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VALUE RELEVANCE OF INFLATION-ADJUSTED EQUITY AND INCOME

By

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DECLARATION

I hereby declare that this thesis is my own work towards the Master of Philosophy (Accounting-Option), and to the best of my knowledge, it contains no materials previously published by another person nor material which has been accepted for the award of any other degree of the University or any other university, except where due acknowledgement has been made in the text.

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DEDICATION

This study is dedicated to my loving wife Anastasia Serebour for her support and encouragement to the successful completion of my course

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ABSTRACT

The study investigates the value relevance of inflation adjusted and historical cost based data in predicting accounting information reported by listed firms in Ghana. Despite the renewed interest in finding optimal reporting method that conveys essential information to accounting information users, empirical research on this issue remains scant in the economic context of Ghana. Precisely, the study shows how inflation adjusted accounting information plays a role in explaining the market value of listed firms in Ghana. Using panel data from 2004 to 2013, the findings from the study reveal that both historical cost and inflation accounting influence financial ratios. On the value relevance of the two valuation methods, the study reveals that inflation adjusted information content is more value relevant than the traditional cost accounting in predicting the book value of the firms. Further evidence shows that both inflation and historical cost based earnings are value relevant. Therefore, it is recommended that the two valuation methods should not be substituted but should be concurrently used in the preparation and reporting of financial statements.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Efforts and approaches to objectively present financial statements that reflect true state of accounting information have remained an issue in contemporary accounting practice. This notwithstanding has created numerous accounting policy standards. For instance, Riauhi-Belkaoui (2004) assesses that the America Accounting Association (AAA) since 1966, have used four value measurement of information in reporting accounting information. This he notes the concepts of relevance, freedom from bias, verifiability and quantity ability. The concept of relevance, however, has been viewed by critics as the most important component that enhances the connection of the firm with the accounting information users.

However, seven desirable qualitative characteristics of have been postulated for financial statements, which includes: relevance and materiality, reliability, freedom from bias, consistency, form and substance, comparability, and understandability (Enahoro and Jayeoba, 2013; Tawiah, Benjamin and Dorothee, 2015). They further note that, quality characteristics are the fundamental on which accounting theories are developed, since preparation and presentation of financial statement is important with a view of meeting its objectives of satisfying the desire and aspiration of various users of financial statements.

The relevance of historical cost accounting is that accounting information are objectively verified, however, in times of persistent rising inflation, historical cost can become a doubtful concept to follow. The importance of capital maintenance (see Glautier and Underdown 1998; Lashgari, 2015), in the today's business environment

is highly imperative if the firm must achieve its objectives to survive, hence the need for the firm to adopt the best accounting valuation method that may not result in the depletion of its shareholders capital. As noted by prior studies, inflationary trend play crucial role in economic development and hence is important in revealing the extent to which the real monetary value of investment is depleted over time. For instance, inflation levels in Ghana have remained generally high since 2004 with rates ranging from 29% in 2004 and 19% in 2009 (IMF, 2010). The inflation rate in particular experienced a dramatic upward trend especially between January to July 2009 (IMF 2010). The inflation rate however, fell gradually to 8.8% in 2013. Although, the ultimate aim of investors is to make appreciable gains from investing in long-term productive ventures, inflation puts this goal at risk because the expected returns from the investment must first keep up with the rate at which general prices in the economy changes over time in order to increase the real purchasing power of the invested capital. Inflation in Ghana has been one of the menaces in the Ghanaian economy and getting it under control has always been baffling.

All successive governments have adopted various measures to curb high inflation. In July 2007, the then government carried out redenomination of the Ghanaian currency (Cedi). The cedi redenomination became imperative due to the rate of decline in the currency against other trading partners. For instance, the Ghana cedis lost about 75% of its value to the US Dollar between 1982 and 2007 after series of devaluation policy stance by the monetary authorities. Consequently, the redenomination of the currency as part of governments monetary policy efforts to redress the fluctuations in the currency did look convincing and put hope in the citizens hence reduced the inflation rate from a high of 123% in 1983 to a low of 9.6% in 2008 (Bank of Ghana, 2014).

In the year 2014, the depreciation in the local currency coupled with an associative risk of the stability of the currency's future value leading to the use of an established foreign currency for most of the functions of money, led to dollarization in the Ghanaian economy. In a desperate quest to stabilize the falling cedi against the established foreign currencies due to persistent rising inflation, Bank of Ghana (BoG) banned foreign currency transactions in the country. This measure could not mitigate the problem, however, it rather worsen the situation. In view of this, it is important for a developing country like Ghana that experiences persistent rising inflationary trend to reinforce the valuation of historical cost accounting information in relation to business profits. However, the concerns of academicians and practitioners including professional accounting bodies have revolved around how to achieve proper valuation measurement and reporting standards in estimating business profits to strengthen shareholders capital in the midst of rising inflation (see Effiong, Udoayang and Asuquo, 2011)

Although academicians and practitioners of accounting doctrine have long debated and criticized the issue hovering the use of historical cost accounting in conjunction with fair value accounting. He establishes that historical cost accounting has been the classical means of reporting business transactions in their true market value. Under the historical cost accounting method, the firm's profit is determined by comparing the sales revenue with the expended historical cost of the asset. However, fair value on the other hand accounts for the amount at which an asset is transacted, or a liability settled (International Accounting Standard Board). Assets and liabilities are imperatively re-valued intermittently to reflect changes in their value, with its resulting impact on either net income or other income for the period.

There have been conflicting results of studies in this area. Masouleh, Ansari and Sadeh(2013) for example expound on the value relevance of historical cost accounting information over inflation-adjusted accounting information. Salvary (2004), and Mensah (1983), show the validity attached with the relevance of historical cost information even in inflationary economies. Contrarily, other prior studies including Millichamp (1989) discovers that the operating capability of the firm is reduced by historical cost profit in the presence of rising general prices while profits associated with current cost accounting stimulates the operating capability of the firm in the peaking periods of inflation. Enahoro and Jayeoba (2013), observe that, fair value measurement is more value relevant to investors than historical cost information. Consequently, historical cost accounting, according to Thies and Sturrock (1987) overstates profitability in inflationary periods and hence may misrepresents the relative financial strengths and viability of firm. Bublitz, Frecka and Mckeown (1985) provide further evidence on how inflation-adjusted earnings create a more reliable measurement for financial reporting than that represented by historical cost earnings. Other researchers (e.g. Kirkulak and Balsari 2009; Fodio and Salaudeen 2012), argue that these two valuation methods are not substitutes hence should not be treated as such. They further recommend to decision makers to complement price adjusted information with the true cost accounting information due to their relevance in reporting business operations.

Prior studies, except Kargin (2013), use cross sectional research design which uses data at a particular point and do not allow for the provision of time-series results. Although, numerous research have been advanced in other to establish the impact of price-adjusted and historical cost information in developed economies, fewer empirical evidence exist on developing economies including countries in Sub-Saharan

Africa especially Ghana and to the best of my knowledge; there is no specific study contributing to knowledge on the importance of information on price-adjusted equity and income in Ghana. It is therefore necessary to undertake a study in this grey area in Ghana since the Ghanaian economy also experiences high inflation.

1.2 STATEMENT OF PROBLEM

The goal of the financial statements as presented by the firm is to communicate to its user the concise image of information regarding the financial position, performance and changes in operations of the firm. The method that is applied in the financial reporting that makes it meaningful to users during the period of persistent increasing inflation in an economy has always been debated. The traditional cost accounting principle does not accommodate price changes. Also, one major concern of critics of this principle has been the fact that the historical cost accounting principle states selling prices in current prices while costs of assets are presented in acquisition costs.

Effiong, Udoayang and Asuquo (2011) observe that, financial reporting using historical cost accounting method overstates earnings implying overstatement of dividends and taxes at the detriment of the firm. Additionally, non-current assets and inventory of unsold goods risk in similar problem. Although, it is of an essence to report non-current capital items in their true market costs by deducting capital allowance regardless of the replacement cost of the items, the influence caused by the overstatement of earnings as well as understatement of asset value make replacement of the asset a difficult task to present in the financial statement (Kekung and Effiong, 2012).

The recent pronouncement of International Accounting Standards (IAS 29) concerning inflation reporting in financial statement has shed light on the essence for accounting practitioners to report financial items to reveal the realities rather than the true values of the items so as to increase the importance of financial accounting information to its users. The on-going debate would not have been much relevant in developed economies which hardly experience persistence rising inflation.

Developing economies experience persistent increasing inflation pressures hence create an opportunity to examine the relevance of historical cost convention of financial reporting. The economy has tremendously experienced double digits inflationary trend. Inflation is one of the multifaceted challenges that the Ghanaian economy continues to encounter in spite of the numerous economic policies that have been formulated to neutralize its existence. Wide fluctuations in the general price level creates difficulty in predicting the accuracy of future prices and returns from investments, especially when the method of reporting does not accommodate for economic reality of price changes. The impact of price changes on business needs to be recognized if financial reporting is to be useful for decision- making. Historical cost accounting produces figures and data which are unrealistic, and therefore should not be the basis for preparing financial reports, which are used to evaluate performance (Ellul, Jotikasthira, Lundblad, and Wang 2014).

In spite of inflationary pressures, annual reports in Ghana have practically not been reconciled to account for the relevance of changes in inflation on the business firm's financial position and transactions. Although historical cost accounting is very popular among countries, does it really mean it is the best method of presenting financial position of the firms and calculating net income? (Masouleh, Ansari and

Sadeh 2013). This situation has created the need to investigate the relevance of historical cost accounting in the period of persistent increasing inflation.

1.3 OBJECTIVES OF THE STUDY

1. To examine disparities between reported historical cost data and inflation-adjusted data (accomplished in pages 53,55,56,58)
2. To examine the differences between reported historical cost financial ratios and inflation-adjusted financial ratios (accomplished in pages 48)
3. To compare the value relevance of with historical cost data verses inflation-adjusted data (accomplished in pages 53,55,56,58)
4. To examine the value relevance of historical cost earnings and inflation-adjusted earnings (accomplished in pages 53,55,56,58)

1.4 RESEARCH QUESTIONS

1. What is the difference between reported historical cost data and inflation-adjusted data?
2. What is the difference between reported historical cost financial ratios and inflation-adjusted financial ratios
3. Which valuation method is value relevant to investors' historical cost or fair value?
4. What is the value relevance of historical cost earnings and inflation-adjusted earnings?

1.5 SIGNIFICANCE OF THE STUDY.

The FASB and IASB are shifting from the use of historical cost to fair value accounting. Accordingly, accounting standards setters show that fair value increases the relevance of financial statements by improving its comparability, transparency as well as timeliness of information for decisions making. The findings will serve as a useful input to the deliberations of accounting policy makers in their considerations of inflation accounting.

As establish by Glautier and Under down, (1998) the importance of capital maintenance has become imperative in today's business environment and hence a threat to firm survive and success. The maintenance of the firm's investment capital cannot be isolated from the underlying principles, concepts and postulates of the valuation principles used in evaluating business income since it has a direct impact on the shareholders' capital (Effiong etal., 2011). The results of the study will serve as a guide to users of financial statements particularly, investors and governments who need current figures for economic planning.

The concern of contemporary practitioners in the accounting field hinges on the best valuation method from which to report firm profits amidst changing inflation. However, reports from prior study are inconclusive and non-directional hence this study will contribute to knowledge by critically examining the potential methods relevant for financial reporting. This will further serve as a basis for future studies on the Ghanaian economy.

1.6 METHOD OF THE STUDY

This study is inspired by policies and schemes of the Ghana Stock Exchange and Professional accounting Bodies in Ghana to strengthen the effectiveness of financial reporting in Ghana, in the wake of fluctuating currency and high inflationary pressure in the economy. For instance, proposals by the International Accounting Standards (IAS) require firms in high inflationary environment to report their financial statement in such a way that changes in inflation are accounted for. These proposals are intended to enhance the appreciation of accounting information and to minimise inflation risk to investors' capital.

Data is collected from a sample of selected twenty (20) listed companies on the Ghana Stock Exchange (GSE) for a period of ten (10) years (2004-2013), depending on the year the company was listed and statutorily required to publish its financial statements. Ten (10) years data is used to examine the detailed effect of price level changes on corporate financial reporting. Companies operating in financial sector are excluded from the sample due to different reporting requirements. A valuation model is used to determine the explanatory power of historical cost (HC) and inflation accounting variables.

Financial statements based on the tradition historical cost accounting are adjusted for changes in inflation using the Consumers' Price Index (CPI). Effiong et al., (2011) consequently employ the consumer price index deflator to offset the financial statements in historical accounting information for changes in price level in Nigeria and United Kingdom respectively. The study employs both student's t-statistics and panel data analyses consistent with prior studies (see David-Friday and Rivera 2000; Kekung and Effiong 2012). These help in controlling for unobserved heterogeneity

when this heterogeneity is constant over time and correlated with independent variables.

1.7 SCOPE AND LIMITATIONOF THE STUDY

The population of the study is limited to Ghanaian listed firms on the Ghana Stock Exchange (GSE) which are required statutorily to publish their financial statements. A limitation of the study is that, it uses secondary data of the various selected listed companies which do comply with the International Financial Reporting Standards (IFRS). The reliability of the analysis is therefore depended much on the quality of accounting data reported by the various companies. The study is concerned only with assessing the extent, to which the variables included in the model meet the information needs of users of financial statements particularly investors, furthermore, there may be other non-financial factors that are not considered for the study but may be value relevant. Secondly, in using Consumer Price Index (CPI) published by the Ghana Statistical Services (GSS) to translate historical financial statements to inflation-adjusted financial statements, the financial statements of the selected companies do not provide detail information about time of acquisition of non-current assets, therefore it is assumed that non-current assets are acquired at a particular point in time which is rarely the case.

1.8 ORGANIZATION OF THE STUDY

The study is structured into five chapters as follows: Chapter 1 provides the general introduction and research context. It states the problems and objectives of the study, the justifications for the study and indicates the scope and limitations of the study.

Chapter 2 provides extent literature on the key concepts and issue on inflation and historical cost accounting. The chapter is further structured under five broad areas

namely: (1) meaning and concept of financial statement, (2) theoretical framework,(3) approaches to financial reporting, (4) conceptual framework and (5) finally concludes with empirical reviews on the relevance of inflation and historical cost accounting.

Chapter 3 describes the research data and methodology. It provides the empirical setting of the study as well as profile of the Ghana Stock Exchange. In particular, the research design, data collection, sample design, variables and statistical technique are addressed in the relevant sub-sections of this chapter.

Chapter 4 reports the empirical results and findings of the study. This chapter reports the descriptive statistics, correlation and normality tests, the student t-statistics and the panel data analysis.

Chapter 5 presents the summary of the findings, conclusions and possible policy implications for the study. The aim is to establish the accurate valuation method for financial reporting in the context of the Ghanaian accounting environment. This in turn, may encourage policy reforms to that will enhance and strengthen financial reporting in Ghana.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

Recent financial crisis has led to a major debate about contents of financial statement as well as the accounting method used in their valuations. Though, financial statement is to convey a concise picture of the firm's financial position, cash flow and profitability to its user and shareholders. Notwithstanding, its inability to reflect economic value of the business firm as well as the changing wealth of the shareholders have renewed much interest among investors, financial managers and critics to ascertain the best possible valuation approaches that will maximize financial management development (Epstein and Mirza 2003). This imperatively, suggests that amidst occurrences of persistent inflation, reliance on valuation techniques such as the historical cost becomes a doubtful convention to comprehend with and hence may cause considerable distortions in the financial statements and misinform its users. Accordingly, prior studies (see Kargin 2013; Kirkulak and Balsari 2009) contend that the inconsistencies should be addressed to reflect best capital valuation management. Therefore, this chapter proceeds to review the extant literature on inflation-adjusted and historical data, by surveying the theoretical and empirical viewpoints as well as the various relevant approaches to financial reporting.

The chapter proceeds as follows. 2.1 Meaning and definition of financial statement; 2.2 Theoretical Framework of financial reporting; 2.3 Approaches to financial reporting; 2.4 Conceptual framework and 2.5 Empirical reviews.

2.1 MEANING AND DEFINITION OF FINANCIAL STATEMENT

Financial statement is a formal report that entails of financial activities or operations of a business firm, person or other entities which may elaborate on the financial position, cash flows and management discussions and analysis concerning the entity. However, Alexander, Britton and Jorissen (2003) conclude that the objective of financial statement may not only encompass the provision of financial position but to reveal the performance as well as the changing financial position of the entity that are useful for the economic decision of its shareholders and users. Hence, the content of a good financial statement should be understandable, relevant, reliable, comparable and devoid of inconsistencies which may misinform the users or public such as the case of Enron.

Prior studies such as Pandy (2002) and Stergios, Vazakidis and Dritsakis (2005) examine that financial statement is a report which conveys a precise and credible picture or summary of the firm's financial information to its owners, creditors and the general public. Notwithstanding, Turner, Dietrich, Anderson and Bailey (2001) postulate that financial statement is a fundamental link that binds management to investors under the assumption that management employ financial statement to report their activities to the absent investor on how their capital is being used by organization. Therefore, consistent with prior studies, the financial statement encompasses a written report that captures the financial conditions and cash flow of a business firm. The nature of which have been categorized into the balance sheet, income statement, statement of changes in net worth and statement of cash flow.

In Ghana, like other economies, the financial statement is key to examining the performance and operations as well as investment prospects of the business firms. As argued by Gautier and Under down (1986), the financial statement may be used by users on different perspective and motives. For instance, they examine that users such as shareholders and financial managers may employ the financial statement to project important business decisions to influence business operations. Thus, shareholder employs the financial statement as a tool to make meaningful decisions of whether to continue holding or to dispose of the shares of a business firm in their possession. However, the firm managers, who are mainly responsible of taking day-to-day decisions and formulating business plans and policies to brighten the future prospects of the firm, use the financial statement to evaluate the performance and effectiveness of their actions to realising the firm's goals. Accordingly, prospective investors as well as financial institutions use the financial statement to assess the viability as well as credit worthiness of the firm to make decisions regarding granting financial extensions to the firm. Consequently, Miller and Piotroski (2000) note that employees may also employ the financial statement as a tool for collective bargaining or in discussing their compensation as well as promotions. Therefore, the financial statement has potential of generating investor confidence, goodwill for the various stakeholders as well as failing the business firm.

2.2 THEORETICAL FRAMEWORK

This section reviews the extant theoretical arguments that underpins financial reporting. Although, there exist numerous methods, the researcher concentrates on the following theoretical framework in the study as follows: (a) Matching theory, (b) Asset theory (c) Depreciation theory and finally (d) Consistency theory.

2.2.1 The Matching Theory

The concept of the matching principle requires that revenue and expenditure be matched irrespective of the time period. Gregory, Rutherford, Oswald and Gardiner (2005), accordingly examines the matching theory as a concept that gives credence to the determination of gains and losses whiles making assets and liabilities the derived conceptions. This serves as the link between effort and accomplishment. The principle further suggests that instead of a business firm recognizing a future expense incurred in the current period, the amount should be spread over the timespan until the benefit of the service or product is received. Thus, the principle assumes that if a cost has been duly incurred, then it is appropriate to charge that cost incurred against income in a future period. However, in his work, Gregory, Rutherford, Oswald and Gardiner (2005) argues that in cases where costs have been matched with incomes in the current period but no obligations have been settled, a liability arises in the balance sheet of the financial statement until it is settled (Ashton and Wang, 2015).

The matching principle as noted is grounded on a cause and effect relationship with important attribution to the process of estimating periodic accounting profits. The assumption underpinning the matching principle is used in charging particular actions undertaken by the business firm with their monetary values regardless of the time frame of occurrence. The reliability of the matching theory necessitates for gains incurred in the period should synchronized with costs from that period. Hence, should reflect all recognised revenues and costs whether or not they emanate from operations of the firm in that period. Bessong and Charles (2012) further examine that for a business firm to communicate to its users its profitability during a given time frame, it is of relevance for the firm to match its expenses with related revenues. Hence,

inflation during such period of the firms operations should be accounted for in the financial statement.

2.2.2 Asset Theory

Asset is any object of value either tangible or intangible that can be consumed or appreciated overtime (Bessong and Charles, 2012). Argument from prior studies suggest that assets are recorded in their historical cost basis as a results of consistency and free of misspecification in comparison to valuations using fair value (see Callen and Morel 2005; Hall and Oriani 2006). However, in estimating the historical cost of an asset, all incidental costs incurred in improving the asset should be added to the historical cost whereas simple maintenance costs should be treated as ordinary expense. Weir (2005) consequently, advances that the original acquisition cost which is employed as the historical cost should be adjusted to account for changes in price level between the acquisition and valuation period.

Contrarily, Bessong and Charles (2012) argue that although, historical costs of assets are duly recorded, there exist some level of difficulty in defining the historical cost components of certain properties and whether those assets should be treated using First-in-first-out (FIFO) approach or Last-in-first-out (LIFO) approach. They further notice that such a problem becomes more severe with unfinished goods. Wyatt (2005) further reveals that the firms' recognition for intangible assets are greater when their profitability potential are of greater magnitudes and more highly correlated with economic indicators. Hence concludes that limiting firm managers' recognition of intangible asset will tend to exacerbate rather than improve the quality of the balance sheet and hence the quality of information conveyed to investors'. Consequently, Abdel-Azim and Ibrahim (2014) recommend that the necessity to conclude on the true

costs of assets and liabilities before applying a general price level to value the individual assets and liabilities as distinctly recognized in the accounting system.

2.2.3 The Depreciation Theory

Depreciation is a loss incurred on an asset from physical or functional decay without compensation for current repairs (see Vergauwe and Gaeremynck, 2014; Crew and Kleindorfer 1996). Accordingly, it is noted that the calculation of depreciation expense must incorporate the historical cost of the asset with exception to cases of revaluation, hence succeeding capital allowance should use the revalued amounts of the asset. However, depreciation in the form of a decrease in asset value according to the IAS 16, affects the balance sheet of the business firm through the net income that the firm reports at the end of the accounting period.

Generally, the depreciation expense is allocated in the periods in which the asset is expected to be consumed. The estimation of depreciation may vary for various asset types in terms of its reporting and taxing. However, these may be specified by law or accounting standards, which may vary across geographical space. Although, several methods including the fixed percentage and the declining balance methods have been argued, depreciation expense are generally used when the asset has been put into use in the production process (see Kieso, Weygandt and Warfield 2007).

Consequently, to estimate the firm's net income, appropriate cost such as the direct cost of assets are used to estimate the receipts from the firms operations. Such cost according to prior studies equals to the capital allowance on the asset. This may be equal to the amount expended on the asset and hence may not be associated with the final amount the business firm would expect to receive upon the disposal of the asset.

Hence, depreciation becomes an allocation method instead of valuation method, even though it determines the value placed on the asset in the balance sheet.

However, the Generally Accepted Accounting Principles (GAAP) suggest that cases of impairment expenses should be recognized in the financial statement if the value of a specific operating asset decline unexpectedly. Such capital allowances are usually nonrecurring, and may relate to any type of asset hence business firms tend to write-off long-lived assets because such an asset may have suffered partial obsolescence or has outlived their useful purpose (see Bierman 1961; Comiskey 1971; Bar-Yosef and Lustgarten 1994; Johnson 2005).

2.2.4 Consistency Theory

The consistency theory, according to Igben (2004) implies the use of a due process accounting method. Thus, once an accounting method is adopted, that method should constantly be followed into the future accounting periods of the firm so that users of the information can make possible comparison as well as meaningful decisions from the information presented in the financial statements. However, the theory further suggests that if for any reason the accounting method is changed, a full disclosure of the changes with explanations should be communicated as well as documented for the users' consumption. For instance, the application of this principle requires that in cases where a business firm chooses to employ fair-value accounting process in its financial statement reporting, it should continue to undertake such accounting process in its future financial reporting.

Another instance also looks at the case where the firm decides to depreciate its assets using a particular method of depreciation. Its subsequent depreciation technique should be based on the previous estimation method employed to allow for easy

comparison over time periods. Notwithstanding, Schroeder, Clark and Cathey (2001) postulates that in some cases firm managers frequently ignore the consistency principle when they are trying to report more revenue or profits than would be allowed through a strict interpretation of the accounting standards. Hence, a situation of which will occur when the underlying operational activities of the firm do not change, but their profits suddenly increase.

2.3 THE APPROACHES TO FINANCIAL REPORTING

Although, academicians and accounting practitioners have long debated on the issues surrounding the best approach to financial reporting, these studies still remain inconclusive on the best valuation techniques to employ hence in these study the researcher elucidates on each of the accounting approaches applied by firms in their reporting including the historical cost, replacement cost, current cost, current purchasing power and fair value accounting.

2.3.1 Historical Cost Accounting

Historical cost considers the accumulated price paid by the firm in the acquisition of an asset to facilitate its production (see Hendrikson and Van Breda 2001). This suggests that historical cost which is the original nominal monetary value assumes that assets and liabilities must be measured and reported at their acquisition prices which may generally not reflect the current market valuation of the asset (see Ball and Brown 1968; Ali and Hwang 1999; Kwong 2010; Alali and Foote 2012; Kargin 2013).

According to David-Friday and Rivera (2000), historical cost is based on the assumption of stable general price level or in cases where price changes slowly (see Bello 2010). Although, the use of historical cost accounting remains as the major

basis of financial reporting, it is basically assumed to be the simplest financial reporting measurement that firms use in book-keeping records and management information systems.

As Ijiri (1989) notes, historical cost is important in clarifying three fundamental decisions to the business firm. Thus, Ijiri (1989) argues that since historical cost is directly linked to past decisions, historical cost is used by the firm is business predictions or forecasts on future prices. Also, since historical cost is based on actual transactions of the firm, it makes cost of assets to be verifiable and hence minimises the risks associated with price manipulations by managers. Ijiri notes in his conclusion that since firm managers are to render the accounts of their stewardship to their shareholders, records of past transactions are necessary for rendering accountability (Sami and Zhou 2004; Wu, Lin, Li and Koo 2012).

Accordingly, Ting and Soo (2005) examine that historical cost is the only accounting approach to have fulfilled the consistency and matching theories of financial reporting as firms are used to the practice of offsetting expenses against their realized revenues (Marquardt and Wiedman 2004; Kieso, Weygandt and Warfield 2007). Though, the main objective of preparing financial statement is to convey information for decision making, Thies and Sturrock (1987) reveal that in periods of rising prices, historical cost may overstate firm performance and hence misrepresent the relative financial strength of the business firm in the payment of taxes and dividends.

In addition to Thies and Sturrock's arguments, Effiong, Udoayang and Asuquo (2011) conclude that historical cost may deplete shareholders capital by reducing the operating ability of the company's assets and hence may send misleading signals which may influence decision making at the firm level in the long term (see Perera

and Thrikawala 2010; Khanagha 2011; Masouleh, Ansari and Sadeh (2013). This is assumed since depreciation has influence on the carrying value of an asset in the financial statement in the absence of recorded change in the value of the asset since its acquisition.

This said, in a country like Ghana where inflation is perceived to be high, the use of true cost in financial statement reporting may not reveal the true current values as well as the opportunity costs of using older assets of the firm since the use of historical cost does not account for the loss or gain of real value of nominal monetary assets as a result of inflation or deflation. Therefore, the divergence that emerges between reported values and real values in a situation of rising or falling price levels raises justifiable doubts concerning whether published financial statistics provide relevant data for decision-making.

2.3.2 Current Cost Accounting

Current cost, according to Edward and Brend (1961) is, "The Theory and Measurement of Business Income" reflects the prices that firms are obliged to compensate for the use of an asset at the initial stages of the accounting process if that asset is not already owned by the firm. Thus, current cost approach brings together the firms current revenues with its current replacement cost of resources consumed in the generation of those revenues (see Pozen 2009; Banker, Byzalov, Ciftci and Mashruwala 2014). Current cost as recognized in the income statement, is the cost which the firm actually expends on its assets. Current cost is a modification of the historical cost which accounts for the effect of inflation on capital required to execute and retain the firm's capacity whether funds are sourced from borrowing or through

share capital (Bessong and Charles 2012; Garrison, Noreen, Brewer and McGowan 2010).

Jennings (1984) believes that since current cost accounting combines both the concept of the net realizable values and replacement cost in allocating whether prevailing prices must be employed in estimating an asset value, it produces a more realistic asset values than historical cost accounting which reports the value of assets at only a fraction of their true value (see Beredugo and Johnny 2014). However, the benefits associated with the use current cost accounting in asset valuation have been well noted in literature (see Eccher, Ramesh and Thiagarajan 1996; Beaver and Venkatachalam 1999). They hold the view that current cost accounting identifies the true profits by distinguishing the gains which must be retained to maintain the operating capacity of the business firm. Beaver and Venkatachalam (1999) for example argue that in other for the firm to retain its operating capacity, the firms must adjust its profit with the current replacement cost of the assets it expends which in periods of inflation, would be greater compared to estimates from the true cost hence relieving the firm of the burden of risking paying out profits as dividends needed to finance its continuing operations.

Zango (2012) further notes that current cost accounting provides a better accounting basis for levying taxes which otherwise may erode the operating capabilities of the firm by paying a proportion of both the capital and the resulting operating profit element emanating from historical cost profit. Since current cost is based on opportunity cost, it brings to bear the full costs of the continuous use of an asset for its existing purpose rather than transferring them to an alternative use. Bessong and Charles (2012) conclusively argues that current cost accounting provides better

information on dividend policy decisions and shareholder assessment of management performance.

Although, current cost accounting have proven to be a best valuation method, some limitations have been levelled against its use in financial reporting including its openness to subjectivity (Bakar and Said 2007). Effiong (2012) shows that whilst current cost accounting assumes that assets will continue in their existing use, business firms will have to continually re-evaluate their operations against competition and business prospects. Hence, the maintenance of operating capacity of the firm becomes pointless in a case where the demand for the firms products are diminishing due to excessive market competition (Pashang, Österlund and Johansson 2014).

2.3.3 Current Purchasing Power Cost Accounting

Current purchasing power cost accounting involves the restatement of the historical cost of all assets both tangible and intangible to reflect changes in general price level. This helps to present financial statements in terms of units of equal purchasing power since an approved price index is used to convert the various items in the financial statement of the firm. Beredugo and Johnny (2014) note that the current purchasing power valuation method is employed to eliminate gains attributable to inflation in the use of historical cost method of accounting (Lee 2009).

Bessong and Charles (2012) also note the present of a high degree of objectivity in the use of current purchasing power cost accounting in reporting firm profits since it is based on the assumptions of historical cost valuation technique. They reveal that since the price index used is a verifiable reference that measures the price level changes in

monetary units, it results to the modification of historical cost that in itself is objective.

However, Gore and Herz (2010) hypothesise that current purchasing power cost accounting may assist in the identification of the necessary capital to retain in the business to preserve shareholder capital against inflation. Thus, suggesting that the current purchasing power increases shareholders' wealth by removing inflationary element in monetary profits. Thus, reflecting adequately the real increase in shareholders' wealth generated from the production process. However, King (2011) notes that the restatement of the components of the financial statement against stable monetary value improves comparisons with previous financial reports.

However, the credibility of this valuation method is sometimes question by academicians and practitioners whether the restated asset values represent the estimates of the original price of the assets. Critics believe that although the method accounts for inflationary changes, it may still be prone to errors since the price index used by the firms is a general price which may not reflect the actual change in price of the particular or similar asset despite the significant changes that may be seen in the firm's asset values (see Arsoy and Gucenme 2009; Emiliani 2010; Agndal and Nilsson 2010). Also, Bessong and Charles (2012) confirm that since the current purchasing power cost accounting is a restatement of the historical cost accounting it may further suffer similar drawbacks of the historical cost accounting.

2.3.4 Replacement Cost Accounting

Bull (2014) defines replacement cost accounting as the valuation method that matches current input values with current revenues (see Bessong and Charles 2012). Accordingly, Cushing and Rosenbaum (2012) posit that the basic underlying

theoretical principle of the replacement cost lies in the current cost accounting principle. Thus, it assumes that the expended cost of an asset from the business firms perspective should equate their replacement cost. Consequently, the replacement cost employs changes that pertains in the price of assets as revealed in the price indices (see Basu 2012; Parker 2014).

However, profit of the firm under the replacement cost principle is estimated from the difference between the value of the firm at the end of the production period and the beginning of the production period. Thus, helping in making justifiable comparisons to make informed decisions on possible pricing and allocation of firms resources. However, the replacement cost method further inhibits the firm in cases inflation from over-estimating operating profit and hence avert the tendency of paying more dividend to shareholder. The replacement cost helps management in making critical decisions concerning performance comparisons. This is not however to replace the normal control mechanisms (see Parfet 2000; Turner, Dietrich, Anderson and Bailey 2001; Weir, Laing and Wright 2005; Lee 2009).

2.3.4 Fair Value Cost Accounting

As defined by the Financial Accounting Standards (FAS 157), fair value is "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date." This suggests that fair-value process portray adjustments in the fair value of assets and liabilities resulting in the recognition of the changes in the asset value as gains and losses. Ronen (2008) notes that the main motive behind the use of fair value adjustment technique in financial appraisals is to estimate at best the possible prices at which assets and liabilities will be discharged based on current available information and

conditions (Whittington 2008; Laux and Leuz 2009; Gore and Herz 2010; Dong, Ryan and Zhang 2014).

However, the American Accounting Association (2008) in line with the Financial Accounting Standards Board, postulate that in cases where firms are positioned to use fair value accounting, the notable input hierarchical framework can be employed. It stipulates that in the presence of observable market prices for identical assets and liabilities, firms are required to employ these prices in estimating the fair value of assets and liabilities. This is to help integrate all public available information about future cash flow including private investor information current risk-adjusted discount rates into their fair value measurements (see Laux and Leuz 2009; Bessong and Charles 2012; Hull and White 2014). However, estimates of fair values through market prices either unadjusted or adjusted are designated as mark-to-market values whilst fair values reported using a valuation model are known as the mark-to-model values (Campbell, 2014).

Bowen and Khan (2014) realise that when fair value is fully utilised in the firm's financial reporting, it records the periodic unrealized gains and losses, on their income statements. These unrealized gains and losses which is attributable to the changes in the fair value estimation (Song, Thomas and Yi 2010), results from the arrival of new information about future cash flows and changes in risk-adjusted discount rates employed by the firm (see Beatty and Weber 2006; Hann, Heflin, and Subramanayam 2007; Power 2010).

Power (2010) examines issues associated with the use of fair value accounting. He notes that the problem emanates from the accuracy and discretion at which the firms employ the fair value measurement. Thus, Power (2010) reveals that the use of fair

value become typically less accurate and more discretionary when the assets and liability values are either adjusted to fit the mark-model as well as mark-to-market values in the money market. Consequently, Bowen and Khan (2014) examine that in such a situation firms may be put in a position to adjust the asset and liability values to incorporate for market illiquidity at which prices are visible. Also, Dong, Ryan and Zhang (2014) argue that the choices available firms in the fair value adjustments are typically limited and hence the firms will be confined to employing historical values to forecast their investment prospects as well as to incorporate discount rate adjusted for risks. This, Dong et al (2014) note may have dire consequence on the mark-to-model values, a case they referred to as the imperfect nature of the fair value model.

However to solve these issues the FASB 157 recommends that firms disclose both qualitative and quantitative information regarding how they estimate fair values and the valuation inputs they employ, its sensitivity as well as unrealised gains and losses emanating from the changes in the fair value of assets. These therefore, makes room for shareholders to adequately scrutinise and comprehend the reliability of the stated fair values to make decision either to continue to adjust or ignore the restatement of assets as desired (see Hann, Heflin, and Subramanayam 2007). Also, in cases where firms report unrealized gains and losses in their financial statement, Campbell (2014) reports that managements are either coerced or motivated to explain the cause of the fair value measurement issues in the management discussion and analysis section. However, if management do not communicate adequately in the financial statement the unrealised gains and losses, then shareholder may be forced to inquire for explanations from management on value-relevant events in the financial statement.

2.4 CONCEPTUAL FRAMEWORK

The fundamental reason of any alternative of inflation-adjusted accounting method of presenting financial statements is to curtail accidental depletion of shareholders capital and present current values for assets disclosed in the statement of financial position at the end of accounting period. Therefore, the theory of Inflation-adjusted accounting is centered on two main areas of the financial statement including income statement as well as the statement of financial position. In business transactions, items in the financial statements are measured in their monetary values hence reiterates the need for the capital maintenance concept. However, prior studies (see Hicks 1946; Revsine 1981) further reveal that a measurement of the income in the financial statement is derived from the firm's capital maintained for further productive activities. Consequently, Revsine (1981) orate that the firm's capital may not be maintained unless an appropriate and current values have been attributed to the assets in the financial reports. Thus, depending on the firm's inclination as to which of the capital it wants to maintain. However, opinions are alienated on which capital a firm wants to maintain; the physical/operating capital or the financial capital.

Financial capital maintenance. The notion of financial capital maintenance according to Troberg and Ekholm (1995) suggest that profit is realised only if the monetary value of the net assets at the end of the period exceed the monetary value of net assets at the start of the production process, after accounting for implicit cost incurred by owners during the firms operations. However, Riabi and Belkaoui (2004) establish that both constant purchasing power and nominal monetary units can be applied to the valuation of financial capital maintenance.

Physical capital maintenance. This concept maintains that profit is earned only if the physical productive capacity in terms of operating capacity of the entity at the end of the period exceeds the physical productive capacity in terms of operating capacity at the start of the period, after deducting any contributions from owners and distributions to owners during the period.

Imperatively, IASC reports that the demands and aspirations of financial accounting information users decide on the form of capital the firm must keep. Thus, the aspirations and needs of users of financial accounting information closely buttresses the equity theories used by Glautier and Underdown (1986), Riabi-Belkaoui (2004) and Troberg and Ekholm (1995). The theory which is conceptualised from the Residual Equity Theory (RET) is focused on to the notion of financial capital maintenance. The purpose of residual equity theory is to enhance access to financial information for holders of equity so that they can make informed decisions about investment, as they stand to lose their wealth entirely if the firm should fail. Moreover, the position established here is that financial statements users are primarily concerned and are interested in the real value of their capital in the firms operations. In line with this, Kirkman (1974) upholds that the maintenance of the firm's capital is possible only if changes in price levels have been accounted for in the returns investors derive from their investment. Therefore, financial statements depict the viability in terms of performance of the firm's relativity to create justifiable returns on financial resources. The Residual Equity Theory advocates that stockholders are secondary and are incorporated as residual in relation to their enterprise. Though, the firm's financial assets are controlled by the enterprise, it is in trust from residual stockholders (De Jonghe and Öztekin, 2015).

2.5 EMPIRICAL REVIEW

Most previous studies examining the significance of financial reporting in terms of historical cost and inflation-adjusted approaches provide inconclusive evidence on the best accounting methods to employ in the preparation and reporting of financial statements (see Tardiff 2015; Bromwich 2014; Abdel-Azim and Ibrahim 2014; Ellul, Jotikasthira, Lundblad and Wang 2014;Campbell 2014; Power 2010; Beatty and Weber 2006). Variables considered by these studies have included net incomes and stockholder equity, book value and earnings information from price-adjusted and historical cost bases. Their findings present different evidence on the best valuation method to employ in financial reporting (see Bessong and Charles 2012; Kirkulak and Balsari 2009).

Several prior studies have investigated the subject for instance, Kirkulak and Balsari (2009) in their investigation on the role of incremental information content of inflation-adjusted data on firm market value reveal that inflation-adjustments influence financial ratios significantly than historical cost. However, they conclusively argued for the relevance of the two accounting approaches, firms should use them complementarily in their financial reporting. Kwon (1993) explores the impact of inflation–adjusted data on accounting information disclosure. His findings show shares' return increase simultaneously with accounting information modified with the price index for large and medium firms. Dong et al (2014) conclude that the rate of influence for the various industries is significantly different hence may reflect the markets respond to information.

Consequently, Gregory, Saleh and Tucker (2005) find evidence that the stability of the unusual earnings elements from the use of finished historical cost is not statistically comparable with stability of the inflation-adjusted unusual earnings. Using data from 1992 to 2001, Anandarajan, Hasan, Isik and McCarthy (2006) show the importance of inflation accounting in Turkey. They establish that book values and price adjusted earnings have vital influence on firm equities. Further, Ashton, Peasnell and Wang (2011) find the absence of association between inflation and structure of residual income in an inflationary period hence conclude that in times of inflation the value of many items is valuated less than their real value. Bublitz, Frecka and McKeown (1985) finds the presence of high explanatory power of inflation-adjusted variables than historical cost based variables.

Bartley and Boardman (1990) study the usefulness of current cost and inflation-adjusted financial accounting data reported by firms in the United States. They establish that although inflation which is low in the US led to the elimination of inflation-adjusted accounting, it is still important in financial reporting since its usefulness have not been carefully examined over time. Bildersee and Ronen (1987) also reveal the incremental explanatory power of current cost on stock prices. Davis-Friday and Rivera (2001) also provide evidence on the use of price-adjusted valuation of accounting information on the market value of Mexican firms listed in the US stock markets. Their findings reveal that the inflation and current cost accounting expounds on an implicitly higher proportion changes present in the market-to-book ratios from the period of 1987–1990. They also disclose that the explanatory power from making gains is stronger in relation to declining inflationary trends during the analysis period suggesting that current cost and inflation-adjusted accounting information are relevant in estimating business performance over changing price levels.

Graham (1996) examines the link between the real return of stocks and inflation in the United States using the information of the post-world war II. His findings revealed that there existed an unstable relationship between the real return of stock and inflation before and after the periods 1976 and 1982 but consequently, stabilised between 1976 and 1981. Graham and Harvey (2001) further investigate 392 CFOs on issues regarding cost of capital, capital budgeting, and capital structure. They realised that most of the large firms employed in their study rely predominantly on present value techniques as well as the capital asset pricing model, whilst small firms relatively rely on payback criterion. Khodadadi, Vaez and Alisufi (2014) in a survey of the Tehran Stock Market between the periods of 2000 and 2012 show that inflation does not have a significant influence on the accounting information content of the financial statements reported by firms operating on the Tehran Stock Market. Further evidence from Zango (2012) shows the presence of insufficiency in the use of historical cost accounting as a valuation method, suggesting that firms should employ either current cost or current purchasing power approach to ensure reliability in reporting.

2.6 SUMMARY OF CHAPTER

This chapter reviews vital information on the financial statement reporting. As well, it elucidates on priors studies which have contributed enormously to the development of literature on accounting information reporting. However, evidence from both the theoretical and empirical studies provide subtle conclusion on the relevance of the two accounting valuation method. Though, financial statement is said to provide a clearer picture of the firms activities and financial position, the valuation method is important to assist both investors and other prospective accounting information users. Hence, for developing economies where inflationary pressures are serious issues to contend with,

the valuation technique becomes important. Overall, the extant literature on financial reporting recommends several valuation approaches. Consequently, the study proceeds to test the value relevance of these valuation methods with respect to a developing economy experiencing inflationary pressures.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 INTRODUCTION

The chapter explores the empirical setting of the research study. Mainly, the study is focused on examining the value relevance of price-adjusted and true cost accounting on income and equity information of firms listed on the Ghana Stock Exchange. Therefore, to obtain necessary data for the analysis, the researcher usesonly secondary sources of data. Therefore, this chapter would be based on the description of the methods and procedures employ in obtaining the required data, how the data will be analysed, interpreted and how conclusions would be met.

The rest of the chapter proceeds as follow: section 3.1 examines the research design, sections 3.2 and 3.3 look at the population, sample size and sampling technique used in the study. Section 3.4 and 3.5 discusses the data collection method and reliability of the study whilst section 3.6 provides the economic estimation techniques adopted in the data analysis. Finally, section 3.7 presents an overview of the profile of the Ghana Stock Exchange.

3.1 RESEARCH DESIGN

To achieve the proposed research objectives, a quantitative approach of study is adopted. Hence, to evaluate the value relevance of inflation adjusted and historical cost data in Ghana, several considerations were made in the choice and selection of the data for the study. For instance, financial firms listed on the stock market are excluded from the study due to the nature of reporting requirement. Also, firms with limited information on their market value of equity, earnings per share, book value are

excluded from the study. Consumer price index of the period of analysis is also taken into consideration.

3.2 POPULATION OF THE STUDY

The study is based on firms listed on the Ghana Stock Exchange (GSE). Ghana Stock Exchange is chosen primarily because it is the only stock market in the Ghanaian economy facilitating trading in securities. In this study, the population includes all the firms listed on the Ghana Stock Exchange. It is out of this population that the sample size is drawn from.

3.3 SAMPLE SIZE AND SAMPLING TECHNIQUE

The target population for this study is all firms on the Ghana Stock Market. The sample size is drawn from the total number of firms on the stock exchange. The sample size for the study consists of listed firms that existed between the periods of 2004 to 2013. A purposive sampling technique is adopted to select the listed firms with available data from the period of analysis. Therefore, firms which do not publish their annual report online are excluded in the analysis. Following Kirkulak and Balsari (2009) listed financial institutions are omitted in the study due to the different standards of financial disclosure. Hence, out of the total population of 37 listed firms, the study employs a sample size of twenty (20) firms. However, ten (10) years of complete accounting information data from 2004 to 2013are used in the study. The firms are classified under seven industrial categories excluding the financial institutions; Consumables (8), Basic materials (2), Agro-forestry (2), ICT/Paper (2), Energy (2), Pharmaceutical (2), Media (1) and industrial (1).Table 1 below reports the categorization of the listed firms.

Table 1: classification of the firms' listed on the Ghana Stock Exchange

INDUSTRY	FIRMS
Consumables	*Guinness Ghana, Pioneer Kitchenware, PZ Cussons, Fan milk, Cocoa Processing Company, African Champions, Mechanical Lloyd, Unilever Ghana*
Basic Material	*Golden web, Aluworks*
Agro-forestry	*Benso Oil Plantation, Produce Buying Company*
ICT/Paper	*Transaction Solutions, Clydestone Ghana*
Energy/ Oil and Gas	*Ghana oil, Total Petroleum*
Pharmaceutical	*Starwin Products, Ayrton Drugs*
Media	*Sam-woode*
Industrial	*Camelot*

Source: Ghana Stock Exchange (2015)

3.4DATA COLLECTION METHOD

This section explores the sources and methods carry out in collecting data for the study. The data for this study are gathered through the use of secondary data sources

3.4.1 Sources of Data

The available sources of data inform the researcher on the relevant information needed to solve the fundamental questions underlying the research. Although, numerous sources of information exist including primary and secondary sources; the most pressing issue is choosing from the lot the relevant information to answer the research hypotheses in this study. Hence, the study uses secondary sources to acquire information and data for the analysis.

3.4.2 Data Collection

Secondary data on stock prices of the respective listed firms are obtained from the Ghana Stock exchange whereas some fundamental accounting information are sourced from the annual financial reports as well as financial statements of the

respective firms from the period between 2004 to 2013. The researcher employs only secondary data in the study because of time constraint. Also, secondary data are of high quality since they are free from biases that are normally characterised with primary data. However, the listed firms are chosen due to the fact that they all publish their annual financial reports which represent the financial strength and operational capabilities of the firms.

3.5 VALIDITY AND RELIABILITY

The data is extracted from the annual reports and financial statements of the listed firms from the Ghana Stock Exchange database. Publish financial statements of listed firms of the Ghana Stock Exchange (GSE) go through external audit by Private Independent Auditors for certification of its reliability. The validity of the research and its hypotheses however, have been approved in a number of previous studies (Kirkulak and Balsari 2009; Bessong and Charles 2012; Dong et al., 2014). Moreover, it is also scrutinised and evaluated by the supervisor and has acknowledged the importance of the study for policy implications.

3.6 DATA ANALYSIS

The study examines the significance of price-adjusted income and equity in Ghana. Purposively, the researcher employs panel data to examine the effects of the predictive variables employ in the study. The model is widely employed in literature for examining the variances present in the use of accounting information under different reporting requirements (see Kirkulak and Balsari 2009; Sami and Zhou 2004). The dependent variables include market value of equity and yearly stock return of the firm with the predictors being the earnings per share and book value per share.

However, the study controls for changes in the firm's earnings and changes in firm's book value. The following panel data regression models are estimated;

$$MVE_{it} = \beta_1 + \beta_2 HEPS_{it} + \beta_3 HBV_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

$$MVE_{it} = \beta_1 + \beta_2 HEPS_{it} + \beta_3 HBV_{it} + \beta_4 \Delta IEPS_{it} + \beta_5 \Delta IBV_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

$$MVE_{it} = \beta_1 + \beta_2 IEPS_{it} + \beta_3 IBV_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

$$MVE_{it} = \beta_1 + \beta_2 IEPS_{it} + \beta_3 IBV_{it} + \beta_4 \Delta HEPS_{it} + \beta_5 \Delta HBV_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (4)$$

$$RT_{it} = \beta_1 + \beta_2 HEPS_{it} + \beta_3 HBV_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (5)$$

$$RT_{it} = \beta_1 + \beta_2 HEPS_{it} + \beta_3 HBV_{it} + \beta_4 \Delta IEPS_{it} + \beta_5 \Delta IBV_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (6)$$

$$RT_{it} = \beta_1 + \beta_2 IEPS_{it} + \beta_3 IBV_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (7)$$

$$RT_{it} = \beta_1 + \beta_2 IEPS_{it} + \beta_3 IBV_{it} + \beta_4 \Delta HEPS_{it} + \beta_5 \Delta HBV_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (8)$$

Where the subscript *i* and *t* represents the cross-sectional and time series dimension of the data respectively. $\beta_1 - \beta_5$ are regression parameters and ε is the stochastic error term.

Table 2: Variable description and measurement

Variable	*Description and Measurement*
MVE	Market value of equity (share price) at the end of the fiscal year.
RT	$\frac{P_{jt}-P_{jt-1}+D_{jt}}{P_{jt-1}}$, where P_{jt} and P_{jt-1} are the year-end price of share *j* for *t* and *t-1;* D_{jt} is the dividend attached to share j in year *t*
HEPS	Historical cost based earnings per share
IEPS	Inflation adjusted earnings per share
HBV	Historical cost based book value
IBV	Inflation adjusted book value
∆IEPS	Change in earnings per share estimated as difference between IEPS and HEPS
∆HEPS	Change in earnings per share estimated as difference between HEPS and IEPS
∆IBV	Change in book value estimated as difference between IBV and HBV
∆HBV	Change in book value estimated as difference between HBV and IBV
NAT	Net sales standardized by total asset for both historical cost and inflation adjusted figures
TLT	Total liabilities standardized by total asset for both historical cost and inflation adjusted figures
ITA	Inventory standardized by total asset for both historical cost and inflation adjusted figures
FAT	Fixed assets standardized by total asset for both historical cost and inflation adjusted figures
ACR	Account receivables standardized by total asset for both historical cost and inflation adjusted figures
EPS	Earnings per share standardized by total asset for both historical cost and inflation adjusted figures
BV	Book value standardized by total asset for both historical cost and inflation adjusted figures

Historical Cost Models:

Models 1and 5, show the information content from historical cost data. If at least one of the coefficients of HEP or HBV is significant then it suggests that the historical cost data is value relevant. Models 2 and 6 report the effect of the incremental information content of the inflation adjusted data. If coefficient of the determination (R-squared) of models 2 and 6 increases in comparison with models 1 & 5 and at least one of the coefficients of ∆IEPS or ∆IBV is significant then it suggests that

inflation adjusted statements provide the user some useful information in which the historical cost based statement cannot provide.

Inflation Adjusted Models:

Models 3 and 7, indicate information content from inflation adjusted cost data. If at least one of the coefficients of IEP or IBV is significant then inflation adjusted cost data are value relevant. Models 4 and 8 report the effect of incremental information content of historical cost data. If coefficient of the determination (R-squared) of models 4 and 8 increases in comparison with models 3 & 7, and at least one of the coefficients of ΔHEPS or ΔHBV is significant then it suggests that historical cost based statements can give the user some useful information in which the inflation adjusted statement cannot.

Although, so many methods have been adopted in similar studies to estimate the inflation-adjusted accounting information from the historical cost accounting information, however, in order to factor inflation into accounts, historical cost accounting data are adjusted by applying the consumer price index publish by Ghana Statistics Services. The underlying principle is that accounting data are restated to current/constant purchasing power. Under current/constant purchasing power method, accounting for inflation is done by adjusting the values of non-monetary items using the consumer price index to show the change in the general purchasing power of money. Items in the financial statement are divided into two: monetary items and non-monetary items. Monetary items are defined as those in which nominal values are preserved but the purchasing power changes due to inflation. With respect to price adjusted accounting (inflation accounting), the entries in the statement of financial position are delimited into two parts including the monetary parts which captures the

capital flow s of the business and non-monetary parts which reports the tangible and intangible assets of the business firm. Although, in inflation accounting, the non-monetary components of the statement of financial position are adjusted for changes in price levels, the monetary items unadjusted for effects of inflation since they are expressed in their monetary units at the current date for which the statement of financial position is prepared. Notwithstanding, the financial ratios reported in the financial statement are expected to change depending on whether the items employed in the calculations of the ratios are monetary or non-monetary in nature. Hence no absolute change is expected to occur in cases where the financial ratios are compared with monetary items. However, if the ratios are calculated based on comparison between monetary and non-monetary items, then it is expected to find a change in the financial ratios.

3.7 JUSTIFICATION OF THE MODEL

To test the importance of the two accounting estimation techniques, a multivariate panel data regression analysis is used. The panel data regression model has a number of properties, which makes it more suitable for this study. For instance, whilst estimates using Ordinary Least Squares may be subject to omitted variable bias due to the presence of an unknown variable that can influence the prediction of the dependent variable, panel data controls this problem by observing changes in the dependent variable over time. Thepanel data regression model also allows the researcher flexibility in modelling the differences in behaviour across individual objects (Greene 2003). Unlike the Ordinary Least Squares, the panel data regression model allows for dynamic effects modelling as well as heterogeneity across groups that are typical large data. However, the widely used components of the panel data regression are the fixed effects and random effects. The fixed effects is used when

controlling for variables that differ between cases but are constant over time, whilst the random is employed when controlling variables that may be constant over time but vary between cases and other vary over time but fixed between cases (see Greene 2003; Wooldridge 2005; Gujarati 2004; Verbeek 2008). Further, the study also uses student t tests to analyse the differences in means of the financial ratios, an approach widely adopted in literature.

Therefore, in order to evaluate the effects of both the inflation and historical cost accounting valuation techniques on financial reporting, the collected data are treated as two samples. The means of the financial ratios for before inflation adjustment and after inflation adjustment are compared using the student t-statistics. However, the market value and the stock market returns are analysed using both the fixed and random effect models. To choose the correct estimating technique under the panel regression, the Hausman's test is conducted to check for a more efficient model compared to a less efficient but consistent model to make sure that the more efficient model produces the desired and consistent results. The Hausman test examines the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimators. Here, if the results produces a significant probability value then it is reliable to use the random effects and vice versa.

3.8 THE GHANA STOCK EXCHANGE

The Ghana Stock Exchange (GSE) has demonstrated its resilience and prominence, not only as an attractive vehicle for portfolio diversification but also to infuse foreign investments into Sub-Saharan Africa. Rapid development of the stock market is noticeable amidst uncertainties characterized by capital markets in the sub-region. GSE is adjudged the preeminent stock market among other stock markets operating in emerging markets due to its outstanding record capital appreciation of 116% and 124.3% in 1993 and 1994 as a result of the inflation hikes in the period. The market grew by 31.84%, increasing its market capitalization from GH₵11.15 billion to GH₵13.16 billion between 2006 and 2007 trading years respectively. As a result of new listings, market value of listed firms on the Exchange rose from GH₵20.12 billion to GH₵47.35 billion representing growth rate of 136.59% in 2010. This increased volume of trading shares to 419.79 million shares at GH₵446.56 million over the period of January to December 2011 compared to 330.13 million shares estimated at GH₵151.13million over the same period in 2010. Thus, the volume of shares traded rose by 27% while value of traded shares increased by 295%. Market capitalization of listed firms further grew by 6.80% from GH₵57,264.22 million in 2012 to GH₵61,158.29 million in December 2013. However, domestic market capitalization increased by 76.68% from GH₵6,753.14 in 2012 to GH₵11,694.93 as at 2014. This clearly shows that compared to previous years, interest rate movement and inflation have influenced the primary listings and performance on the market.

3.9 THE GHANAIAN REPORTING ENVIRONMENT

The Ghana Stock Exchange is responsible for the enforcement of proper financial reporting of listed firms in Ghana. Listed firms are required to file their financial reports on annual basis and must be audited by certified independent auditors. The recommended certified auditors include Deloitte and Touché, KPMG, Ernst and Young and Price water Coopers (PwC).The Accounting System in Ghana has been applied to all firms with the exception of the financial sector. This system is designed to produce dependable and comparable financial accounting information in line with the Generally Accepted Accounting Principles (GAAP). Unfortunately, since 1992, the Ghanaian economy has been experiencing high inflationary pressures which distort financial information of firms before inflation accounting was recommended. Table 3 below reports on the inflationary trend in Ghana since 1990 after the establishment of the Ghana Stock Exchange. The inflation rates are reported according to the Consumer Price Index (CPI) with base in 2005, which is calculated as the yearly changes in price level.

Table 3: Consumer Price Index (CPI) based inflation rate of Ghana from 1990 - 2013

YEAR	CPI	YEAR	CPI
1990	4.08313	**2002**	60.8881
1991	4.81938	**2003**	77.1299
1992	5.30402	**2004**	86.8672
1993	6.62789	**2005**	100
1994	8.27627	**2006**	110.915
1995	13.1975	**2007**	122.819
1996	19.3423	**2008**	143.112
1997	24.736	**2009**	170.662
1998	28.3534	**2010**	188.936
1999	31.8717	**2011**	205.424
2000	39.9012	**2012**	224.242
2001	53.0309	**2013**	664.143

Source: International Financial Statistics (IFS) 2010 (November CD-ROM edition: IMF)

Currently, there is no Ghanaian listed company that provides inflation-adjusted accounting information as part of its annual financial statements. There are neither regulatory accounting standards nor legal requirements to do so. In this study, inflation-adjusted accounting information is needed to be approximated from the historical cost accounting information of the selected listed companies on Ghana Stock Exchange. Hence, experiencing issues of inflation distortion of financial information reported by Ghanaian firms. Unlike rules and regulations on other stock markets, listed firms were allowed to state and report their financial statements in historical cost contents. The limited Acts of the stock market of financial reporting adopted from the GAAP helps to distinguish between monetary and non-monetary items in the Statement of Financial Position. Monetary items are defined to include items in which their nominal values are preserved but the purchasing power changes due to inflation. Notwithstanding, monetary and liabilities are not restated on the Statement of Financial Position since their values already reflect changes in price levels in the economy. Firms that maintained more monetary assets than monetary liabilities incur purchasing power lose due to inflation. The gains or losses in the value of monetary assets caused by inflation is presented in the statement of income. However, the net monetary position of the firm resulting from the difference of monetary assets and liabilities are disclosed in the income statement as a separate line of item called the net monetary gain/loss.

Non-monetary assets on the other hand are expressed at current values in the balance sheet, at the date of the balance sheet and are restated using the consumer price index in the prevailing period of transactions. Non-monetary assets are restated with reference to the first entry date recording the purchase. At the first use of depreciable assets, previously added cost components such as financing cost, exchange rate

difference and revaluation are deducted from the overall cost component before effecting inflation adjustment. Also, depreciation is to be allocated from the restated value over both previous life and remaining life span of the asset. Furthermore, equity items are presented at their historical cost in the financial statements. The difference from restatement is reported under an equity restatement difference account. All income statement accounts are restated by applying the change in price index from the dates when the items are recorded. However, if these items are distributed in a regular manner over the entire period, restatement could be done by simply applying an average inflation adjustment. At the beginning of the first restatement period, the differences between restated assets and restated liabilities and equities are shown as a past year's gain or loss account to adjust the statement of financial position.

3.10 CHAPTER SUMMARY

This chapter looks at the research methodology and data collection of the study. The research design, sample and sampling technique and statistical technique used in the analyses of the collected data. A purposive approach is adapted for the study, due in part to the difficulties in assessing data within the period of analysis. Data for the research is extracted mainly from listed firms on the Ghana Stock Exchange within the period2004 to 2013. The sample period is chosen to facilitate firm and data adequacy for at least ten years. The study uses purposive sampling technique since financial listed firms are excluded from the study due to their reporting standards. Finally, the student t statistics and panel data regression models are used for the study due in part to its numerous advantages over Ordinary Least Squares, in particular.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF FINDINGS

4.0 INTRODUCTION

This chapter deals with the empirical analysis, discussions and presentation of data findings. In order to achieve the main objectives of the study, the analysis begins with a descriptive statistics and univariate students'-statistics analysis to examine the possible differences between the two mutually exclusive groups; historical cost and inflation adjusted ratios. Having described the data set, the researcher further continues to estimate the correlation and normality test of the sample variables. Finally, the respective panel regression between the dependent variables and independent variables is estimated to further assess how these variables influence the value relevance of both historical cost and inflation adjusted accounting data. The results from the analyses are presented below.

4.1 FINANCIAL RATIOS BEFORE AND AFTER INFLATION ADJUSTMENT

Table 4: Descriptive statistics of financial ratios before and after Inflation Adjustment

	Before inflation Adjustment				After inflation Adjustment				
Variable	Mean	S.D	Min	Max	Mean	S.D	Min	Max	t-statistics
NAT	1.61	1.66	0.01	13.09	0.88	1.11	0.01	8.85	-13.04***
TLT	0.57	0.37	0.04	3.56	0.28	0.26	0.02	2.96	-18.46***
ITA	0.21	0.12	0.01	0.58	0.26	0.15	0.00	0.69	12.21***
FAT	0.48	0.21	0.06	0.86	0.58	0.20	0.07	0.93	17.54***
ACR	0.22	0.18	0.00	0.77	0.12	0.12	0.00	0.53	-16.38***
BE	0.43	1.05	-0.03	8.82	1.50	3.52	-0.03	26.31	5.15***
EPS	0.08	0.22	-0.19	1.61	0.08	0.22	-0.20	1.64	1.42

Note:* p<0.1, ** p<0.05, *** p<0.01 significance level. NAT – net sales standardized by total asset, TLT – total liabilities standardized by total asset, ITA – inventory standardized by total asset, FAT – fixed assets standardized by total assets, ACR – accounts receivables standardized by total assets, EPS – earnings per share standardized by total assets, BV – book value standardized by total assets.

Table 4 reports the results on the descriptive statistics (mean, standard deviation, minimum and maximum values) as well as the univariate students'-statistics tests for the financial ratios employ in the study. The results reveal the extent to which both the historical cost and inflation adjusted accounting estimates influence financial ratios reported by listed firms in Ghana. The results show the existence of significant differences between inflation adjusted and historical cost based financial ratios. On the ratio of net sales to total assets (NAT), the results of the students' statistic reveal that historical cost based accounting are significant than inflation adjusted accounting in estimating the net sales to assets financial ratio. Thus, the table reports a mean of

1.61 for the historical cost based ratio and a mean of 0.88 for the inflation adjusted ratios at 1% significance level.

Further evidence from the test statistics reveals that historical cost based accounting is significant in reporting the ratio of total liabilities to total assets (TLT) than inflation adjusted cost accounting. Thus, the table records a mean of 0.57 for the historical cost based as against a mean of 0.28 for the inflation adjusted based ratio at 1% significance level. This is because monetary items such as liabilities tend to diminish in value after inflation is accounted for. Notwithstanding, the results show similar evidence for the reporting of accounts receivables to total assets ratio. Thus, whilst the results reports a mean of 0.22 for the historical cost based, the inflation adjusted records a mean of 0.12 at 1% significance level, implying that historical cost is value relevant in the prediction of these ratios. This confirms findings of Ijiri (1989), Sami and Zhou (2004) and Wu, Lin, Li and Koo (2012)suggesting that since historical cost is directly linked to past decisions on actual transactions of the firm, it makes cost of assets to be verifiable and hence minimises the risks associated with price manipulations by managers. This said makes forecasting of financial ratio in the short term more reliable since they are based on the actual transaction cost hence may be helpful in making comparison.

Although, the ultimate aim of investors is to make appreciable gains from investing in a long-term productive venture, inflation puts this goal at risk because the expected returns from the investment must first keep up with the rate at which general prices in the economy changes over time in order to increase the real purchasing power of the invested capital. Therefore, the results show that for inventory to total assets, fixed assets to total assets and book value of equity, inflation adjusted accounting is value

relevant than historical cost based accounting in estimating these financial ratios at 1% significance level.

For inventory to total assets ratio the historical cost records a mean of 0.21 compared to 0.26 for the inflation adjusted. On fixed assets to total assets, the historical cost records a mean of 0.48 compared to 0.58 for the mean of the inflation adjusted suggesting that inflation adjustment on fixed long term assets is higher than short term assets. On book value of equity, the results also show a mean of 0.43 and 1.50 for the historical cost and inflation adjusted ratio respectively. These findings reveal that inflation adjustment lead to large increases in both the book value and fixed asset component of the firms' asset in a hyper inflationary environment. On earnings per share, the results show that there is no significant difference between historical cost based and inflation adjusted cost based estimates. This imply that on the average an increase in both revenue and monetary gains compensate for an increase in expense and monetary losses in the income statement. These findings are consistent with predictions of Kirkulak and Balsari (2009) indicating that due to operations in a high inflationary environment, Ghanaian listed firms have adapted in the management of their monetary assets and liabilities. Accordingly, affirm findings of Thies and Sturrock (1987) and Effiong, Udoayang and Asuquo (2011) stating that in periods of rising prices, historical cost may overstate firm performance and hence misrepresent the relative financial strength of the business firm in the payment of taxes and dividends at the detriment of the firms.

4.2 CORRELATION AND NORMALITY TESTS

Table 5: Results of Correlation Analysis

	1	2	3	4	5	6	7	8
1. HEPS	1.000							
2. ΔHEPS	-0.995***	1.000						
3. IEPS	1.000***	-0.995***	1.000					
4. ΔIEPS	0.995***	-1.000***	0.995***	1.000				
5. BVH	0.852***	-0.794***	0.850***	0.794***	1.000			
6. ΔBVH	0.852***	-0.794***	0.850***	0.794***	0.999***	1.000		
7. BVINF	-0.035	0.036	-0.035	-0.036	-0.018	-0.065	1.000	
8. ΔBVI	-0.852***	0.794***	-0.850***	-0.794***	-0.999***	-1.000***	0.065	1.000

***. Correlation is significant at the 0.01 level.HEPS – historical cost earning per share, IEPS – inflation adjusted earnings per share, HBV – historical cost book value, IBV – inflation adjusted book value, ΔIEPS – difference between inflation adjusted and historical cost earnings, ΔHEPS – difference between historical cost and inflation adjusted earnings, ΔHBV– difference between historical cost and inflation adjusted book value, ΔIBV – difference between inflation adjusted and historical cost book value

Table 5 reports the summary of the correlation analysis of the variables in the regression analysis. The results of the correlation analysis reveals the strength of the linear relationship between the variables used in the study. The results on the correlation between HEPS and ΔIEPS, BVH and ΔBVH are positive and statistically significant at the 0.01 significant level. The results also show positive significant relationship between the market value of equity and inflation adjusted book value of

the listed firms. Also the results show positive significance between the following variables; ΔBVI and ΔHEPS, ΔIEPS and IEPS, BVH and IEPS, ΔBVH and IEPS, ΔBVH and ΔIEPS, ΔBVH and BVH respectively. On the negative but significant correlations, the table records the following; ΔBVI and HEPS, HEPS and ΔHEPS, ΔHEPS and IEPS, ΔIEPS and BVH. Also the results show negative significant correlation between IEPS and ΔBVI, ΔIEPS and ΔBVI, BVH and ΔBVI and ΔBVH and ΔBVI respectively. Consequently, the Pearson correlation matrix reveal presence of collinearity amongst some of the variables, therefore, such variables are not put together in the same model.

Table 6: Results of normality tests

	Skewness	**Kurtosis**	**Jarque-Bera**	**Shapiro-Wilk (W)**	**Shapiro-Franca (W)**
1. HEPS	0.0000	0.0000	79263.85 (0.0000)	0.07524 (0.0000)	0.06920 (0.0000)
2. ΔHEPS	0.0000	0.0000	81328.08 (0.0000)	0.07612 (0.0000)	0.06988 (0.0000)
3. IEPS	0.0000	0.0000	79119.24 (0.0000)	0.07520 (0.0000)	0.06918 (0.0000)
4. ΔIEPS	0.0000	0.0000	81328.08 (0.0000)	0.07612 (0.0000)	0.06988 (0.0000)
5. BVH	0.0000	0.0000	275122.0 (0.0000)	0.06412 (0.0000)	0.05712 (0.0000)
6. ΔBVH	0.0000	0.0000	273561.1 (0.0000)	0.07226 (0.0000)	0.06470 (0.0000)
7. BVINF	0.0000	0.0000	10615.38 (0.0000)	0.38776 (0.0000)	0.38694 (0.0000)
8. ΔBVI	0.0000	0.0000	273561.1 (0.0000)	0.07226 (0.0000)	0.06470 (0.0000)

Probability values in parenthesis. HEPS – historical cost earning per share, IEPS – inflation adjusted earnings per share, HBV – historical cost book value, IBV – inflation adjusted book value, ΔIEPS – difference between inflation adjusted and historical cost earnings, ΔHEPS – difference between historical cost and inflation adjusted earnings, ΔHBV– difference between historical cost and inflation adjusted

book value, ΔIBV – difference between inflation adjusted and historical cost book value.

The results from table 6 report the normality test of the variables in the study. Skewness which is the third standardized moment measures the extent of symmetry of a probability distribution. If the skewness is more than zero, then the distribution is skewed to the right, implying more observations on the left and vice versa. Unlike the skewness, the kurtosis measures the thinness of tails of probability distribution. The Shapiro and Wilk W test on the other hand is the ratio of the best estimator of the variance to the usual corrected sum of squares estimator of the variance. Shapiro-Francia W test is an approximation test that modifies the Shapiro-Wilk W (see Royston 1991; Park 2008; Wooldridge 2005). The results from these approaches largely suggest that the data is normally distributed hence reject the null hypotheses that the data is not normally distributed.

4.3 RESULTS AND DISCUSSIONS

4.3.1 Impact of Historical Cost Data on Market Equity

Table 7: Results of regression analysis

Model	1(a)	1(b)	2(a)	2(b)
HEPS	0.0002 (0.0038)	-0.0004 (0.0038)	1.8167***(0.5991)	1.5504***(0.6028)
HBV	-0.0002 (0.0049)	0.0004 (0.0050)	-0.2473*(0.1421)	-0.0538 (0.1316)
ΔIEPS			- 46.4169***(15.3087)	-39.6212 (15.4033)
ΔIBV			0.1617**(0.0786)	0.2953 (0.0677)
Intercept	0.9526*** (0.1712)	0 .9561*** (0.3004)	0.84094*** (0.1897)	0.6770(0.2644)
R-squared	0.0002	0.0010	0.0875	0.1436
Wald $\chi 2$		0.03		20.76
(p-values)		(0.9849)		(0.0004)
F statistics	0.00		2.85	
(p-values)	(0.9990)		(0.0252)	
Observation	200	200	200	200
Hausman	0.4910		0.0227	

Note:(a) represents fixed effects and (b) represent random effects. HEPS – historical cost earning per share, IEPS – inflation adjusted earnings per share, HBV – historical cost book value, IBV – inflation adjusted book value, ΔIEPS – difference between inflation adjusted and historical cost earnings, ΔHEPS – difference between historical cost and inflation adjusted earnings, ΔHBV– difference between historical cost and inflation adjusted book value, ΔIBV – difference between inflation adjusted and historical cost book value. ***, ** and * Probability significant at 1%, 5% and 10% significant level. Standard errors in parenthesis.

Table 7 examines the information content of the listed firms present in historical cost. In model 1a the results show positive but insignificant relationship between the historical cost earnings per share and market value of equity of the firms. Also, the results show negative and insignificant relations between historical cost book value and market value per share. Contrarily, although insignificant, model 1b reports negative for the relationship between historical cost equity per share and market value per share whilst the relationship between historical cost book value and market value per share record positive. In line with Ashton, Peasnell and Wang (2011) these findings suggest that in times of inflation the value of many of the firm's assets is valuated less than their real value hence may influence the firms dividend payment as well as tax payment.

Consistent with model 1a, the results show positive but significant relationship between historical cost earnings per share and market value per share at 1% significance level. Also, historical cost book value record negative and significant relationship with market value per share at 10% level. This finding confirms assertion of Power (2010) indicating that the use of historical cost become typically less accurate and more discretionary when the book value is either adjusted to fit the

mark-model as well as mark-to-market values in the money market hence may force the firm to adjust its book value to incorporate for market illiquidity at which prices are visible.

The result further reveal significance for the incremental information content of the inflation adjusted data. Thus, the difference in the earnings per share due to inflation adjustment is negative but significant at 0.01 level. Also, difference in the book value due to inflation adjustment is positive and significant at 0.1 level. These findings reveal that the inflation adjusted cost accounting expounds on an implicitly higher proportion changes present in the market-to-book ratios of the firms hence imperative in assisting both the firms and prospective investors in making relevant decisions concerning business performance over changing price levels.

However, in model 2b, the results show positive but significant association between the historical cost earnings per share and market value per share at 1% level. The Hausman tests suggest that fixed effects is appropriate for model 1 whilst random effect is appropriate for model 2. The r-squared values of 0.0002, 0.001, 0.0875 and 0.1436 indicate that changes in the market value of equity of the listed firms are explained by 0.02, 0.01, 8.75 and 14.36 percent of the changes in the predictive variables in models 1a, 1b, 2a and 2b respectively.

4.3.2 Impact of Inflation-Adjusted Data on Market Equity

Table 8: Results of regression analysis

	3(a)	3(b)	4(a)	4(b)
IEPS	0.00004(0.0021)	-0.0003(0.00199)	1.8167***(0.5991)	1.5504***(0.6028)
IBV	0.1148 (0.0786)	0.2255***(0.0664)	-0.2473*(0.1421)	-0.0538 (0.13156)
ΔHEPS			48.2336***(15.908)	41.1716***(16.006)
ΔHBV			-0.4090***(0.1349)	-0.34913***(0.1357)
Intercept	0.8185*** (0.1934)	0.69213** (0.2904)	0.8409***(0.1897)	0.67699***(0.2644)
R-squared	0.1254	0.1258	0.0875	0.1436
Wald $\chi 2$ (p-values)		11.56 (0.00031)		20.76 (0.0004)
F statistics (p-values)	1.07 (0.3461)		2.85 (0.0252)	
Observation	200	200	200	200
Hausman	0.0289		0.0227	

Note: (a) represents fixed effects and (b) represent random effects. HEPS – historical cost earning per share, IEPS – inflation adjusted earnings per share, HBV – historical cost book value, IBV – inflation adjusted book value, ΔIEPS – difference between inflation adjusted and historical cost earnings, ΔHEPS – difference between historical cost and inflation adjusted earnings, ΔHBV– difference between historical cost and inflation adjusted book value, ΔIBV – difference between inflation adjusted and historical cost book value. ***, ** and * Probability significant at 1%, 5% and 10% significant level. Standard errors in parenthesis.

Table 8 reports on the information content of the firms adjusted for inflation. The results show positive but insignificant association inflation-adjusted equity per share and book value in model 3a. Contrarily, the results in mode 3b report positive but significant relationship between inflation adjusted book value and the firms' market value at 1% significance level. Results from model 4report positive but significant

relationship for inflation-adjusted equity at 1% level. Book value records negative but significant relationship with the market value of the firms at 10% level. Further findings from model 4reveal that historical cost adjusted changes in earnings is positively related to market value of equity of the firms at the 0.01 level whilst the historical cost adjusted book value of the firms are negatively associated with the market value of the firms' at 1% significance level. These findings reveal that the inflation adjusted cost accounting expounds on an implicitly higher proportion changes present in the market-to-book ratios of the firms hence imperative in assisting both the firms and prospective investors in making relevant decisions concerning business performance over changing price levels.

The Hausman tests reveal that random effects are appropriate for both models 3 and 4. The r-squared values of 0.1254, 0.1258, 0.0875 and 0.1436 indicate that changes in the market value of equity of the listed firms are explained by 12.54, 12.58, 8.75 and 14.36 percent of the changes in the predictive variables employing the models 3a, 3b, 4a and 4b respectively.

4.4 FURTHER ROBUSTNESS CHECK

To examine the consistency of the results, the regression models are further rerun by replacing market value of the firms' with the individual firms' market returns.

4.4.1 Impact of Historical Cost Data on Market Returns

Table 9: Results of regression analysis

	5(a)	5(b)	6(a)	6(b)
HEPS	0.0004 (0.0009)	0.0001 (0.0008)	-0.2215(0.1425)	-0.1457 (0.1353)
HBV	-0.0002(0.0011)	-0.0001 (0.0011)	0.0699**(0.0338)	0.0386 (0.0280)
ΔIEPS			5.6703 (3.6411)	3.7259(3.4571)
ΔIBV			0.0202 (0.0187)	0.0060 (0.0136)
Intercept	-0.1740*** (0.0399)	-0.1715*** (0.0396)	-0.2070***(0.0451)	-0.1848***(0.0422)
R-squared	0.0000	0.0001	0.0096	0.0105
Wald $\chi 2$ (p-values)		0.02 (0.9911)		2.07 (0.7223)
F statistics (p-values)	0.18 (0.8314)		1.20 (0.3127)	
Observation	200	200	200	200
Hausman	0.4561		0.1944	

Note: (a) represents fixed effects and (b) represent random effects. HEPS – historical cost earning per share, IEPS – inflation adjusted earnings per share, HBV – historical cost book value, IBV – inflation adjusted book value, ΔIEPS – difference between inflation adjusted and historical cost earnings, ΔHEPS – difference between historical cost and inflation adjusted earnings, ΔHBV– difference between historical cost and inflation adjusted book value, ΔIBV – difference between inflation adjusted and historical cost book value. ***, ** and * Probability significant at 1%, 5% and 10% significant level. Standard errors in parenthesis.

Table 9 investigates how firms' information content presented in historical cost influences the individual firms market returns. Consistent with model 1 in table 7, the results find no significant relationship between the market return and the historical cost equity per share. Similar evidence is recorded for the relationship between historical cost book value and the market returns of the firms' at 0.01 significance

level. The results further report positive but significant relationship between historical cost book value and market return at 5% level in model 6a. The results further reveal that the incremental information content of the inflation adjusted equity per share and book value are all not statistically significant. The Hausman test report that in both model 5 and 6, fixed effects is appropriate. However, the estimated r-squared values of 0.0000, 0.0001, 0.0096 and 0.0105 suggest that the changes in market return are explained by 0.00, 0.01, 0.96 and 1.05 percent of the changes in the predictive variables in the models 5a, 5b, 6a and 6b respectively.

4.4.1 Impact of Inflation Adjusted Data on Market Returns

Table 10: Results of regression analysis

	7(a)	7(b)	8(a)	8(b)
IEPS	0.0003 (0.0005)	0.00003(0.00043)	-0.2215(0.1425)	-0.1457(0.1353)
IBV	0.02587 (0.0183)	0.01175 (0.0124)	0.06992**(0.0338)	0.0386 (0.0280)
ΔHEPS			-5.8917 (3.7836)	-3.8715 (3.5924)
ΔHBV			0.0497 (0.0321)	0.0326 (0.0305)
Intercept	-0.2043*** (0.0451)	-0.1854*** (0.0421)	-0.2070***(0.0451)	-0.1848***(0.0422)
R-squared	0.0042	0.0045	0.0096	0.0105
Wald $\chi 2$ (p-values)		0.89 (0.6402)		2.07 (0.7223)
F statistics (p-values)	1.17 (0.3128)		1.20 (0.3127)	
Observation	200	200	200	200
Hausman	0.2546		0.1958	

Note: (a) represents fixed effects and (b) represent random effects. HEPS – historical cost earning per share, IEPS – inflation adjusted earnings per share, HBV – historical cost book value, IBV – inflation adjusted book value, ΔIEPS – difference between

inflation adjusted and historical cost earnings, ΔHEPS – difference between historical cost and inflation adjusted earnings, ΔHBV– difference between historical cost and inflation adjusted book value, ΔIBV – difference between inflation adjusted and historical cost book value. ***, ** and * Probability significant at 1%, 5% and 10% significant level. Standard errors in parenthesis.

Although, positive, the results models 7 report insignificant relationship between the inflation adjusted equity per share and the market returns. The results also show positive but insignificant relationship between the market return and inflation adjusted book value at 1% significance level. However, in model 8a the results report positive statistical significance between inflation adjusted book value and market return at 5% significance level. Notwithstanding, both the incremental information content adjusted for historical cost in model 8a and 8b are statistically insignificant at 1% level. These findings confirm evidence from Zango (2012) stipulating that firms should employ either current cost or current purchasing power approach to ensure reliability in reporting since historical cost may be insufficient in an inflationary environment such as the case of Ghana. The Hausman tests reports that fixed effect is appropriate for both models 7 and 8 respectively. However, the estimated r-squared values of 0.0042, 0.0045, 0.0096 and 0.0105 reveal that changes in the market returns of the firms are explained by approximately 0.42, 0.45, 0.96 and 1.05 percent of the changes in the predictive variables.

In conclusion, based on the r-squared values in models 1, 3, 5 and 7, it is observed that inflation adjusted data is value relevant than historical cost. These findings indicate that an inflation-adjusted book value and earnings per share provide better information policy decisions for shareholder assessment of management performance. These support findings from prior studies (see Effiong, Udoayang and Asuquo 2010;

Perera and Thrikawala 2010; Khanagha 2011; Masouleh, Ansari and Sadeh 2013) indicating that historical cost based estimates may deplete shareholders capital by reducing the operating ability of the company's assets and hence may send misleading signals which may influence decision making at the firm level in the long term. Also, these findings reveal that the inflation adjusted cost accounting expounds on an implicitly higher proportion changes present in the market-to-book ratios of the firms hence imperative in assisting both the firms and prospective investors in making relevant decisions concerning business performance over changing price levels. However, the incremental information content of the inflation and historical cost data in models 2, 4, 6 and 8 suggest that both inflation adjusted and historical cost accounting are value relevant in financial reporting.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 INTRODUCTION

As reiterated in chapter one, this study examines the value relevance of inflation-adjusted and historical cost based income and equity. The notion of Ghana being a high inflationary country in a fast paced global economic makes it ideal for an effective development of relevant accounting information measures to cushion firms financial reporting. This notwithstanding, to the best of the researchers knowledge, little or no attempt has been made to develop a theoretical model that will assess the financial health of information content reported by Ghanaian firms. This study therefore attempts to fill this gap among others by assessing the value relevance of inflation adjusted and historical cost accounting information content of listed firms on the Ghana Stock Exchange. This chapter provides a general summary and conclusions from the findings of the study, as well as the policy implications resulting from the findings. At the end of the chapter, limitations of the study and suggestions for further studies are also provided.

5.1 SUMMARY OF MAIN FINDINGS

The study investigates the value relevance of inflation adjusted and historical cost based accounting information content reported by listed firms on the Ghana Stock Exchange. The study uses data from financial information of twenty listed firms spanning from 2004 to 2013.Students't-statistics and panel data regression analysis are used to estimate the respective models for the analysis. From the discussion of the results, there is enough evidence to establish that the models formulated are significant for predictive purposes. This indicates that the regression function stated

gives substantial grounds in reporting the value relevance of inflation adjusted and historical cost information content in financial reporting.

The basic objective is to explore, whether inflation adjusted is value relevant than historical cost based accounting in financial statement reporting. For this reason, the study explores two sub-questions: (1) whether there are differences between reported historical cost financial ratios and inflation-adjusted financial ratios; and (2) which valuation method is value relevant to investors'. The findings from the results indicate three distinct patterns. The first relates to the findings from the financial ratios. The second and third patterns relate to the impact of historical and inflation adjusted cost based accounting on the market value of equity and market returns. The first of the three patterns exhibit a direct association with reporting of financial ratios.

The results on the financial ratios suggest that firms historical cost based accounting reporting is value relevant in reporting the ratios of net sales to total assets, total liabilities to total assets and accounts receivables to total assets. This findings emanate from the fact that since these financial ratios are related to the nominal monetary value of the commodities traded, it is best observed in its historical cost than adjusting for inflation. This confirms propositions of prior studies implying that since historical cost is directly linked to past decisions on actual transactions of the firm and hence, makes cost of commodities to be best verified in their nominal monetary value which minimises the risks associated with price manipulations by managers.

However, further evidence reveals that for inventory to total assets, fixed assets to total assets and book value of equity ratios, it is best to use inflation adjusted accounting valuation method in their reporting. This finding is consistent with predictions of prior studies indicating that due to operations in a high inflationary

environment, long term assets of the firms need to be adjusted for price changes over the life span of the asset. This further denotes that in periods of rising prices, historical cost may not be a good measure of these financial ratios since it may overstate and understate the firm's performance hence, misrepresent the relative financial strength of the business in the payment of taxes and dividends at the detriment of the firm. Contrarily, the results on earnings per share show that there is no significant difference between historical cost based and inflation adjusted cost based estimates implying that on the average an increase in both revenue and monetary gains are compensated for by an increase in the expense and monetary losses in the income statement of the listed firms.

On the second pattern of the findings, the results examine firms information content presented in historical cost accounting data. The results in model 2 show that there exist positive and significant relationship between historical costs based earnings per share and market value of equity. On the contrary, the results show negative but statistically significant relationship between market value of equity and historical costs book value of the firms. However, the results on market returns on the other hand show no association between market returns and historical cost equity but not book value. The changes in the earnings due to inflation adjustment record negative but significant relationship with the firms market value of equity whilst change in the book value due to inflation adjustment is found to be positive and significant.

The third finding which investigates the importance of information content of the firms adjusted for inflation denote that there exist positive and significant relationship between inflation-adjusted equity per share and market value of the firm's equity in mode 8. However, the results further reports negative relationship between inflation-adjusted book value and market value of the firm but positive association with market

returns. The results further, report positive association for inflation adjusted earnings due to historical cost, whilst the inflation adjusted book value due to historical cost record negative association with the market value of equity.

5.2 CONCUSION

The study examines the value relevance of inflation adjusted and historical cost based data in predicting accounting information content reported by listed firms in Ghana. Financial data of twenty listed firms spanning from 2004 to 2013 are used for the analysis. Student's t-statistics and panel data regression models are developed to examine the effects of inflation adjusted and historical cost information on financial statement reporting in Ghana. The results suggest that although both the inflation adjusted and historical cost are value relevant in comparing financial ratios, the historical cost information is best for comparing nominal monetary financial ratios whilst inflation adjusted information is good for comparing financial ratios with long term accounting information.

Although, the explanatory power reveals that inflation adjusted data is value relevant than historical cost, both the incremental effects of the inflation adjusted and historical cost data suggest that inflation and historical cost accounting are both value relevant in reporting accounting information. The importance of this study may be viewed from its contribution to fill an important gap in literature hence serve as a reference point on which future studies can be replicated. Practically, this study would help decision makers to focus on reporting financial information using the appropriate method. However, the overall findings do not discredit the value relevance of the traditional historical cost accounting but recommends that it should be used complementarily with the inflation adjusted information in financial reporting since

this will help both the management and investors to take into account changing price levels on their investments decisions.

5.3 POLICY IMPLICATIONS

The overall findings of the study reveal that inflation adjusted information content of financial statements is value relevant than historical cost based information for reporting financial statements in Ghana. Based on these findings of the study proposes the following policy recommendations;

It is recommended that firms should prepare their financial statements using both inflation adjusted and historical cost based accounting information content simultaneously. This will help users of financial statements such as prospective investors and shareholders to appreciate the true financial position of the firm as well as its dividend policy without loss of relevant investment information.

Also, it is recommended that the security and exchange commission should put policies in place that will serve as a precondition for all listed firms to file their annual returns in inflation adjusted information content in addition to the tradition historical cost accounting reporting standard. The submission of annual accounts and financial reports adjusted for price changes should be made a pre-requisite regulation for firms before listing on the stock exchange. This will help cater for time value of invested capital and inflation risk.

Constant workshops should also be embarked on by the Professional Accounting bodies in Ghana such as Institute of Chartered Accountants – Ghana (ICAG) on the benefits of firms complementing inflation adjusted content with historical cost based accounting in financial reporting since the traditional historical cost accounting valuation method in a highly inflationary environment such as Ghana is less adequate

in conveying financial information for decision making. This will create maximum awareness on the need for firms to adapt to the changing macroeconomic environment in Ghana hence lead to a more accurate assessment of managers operating performance.

Finally, it is recommended that future researchers should consider a comparative analysis that will investigate whether inflation adjusted is value relevant for short or long term information content reported by firms. Since the data employed in the study captures only twenty (20) listed firms, future studies should consider using more variables that have essence in determining the value relevance between inflation and historical cost based accounting in Ghana to make generalisation.

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