared to the local accounting standards.

This research examined the implications of **mandatory** IFRS adoption on the accounting quality of banks in twelve EU countries. Specifically, it analyzed how the change in the recognition and measurement of banks' main operating accrual item, the loan loss provision, affects income smoothing behaviour and timely loss recognition. It found that the restriction to recognize only incurred losses under IAS 39 significantly reduces income smoothing. This effect is less pronounced in countries with stricter bank supervision, widely dispersed bank ownership and for EU banks cross-listed in the US. This provides additional evidence that institutions matter in shaping financial reporting outcomes. Further, the application of the incurred loss approach results in less timely loan loss recognition implying delayed recognition of future expected losses. In the light of the ongoing financial crisis it is questionable whether this is a desirable financial reporting outcome of mandatory IFRS adoption. This result is in line with the work of Hellman (2011).

On the other hand, Hsu, Duha, & Cheng (2012) investigated the value relevance of consolidated statements under the ownership based approach of U.S. Accounting Research Bulletin No. 51 (ARB 51) and the control-based approach of International Accounting Standard No. 27 (IAS 27). The results of their study showed that consolidated financial statements based on a broader definition of control provide more useful accounting information than those based only on majority-ownership control.

A study conducted by Jermakowicz, Prather-Kinsey and Wulf (2007) examined the challenges and benefits, including value relevance, of the adoption of IFRS by DAX-30 companies, the German premium stock market. The researchers used regression to measure the value relevance of book values of earnings and equity in explaining market values of DAX-30 companies during the period 1995–2004. Using 265 observations, they found that adopting IFRS or US Generally Accepted Accounting Principles or cross-listing on the New York Stock Exchange significantly increases the value relevance of earnings relative to market prices. Similarly, Kadri, Abdul Aziz, Ibrahim (2010) investigated the value relevance of book value and earnings and the relationship between earnings and operating cash flow of two different financial reporting regimes in Malaysia. They observed that the change in financial reporting regime affects significantly the value relevance of book value and but not earnings. While book value and earnings are value relevant during the MASB period, only book value is value relevance during the FRS period.

Kargin (2013) adopted Ohlson model (1995) using two main financial reporting variables, namely the book value of equity per share (represents balance sheet) and earnings per share (represents income statement). This study investigated the value relevance of accounting information in pre- and post-financial periods of International Financial Reporting Standards' (IFRS) application for Turkish listed firms from 1998 to 2011. Market value is related to book value and earnings per share by using the Ohlson model (1995). Overall book value is value relevant in determining market value or stock prices. The results showed that value relevance of accounting information has improved in the post-IFRS period (2005-2011) considering book values while improvements have not been observed in value relevance of earnings.

Hsu, Duha, Cheng (2012) investigated the value relevance of consolidated statements under the ownership based approach of U.S. Accounting Research Bulletin No. 51 (ARB 51) and the control-based approach of International Accounting Standard No. 27 (IAS 27). They found that consolidated financial statements based on a broader definition of control provide more useful accounting information than those based only on majority-ownership control.

In his paper, Kim (2013) performed an empirical investigation into the value relevance of information reported by Russian public firms from two distinct perspectives. He

documented that prior to 2011, investors relied on information incorporated in the book value of equity. The value relevance of reported earnings, however, is different for "growth" versus "value" stocks. It was also documented that Russian leading firms listed on the London Stock Exchange, that report in accordance with IFRS produce more value-relevant reports compared to their local peers that report under the Russian standards.

Kouser and Azeem (2011) conducted a study that focused on the statistical power to explain changes in share price and intervening impact of IFRS adoption using two independent variables, which are book value of equity and earnings. The adopted a year by year OLS regression for their analysis covering eight year period (2002 to 2009). The study showed almost similar results in Pakistan as earlier studies of different countries empirically proved. It is proved the high relevance of accounting numbers was the result of high quality investor oriented financial quality.

In another study, Lin, Riccardi and wang (2012) examined whether accounting quality changed following a switch from U.S. GAAP to IFRS. Using a sample of German high tech firms that transitioned to IFRS from U.S. GAAP in 2005, they found that accounting numbers under IFRS generally exhibit more earnings management, less timely loss recognition, and less value relevance compared to those under U.S. GAAP. By and large, the findings of the study indicated that the application of U.S. GAAP generally resulted in higher accounting quality than application of IFRS, and a transition from U.S. GAAP to IFRS reduced accounting quality.

The study conducted by Liu et al (2011) examined the impact of IFRS on accounting quality in a regulated market, China, where new substantially IFRS-convergent accounting standards became mandatory for listed firms in 2007. Accounting quality is examined for the period 2005 to 2008 with only firms mandated to follow the new standards. The empirical results generally indicated that accounting quality improved with decreased earnings management and increased value relevance of accounting measures in China since 2007.

Müller (2014) investigated the impact of the mandatory adoption of IFRS starting with 2005 on the absolute and relative quality through an empirical association study of financial information supplied by the consolidated accounts for companies listed on the largest European stock markets. The results showed an increase of consolidated statements quality (value relevance) once IFRS were adopted. They also ascertained an increase in the quality surplus supplied by group accounts compared to parent company individual accounts once the IFRS adoption became mandatory for preparing consolidated financial statements.

In Nigeria, Nneka & Rotimi (2012) examined the extent to which adoption of international financial reporting standards (IFRS) can enhance financial reporting system in Nigerian Universities. The study used 160 senior accountants and internal auditors as

the population. 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. It was 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.

Palea (2014) Used a sample of Italian firms to investigate whether separate financial statements are useful to capital market investors, and whether International Financial Reporting Standards (IFRS) are more value-relevant than domestic generally accepted accounting principles (GAAP). The study established that separate financial statements are value-relevant, regardless of the accounting standard set. In addition, this paper documented the important role of model specification in value-relevance studies.

Terzi, Otkem and Sen (2013) also investigated the impact of adopting International Financial Reporting Standards (IFRSs) on listed companies in Turkey was examined. We observed the financial statements that were prepared in accordance with IFRS and local GAAP and researched the standards which included more relevant information. They worked on the financial statements of the companies in the Istanbul Stock Exchange (ISE) that operated in the manufacturing industry. The study discovered that the financial statements prepared in accordance with local GAAP and IFRS were statistically different.

The researchers observed statistically significant differences in book value/market value ratio analysis depending on the market value under local GAAP and IFRS. However, in subsector analysis, it was identified that some subsector groups have been affected from the transition to IFRS.

Uyar (2013) conducted a study which examined the impact of change of accounting standards on accounting quality. In order to determine how switching standard reflects accounting quality, first of all, the earnings management, timely loss recognition, and value relevance variables pertaining to accounting quality were listed and the findings were stated after subjecting the obtained data to statistical analyses. The study also concluded that by the switch from domestic accounting standards to International Accounting Standards (IAS), the quality of accounting in the country was improved and the market became more active than it was before.

Rahman (2012) examined the value relevance of earnings and book value of equity (individually and in aggregate), relative to price and return models, for Jordanian industrial companies for the period 1992 to 2002. The main findings of this paper are twofold. First, relative to price model, the value relevance of both earnings and book value (individually) have increased, whilst the value relevance of earnings increased and book value became irrelevant in their combination. Secondly, relative to return model, the value relevance of earnings either individually or in aggregate has increased while that of book value has declined. Overall, it is found that earnings are more important in

explaining the variance in share price and return than book value. Furthermore, the results indicate that earnings and book value individually are more value relevant in price model. In contrast, these variables in aggregate are more value relevant in return model. The study showed that earnings help more in explaining market values in Jordanian industrial companies. This paper is the first in using price and return models in one study in Jordan.

The study conducted by Vijitha and Nimalathasan (2012) used quantitative approaches to examine evidence concerning value relevance of accounting information such as Earning per Share (EPS), Net Assets Value Per Share (NAVPS), and Return On Equity (ROE) and Price Earnings Ratio (P/R) to Share Prices (SP) of manufacturing companies in Colombo Stock Exchange (CSE). The researchers used secondary sources of data collected mainly from financial report of the selected companies of Colombo Stock Exchange (CSE) in Sri Lanka. It was found that the value relevance of accounting information has significant impact on share price and value relevance of accounting information is significantly correlated with share price.

Similar research that employed quantitative methods and used secondary data in addressing their research questions was that of Barrack (2011). This study used adjusted R^2 as a primary metric for measuring value relevance. Value relevance of accounting information has been investigated through its association with contemporaneous market

values and future cash flow-predictive ability studies. The study used a sample of firms listed in the Saudi Stock Market during the 1993–2009 time periods. The total number of observations included in the sample is 997 from 97 firms, which excluded firms in the banking and insurance sectors. The main findings of this study on value relevance of accounting information in equity valuation are that earning coefficients were found to be significant in all years under the price regressions. In addition, earning levels and changes have not been found significantly related to stock returns in all years. As for loss-making firms, earning was established as not having value relevant while book value is value-relevant for the 1993–1997 and 1998–2004 time periods. This study concludes that accounting information has been value relevant during the entire period of this study and that an increase in value relevance might only be present in the early period of this sample.

Chandrapala (2011) conducted a study to investigate how ownership concentration and firm size impact on value relevance of earnings and book value. The study used data collected from firms listed in Colombo Stock Exchange (CSE) in Sri Lanka from 2005 to 2009 while employing pooled cross-sectional data regressions to analyze the data collected. The study divided the population into larger and smaller firms. The value relevance of ownership concentrated firms is higher than that of ownership non-concentrated firms. Further, the two variables show higher value relevance for larger firms than for smaller firms. Contrary to the previous findings of the author, the study found that book value is more value relevant than the earnings in Sri Lanka.

The three studies reviewed in the preceding paragraphs were all conducted abroad while only earnings and book values were used as explanatory variables. Of the two variables, book value was established as more value relevant. But in arriving at their conclusions, the study of Barrack (2011) used adjusted R squared as a primary matrix for measuring value relevant. If it were coefficients of the regressors used, the results might be different. In addition, there is the need to conduct a more recent study that reflects present situation in Nigeria.

Abubakar (2010) studied New Economy Firms popularly known as Telecommunication, Media and Technology (TMT) firms. In this study, empirical investigation is conducted on the value relevance of accounting information reported by New Economy Firms in Nigeria and how such information influences the share value of the firms. The study used the Ohlson Model to establish the degree to which the accounting information of TMT firms influences the share price valuation of the firms. Listed firms in Nigeria under the TMT sectors are used in the study and four-year statistical data (2005-2008) relative to share prices, market values, and earnings per share of the firms are used. The researcher found that accounting information of listed new economy firms in Nigeria has no significant value relevance to the users of the information. The inference here is that the accounting information published by listed new economy firms in Nigeria has less value relevance to the investors in making their investment decisions on the firms. However, the firms considered in this study are new economy firms known as Telecommunication,

Media and Technology (TMT) firms whose assets are largely intangible and are not included in the financial statements.

Another study by the same author revealed that book value per share; basic earnings per share and change in earnings per share are significant in determining share price of some selected listed Nigerian banks. The result was obtained from an experiment conducted to determine the extent of value relevance of Salisu Human Resources valuation model (popularly known as *Salisu HRV Model).* The experiment showed that the overall significance of the accounting information is stronger when Human Resources value is included compared to where it is not included in the financial statements of the selected banks (Abubakar, 2011). This study uses data from financial sector of the economy who mainly aimed at providing financial services instead of real manufacturing. Also, it is aimed at testing the validity of the developed model which calls for the selection of fewer firms in the industry that may not be representative of the actual population. The significant of the financial accounting information would have been higher if it were manufacturing firms.

Using the Ohlson's model (1995), Dung (2010) extended the precious study by relaxing the semi-strong form of the Efficient Markets Hypothesis to test the value-relevance of financial statement information on the Vietnamese stock market. Contrary to prevailing views that financial statement information is not related to stock prices in Vietnam, the results of this study showed that this relationship is statistically meaningful, though

somewhat weaker than in other developed and emerging markets. In addition, there is sign that earnings and book value are reflected in stock prices with a time lag and the value-relevance of earnings becomes much higher during stock market boom periods.

Swart and Negash (2009) also examined the Ohlson (1995) model and documented its validity in explaining share prices using data for 129 firms continuously listed on the Johannesburg Securities Exchange (JSE hereafter), over a twelve year period. More specifically, cross-sectional multiple regressions and panel data least squares procedures are used to examine whether accrual accounting information and a residual income model are useful in explaining variations in year-end share prices. The cross sectional results indicate that the Ohlson (1995) model does not establish a significant relationship between year-end share prices and accrual accounting information. However, the panel data least square model resulted in significant and positive relationships between year-end share prices and abnormal earnings, abnormal cash dividends and book value of assets.

In addition, Abayadeera (2010) applied Ohlson's (1995) Equity Valuation Model (modified for the intangible assets disclosure) to study the value relevance of financial and non-financial information in high-tech industries in Australia with a sample size of 91 companies running through various sectors of the Australian economy. The study documented that book value is the most significant factor and earnings are the least significant factor in deciding share prices in high-tech industries in Australia. This

finding of Abayadeera (2010) further supported previous studies that showed value relevance declined in earnings but increase in book value.

Glezakos, Mylonakis, and Kafouros (2012) studied the impact of earnings and book value in the formulation of stock prices on a sample of 38 companies listed in the Athens Stock Market during the 1996-2008 periods. The results concluded that the joint explanatory power of the above parameters in the formation of stock prices increases over time. The study further examined that the impact of earnings is diminishing, compared to the book value, while investors strive towards analyzing the fundamental parameters of businesses. Mohammad (2012) investigates the relationship between accounting information and the value of the companies accepted in Tehran exchange market. The profit quality characteristic index is to be related and to be on-time. The number of 194 companies was selected by systematic method as the statistics sample in the period of 2007-2009. The results found that that there is no relationship between accounting information and companies' value (stock value), The study argued that this may be due to lack of efficiency of investment market and inability in using the accounting information by investment market activists.

On the contrary, Belesis and Sorrs (2012) investigated the value relevance of accounting information for the Greek listed companies for the period 1995 - 2009. They examined the way that two accounting variables, earnings and book value, affect the share price. According to their findings from the statistical analysis, the book value and the earnings

are value relevant and can explain the share price in the same degree. Also the incremental explanatory power of each variable to a model that contains the other is immaterial. However, the major limitation of this study is that it made use of data from all business sectors except banking, finance, and insurance, which makes it impossible to pin the findings to a specific industry.

Nayeri (2012) examined the factors affecting the value relevance of accounting information for investors in the Tehran Stock Exchange over the period of six years. In the study, the effect of profitable or loss generating firms, company size, earnings stability and company growth on the value relevance of accounting information have been studied. For this purpose Ohlson model and the cumulative regression analysis was used in order to examine the hypotheses and as the basis of data analysis T test by Regression coefficient analysis is deployed. The study concluded that that these factors influence on the value relevance of accounting information for investors in Tehran Stock Exchange.

Fodio and Salaudeen (2012) investigated the comparative value relevance of historical cost accounting and inflation adjusted accounting information in Nigeria. Historical cost financial statements of a sample of companies obtained from the Exchange were restated using the Parker (1977) approach and instrumental variable equations were constructed to adjust the independent variable for measurement errors. The study employed regression analysis to measure the joint effect of the earning numbers on security prices. The results

showed that historical cost information has the potency of distorting, though not significantly, the accounting information provided to decision makers.

In their study, Gjerde, Knivsfla and Saatem (2008) tested the value relevance of financial reporting in Norway over the 40 years before IFRS were introduced. An improved association between financial reporting and value creation enhances decision-making and control. They found that the time trend of overall value relevance has increased significantly after controlling for changes in economic value relevance drivers. Neither the value relevance of the balance sheet nor the income statement has declined over time. The latter is surprising compared to previous studies, particularly on U.S. data.

In the same vein, Hassan and Saleh (2010) investigated the value relevance of financial instruments disclosure in Malaysia based on Malaysian Accounting Standard Board (MASB) 24 on Financial Instruments: Disclosure and Presentation. Unlike most of the Western countries, the only standard available for firms in Malaysia related to financial instruments is MASB24. Therefore, in the absence of a standard on the measurement of financial instruments, it is important to know whether the disclosure of such risky activities is useful to the investors or the market. Hence, this study examined the association between disclosure quality of financial instruments information and fair value information and the market price of firms. Their results indicated that disclosure quality of financial instruments information is value relevant. However, the relationship is less positive in the period after the MASB24 become mandatory. Further evidence suggests

the less positive relationship is not caused by bad news but is caused by the disclosure quality of risks. Consistent with prior studies, this study also provides evidence that fair value information is value relevant. This indicates that investors value the fair value information and high disclosure quality as important factors in investment decision.

Karunarathne and Rajapakse (2010) conducted a study to investigate the value relevance of financial information that extracted from financial statement directly or indirectly. Specifically, the study considered the value relevance of earnings and cash flows in stock prices. In addition, the study pays attention on the firm size effect on value relevance. A hundred (100) companies have been selected to the sample representing all the business sectors except banking, finance and insurance over a period of 5 years from 2004 to 2008 listed in the Colombo Stock Exchange (CSE) and the pooled time regression method is used to analyze the data. The study used both return model and price model to determine the value relevance of financial statements' information. It revealed that the value relevance of accounting information under the price model has more explanatory power than Return Model. The researchers went further to run stepwise regression to determine the best model of value relevance and at the end established that EPS is the only value relevant variable for determining stock prices.

Hellstrom (2005) investigated the value relevance of accounting information in the Czech Republic in 1994-2001. The study aimed at evaluating the value relevance of accounting information in the Czech Republic in comparison to accounting information in a well-

developed market economy. In addition, the study investigated whether the value relevance of accounting information has increased over time in the Czech Republic, as an indicator of improvements in the accounting regulation and practice. Sweden is chosen as a benchmark country for the comparison. The results showed that the value relevance of accounting information indeed is lower in the Czech Republic than in Sweden. The results, however, indicate an improvement in the quality of the Czech financial accounting information during the research period.

Khanagha (2011) embarked on a study to identify the value relevance of accounting information in two selected countries which could describe the effect of adapting to IFRS on value relevance of accounting information in these countries. The results obtained from a combination of regression and portfolio approaches, showed that accounting information is value relevant in Bahrain and the United Arab Emirates (UAE) stock market. A comparison of the results for the periods before and after adoption, based on both regression and portfolio approaches, showed an improvement in value relevance of accounting information after the reform in accounting standards in Bahrain stock market. While the results for UAE stock market showed a decline in value relevance of accounting information after the reform in accounting standards. It could be interpreted to mean that following to IFRS in UAE didn’t improve value relevancy of accounting information.

Konstantios and Athanasios (2011) conducted a study to compare the value relevance of accounting information under International Financial Reporting Standards (IFRS) and Greek Accounting Standards (GAS) and to investigate whether the results are influenced from firm specific characteristics. The study aimed at examining how the mandatory application of IFRS affected the relative and incremental value relevance of book value and net income in Greece and as well investigate whether the size of the companies and their level of fixed assets affect the value relevance of accounting information. The results showed that both firm size and fixed assets become significant factors, implying that the consequences of the mandatory transition to IFRS may not be the same for all firms.

Khodadadi and Emami (2009) set up their study to determine the best method of panel data analysis for use in Ohlson (1995) predicting model. This study used four methods of analysis using panel data (during 1998 to 2008) of firms listed on Tehran Stock Exchange. The first method is Pooled Data analysis with period weight. The second Method is similar to first one and the difference is that in recent method they applied the intercept (not through origin). In the third and fourth methods period fixed effect and period random effect methods were applied respectively. The research results showed that the first method has better performance in predicting abnormal earnings by Ohlson (1995) model.

Ariff, Alfred, and Patricia (1997) reported the relationship between earnings and share prices. The results showed that unexpected earnings changes are significantly associated with share price changes. However, the strength of the earnings effect is not as pronounced as those reported in the more analytically-intensive developed stock markets. The results are adjusted for risk differences by using a non-synchronous correction procedure to remove thin-trading bias.

Song, Douthett and Jung (2003) examined how the liberalization of the Korean stock market affected stock price behavior and changed the role of accounting information for investment decisions. The aim of the study was to provide a unique opportunity to investigate how stock price behavior has changed with market liberalization and what was the role of accounting information in this process. Their results indicated that the co-movement behavior of stock prices by industry decreased and stock price differentiation based on individual firm characteristics increased after market liberalization. The results also show that the explanatory power of accounting numbers increased after market liberalization. Overall, the results implied that foreign investors contributed to the improvement of market efficiency with the opening up of capital markets in Korea. The results have indeed provided useful evidence to other capital markets that are in a similar situation even though not applicable in other economies of the world.

Vishnani and Shah (2008) examined the value relevance of financial reporting with emphases on value additivity of cash flow reporting which was introduced in Indian

markets. Their study revealed that value relevance of published financial statements is negligible but ratios based on these financial statements show significant association with stock market indicators. They assert that despite the widespread use and continuing advancement in the financial reporting practices, there is some concern about their not carrying enough value in the eyes of the shareholders or investors. The results of our investigation depict negligible value being added by cash flow reporting.

In line with the works of Ohlson (1995), Feltham and Ohlson (1995), Bernard (1995), Collins, Maydew and Weiss (1997), and Brief and Zarowin (1999) compared the value relevance of book value and dividends versus book value and reported earnings. Three sets of findings are reported. First, overall, the variables, book value and dividends, have almost the same explanatory power as book value and reported earnings. Second, for firms with transitory earnings, dividends have greater explanatory power than earnings but book value and earnings have about the same explanatory power as book value and dividends. Most important, when earnings are transitory and book value is a poor indicator of value, dividends have the greatest explanatory power of the three variables.

Other researches extended to include dividends alongside with earnings and book value. Oyerinde (2009) investigated the value relevance of accounting data in the Nigerian Stock Market. The primary objective of the study is to determine if there is a relationship between accounting numbers and share prices in the Nigerian Stock Market. The value relevance of accounting data was measured by the correlation coefficient between stock

prices and some accounting numbers. The researcher used linear regression to estimate the model of the study.

Oyerinde (2011) extended her study two years after to investigate the value relevance of accounting data in the Nigerian stock market partly with a view to determining whether accounting information has the ability to capture data that affect share prices of firms listed on the NSE. It also examined the difference in perception of institutional and individual investors about the value relevance of various items of financial statements in equity valuation. This study used secondary and primary data to investigate the value relevance of accounting numbers. On one part, secondary data were obtained from the Exchange Fact book, Annual Financial reports of companies quoted on the Exchange, the Nigerian Stock Market Annual Reports. The study employed Ordinary Least Square (OLS), Random Effects Model (REM), and Fixed Effects Model (FEM) to gauge information content of various accounting numbers. The findings showed that there is a significant relationship between accounting information (earnings, book value and dividends) and share prices of companies listed on the NSE. The study found that Dividends are the most widely used accounting information for investment decisions in Nigeria, followed by earnings and net book value.

This finding is consistent with Maradun (2009) who found that there is a positive relationship as well as significant impact between earnings and share price of building materials firms in Nigeria. The problem with the above studies is that the data used

stopped at 2008 of which current studies might produce different results. More so, the industrial goods sector has not been separately considered upon its importance in the economy.

The study of Chang, Chen, Su and Chang (2008) investigated the relationship between stock prices and earnings per share (EPS) using panel co integration procedure. Furthermore, they considered whether stock prices respond to EPS under the different level of growth rate of operating revenue. The empirical result indicated that co integration relationship existed between stock prices and EPS in the long-run. Furthermore, the study found that for the firm with a high level of growth rate, EPS has less power in explaining the stock prices; however, for the firm with a low level of growth rate, EPS has a strong impact in stock prices.

Omura (2005) examined the value relevance of annually-reported book values of net assets, earnings and dividends to the year-end market values of five Japanese firms between 1950 and 2004 (a period of 54 years). The researcher used econometric techniques to develop dynamic models of the relationship between markets, book values and a number of macro-economic variables. The focus of the study was to provide an accurate statistical description of the underlying relationships between market and book value. One of the significant findings of the study was that, in the long run, the book value of net assets has relevance for market value in the five Japanese firms examined.

Lo and Lys (2000) discussed the key features of the valuation framework and put it in the context of prior valuation models. The study found that most of these studies apply a residual income valuation model, without the information dynamics that are the key feature of the Feltham and Ohlson framework. They found that few studies have adequately evaluated the empirical validity of this framework. Moreover, the limited evidence on the validity of this valuation approach is mixed. The study, therefore, concluded that there are many opportunities to refine the theoretical framework and to test its empirical validity.

In another development, Suadiye (2012) examined empirically the impact of International Financial Reporting Standards (IFRS) on the value relevance of accounting information in Turkey. Turkish listed firms on the Istanbul Stock Exchange (ISE) are required to adopt IFRS in the preparation and presentation of their financial statements since 2005. Using the equity valuation model as suggested by Ohlson (1995), firstly, the value relevance of earnings and book values of equity produced under Turkish Local Standards (during 2000-2002) and under IFRS (during 2005-2009) is analyzed. The results showed that earnings and book value are, jointly and individually, positively and significantly related to stock price under the two different reporting regimes. Additionally, the results provided that book value of equity is more value relevant than earnings. When two different reporting standards are compared, it is found that the adoption of IFRS increased the value relevance of accounting information for Turkish listed firms.

Agostino, Drago, & Silipo (2013) also conducted a study to investigate the market valuation of accounting information in the European banking industry before and after the adoption of IFRS using apply panel methods to a multiplicative interaction model in which the partial effects of earnings and book value on share prices are conditional on the adoption of IFRS. The study established that **IFRS introduction enhanced the information content of both earnings and book value for more transparent banks**. By contrast, less transparent entities did not experience significant increase in the value relevance of book value. In the same vein, Chalmers, Clinch & Godfrey (2011) investigated whether the adoption of IFRS increases the value relevance of accounting information for firms listed on the Australian Securities Exchange. Using a longitudinal study that covers pre-IFRS and post- IFRS periods during 1990–2008, they found that earnings become more value-relevant whereas the book value of equity does not.

In the same vein, Tsalavoutas, (2009) examined issues relating to the mandatory adoption of International Financial Reporting Standards (IFRS) by Greek listed companies. Initially, the impact of transition, as a result of differences between IFRS and Greek GAAP, on the first IFRS financial statements in 2005 is assessed. They established that there were no changes in the value relevance of accounting information between 2004 and 2005.

Ahmed, Neel and Wang (2013) provided evidence on the preliminary effects of mandatory adoption of International Financial Reporting Standards (IFRS) on accounting quality for a relatively broad set of firms from 20 countries that adopted IFRS in 2005 relative to a benchmark group of firms from countries that did not adopt IFRS matched on the strength of legal enforcement, industry, size, book-to-market, and accounting performance. They found that IFRS firms exhibit significant increases in income smoothing and aggressive reporting of accruals, and a significant decrease in timeliness of loss recognition while there are no any significant differences across IFRS and benchmark firms in meeting or beating earnings targets.

In a related study, Chen, Young, & Zhuang, (2013) examined the externalities of mandatory IFRS adoption on firms' investment efficiency in 17 European countries. The study found that the spillover effect of a firm's ROA difference versus its foreign peers, but not domestic peers, on the firm's investment efficiency increases after IFRS adoption. They also found that increased disclosure by both foreign and domestic peers after IFRS adoption has a spillover effect on a firm's investment efficiency.

In their study, Alali and Foote (2012) examined the value relevance of accounting information under International Financial Reporting Standards (IFRS) in the Abu Dhabi Stock Exchange (ADX, henceforth). Based on models developed by Easton and Harris (1991), and Ohlson (1995) and using monthly market data from 2000 to 2006, this paper investigated the value relevance of accounting information of firms traded on the ADX. It

was documented that earnings scaled by beginning of period price are positively and significantly related to cumulative returns and that earnings per share and book value per share are positively and significantly related to price per share. The study also found that value relevance of accounting information has changed since the market inception in 2000. In a related study, Clarkson, Hanna, Richardson & Thompson, R. (2011) investigated the impact of IFRS adoption in Europe and Australia on the relevance of book value and earnings for equity valuation. Using a sample of 3,488 firms that initially adopted International Financial Reporting Standards (IFRS) in 2005, they established that IFRS enhances comparability.

Anandarajan & Hasan (2010) on the other hand investigated the value relevance of earnings and its components for a number of Middle Eastern and North African (MENA) countries and in addition examined how differences in levels of mandated disclosures, source of accounting standards, and legal systems moderate the informativeness of earnings to investors. The later found that mandated disclosure and source of accounting standard, (especially non-governmental source) are positively associated with earnings informativeness. Additionally, MENA countries with French civil law and systems have lower value relevance relative to countries in this sample with English and related legal codes. Further, the firms that have adopted international financial reporting standards have higher value relevance than firms in MENA countries which adhere to local standards.

In an attempt to determine the quality of countable information before and after the adoption of standards IFRS, Assidi & Omri (2012) conducted a study through the exposure of the positive theory of the accountancy which insists on the importance of information of quality for the investors in order to enable them to make the adequate decisions of investments. The results obtained showed that the adoption of standards IFRS makes improves quality of countable information. In particular, standards IFRS contribute improved quality information to diffuse it with the public and to increase his transparency, which makes it possible to attenuate asymmetries of information and the costs of agency.

In their paper, BYard, Li, & Yu (2011) examined the effect of the mandatory adoption of International Financial Reporting Standards (IFRS) by the European Union on financial analysts' information environment. They found that analysts' absolute forecast errors and forecast dispersion decrease relative to this control sample only for those mandatory IFRS adopters domiciled in countries with both strong enforcement regimes and domestic accounting standards that differ significantly from IFRS. Furthermore, for mandatory adopters domiciled in countries with both weak enforcement regimes and domestic accounting standards that differ significantly from IFRS, it was found that forecast errors and dispersion decrease more for firms with stronger incentives for transparent financial reporting. These results highlight the important roles of enforcement regimes and firm-level reporting incentives in determining the impact of mandatory IFRS adoption. Another supporting study was that of Gebhardt, & Farkas (2011).

Another study examined the combined value relevance of book value of equity and net income before and after the mandatory transition to IFRS in Greece (Tsalavoutas, Andre and Evans 2012). And it was found that there was find no significant change in the explanatory power of value relevance regressions between the two periods. The coefficients on book value of equity and net income are positive and significant in both the pre-IFRS and post-IFRS periods. However, the coefficient on book value of equity is significantly greater under IFRS, but there was a decrease in the coefficient on net income. However, Tsalavoutas & Dionysiou (2014) found that the levels of mandatory disclosures are value relevant. Additionally, not only the relative value relevance (i.e. R2) but also the valuation coefficient of net income of high-compliance companies is significantly higher than that of low-compliance companies.

Also, Cordazzo (2013) conducted a research to provide empirical evidence of the nature and the size of the differences between Italian accounting principles and IFRS in order to show the major consequences of the conversion to IFRS on accounting outcomes. It was observed that there was a more relevant total impact of such a transition on net income than equity. But, the analysis of individual adjustments showed a greater discrepancy between Italian GAAP and IFRS in the accounting treatment of intangible assets, income taxes, and business combinations with reference to both net income and equity.

Another study examined the impact of IFRS adoption on the quality of accounting information within the Greek accounting setting (Dimitropoulos ,Asteriou, Kounsenidis and Leventis 2013). Using a balanced sample of firms listed in the Athens Stock Exchange (ASE) for a period of eight years (2001–2008) they found convincing evidence that the implementation of IFRS contributed to less earnings management, more timely loss recognition and greater value relevance of accounting amounts, compared to the local accounting standards.

This thesis examined the implications of mandatory IFRS adoption on the accounting quality of banks in twelve EU countries. Specifically, it analyzed how the change in the recognition and measurement of banks' main operating accrual item, the loan loss provision, affects income smoothing behaviour and timely loss recognition. It found that the restriction to recognize only incurred losses under IAS 39 significantly reduces income smoothing. This effect is less pronounced in countries with stricter bank supervision, widely dispersed bank ownership and for EU banks cross-listed in the US. This provides additional evidence that institutions matter in shaping financial reporting outcomes. Further, the application of the incurred loss approach results in less timely loan loss recognition implying delayed recognition of future expected losses. In the light of the ongoing financial crisis it is questionable whether this is a desirable financial reporting outcome of mandatory IFRS adoption. This result is in line with the work of Hellman (2011).

On the other hand, Hsu, Duha, & Cheng (2012) investigated the value relevance of consolidated statements under the ownership based approach of U.S. Accounting Research Bulletin No. 51 (ARB 51) and the control-based approach of International Accounting Standard No. 27 (IAS 27). The results of their study showed that consolidated financial statements based on a broader definition of control provide more useful accounting information than those based only on majority-ownership control.

Another study conducted by Jermakowicz, Prather-Kinsey and Wulf (2007) examined the challenges and benefits, including value relevance, of the adoption of IFRS by DAX-30 companies, the German premium stock market. The researchers used regression to measure the value relevance of book values of earnings and equity in explaining market values of DAX-30 companies during the period 1995–2004. Using 265 observations, they found that adopting IFRS or US Generally Accepted Accounting Principles or cross-listing on the New York Stock Exchange significantly increases the value relevance of earnings relative to market prices. Similarly, Kadri, Abdul Aziz, Ibrahim (2010) investigated the value relevance of book value and earnings and the relationship between earnings and operating cash flow of two different financial reporting regimes in Malaysia. They observed that the change in financial reporting regime affects significantly the value relevance of book value and but not earnings. While book value and earnings are value relevant during the MASB period, only book value is value relevance during the FRS period.

Kargin (2013) adopted Ohlson model (1995) using two main financial reporting variables, namely the book value of equity per share (represents balance sheet) and earnings per share (represents income statement). This study investigated the value relevance of accounting information in pre- and post-financial periods of International Financial Reporting Standards' (IFRS) application for Turkish listed firms from 1998 to 2011. Market value is related to book value and earnings per share by using the Ohlson model (1995). Overall book value is value relevant in determining market value or stock prices. The results showed that value relevance of accounting information has improved in the post-IFRS period (2005-2011) considering book values while improvements have not been observed in value relevance of earnings.

Hsu, Duha, Cheng (2012) investigated the value relevance of consolidated statements under the ownership based approach of U.S. Accounting Research Bulletin No. 51 (ARB 51) and the control-based approach of International Accounting Standard No. 27 (IAS 27). They found that consolidated financial statements based on a broader definition of control provide more useful accounting information than those based only on majority-ownership control.

In his paper, Kim (2013) performed an empirical investigation into the value relevance of information reported by Russian public firms from two distinct perspectives. He documented that prior to 2011, investors relied on information incorporated in the book value of equity. The value relevance of reported earnings, however, is different for

"growth" versus "value" stocks. It was also documented that Russian leading firms listed on the London Stock Exchange, that report in accordance with IFRS produce more value-relevant reports compared to their local peers that report under the Russian standards.

Kouser and Azeem (2011) conducted a study that focused on the statistical power to explain changes in share price and intervening impact of IFRS adoption using two independent variables, which are book value of equity and earnings. They adopted a year by year OLS regression for their analysis covering eight year period (2002 to 2009). The study showed almost similar results in Pakistan as earlier studies of different countries empirically proved. It is proved the high relevance of accounting numbers was the result of high quality investor oriented financial quality.

In another study, Lin, Riccardi and wang (2012) examined whether accounting quality changed following a switch from U.S. GAAP to IFRS. Using a sample of German high tech firms that transitioned to IFRS from U.S. GAAP in 2005, they found that accounting numbers under IFRS generally exhibit more earnings management, less timely loss recognition, and less value relevance compared to those under U.S. GAAP. By and large, the findings of the study indicated that the application of U.S. GAAP generally resulted in higher accounting quality than application of IFRS, and a transition from U.S. GAAP to IFRS reduced accounting quality.

The study conducted by Liu et al (2011) examined the impact of IFRS on accounting quality in a regulated market, China, where new substantially IFRS-convergent accounting standards became mandatory for listed firms in 2007. Accounting quality is examined for the period 2005 to 2008 with only firms mandated to follow the new standards. The empirical results generally indicated that accounting quality improved with decreased earnings management and increased value relevance of accounting measures in China since 2007.

Müller (2014) investigated the impact of the mandatory adoption of IFRS starting with 2005 on the absolute and relative quality through an empirical association study of financial information supplied by the consolidated accounts for companies listed on the largest European stock markets. The results showed an increase of consolidated statements quality (value relevance) once IFRS were adopted. They also ascertained an increase in the quality surplus supplied by group accounts compared to parent company individual accounts once the IFRS adoption became mandatory for preparing consolidated financial statements.

In Nigeria, Nneka & Rotimi (2012) examined the extent to which adoption of international financial reporting standards (IFRS) can enhance financial reporting system in Nigerian Universities. The study used 160 senior accountants and internal auditors as the population. 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. It was 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.

Palea (2014) Used a sample of Italian firms to investigate whether separate financial statements are useful to capital market investors, and whether International Financial Reporting Standards (IFRS) are more value-relevant than domestic generally accepted accounting principles (GAAP). The study established that separate financial statements are value-relevant, regardless of the accounting standard set. In addition, this paper documented the important role of model specification in value-relevance studies.

Terzi, Otkem and Sen (2013) also investigated the impact of adopting International Financial Reporting Standards (IFRSs) on listed companies in Turkey was examined. We observed the financial statements that were prepared in accordance with IFRS and local GAAP and researched the standards which included more relevant information. They worked on the financial statements of the companies in the Istanbul Stock Exchange (ISE) that operated in the manufacturing industry. The study discovered that the financial statements prepared in accordance with local GAAP and IFRS were statistically different. The researchers observed statistically significant differences in book value/market value ratio analysis depending on the market value under local GAAP and IFRS. However, in

subsector analysis, it was identified that some subsector groups have been affected from the transition to IFRS.

Uyar (2013) conducted a study which examined the impact of change of accounting standards on accounting quality. In order to determine how switching standard reflects accounting quality, first of all, the earnings management, timely loss recognition, and value relevance variables pertaining to accounting quality were listed and the findings were stated after subjecting the obtained data to statistical analyses. The study also concluded that by the switch from domestic accounting standards to International Accounting Standards (IAS), the quality of accounting in the country was improved and the market became more active than it was before.

Olugbenga & Atanda (2014) conducted a research to examine the value relevance of accounting information of quoted companies in Nigeria using a trend analysis. Secondary data were sourced from the Nigerian Stock Exchange Fact Book, Annual Financial Reports of Sixty six (66) quoted companies consisting of financial and non-financial firms in Nigeria and the Nigerian Stock Market annual data. The Ordinary Least Square (OLS) regression method was employed in the analysis. The study revealed that accounting information on quoted companies in Nigeria is value relevant.

It is pertinent to note that most of the literature reviewed in this section emphasized on the employment of Ordinary Least Square regression model which may lead to spurious results. This is for the fact that most of the data used are panel. Therefore, this study filled this wide gap by extending the tools of analysis to include the Generalized Least square models, which is the fixed effect model and the Random Effect Model. This is possible so as to test the effects between the firms and within the firms in order to reach a valid conclusion.

2.5 Theoretical Framework

The theoretical framework for this study is Efficient Market Hypothesis (EMH). An 'efficient' market is defined as a market where there are large numbers of rational, profit maximisers actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants. In an efficient market, competition among the many intelligent participants leads to a situation where, at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events which, as of now, the market expects to take place in the future. In other words, in an efficient market at any point in time the actual price of a security will be a good estimate of its intrinsic value.

(Fama, 1970) identified three distinct levels (or 'strengths') at which a market might actually be efficient.

2.5.1 Strong-form EMH

In its strongest form, the EMH says a market is efficient if all information relevant to the value of a share, whether or not generally available to existing or potential investors, is quickly and accurately reflected in the market price. For example, if the current market price is lower than the value justified by some piece of privately held information, the holders of that information will exploit the pricing anomaly by buying the shares. They will continue doing so until this excess demand for the shares has driven the price up to the level supported by their private information. At this point they will have no incentive to continue buying, so they will withdraw from the market and the price will stabilize at this new equilibrium level. This is called the strong form of the EMH. It is the most satisfying and compelling form of EMH in a theoretical sense, but it suffers from one big drawback in practice. It is difficult to confirm empirically, as the necessary research would be unlikely to win the cooperation of the relevant section of the financial community – insider dealers.

2.5.2 Semi-strong-form EMH

In a slightly less rigorous form, the EMH says a market is efficient if all relevant publicly available information is quickly reflected in the market price. This is called the semi-strong form of the EMH. If the strong form is theoretically the most compelling, then the semi-strong form perhaps appeals most to our common sense. It says that the market will quickly digest the publication of relevant new information by moving the price to a new equilibrium level that reflects the change in supply and demand caused by the emergence

of that information. What it may lack in intellectual rigour, the semi-strong form of EMH certainly gains in empirical strength, as it is less difficult to test than the strong form.

One problem with the semi-strong form lies with the identification of 'relevant publicly available information'. Neat as the phrase might sound, the reality is less clear-cut, because information does not arrive with a convenient label saying which shares it does and does not affect. Does the definition of 'new information' include 'making a connection for the first time' between two pieces of already available public information?

2.5.3 Weak-form EMH

In its third and least rigorous form (known as the weak form), the EMH confines itself to just one subset of public information, namely historical information about the share price itself. The argument runs as follows. 'New' information must by definition be unrelated to previous information; otherwise it would not be new. It follows from this that every movement in the share price in response to new information cannot be predicted from the last movement or price, and the development of the price assumes the characteristics of the random walk. In other words, the future price cannot be predicted from a study of historic prices.

Each of the three forms of EMH has different consequences in the context of the search for excess returns, that is, for returns in excess of what is justified by the risks incurred in holding particular investments. If a market is weak-form efficient, there is no correlation between successive prices, so that excess returns cannot consistently be achieved through

the study of past price movements. This kind of study is called technical or chart analysis, because it is based on the study of past price patterns without regard to any further background information.

If a market is semi-strong efficient, the current market price is the best available unbiased predictor of a fair price, having regard to all publicly available information about the risk and return of an investment. The study of any public information (and not just past prices) cannot yield consistent excess returns. This is a somewhat more controversial conclusion than that of the weak-form EMH, because it means that fundamental analysis – the systematic study of companies, sectors and the economy at large – cannot produce consistently higher returns than are justified by the risks involved. Such a finding calls into question the relevance and value of a large sector of the financial services industry, namely investment research and analysis.

If a market is strong-form efficient, the current market price is the best available unbiased predictor of a fair price, having regard to all relevant information, whether the information is in the public domain or not. As we have seen, this implies that excess returns cannot consistently be achieved even by trading on inside information. This does prompt the interesting observation that somebody must be the first to trade on the inside information and hence make an excess return. Attractive as this line of reasoning may be in theory, it is unfortunately well-nigh impossible to test it in practice with any degree of academic rigour.

The first attempt to test the value relevance of accounting information was made by Ball and Brown (1968) without making any reference to theory (Klimczak, 2009). The emphasis of capital market research in accounting then was on usefulness of accounting to individual users. Ball and Brown assume that the Efficient Market Hypothesis is maintained. Because of the weak nature of our capital market in Nigeria, the study adopted the semi strong form of EMF using valuation model developed by Ohlson (1995) to examine the value-relevance of earnings and book value of equity. Ohlson (1995) argues that due to the dividend policy irrelevance concept presented in Miller and Modigliani (1961), the value of a firm should not be calculated based on dividends, but based on a more fundamental variable, which does not depend on dividends. Based on the analysis, Ohlson (1991) concluded that the variable, earnings is a good replacement for dividends because earnings do not depend on dividends and could be used to estimate company value. Financial information is only termed value relevant if there is an established association between accounting numbers and company value. This is the only way that financial reports are able to fulfill one of its primary objectives.

2.6 Summary

This chapter started with conceptualization of the study variables to have clear picture of the research work. The expected relationship between the dependent variable and the independent variables are pictorially shown. This was followed by approaches employed by previous valuation researches on which we settle on information approach for our

study. The chapter further reviewed previous valuation studies in order to establish gap that would be filled by the current study. Finally, the theoretical framework that underpins our research work was explicitly discussed.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explained the procedures and methods that were used in carrying out the study. These include research design, population and sampling, sources and method of data collection, technique that was used in analyzing data of the study, measurement of the dependent and independent variables that was used in the study as well as model specification to arrive at the models that was used in testing the hypotheses of the study.

3.2 Research Design

In every research work, there is the need to have a clear method that will respond to the intention of undergoing the research. This study focused exclusively on the quantitative research paradigm, which is closely linked to positivism. On the basis of this study, a correlation research design was adopted to describe the statistical association between the dependent variable and the independent variables of the study. It is therefore, most appropriate for this study because it allows for testing of expected relationships between and among variables and the making of predictions regarding these relationships. This study involved the measurement of three (3) independent variables to one dependent variable as well as assessment of the relationship between or among those variables.

3.3 Population and Sampling of the Study

The population of the study comprised of all 25 quoted Industrial Goods firms on the Exchange as at 31st December 2013 which are classified into 4 subsectors. These subsectors are as follows:

a. The Building Materials subsector containing thirteen (13) firms;
b. The Electrical and Electronics Products subsector containing three (3) firms;
c. The Packaging/Containers subsector containing six (6) firms; and
d. The Tools and Machinery subsectors having only three (3) firms.

In view of the limitations of the study as regards number of years and variables used, a filter is employed to eliminate some of the firms that have disappeared from the trading schedule of NSE within the period of the study, which is 2007 to 2013. On the basis of this filter, nine (9) firms were filtered out. The remaining 16 firms that met both criteria are to be used as the sample of the study. The elimination of about nine (9) firms from the population would not pose any problem to our work as the sample reflects about 64% of the population. Results obtained can be generalized to the whole population which comprises of the firms eliminated. Details of the whole population segregated into the eliminated firms and the sampled firms are contained in appendix A.

3.4 Sources and Methods of Data Collection

The study employed the use of secondary source of data. Data of the dependent variable (Share price) was collected from daily share price lists displayed on the website of Cash Craft Asset Management Ltd. The share prices used were share price for three months after accounting year end of the sampled firms. This is necessary so as to avoid look-ahead bias problem caused by using data which are not yet available but assumes to be available. Actually, accounting information will come to investors' hand when they

receive the annual report of the company and not at the last date of financial year. Data of the three (3) independent variables were extracted from the Annual Reports and Accounts of the sampled Nigerian Industrial Goods firms listed on the NSE as well as the NSE Fact book 2012/2013. These sets of data will cover seven-year period, from 2007 to 2013.

3.5 Data Description

Panel data was used in this study for the three hypotheses, which is the combination of time series with cross-sections. This is to enhance the quality and quantity of data in ways that would be impossible using only one of these two dimensions (Gujarati & Porter, 2009). The repeated observations of enough cross-sections and panel analysis permit the study of dynamics of change with short time series. A total of 112 observations comprising of 16 cross sectional units and 7 time series was used.

This study focused on the relation between share price, book value, earnings and dividends unlike previous studies that were mostly concerned with explaining the relationship between share price, book value and reported earnings only (Subekti, 2010; Shahzad, Zaheer & Anees, 2012). Proxies for accounting information that was used in this study will comprise Earnings per Share (EARPS), Book Value per Share (BKVPS) and Dividends per Share (DIVPS) (Oyerinde, 2011; Abdullahi, Lawal & Ibrahim, 2012). The length of observations normally used in this type of study ranges from daily, quarterly and yearly; but for the purpose of this study, yearly observations, which is the

method commonly used by researchers was used (Barth *et al*, 2000; Francis and Schipper, 1999; and Beisland, 2009).

3.6 Technique of Data Analysis

In this study, multiple regression models was used to analyze the data collected. The common techniques for analysis that are used in research are many but for the purpose of this research work, panel multiple regression was adopted to examine the model of the study. Panel data is used to account for individual heterogeneity of the sample companies. In regression analysis considering linearity, normality, stability of variance and independence of observations is of vital importance. In this study, these assumptions are observed and considered.

Therefore, since this study used three accounting information as predictors to predict one variable called share price, it justifies the application of multiple regression technique. Our methods of analysis were Ordinary Least Square (OLS), Random Effects Model (REM) and Fixed Effects Model (FEM). OLS was used as a basis of comparison with the previous studies. However, using traditional Ordinary Least Square (OLS) alone may produce spurious regression results that can lead to statistical bias (Granger and Newbold, 1974).

As it is the case with all panel data, RE is suitable when it is assumed that there is no individual or fixed effects of one variable on the other. Individual effect of variables occurs when the levels of variables used in a study is a sample obtained from some larger population of levels that could have been selected. In the case of fixed effects, researchers are usually interested in making explicit comparisons of one level against another. A "fixed variable" is one that is assumed to be measured without error. It is also assumed that the values of a fixed variable in one study are the same as the values of the fixed variable in another study.

3.7 Model Specification

The model by Ohlson (1995) is adapted in order to analyze the importance of accounting information in determining share price of firms listed in the Exchange under the Industrial Goods Sector. In this model, changes of share price were specified to be explained by earnings per share, dividend per share and book value per share. The error term (e_{it}) is used to capture all other variables not included. Ohlson (1995) describes, in his work, that the value of a firm can be expressed as a linear function of book value and earnings.

The panel data model that was used in the study is more explicitly set out below:

Model 1 – Aggregate impact of Earnings and Book Value of Equity on Share Price.

$SHRPRjt = f\,(EARPS_{jt}\,,\, BKVSH_{jt},)$ …… *(1)*

Where: SHRPR = share price

EARPS = earnings per share

t = time dimension

j = individual firm

Model 1 above is based on the Ohlson (1995) valuation framework (Francis & Schipper, 1999; and Lev & Zarowin, 1999). But this relationship is not realistic because Ohlson model is not developed on the basis of income itself but residual income. In order to make the relationship specified in equation (1) above to be consistent with Ohlson's valuation model, earnings should be regarded as being a proxy for residual income. However, past empirical studies have shown that current earnings do have an association with value which confirms the model's functionality (Oyerinde, 2011).

Equations (1) can be expressed in explicit form as follows:

$SHRPRjt = \beta_0 + \beta_1 EARPS_{jt} + \beta_2 BKVPS_{jt} + e_{jt}$…… *(2)*

For j =1,2……..., N cross-sectional units and periods t = 1, 2…….....T time period

Where: SHRPRjt = the share price of firm j at time t

EARPSjt = earnings before extraordinary items per share of firm j at time t

BKVPSjt = book value per share of firm j at time t

β_0 = constant or intercept.

β_{1-2} = coefficients of explanatory variables

ε_{jt} = error term

Model 2: Impact of Dividends and Book Value of Equity on Share Price

This model is specified as follows:

$SHRPRjt = f (DIVPS_{jt}, BKVPS_{jt},)$ …….…… (3)

Where: SHRPR = the share price

DIVPS = dividends per share

BKVPS = book value per share

t = time dimension

j = individual firm

A positive relationship is expected between accounting information and equity valuation since accounting information plays a crucial role in share valuation. It will be a surprise if no reaction could be measured (Penman, 1998).

Equations (3) can be expressed in explicit form as follows:

$SHRPRjt = \beta_0 + \beta_1 DIVPS_{jt} + \beta_2 BKVPS_{jt} + e_{jt}$……..……(3)

for j =1,2……..., N cross-sectional units and periods *t* = 1, 2…….....T time period.

Where: SHRPRjt = the share price of firm j at time t

DIVPSjt = dividends per share of firm j at time t

BKVPSjt = book value per share of firm j at time t

β_0 = constant or intercept.

β_{1-2} = coefficients of explanatory variables

ε_{jt} = error term

Combining equations 1and 3 above, the final model of the study specified as follows:

$SHRPRjt = f\ (EARPS_{jt}, BKVSH_{jt}, DIVPS_{jt})$ …… *(4)*

Where: SHRPR = share price

EARPS = earnings per share

BKVPS = book value per share

DIVPS =dividend per share

t = time dimension

j = individual firm

Equations (4) can be expressed in explicit form as follows:

$SHRPRjt = \beta_0 + \beta_1 EARPS_{jt} + \beta_2 BKVPS_{jt} + \beta_3 BKVPS_{jt} + e_{jt}$…… *(4)*

For j =1,2……..., N cross-sectional units and periods t = 1, 2……....T time period

Where: SHRPRjt = the share price (SP) of firm j at time t

EARPSjt = earnings before extraordinary items per share of firm j at time t

BKVPSjt = book value per share of firm j at time t

$DIVPS_{jt}$ = dividend per share of firm j at time t

β_0 = constant or intercept.

β_{1-3} = coefficients of explanatory variables

ε_{jt} = error term

3.8 Variable Measurement

The variables to be used in this study are defined as shown in table 3.2 below:

Table 3.2 Variable Measurement

Variable	**Measurement**	**Description of Dependent and Independent Variables**	**Code**

Share price	The share price of the selected firms for three (3) months after accounting year-ends	Dependent Variable	SHRPR
Earnings per share	Ratio of earnings after tax but before extra-ordinary items to the latest outstanding ordinary shares in issue.	Independent Variable	EARPS
Book value per share	Ratio of the shareholders' fund of each firm to the latest outstanding ordinary shares in issue.	Independent Variable	BKVPS
Dividends per share	The ratio of dividends declared for the year to outstanding ordinary shares in issue.	Independent Variable	DIVPS

Source: Author, 2014

3.9 Summary

This chapter explained the research methodology of the study. It started by explaining the research design followed by the population of the study and sample drawn from the population for the purpose of the study as well as the sampling technique adopted. Method and source of data collected for the study is also explained. The chapter continues with the technique of data analysis after which the model used in testing our hypotheses is specified. In order to have better understanding of the research work, variables used in the study are explicitly defined and measured.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AN INTERPRETATION

4.1 INTRODUCTION

This chapter dealt with the presentation of data used in the study. The data are then analysed, interpreted and discussed in order to aid easy understanding of the topic of study. However, the data are presented using tables and showing frequency distributions, means and standard deviations. The analysis of secondary data was carried out using

Ordinary Least Squared (OLS), Fixed Effects (FE) and Random Effects (RE) models. The chapter started with the preliminary analysis of the sample using descriptive statistics. This is followed by the presentation of the results of the model estimations and the inferences drawn from the tests of the hypotheses. In addition, findings are discussed and policy implications are outlined. The chapter concluded with a discussion of the robustness of the results for dependent and independent variables so as to avoid drawing conclusions on spurious results.

4.2 DESCRIPTIVE STATISTICS

The sample descriptive statistic is first presented in Table 4.1 where minimum, maximum, mean, and standard deviation of the data for the variables used in the study are described. The correlation matrix for the explained and explanatory variables are later presented and analyzed. This analysis is made in order to understand the respective correlation between the explained variable and the explanatory variables of the study. It can also show the correlation among the explanatory variables themselves which will further assist in buttressing our analysis when it comes to interpreting the final regression results. The descriptive statistics presented and discussed below is arrived at after taking care of the normality of all the explanatory variables and the explained variable.

Table 4.1: Summary of Descriptive statistics

Table 4.1 Summary of Entire Panel of Aggregate Market Reaction to Accounting Earnings and Book Value in Equity Valuation

Variable	Mean	Std. Dev.	Min	Max
shrpr				
Overall	0.7202	0.6712	-0.3	2.38
Between		0.1863	0.4956	1.1025
Within		0.6485	-0.3823	2.4440
earps				
Overall	2.245	0.4245	0	3.8
Between		0.0608	2.1369	2.3138
Within		0.4207	0.1081	3.7313
bkvps				
Overall	2.2519	0.7715	-0.02	4.2
Between		0.1239	2.1088	2.4406
Within		0.7629	0.0944	4.21
divps				
Overall	0.6780	0.8490	0	2.58
Between		0.1691	0.3844	0.8713
Within		0.8343	-0.1932	2.7737

Source: STATA Output (2015)

Table 4.1 reports the summary of three accounting variables and share prices of the entire panel of 16 companies over 7 years. The overall share price is 72 kobo with standard deviation of approximately 67 kobo. This means that the share price can deviate from mean to both sides by 67 kobo. This indicates that there is no high dispersion from the mean value of share price recorded within the period of our study. The highest share price recorded within the study period is 238 kobo by Dangote Cement PLC in 2012. The

minimum is -30 kobo due to the fact that some companies share prices were not published during the period. The minimum and the maximum between the companies are 49 kobo and 110 kobo respectively with standard deviation of approximately 19 kobo while the minimum and the maximum within the companies are -38 kobo and 244 kobo respectively with standard deviation of approximately 65 kobo. This analysis shows that the values of share price under study are normally distributed and therefore the possibility of arriving at conclusion on spurious result is minimal or even zero.

From the table, the overall average of earnings per share is 2 kobo with standard deviation of approximately 0.4 kobo. This also reveals low dispersion of earnings per share among the studied companies. The highest earnings per share for the period is 3.8 kobo by Dangote Cement Plc in 2009 while the minimum is 0 kobo. However, the minimum and the maximum of earning per share between the companies are 2.14 kobo and 2.39 kobo respectively with standard deviation of approximately 0.1 kobo while the minimum and the maximum within the companies are 0.1 kobo and 3.7 kobo respectively with standard deviation of approximately 0.4 kobo.

The overall mean of book value per share is 2.3 kobo with approximate standard deviation of 0.8 kobo. This means that book value per share deviates from its mean value to both sides by only 0.8 kobo. The highest book value per share recorded during the period is 4.2 kobo by Dangote Cement PLC in 2009 while the minimum is -0.2 kobo. The minimum and the maximum between the companies are 2.1 kobo and 2.4 kobo

respectively with standard deviation of approximately 0.1 kobo while the minimum and the maximum within the companies are 0.1 kobo and 4.2 kobo respectively with standard deviation of approximately 0.8 kobo.

The average of 0.7 kobo dividends was paid by the companies with overall standard deviation of approximately 0.8 kobo. This means that the dividends varied from mean to both sides by 0.8 kobo. The highest dividend recorded during the period is 2.6 kobo by Chemical & Allied Products Plc while the minimum is 0 kobo. This result shows that some companies did not pay dividends during the period covered. The minimum and the maximum between the companies are 0.4 kobo and 0.9 kobo respectively with standard deviation of approximately 0.2 kobo while the minimum and the maximum within the companies are -0.2 kobo and 2.8 kobo respectively with standard deviation of approximately 0.8 kobo.

4.3 Correlation Matrix

Table 4.2 contains correlation values between dependent and independent variables as well as between independent variables themselves. The values are obtained from Pearson Correlation of 2-tailed significance. It shows the correlation matrix with the top values containing the Pearson correlation coefficient between all pairs of variables and the bottom values containing two-tail significance of these coefficients. Checking the pattern of relationships between dependent and independent variables, it is observed that the variables correlate perfectly well (between 0.58 and 0.65) and all significant at 1 percent level.

Table 4.2 Correlation matrix of dependent and independent variables

Variables	Statistics	Shrpr	Earps	Bkvps	Divps
Shrpr	Pearson correlation	1.0000			
	Sig. 2 tail				
	N	112			
Earps	Pearson correlation	0.6664**	1.0000		
	Sig. 2 tail	0.000			
	N	112	112		
Bkvps	Pearson correlation	0.5993**	0.6667**	1.0000	
	Sig. 2 tail	0.000	0.000		
	N	112	112	112	
Divps	Pearson correlation	0.5814**	0.3693**	0.3995**	1.0000
	Sig. 2 tail	0.000	0.000	0.000	
	N	112	112	112	112

Source: SPSS Output Result 2015

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

Table 4.2 shows that share price is 65% positively associated with earnings per share and significant at 1% level. This signifies that the higher the firms' earnings, the higher the share price. The table also shows the correlation coefficient between share price and book value per share is 60%. This positive correlation is also significant at 1% level significant indicating that those firms with high book values experience increase in their share price. In addition, dividend per share is positively associated with share price of listed Industrial Goods firms in Nigeria at 58% and also significant at 1%. This signifies that increase in dividend per share results to increase in share price of listed Industrial Goods firms in Nigeria.

The table also shows that the correlation among the explanatory variables ranges between 37% and 65%. Earnings per share have the highest positive correlation of 65% with book value per share which is significant at 1% level. This was not unconnected with the data used in computing earnings per share and book value per share which is shareholders fund. However this high correlation would not pose any problem to our analysis. The correlation coefficient of dividends per share and earnings per share is only 37% and significant at 1% level; while the correlation coefficient between dividends per share and book value per share is 40% but significant at 5% level. This shows that there is no presence of serious multicolinearity among the regressors.

4.4 Presentation and Analysis of Regression Results

This section presented the regression result of the dependent variable (share price) and the independent variables of the study (earnings per share, book value per share, and dividend per share). It followed with analysis of the association between dependent variable and each independent variable individually and cumulatively.

The analysis started by considering results obtained by applying OLS, FE and RE models. This presentation was made in order to know the impact of the regressors on the regressand under each of the three (3) models. After the presentation, appropriate tests is conducted which allowed us to choose the appropriate models that we used in testing hypotheses of the study.

The summary of the regression result obtained from the model of the study

(SHRPR=B_0+B_1EARPS+B_2BKVPS+B_3DIVPS +e) is presented in Table 4.3.

Table 4.3: Regression Results on the Impact of Accounting Information on Share price of Listed Industrial Goods Firms in Nigeria

Dependent Variable: shrpr								
Estimator	**OLS**				**FE**		**RE**	
Variable	**Coef**	**Prob**	**VIF**	**Tol. Val.**	**Coef**	**Prob**	**Coef**	**Prob**

Earps	.6552** (4.96)	0.000	0.543	1.840	.5842** (4.78)	0.000	.6033** ***(4.92)***	0.000
Bkvps	.1573* (2.14)	0.035	0.529	1.891	.2039** (2.99)	0.003	.1915** ***(2.80)***	0.005
Divps	.2816** (5.25)	0.000	0.821	1.218	.3043** (6.17)	0.000	.2982** ***(6.02)***	0.000
Constant	-1.2958** (-5.65)	0.000			-1.2569** (-5.99)	0.000	-1.2675** ***(-5.75)***	0.000
R^2	0.5915							
Adj R^2	0.5801							
F-Statistics	52.12**							
Prob. F	0.0000							
Durbin-Watson Stat	1.434							
R^2 within					0.6600		0.6598	
R^2between					0.0290		0.0247	
R^2overall					0.5894		0.5904	
Wald Ch2							192.77**	
Prb.Ch2							0.0000	
Heterocesdasticity Test	chi2(1) 13.89** Prob>chi2 = 0.0002							
No of Observ.	112	112					112	

Note: ** significant at the 1% level

Numbers in parentheses are t- values

Z test in Prentices, bold face and italicized

shrpr =Share price; earps = Earnings per Share; bkvps = Book Value per Share

Source: STATA Output Result 2015

Interpretation of Results

Table 4.3 shows the results of all applied variables in the analysis of the model. The table presents the results of Ordinary Least Square (OLS), Fixed Effect (FE) and Random

Effect (RE) for the impact of earnings per share, book value per share and dividend per share on share price of listed Industrial Goods firms in Nigeria. In this model, earnings per share is highly significant at 1% level in explaining share price. With OLS, earnings per share has a beta coefficient of 0.6552 implying that a unit change in earnings per share will result to approximately 66 kobo change in share price. Beta value measures the degree to which each of the explanatory variables affects the dependent variables. Simply put, 1 kobo change in earnings per share will lead to approximately 66 kobo change in share price of listed Industrial Goods firms in Nigeria. This is because share prices are stated in naira while earnings per share are stated in kobo.

When FE model is applied, there was a significant decrease in the beta coefficient of earnings per share from 66 kobo to 58 kobo which is also significant at 1% level. This indicates that earnings per share increases by 58 kobo with any 1 kobo increase in share price of listed industrial goods firms in Nigeria. With RE model, the beta coefficient of earnings per share is approximately 60 kobo and significant at 1% level which is almost the same with that of FE model. This shows that 1 kobo change in earnings per share will result to 60 kobo change in share price in RE model.

The results in table 4.3 show that beta coefficient of book value per share when OLS is employed is 0.1573 which is significant at 5 % level. This implies that a 1 kobo change in book value per share will lead to approximate 16 kobo change in share price of listed Industrial Goods firms in Nigeria. The beta coefficient of book value per share, when FE

model is employed, is 20 kobo and also significant at 1% level. This indicates that book value per share increases by 20 kobo with any 1 kobo increase in share price of listed industrial goods firms in Nigeria. When RE model is employed, the beta coefficient of earnings per share is approximately 19 kobo and significant at 1% level. This shows that 1 kobo change in earnings per share will result to 19 kobo change in share price in RE model.

The outputs in table 4.3 indicate that dividend per share has a beta coefficient smaller than that of earnings per share but higher than that of book value per share. Using OLS, the coefficient of dividend per share is 0.2816. It means that a unit change in dividend per share will lead to approximately 28 kobo change in share price. In other words, 1 kobo change in dividends per share will lead to approximately 28 kobo change in share price. However, dividends has slightly high beta coefficient when FE and RE are employed. The beta coefficients when FE and RE are employed are 0.3043 and 0.2982 respectively; both are significant at 1% levels. These imply that a unit (1 kobo) change in dividends per share will lead to approximately 30 kobo change in share price for both FE and RE.

4.5 Robustness Test of Dependent and Independent Variables

This section presented the results of robustness tests conducted in order to improve the validity of all statistical inferences for the study. Robustness checks are applied to examine the results under different circumstances. The robustness outcomes relative to

the original results provide greater credibility to the overall findings of the study. These tests include; multicolinearity test, heteroscedasticity test, test of serial correlation and histogram of residuals test.

4.5.1 Multicolinearity test:

Multicolinearity test is basically conducted to check whether there are correlations between independent variables which will mislead the result of the study. Table 4.2 above presents the matrix of the linear relationships among the continuous independent variables. From observation, the only sets of variables with high correlation above 0.50 are earnings per share and book value per share (0.666). In fact, the low magnitude of the correlations amongst the exogenous variables indicates that multicolinearity should not be a problem for the sample of the study.

To formally substantiate the lack of multicolinearity between the independent variables, collinearity diagnostics are observed and that the variance inflation factors (VIF) and tolerance values indicate no multicolinearity in the data. The values for tolerance and VIF are shown in Table 4.3 above. A small tolerance indicates that the variables under consideration is almost a perfect linear combination of the independent variable already in the equation and that it should not be added to the regression equation. The VIF measures the impact of collinearity among the regressors in a model. The VIF is 1/TV. It is always greater than or equal to 1. There is no formal VIF value for determining

presence of multicolinearity but it should not be greater than 10. Using SPSS, the VIF and tolerance values are computed and found to be consistently smaller than ten and one respectively indicating absence of multicolinearity (Neter, Kutner, Nachtsheim, and Wasserman, 1996). This shows the appropriateness of fitting the model of the study with the three independent variables.

4.5.2 Heteroscedasticity test:

This test is conducted to check whether the variability of error terms is constant or not. The test will further enable us to decide between Ordinary Least Square (OLS) model and the Generalized Least Square model (that is, fixed effects and random effects models) The present of heteroscedasticity signifies that the variation of the residuals or term error is not constant which would affect inferences in respect of beta coefficient, coefficient of determination (R^2) and F statistics of the study. The result of the test reveals that there is presence of heteroscedasticity because the probability of the chi square is less than 5% (See table 4.3 above). This result provided enough evidence to reject the hypothesis that the data are not heterocesdastic, hence the Ordinary Least Square (OLS) model for our hypotheses testing. The best model cannot be used for the study is the Generalized Least Square (GLS) model which is either of Fixed Effect (FE) or Random Effect (RE) model. In order to select between FE and RE, the Hausman Specification test was conducted.

4.5.3 Hausman Specification Test

Because of the homogeneity of data used in this study, which assumes that fixed effects and random effects models are similar, Hausman test is performed to determine which of the two models is more efficient. This test is necessary since it is confirmed that OLS is not the best model to be used in the study.

It is believed that a random-effects specification is appropriate for individual-level effects in our model. A fixed-effects model that will capture all temporally constant individual-level effects is fixed and it is assumed that this model is consistent for the true parameters and stores the results by using estimates store under a name, fixed. Now we fit a random-effects model is fitted as a fully efficient specification of the individual effects under the assumption that they are random and follow a normal distribution. These estimates are then compared with the previously stored results by using the Hausman command. The null hypothesis is that random effects model is not biased. From the results shown in table 4.3 above, the Probability (P) value is not significant (< 0.05). we therefore fail to reject the null hypothesis which states that random effects is not biased implying that RE is more efficient than FE.

4.5.4 Test of serial correlation:

Regression errors are said to be serially correlated when they have correlation across observations. Serially correlated errors are also known as auto-correlated. Auto correlation causes the standard errors of the coefficient to be smaller than they suppose to

be and higher R^2. This will mislead the interpretation of impact or effect and fitness of the model used in the study. The Durbin-Watson statistic of 1.434 shown in table 4.3 above confirms the absence of serial correlation among the regressors.

4.5.5 Normality Test

The initial data collected for this study was not normally distributed as a result of the existence of outliers. This non normality was identified after running the descriptive statistics on the initial data and the histogram tests as shown in appendix C. From the results shown in appendix C, it is evident that there is high dispersion from the mean value of all the study variables as their respective standard deviations are higher than their mean values.

Another indicator of the non normality of the study variables are the skewness and the kurtosis values. Skewness measures the degree of symmetry in the distribution. A symmetrical distribution includes left and right halves that appear as mirror images. A positive skew occurs if skewness is greater than zero. A negative skew occurs if skewness is less than ten. A positive skewness indicates that the distribution is left heavy. Values between 0 and 0.5 can be considered as indicating a symmetrical distribution.

Kurtosis measures the degree to which the frequencies are distributed close to the mean or closer to the extremes. A bell-shaped distribution has a kurtosis estimate of around 3. A center-heavy (i.e. close to the mean) distribution has an estimated kurtosis greater than 3. An extreme-heavy (or flat) distribution has a kurtosis estimate of greater than 3 (All in absolute terms). The results in appendix C show that the skewness ranges from 3.051 to 8.078 while the kurtosis lies between 9.488 and 74.563. This indicates that the data used is not normally distributed.

As a result of the non normality of the study variables, it was decided to use natural logarithm transformation so as to avoid presenting spurious results. The transformation was done in two steps. Step one was the transformation of earnings per share in order to eliminate all negative signs since natural logarithm was used. This is done by adding "117" across the border to each individual value of earnings per share. "1" was also to each value of the remaining three variables (share price, book value per share and dividend per share) in order to bring the figures to values greater than zero. Step two was the final natural logarithm transformation. With this transformation, our data became normally distributed as shown in the descriptive statistics using STATA which is previously shown in table 4.2. (See appendix D for details).

4.6 HYPOTHESIS TESTING

This section presented the univariate analysis undertaken in order to test the hypotheses stated in chapter one. Based on the analysis presented in section 4.4 above, the regression results used for the test of hypotheses of the study is the Random Effect (RE) model. The results using RE model presented in table 4.3 above is extracted in the following table for ease of reference:

Table 4.4 Variables coefficients

Variable	**Coefficient**	**Z value**	**P> Z**
Earnings per Share	0.6033	4.92	0.000
Book Value per Share	0.1915	2.80	0.005
Dividend per Share	0.2982	6.02	0.000
Overall R^2	0.5904		
Wald chi2(3)	192.77**		
Prob >chi2	0.0000		

Source: STATA output 2015

From table 4.4 above, Wald test provides a likelihood-ratio test of the model's adequacy which is the same as t values obtained in the OLS model**.** The Wald test using Stata presents *p*-values instead of reporting the critical values (Baum, 2006). The p-values measure the evidence against H_0. They are the largest significant level at which a test can be conducted without rejecting H_0. The smaller the *p*-value, the more evident to reject H_0. In this model, the p-value is 0.000 which is less than 0.01 (1%). This indicates that there is 99% confidence in the ability of the model to explain the dependent variable. Therefore, it can be concluded that the Dependent variable can be explained by the independent/explanatory variables.

The results in table 4.4 under RE model show that the overall R-square is 0.5904. R-squared indicates the proportion of variation in the dependent variable that can be explained by the independent variables. The value lies between 0 and 1, but a higher value is better. This value serves only as a summary measure of Goodness of Fit. The value implies that about 59% of variation in the dependent variable is explained by the independent variables.

Table 4.4 shows that all the independent variables, earnings per share, book value per share and dividend per share are positive. In addition, all the variables are significant at 1% level. This reveals that all the independent variables used in this study explain the share price of listed Industrial Goods firms in Nigeria. The implication of this is that the model is fit and the regressors are correctly selected. The results for each hypothesis are presented below:

Hypothesis 1:

$H_{01:}$ Share prices of firms listed in the Nigerian Industrial Goods sector are not significantly affected by their earnings per share.

Earnings per share measured as the ratio of earnings before interest and tax to total shareholders' funds is found to be significant and positively associated with the share

price at 1% level of significant indicating that investors in Industrial Goods firms in Nigeria consider firms' earnings in their investment decisions. Therefore, earnings per share has significantly affected share price.

The Z test for earnings per share is 4.92. The purpose of the z-test is to check the individual significance of each explanatory variable. For z test, any value less than 2 is not significant. The z test therefore confirms that earnings per share is significant in explaining share price of listed Industrial Goods firms in Nigeria since the value is higher than 2.

Decision: The above findings are in contrast with the null hypothesis 1 of the study which states that share prices of firms listed in the Industrial Goods sector are not significantly affected by their earnings per share. It therefore follows that, earnings per share plays a vital role in explaining average share of the listed Industrial Goods firms in Nigeria. This finding is in line with the studies of Abiodun (2012), Oyerinde (2011), Maradun, (2009), Swartz, and Negash, (2009), and Chang, Chen, Su and Chang (2008) which found that earnings per share is significantly and positively related to share price. The result is also contrary to the studies of Gee-Jung, and Kwon, (2009) and Collins, Maydew, and Weiss (1997) which established that book value which is a measure of the balance sheet items is positively related to earnings per share.

Hypothesis 2

$H_{02:}$ Share prices of firms listed in the Nigerian Industrial Goods sector are not significantly affected by their book value per share.

With respect to the book value per share of the Industrial Goods firms in Nigeria, the results revealed that it is positively related and statistically significant at 1 % level with share price of the firms. The findings, therefore, provide evidence that the book value of the firms plays important role in determining investment decision of the investors. The z test for book value per share is 2.80 which is greater than 2. The z test therefore confirms that book value per share is significant in explaining share price of listed Industrial Goods firms in Nigeria.

Decision: The above findings are in contrast with the null hypothesis 2 of the study which stated that share prices of firms listed in the Industrial Goods sector are not significantly affected by their book value per share. The result, therefore, provided an evidence of rejecting null hypothesis two of the study. The results of the study is also in line with the studies of Gee-Jung, and Kwon, (2009), Omura (2005) and Collins, Maydew, and Weiss (1997) which established that book value which is a measure of the balance sheet items is positively related to earnings per share. This finding is contrary to the studies of Abiodun (2012), Oyerinde (2011), Maradun, (2009), Swartz, and Negash,

(2009), and Chang, Chen, Su and Chang (2008) which found that earnings per is significant and positively related to share price.

Hypothesis 3

$H_{03:}$ Share prices of firms listed in the Nigerian Industrial Goods sector are not significantly affected by their dividend per share.

Dividend per share is found to be significantly associated with the share price of listed Industrial Goods films in Nigerian at 1% level of significant. The z test of dividends per share using is 6.02 and significant at 1% level. This indicates that dividend per share has significant impact on share price of listed industrial Goods firms in Nigeria.

Decision: In view of the results reported in table 4.4 above which indicated that dividend per share has positive and significant impact on share price; this therefore provides evidence of rejecting hypothesis three of the study. Thus, for Hypothesis 3, Ho is rejected. This finding is contrary to the studies of Abubakar (2010), Vishnani, and Shah (2008) and Chang, Chen, Su and Chang (2008) which found that accounting information generally have no value relevant in explaining share price of their study firms.

From the results in table 4.4 showing the impact of earnings per share, book value per share and dividend per share on share price, it is vividly shown that earnings per share (earps) are highly significant in explaining share prices. This output indicates that earps has a larger beta coefficient of 0.6033 than book value per share and dividend per share. Book value per share and dividends per share have explanatory powers of 0.1915 and 0.2982 respectively. This implies that earnings per share are the most important accounting information, followed by book value per share and dividend per share. This may not be unconnected with the fact that the share price does not reflect the actual situation of the firm. Another reason could be that most investors still depend on the earnings performance rather than the Book Value or dividend. Besides, there may be other factors affecting a firm's performance other than the variables used in the study.

The above finding is in support of the studies of Abiodun (2012), Rahman (2012), Barrack (2011), Karunarathne and Rajapakse (2010) and Ariff, Alfred and Patricia (1997) which established that earnings is the value relevant accounting information compared to book value and dividend. On the other hand, the finding contradicts the studies of Abubakar (2011); Hassan and Saleh (2010); Khanagha (2011); and Song, Douthett and Jung (2003) whereby earning per share, book value per share and dividend per share were found to have the same explanatory power in explaining share price. Another contradicting studies were Konstantinos and Athanasios (2011), Gee-Jung and Kwon (2009) and Chang, Chen, Su and Chang (2008). These studies found that book value per share is the most value relevant accounting information compared to earnings per share and dividend per share. While only the study of Oyerinde (2011) established that

dividend per share is the most value relevant accounting information in listed firms on the Nigerian Stock Exchange.

Table 4.5: Summary of Hypotheses Testing

Independent Variable	Expected Sign	Reported Sign	Significant or not Significant	Remarks
Test of Hypothesis one				
Earnings per Share	+	+	Significant @ 1%	Hypothesis one rejected
Test of Hypothesis two				
Book Value per Share	+	+	Significant @ 1%	Hypothesis two rejected
Test of Hypothesis three				
Dividend per Share	+	+	Significant @ 1%	Hypothesis three rejected

Source: Result of the study (2014)

To summarize, univariate analysis did not support hypotheses one, two and three of the study that earnings per share, book value per share and dividend per share have no significant impact on the share price of listed Industrial Goods firms in Nigerian. Therefore, hypotheses one, two and three of the study are hereby rejected.

4.7 Summary

Chapter four is one of the important chapters in every research work. This chapter has successfully presented the descriptive statistics to show the pattern and normality of the study variables. It also presented the correlation matrix table which assisted in identifying the degree of correlation between the dependent variable and the independent variables and also among the independent variables. The result of the study analyzed using OLS, FE and RE models were presented, analyzed and discussed. But after running heterocesdasticity test, the researcher settled on REM in testing the hypotheses of the study because of presence of heteroscedasticity. Other tests conducted and presented in the chapter were multicolinearity test, test of serial correlation and normality test. These tests are possible in order to avoid drawing conclusions on spurious results. By and large, the results show that the model of the study is fit.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY

The study set out to determine the value relevance of accounting information disclosed in the financial statements of firms listed in the Industrial Goods sector in Nigeria. In an

effort to investigate the relation between share price and accounting information, secondary data were used. Proxies for accounting information used are earnings per share, book value per share and dividends per share. The data for earnings per share, book value per share and dividends per share were obtained from the Nigerian Stock Exchange Fact book as well as Annual Financial Reports of companies quoted on Nigerian stock Exchange under the Industrial Goods sector. The data of share prices were collected from the daily share price list using the web site of cash craft asset management.

A multiple regression model is developed with the primary aim of explaining and predicting empirically the value relevance of accounting information in the Nigerian Industrial Goods sector. The model of the study was developed to estimate the relationship and effect of three explanatory variables – earnings per share, book value per share and dividend per share – on one explained variable – share price with the aid of the least square technique. Initially, we employed three models of regression analysis which are Ordinary Least Square (OLS), Random Effects Model (REM) and Fixed Effects Model (FEM). But after running white test, it was discovered that the data are heterocesdastic. This shows that OLS cannot be used for the analysis. Hausman test is conducted which allowed the use of REM because of the insignificant chi2 value.

The study is predicted on the assumption that investors (existing and prospective) rely solely of accounting information disclosed in the annual financial statements of their

investing companies. Therefore, the study sought to reveal what role financial information play in determining the share price of the firms. In order to achieve the objectives of our study, we formulated three null hypotheses each covering one of the explanatory variables which state that earnings per share, book value per share and dividend per share have no significant impact on share price of firms listed in the Nigerian Industrial Goods Sector

The findings of this work are based on the balanced panel data collected for the period of 7 years (2007 to 2013) from a sample of 16 listed Industrial Good firms on the Nigerian stock exchange. This sample was selected from a total population of 25 listed firms in the sector using filtering method. The panel data of 16 companies over a period of 7 years resulted in 112 observations. The period covered was 2007 to 2013. The choice of this period was necessitated by rapid growth in Nigerian stock market during the period but coupled with the least contribution recorded by the firms operating under the Industrial Goods sector.

The results of the study revealed that all the explanatory variables are significant in explaining the share price of the sample firms. The three (3) variables – earnings per share, book value per share and dividend per share – are all positively significant at 1 per cent level. Thus, the accounting information used in this study proved to have impact on the share price of industrial goods firms in Nigeria.

These results contribute to the accounting literature by providing evidence that supports the positive role of share price of the study firms, thus confirming the reliability of the disclosed financial statements. Additionally, the results could provide accounting practitioners as well as regulators with valuable insight into the complex interactions between accounting information and share price of the firms under study

5.2 CONCLUSIONS

The following conclusions were drawn based on the discussion and analysis in the preceding chapter:

First, the study has provided both empirical and statistical evidence on impact of three accounting information – earnings per share, dividend per share and book value per share – on share price of listed Industrial Goods firms in Nigeria. Earnings per share has positive impacts on share price because large firms reporting high earnings usually attracts more investment opportunities than firms that consistently report loss or earnings that decrease at decreasing rate. Investors may not be willing to commit their investment in the latter firms due to fear of liquidation and subsequent lost of their investments.

Second, it found a positive and significant association between book value per share and share price. Thus, when the firms shareholders fund, which is a measure of book value of

the firm is low, there is a greater likelihood that existing investors may decide to withdraw their investments and the prospective investors go for better performing firms for their investment. The significant impact of book value per share in this research signifies that the study firm's values are adequately disclosed in their annual financial statements which are not the case with some firms in Nigeria especially listed new economy firms.

Third, dividend per share plays a prominent role in explaining share price of our sampled firms. Therefore, payment of dividend by these firms is likely to attract prospective investors to the firms while equally motivating the existing investors to maintain and even increase their investments.

Fourth, it is also evident from this research work that earning per share of listed Industrial Goods firms in Nigeria is more relevant in explaining share price. It is therefore more suitable to conclude that the information contained in the income statements has strong impact on the share price of Industrial Goods firms in Nigeria than its balance sheet counterparts. This shows that investors and stakeholders are more interested on current events of their investing firms than the historical events.

By and large the overall conclusion of the study is that accounting information of listed Industrial Goods firms in Nigeria have significant impact on the share price.

5.3 LIMITATIONS OF THE STUDY

In the course of this study the following constraints are encountered:

1. Nature of the data: the data used is secondary in nature. Whatever limitation affecting it may likely affect the entire results of the study.

2. This study focuses on only long term association between accounting information and firms' market values. The investigation could also be done by creating a short window around the time accounting information is released.

3. This study is just on shares of the listed companies in the Nigerian Stock Exchange whereas the Stock market refers to entire market of equity for trading the shares and derivatives of the various companies.

5.4 RECOMMENDATIONS

In line with the above conclusions of the study, we deem it necessary to proffer some recommendations so as to improve the value relevance of accounting information in listed Industrial Goods firms in Nigeria. For ease of implementation, these recommendations are made to different authorities as follows:

1. The management of listed Industrial Goods firms in Nigeria should maintain stability and consistency in their earning, while avoiding earnings management as much as possible. This is by employing uniform accounting policy in

accordance with the relevant accounting standards for the preparation of financial accounting information. This will go a long way in increasing market value of the firms by drawing investors' confidence to the shares of the firms.

2. The management should make public offer of ordinary shares and if possible bonus offer so as to boost their shareholders funds. This may give the firms more opportunities to have funds for diversification of their investments and by so doing increase their net book value.
3. Investors should consider using net book value for investment decisions when earnings are negative since book value compensates for negative earnings. Investors should use book values of equity to evaluate firms with small-sizes and high intangible assets.
4. The management should be careful in setting their dividend policy. Their dividend policy should be such that allow the possibility of paying regular dividend since dividend is found to have impact on their share price. This is because dividends pay vital role in investors' decision making on the company's on the trading exchange.
5. The management of industrial goods firms in Nigeria should create more innovative ideas and inventions that are substantial enough to project the earnings of the organizations to acceptable level. This should be enough to motivate existing investors and encourage prospective investors in their investment drives and opportunities;
6. The national accounting standard setters and preparers of accounting information should ensure compliance with relevant accounting standards in order to improve

the quality of earnings information which is the most widely used accounting numbers in Nigeria for investment decision.

5.5 AREA FOR FURTHER STUDY

This research work examined value relevance of accounting information of listed industrial goods firms in Nigeria and has paved the way for further research in the following areas as a result of the limitations encountered:

1. This study only examined 16 of the companies listed on the First tier market of the Nigerian Stock Exchange market from 2007 to 2013. Future research could examine the value relevance of accounting information of companies listed on second tier and emerging market of the Nigerian Stock Exchange.
2. This study focused on long term association between accounting information and firms' market values. Future research could measure value relevance of accounting information in short term event studies.
3. The same research can be replicated using firms from other manufacturing sector of the economy such as Building Materials, Chemical and Paints and Food/Beverages & Tobacco firms.
4. The same research can be carried out by bringing in other accounting information such as corporate cash flows which relate to cash flows from operating activities, cash flows from investing activities and cash flows from financing activities.

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APPENDIX A

LIST OF SELECTED FIRMS FOR THE STUDY

S/N	Firm	Sub Sector	Remarks
1	African Paints (Nigeria) Plc	Building Materials	Sampled
2	Ashaka Cement Plc	Building Materials	Sampled
3	Berger Paints Nigeria Plc	Building Materials	Sampled
4	Chemical & Allied Products Plc	Building Materials	Sampled
5	Cement Company of Northern Nigeria Plc	Building Materials	Sampled
6	Dangote Cement Plc	Building Materials	Sampled
7	DN Meyer Plc	Building Materials	Sampled
8	First Aluminium Nigeria Plc	Building Materials	Sampled
9	IPWA Plc	Building Materials	Sampled
10	Lafarge Cement Plc	Building Materials	Sampled
11	Cutix Plc	Electrical & Electronics	Sampled
12	Avon Crowncaps & Container (Nig) Plc	Packaging /Containers	Sampled
13	Nigerian Bag Manufacturing Company Plc	Packaging /Containers	Sampled
14	Poly Products Nigeria Plc	Packaging /Containers	Sampled
15	Nigerian Wire and Cable Plc	Electrical & Electronics	Sampled
16	Premier Paints Plc	Building Materials	Sampled

Source: NSE Fact book, 2013

LIST OF ELIMINATED FIRMS FROM THE STUDY

S/N	FIRM	SUB SECTOR	REMARKS

1	Paint & Coatings Manufacturers Nig Plc	Building Materials	Eliminated
2	Portland Paints and Products Nig Plc	Building Materials	Eliminated
3	Nigerian Wire Industry Plc	Packaging /Containers	Eliminated
4	Greif Nigeria Plc	Packaging /Containers	Eliminated
5	Nigerian Ropes	Tools and Machinery	Eliminated
6	Abplast Products Plc	Packaging /Containers	Eliminated
7	West African Glass Industry Plc	Packaging /Containers	Eliminated
8	Nigerian Sewing Machine Manufacturing Company Plc	Tools and Machinery	Eliminated
9	Stokvis Nigeria Plc	Tools and Machinery	Eliminated

APPENDIX B

ANALYZING AGGREGATE IMPACT OF ACCOUNTING INFORMTION ON SHARE PRICE OF LISTED INDUSTRIAL GOODS FIRMS IN NIGERIA

DETAILED RESULTS OF OLS

```
. reg shrpr earps bkvps divps
```

Source	SS	df	MS		
Model	29.5794446	3	9.85981488	Number of obs =	112
Residual	20.4299519	108	.189166221	F(3, 108) =	52.12
				Prob > F =	0.0000
Total	50.0093966	111	.450535104	R-squared =	0.5915
				Adj R-squared =	0.5801
				Root MSE =	.43493

shrpr	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
earps	.6551914	.1320025	4.96	0.000	.3935396	.9168433
bkvps	.1572749	.0736201	2.14	0.035	.0113471	.3032026
divps	.2815748	.0536559	5.25	0.000	.1752195	.3879301
_cons	-1.295807	.2291631	-5.65	0.000	-1.750048	-.8415664

DETAILED RESULTS OF FIXED EFFECTS

```
. xtreg shrpr earps bkvps divps, fe

Fixed-effects (within) regression               Number of obs      =       112
Group variable: year                            Number of groups   =         7

R-sq:  within  = 0.6600                         Obs per group: min =        16
       between = 0.0290                                        avg =      16.0
       overall = 0.5894                                        max =        16

                                                F(3,102)           =     65.99
corr(u_i, Xb)  = -0.0891                        Prob > F           =    0.0000
```

shrpr	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
earps	.5841907	.1223182	4.78	0.000	.341573	.8268084
bkvps	.2039204	.0681195	2.99	0.003	.0688057	.3390352
divps	.3042961	.0493289	6.17	0.000	.2064524	.4021398
_cons	-1.256857	.20991	-5.99	0.000	-1.673212	-.8405011
sigma_u	.2211834					
sigma_e	.39448011					
rho	.23918499	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(6, 102) =     4.88                 Prob > F = 0.0002

.
```

DETAILED RESULTS OF RANDOM EFFECTS

```
. xtreg shrpr earps bkvps divps, re

Random-effects GLS regression                   Number of obs      =       112
Group variable: year                            Number of groups   =         7

R-sq:  within  = 0.6598                         Obs per group: min =        16
       between = 0.0247                                        avg =      16.0
       overall = 0.5904                                        max =        16

Random effects u_i ~ Gaussian                   Wald chi2(3)       =    192.77
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
       shrpr |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       earps |    .6032596    .122576     4.92   0.000      .363015    .8435042
       bkvps |    .1914629   .0682886     2.80   0.005     .0576198    .3253061
       divps |      .29824   .0495359     6.02   0.000     .2011515    .3953286
       _cons |   -1.267507   .2204702    -5.75   0.000    -1.699621   -.8353934
-------------+----------------------------------------------------------------
     sigma_u |   .16789876
     sigma_e |   .39448011
         rho |   .15336941   (fraction of variance due to u_i)
------------------------------------------------------------------------------

.
```

RESULTS OF WHITE TESTS

```
. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of shrpr

         chi2(1)      =    13.89
         Prob > chi2  =   0.0002
```

RESULTS OF HAUSMAN TEST

```
. hausman fixed random

                 ---- Coefficients ----
                |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                |    fixed        random       Difference          S.E.
----------------+----------------------------------------------------------------
       earps    |   .0060129     .0041854        .0018275        .0015974
       bkvps    |   .0052044     .0057114        -.000507        .0007818
       divps    |   .2094262     .2153934       -.0059673        .0066691
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =          2.16
                Prob>chi2 =        0.5400
```

APPENDIX C

DESCIPTIVE STATISTICS RESULT BEFORE DATA TRANSFORMATION

Where: shrpr = share price. earps = earnings per share

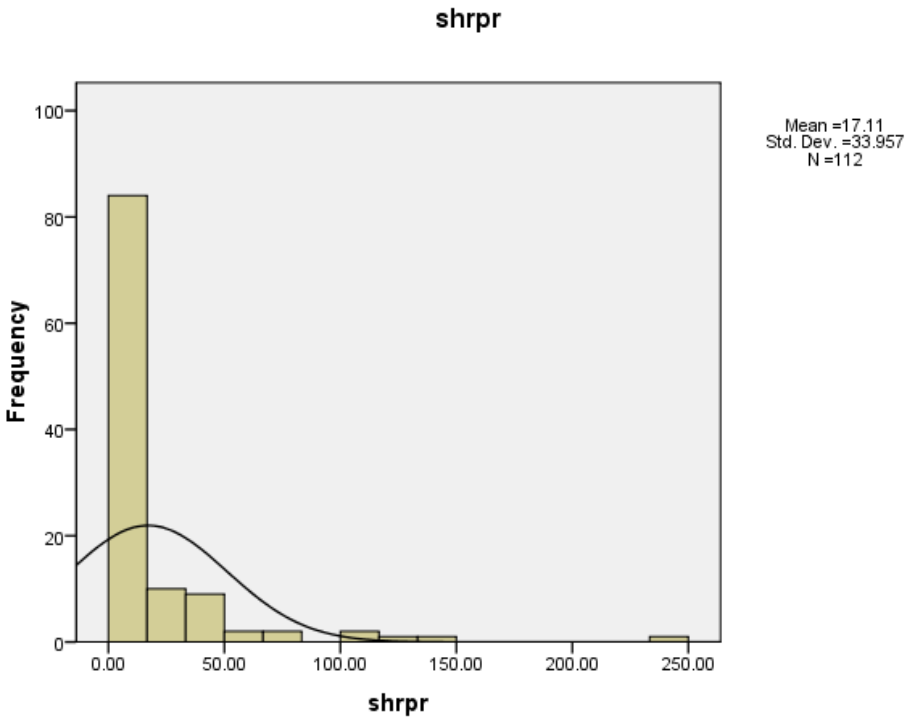
bkvps = book value per share. divps = dividend per share

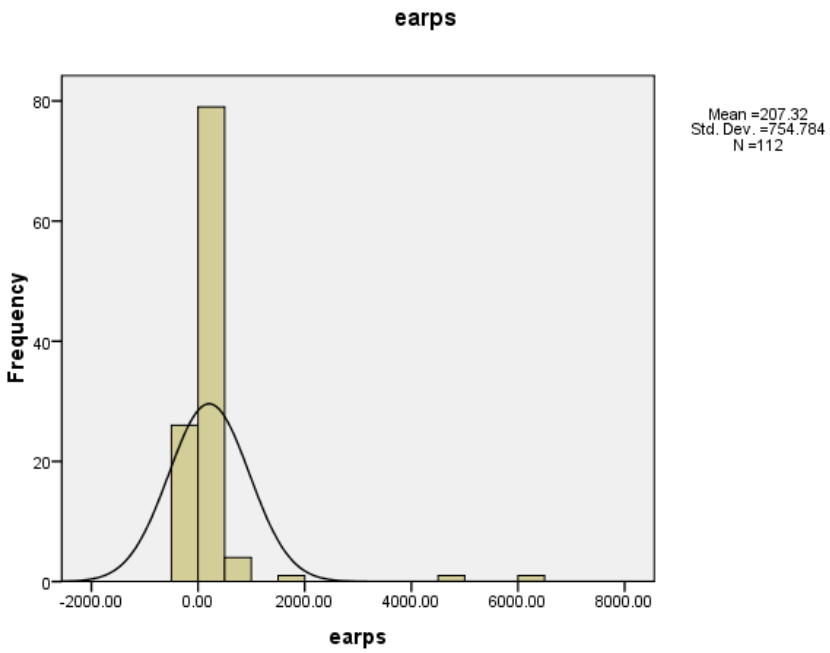
Statistics

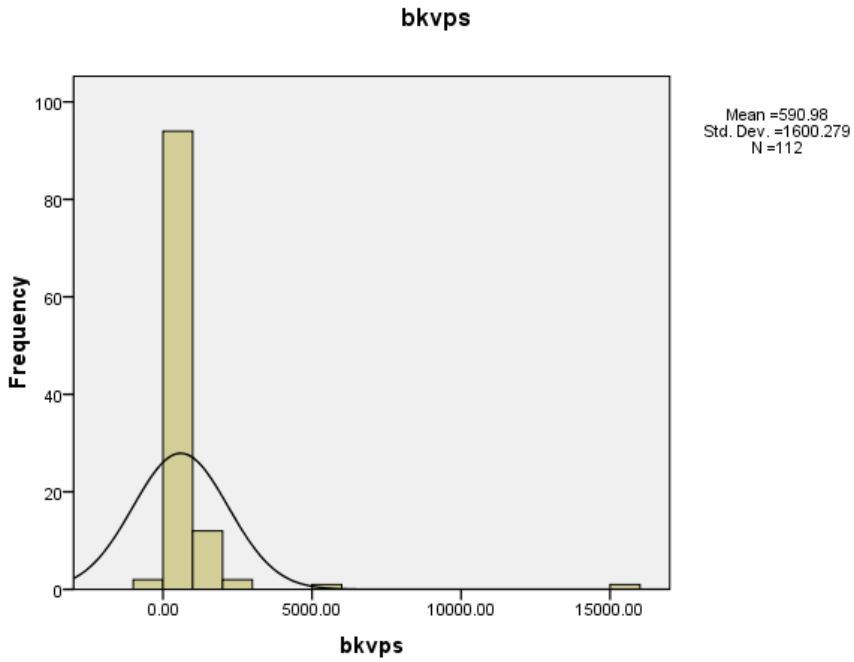
		Shrpr	earps	bkvps	divps
N	Valid	112	112	112	112
	Missing	0	0	0	0
Mean		17.1074	2.0732E2	5.9098E2	31.9107
Std. Deviation		3.39567E1	7.54784E2	1.60028E3	7.15288E1
Skewness		3.937	6.516	8.078	3.051
Std. Error of Skewness		.228	.228	.228	.228
Kurtosis		19.340	45.609	74.563	9.488
Std. Error of Kurtosis		.453	.453	.453	.453
Minimum		.00	-116.00	-1.04	.00
Maximum		241.00	6139.00	1.58E4	375.00
Percentiles	25	.7600	4.0000	89.2500	.0000
	50	5.2950	25.5000	2.1250E2	.0000

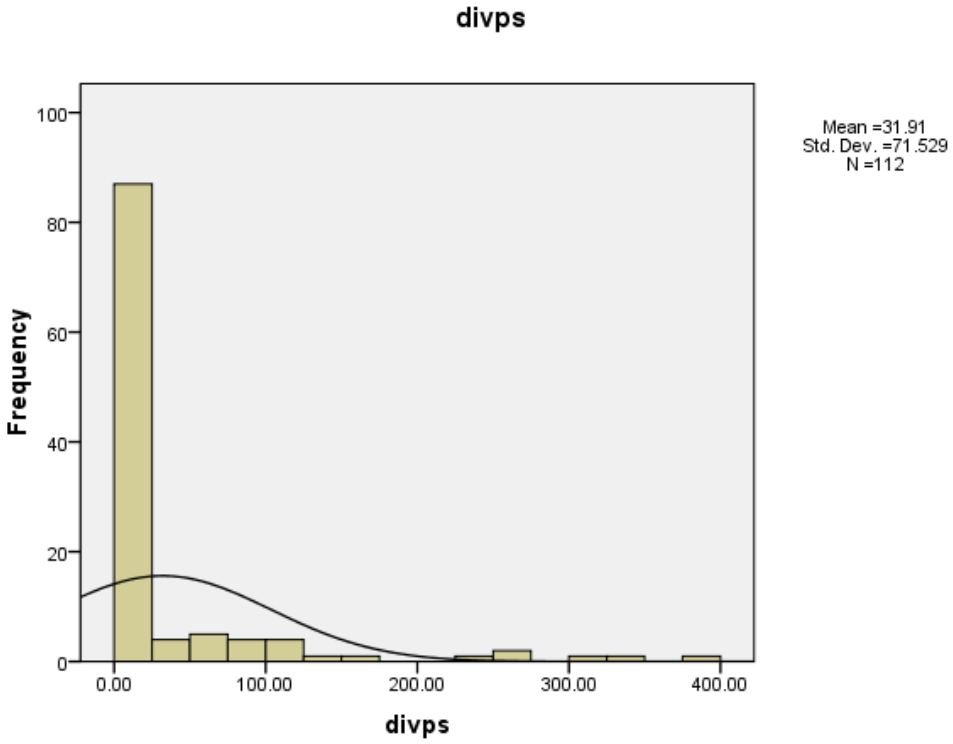
Statistics

		Shrpr	earps	bkvps	divps
N	Valid	112	112	112	112
	Missing	0	0	0	0
Mean		17.1074	2.0732E2	5.9098E2	31.9107
Std. Deviation		3.39567E1	7.54784E2	1.60028E3	7.15288E1
Skewness		3.937	6.516	8.078	3.051
Std. Error of Skewness		.228	.228	.228	.228
Kurtosis		19.340	45.609	74.563	9.488
Std. Error of Kurtosis		.453	.453	.453	.453
Minimum		.00	-116.00	-1.04	.00
Maximum		241.00	6139.00	1.58E4	375.00
Percentiles	25	.7600	4.0000	89.2500	.0000
	50	5.2950	25.5000	2.1250E2	.0000
	75	16.8700	1.5900E2	6.3375E2	15.7500


shrpr
Mean =17.11
Std. Dev. =33.957
N =112
Frequency
100
80
60
40
20
0
0.00
50.00
100.00
150.00
200.00
250.00
shrpr


earps
Mean =207.32
Std. Dev. =754.784
N =112
Frequency
80
60
40
20
0
-2000.00
0.00
2000.00
4000.00
6000.00
8000.00
earps


bkvps
Mean =590.98
Std. Dev. =1600.279
N =112
Frequency
100
80
60
40
20
0
0.00
5000.00
10000.00
15000.00
bkvps



APPENDIX D

DESCIPTIVE STATISTICS RESULT AFTER DATA TRANSFORMATION

DESCRIPTIVE STATISTICS USING STATA

Where: shrpr2/shrpr = share price. earps2/earps = earnings per share

bkvps2/bkvps = book value per share. divps2/divps = dividend per share

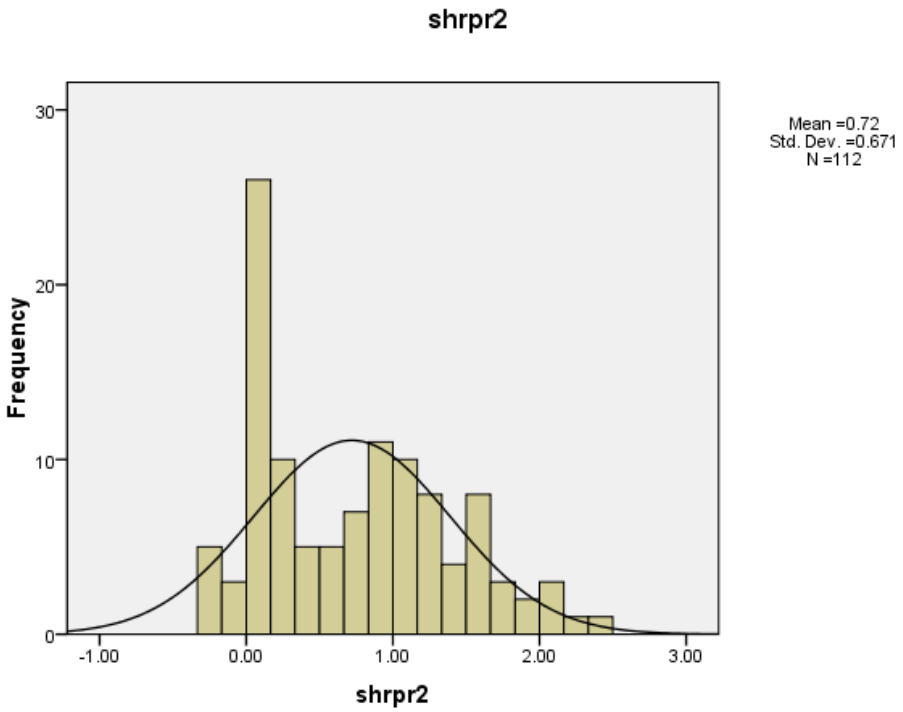
```
. xtsum shrpr earps bkvps divps
```

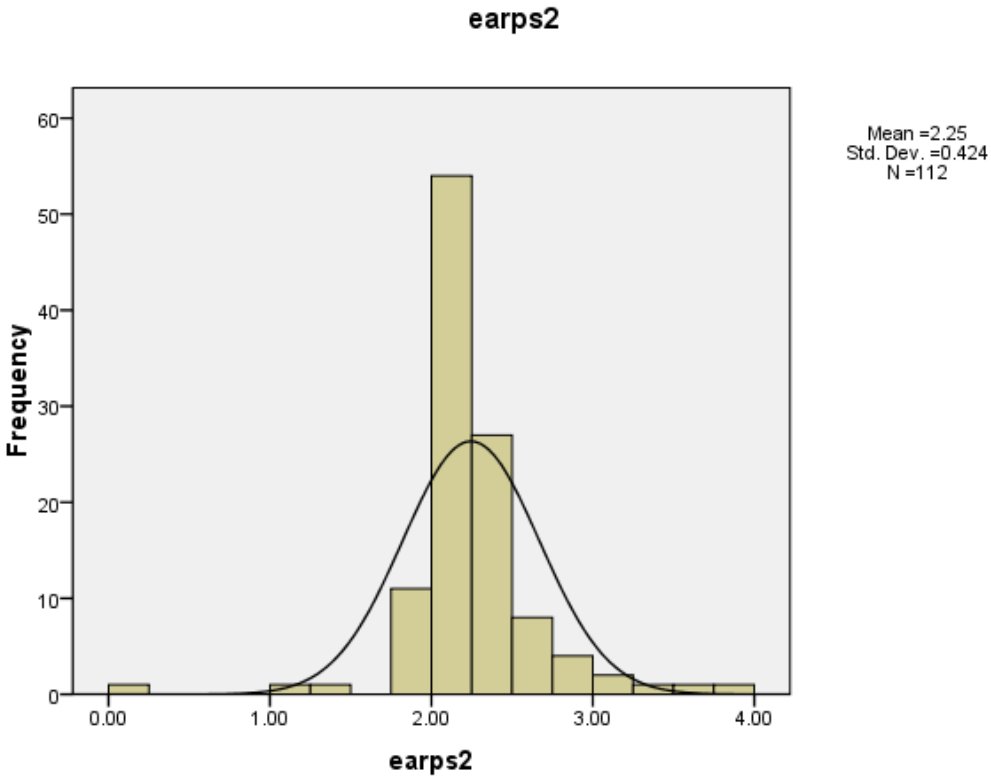
Variable		Mean	Std. Dev.	Min	Max	Observations	
shrpr	overall	.7201786	.6712191	-.3	2.38	N =	112
	between		.1862953	.495625	1.1025	n =	7
	within		.6484745	-.3823214	2.443929	T =	16
earps	overall	2.245	.4244615	0	3.8	N =	112
	between		.060773	2.136875	2.31375	n =	7
	within		.420682	.108125	3.73125	T =	16
bkvps	overall	2.251875	.7715254	-.02	4.2	N =	112
	between		.1238604	2.10875	2.440625	n =	7
	within		.7628782	.094375	4.21	T =	16
divps	overall	.6780357	.8489557	0	2.58	N =	112
	between		.169077	.384375	.87125	n =	7
	within		.8342673	-.1932143	2.773661	T =	16

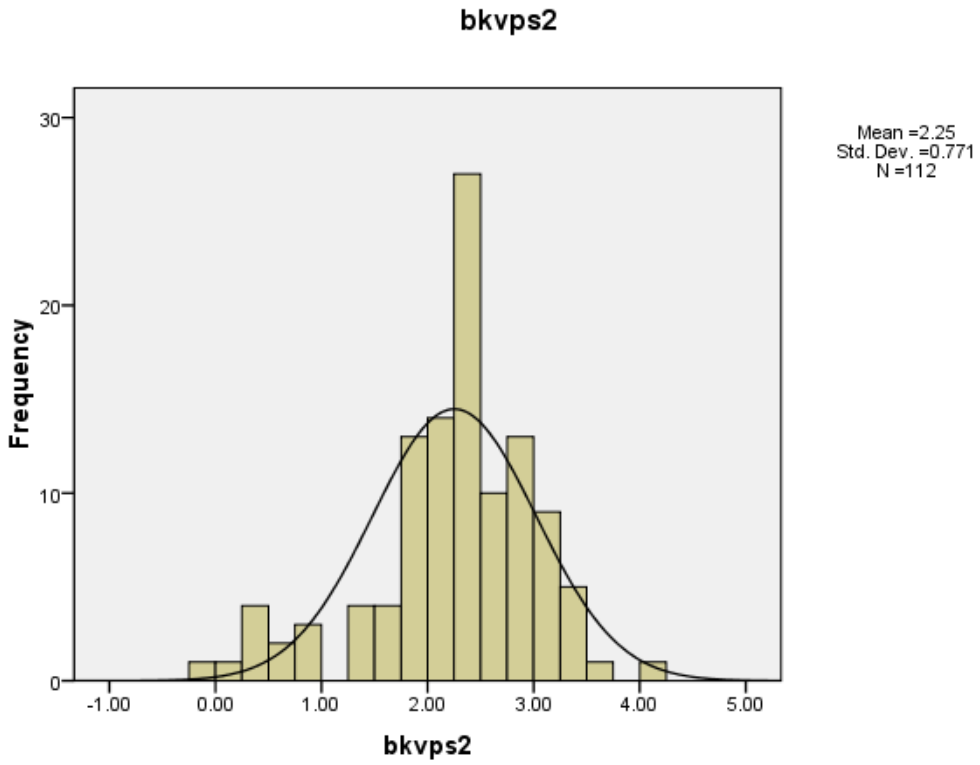
Statistics

		shrpr2	earps2	bkvps2	divps2
N	Valid	112	112	112	112
	Missing	0	0	0	0
Mean		.7202	2.2451	2.2519	.6783
Std. Deviation		.67116	.42391	.77150	.84905
Skewness		.398	-.474	-.845	.771
Std. Error of Skewness		.228	.228	.228	.228
Kurtosis		-.854	8.985	1.092	-.875
Std. Error of Kurtosis		.453	.453	.453	.453
Minimum		-.30	.00	-.02	.00
Maximum		2.38	3.80	4.20	2.58
Percentiles	25	.0000	2.0828	1.9602	.0000

50	.7238	2.1538	2.3314	.0000
75	1.2269	2.4409	2.8032	1.2239


shrpr2
Mean =0.72
Std. Dev. =0.671
N =112
Frequency
30
20
10
0
-1.00
0.00
1.00
2.00
3.00
shrpr2


earps2
Mean =2.25
Std. Dev. =0.424
N =112
Frequency
60
50
40
30
20
10
0
0.00
1.00
2.00
3.00
4.00
earps2


bkvps2
Mean =2.25
Std. Dev. =0.771
N =112
Frequency
30
20
10
0
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
bkvps2