

A STUDY TO MEASURE QUALITY OF EARNINGS IN FINANCIAL  
STATEMENTS OF COMPANIES LISTED AT THE NAIROBI STOCK  
EXCHANGE

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## DECLARATION

This management Research paper is my original work, and has not been presented for the award of a degree in any other university.

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This management Research paper has been submitted for examination with my approval as the University Supervisor.

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## **DEDICATION**

To my two daughters Gloria and Esther, May this serve as an inspiration for them to excel and lead a life with a purpose.

## ABSTRACT

Concerns about the quality of earnings intensify as economies turn down, companies founder, and investors lose. With the bursting of the recent stock market bubble, business powerhouses like Enron-Andersen in the US and Uchumi in Kenya collapsing, the quality of reported earnings is again under scrutiny. One role of responsible accounting is to anchor investors on fundamentals. It has been extensively argued in (Helsingfors, 2005) that it would be useful if the value of the firm could be read directly from the balance sheet. This would be the case if assets and liabilities would reflect proper estimates for expected net present values and the firm's all future cash flows. However, the estimation of fair values of assets without observable market prices would be dependent on managers' competence and discretion and would thus be unreliable (Helsingfors, 2005). It is against this background that current study sought to establish the quality of earnings in financial statements of the 48 companies listed at the Nairobi Stock Exchange for the period covering 2000 to 2004.

The study was a cross sectional census survey of all the 48 firms quoted at the NSE from 2000 to 2004. The monthly stock returns were computed using the closing prices of stocks. Earnings per share were adjusted for annual bonuses as appropriate. The monthly return on stocks for each listed company was averaged over a 12-month period to obtain a representative stock return for each year. In analyzing the data, a time series auto correlation of earnings per share and return on stocks was conducted to check for consistency and data reliability.

The autocorrelations for stock returns were consistently positive for all the 16 lags while the autocorrelations for earnings per share (EPS) were both positive and negative. The consistency of the autocorrelation coefficients for stock returns (SR) depicts data reliability while the inconsistency of the autocorrelations for earnings per share depicts low earnings quality. The paired sample t-statistics revealed a substantial difference between earnings per share and stock returns, a pointer to the fact that the earnings per share might have been over specified in most of the firms to blindfold investors

It can therefore be concluded that quality of earnings in financial statements are compromised and therefore cannot be relied on by investors, lenders, government authorities, customers, suppliers, and employees of these listed organizations in their decisions for investment, taxes and trading. This is a pointer to the low earnings quality that is characteristic of the reporting in the financial statements of companies listed at the Nairobi Stock Exchange.

The results of the study is an awakening call on the Capital Markets Authority (CMA) to come into play and ensure reliability, quality and value-relevance of reported earnings in financial statements of companies listed at the NSE. In the meantime, investors are urged to consult investment analysts in identifying firms with different degrees of value-relevant earnings rather than on reported earnings. This research is in tandem and concurrence with earlier researches and supports the findings and conclusions.

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## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 Background

Taking it broadly, accounting is about the measurement and communication of economic information to decision makers (Watts and Zimmermann, 1986). Dependant on the users of the information, accounting is divided into internal and external accounting. External accounting strives to help shareholders in decision-making concerning their relationship with the firm. It should serve as a useful information source for investors, lenders, authorities, customers, suppliers, and employees in their decisions on investments, taxation, whom to do business with or whom to work for (Helsingfors, 2005)

Financial statements are crucial sources of information and their properties – including earnings quality – are determined primarily by the economic uses to which they are put. “Investors, creditors, and others often use reported earnings and information about the components of earnings in various ways and for various purposes in assessing their prospects for cash flows from investments in or loans to an enterprise. For example, they may use earnings information to help them estimate "earning power" or other amounts they perceive as "representative" of long-term earning ability of an enterprise (Sloan et al, 2001).

The responsibility for preparing and publishing external accounting information lies with the firm's managers. Ideally the managers use their internal knowledge of the firm's current state and the business circumstances to prepare the information, thus giving a true

and fair view of the firm's state and performance. To achieve the aimed usefulness for decision-making, the information needs to be both relevant and reliable (Helsingfors, 2005).

From the valuation perspective, it would be useful if the value of the firm could be read directly from the balance sheet. This would be the case if assets and liabilities would reflect proper estimates for expected net present values and the firm's all future cash flows. However, the estimation of fair values of assets without observable market prices would be dependent on managers' competence and discretion and would thus be unreliable (Helsingfors, 2005). Measures of earnings and information about earnings disclosed by financial reporting should, to the extent possible, be useful for the intended purposes as they are important aspects of evaluating an entity's financial performance.

Earnings quality refers to the ability of reported earnings to reflect the company's true earnings, as well as the usefulness of reported earnings to predict future earnings. Earnings quality also refers to the stability, persistence, and lack of variability in reported earnings (Jodi, Giacomino, and Akers, 2005). Lower earnings quality in private firms may imply failure of accounting or auditing standards, or even the need for stricter regulation of financial reporting by private firms, or that their financial reporting practices are sub-optimal (Ball, Kothari and Robin, 2000 and Ball, Robin and Wu, 2000a,b).

Earnings quality is often regarded as the investment manager's best defence against low quality financial reporting. A growing body of latest academic research also demonstrates that the market does not fully impound information about earnings quality at the time that detailed the financial statement data are released (Gradient, 2005). A market information based approach to measuring earnings quality can yield profitable investment and trading strategies for investors.

## **1.2 Problem Statement**

There is considerable convergence in the view that an "expectation gap" exists in what investors, creditors and debtors expect and what the accounting profession can deliver. The expectation gap exists partly because publicly traded companies have a great deal of discretion in choosing accounting principles and in making estimates that impact their reported financial results. The other important cause of expectation gap is the nature of the assurance role that the auditing profession fulfills. While the investment community expects that majority of the accounting irregularities should be detectable by the auditor, in reality this is not the case. The auditing profession and its client base (listed companies at the stock exchanges) as a whole make a cost-benefit decision to use a sampling approach to the review of accounting events. There is considerable evidence that significant accounting issues sometimes go undetected during the audit (Gradient, 2005).

Under the General Accepted Accounting Principles (GAAP), the amount of discretion that a company has in preparing financial statements is controlled by two fundamental principles: conservatism and objectivity. Under the conservatism principle, when

choosing among the alternative accounting procedures, the accountant should choose procedures that produce the lowest net income (and net sales). Information is considered objective if it succeeds in measuring what it is intended to measure, without bias (Gradient, 2005). In practice however, these two guiding principles are often stretched to the limit or even ignored.

Management may have competing motivations that drive their choice of accounting policies and influence their periodic estimates. Because of these competing motivations, companies may manipulate accounting numbers in order to facilitate the financial reporting goals established by the management. In this regard, virtually all firms operating within the bounds of GAAP use minor accounting gimmicks to present financial results in a particular light (for example overstating or understating their true financial profitability/ financial condition (Gradient, 2005).

Despite the efforts of the accounting profession to ensure objectivity and conservatism, it is still relatively easy to manipulate accounting figures through either unethical (but not necessarily illegal) and/ or fraudulent means. According to Gradient (2005), management can manipulate accounting numbers either through: recording fictitious transactions/ amounts, recording transactions incorrectly, recording transactions either early or late, misstating percentages or amounts involved in a transaction, misstating the amounts of assets or liabilities, changing accounting methods or estimates for no substantive reason, using related party transactions to alter reported profits.

The result of impairing the two guiding principle is compromised earnings quality yet investors, lenders, government authorities, customers, suppliers, and employees of listed organizations rely on these financial statements in their decisions for investment, taxes, trading among others.

These challenges lend credence to the following research question: Can investors and other stakeholders rely on reported earnings in financial statements of companies listed in the NSE as an indicator of the financial performance of these entities?

It against this background that the current study studied quality of earnings in financial statements of companies listed at the Nairobi Stock Exchange.

### **1.3 Objective of the Study**

To establish the quality of earnings in financial statements of companies listed at the Nairobi Stock Exchange.

### **1.4 Importance of the Study**

Beaver in Bauman (1996) indicates: "current earnings are useful for predicting future earnings and that future earnings are an indicator of future dividend-paying ability", quality and credibility of financial statement representation/ reporting practices are important fundamentals of the economic process and that various parties are affected by the way financial reporting is conducted. High-quality financial reporting is essential to liquid and efficient capital markets. Investors, creditors, government authorities and other

users of financial statements rely on the availability of transparent, credible and comparable financial information. As financial-reporting woes and questions about the integrity of accounting firms mount, investors may be tempted to abandon stocks. What chance does the individual investor have of sidestepping the next bookkeeping blowup? This study has attempted to address this fundamental stock market issue in Kenya.

### **1.5 Scope of the Study**

The conceptual scope of the study was to establish the whether earnings in financial statements of companies listed in the NSE can be relied on by investors and other interested groups. Documentation scope covers aspects relating to earnings quality and stock returns. The geographical scope was limited to the 48 listed companies at the Nairobi Stock Exchange.



## **CHAPTER TWO**

### **2.0 LITERATURE REVIEW**

#### **2.1 Theoretical Literature Review**

##### **2.1.1 Earnings Quality**

A variety of earnings-quality definitions exist. Teets (2002) states that “some consider quality of earnings to encompass the underlying economic performance of a firm, as well as the accounting standards that report on that underlying phenomenon; others consider quality of earnings to refer only to how well accounting earnings convey information about the underlying phenomenon.” Pratt in Hodge (2003) defines earnings quality as “the extent to which net income reported on the income statement differs from true earnings” Penman (2003) indicates that quality of earnings is based on the quality of forward earnings as well as current reported earnings. Schipper and Vincent (2003) define earnings quality as “the extent to which reported earnings faithfully represent Hicksian income,” which includes “the change in net economic assets other than from transactions with owners.”

##### **2.1.2 Models for Measuring Earnings Quality**

Using various definitions of earnings quality, researchers and analysts have developed several models. The models are used for very narrow, specific purposes. While the criteria used in these definitions and models overlap, none provide a comprehensive view of earnings quality. Lev-Thiagarajan model among others have been empirically tested for evidence of usefulness related to quality of earnings. Lev and Thiagarajan’s findings

confirm that their fundamental (earnings) quality score correlates to earnings persistence and growth, and that subsequent growth is higher in high quality-scoring groups.

### **Piotroski (2000) metric**

Piotroski (2000) used three components: net working-capital growth rate, net concurrent assets, deferred taxes; incremental earnings and free cash flow production relative to each new dollar of revenue or book value; and 3) nine financial indicators, put together for a single gauge of fundamentals. Items viewed favorably included positive return on assets and operating cash flow; increases in return on assets, current ratio, gross margin, asset turnover; operating cash flow that exceeds net income. Items viewed unfavorably: increases in long-term debt-to assets; presence of equity offerings. Each indicator given a 1 if favorable, a 0 if not; scores aggregated on a 0 to 9 scale.

### **Lev-Thiagarajan (1993)**

Each fundamental is assigned a value of 1 for positive signal, 0 for negative signal. Each of 12 factors is equally weighted to develop aggregate fundamental score. Negative signals include: decrease in gross margins disproportionate to sales; disproportionate (versus industry) decreases in capital expenditures; increases in expenses disproportionate to sales; and unusual decreases in effective tax rate.

Inventory and accounts receivable signals measure percent change in each (individually) minus percent change in sales; inventory increases exceeding cost of sales increases and disproportionate increases in receivables to sales are considered negative. Unusual

changes in percent change of provision for doubtful receivables, relative to percent change in gross receivables, are also viewed negatively. Percent change in sales minus percent change in order backlog is considered an indication of future performance while labor force reductions and unqualified audit opinions are viewed favorably.

### **Merrill Lynch (2002)**

Merrill (2002) model outline the following results: higher return on total capital percentage (pretax operating return on total capital); cash realization ratio (how close net income figure is to being realized in cash) above 1.0; productive asset reinvestment ratio (commitment to maintain investment in capital assets) above 1.0 and effective tax rate percentage (degree of reliance on reporting low tax rates) at or above average for all companies are all indicators of higher quality of earnings.

### **Michael Krensavage (2003)**

The model framework outlines a rating of 1 (worst) to 10 (best) assigned to each of 10 proprietary benchmarks. Equally weighted ratings are combined to determine earnings quality score. Indicators of lower earnings quality include: increases in receivables; earnings growth due to decreased tax rate; capitalization of interest; high frequency/magnitude of one-time items. The results further indicates that cash flow that grows along with net income and increases in gross margin positively impact earnings quality.

### **S&P Core Earnings (2002.)**

The model attempts to give more-accurate representation of true performance of ongoing operations. Included in core earnings are: employee stock option grant expenses; restructuring charges from ongoing operations; write-downs of depreciable or amortizable operating assets; pension costs; merger/acquisition expenses; and unrealized hedging gains and losses. Excluded items are: goodwill impairment charges; gains (losses) from sales of assets; pension gains; litigation or insurance settlements; and reversal of prior-year charges and provisions.

### **David Bianco (2003) model**

The model compares GAAP to operating earnings; difference represents net one-time criteria. Employee stock option expenses are deducted from operating earnings while assumed pension asset returns are adjusted to market value times interest or discount rate.

### **Jones' (1991) model**

The first approach is based on Jones' [1991] separation of total accruals into its normal component (accruals statistically associated with changes in revenues, and property, plant and equipment) and its abnormal component (the difference between total and normal accruals). This measurement approach assumes that accruals shift with accounting fundamentals as captured by revenues and fixed assets, with deviations from this relation capturing abnormal accruals. The Jones model has been used in investigations of earnings management, as manifested by the behavior of abnormal accruals at or around a specific

event or in a specific context (e.g., import relief investigations, Jones [1991]; share offerings,

Earnings management research tends to focus on the signed abnormal accrual because the research context typically generates a directional prediction about earnings management. In contrast, the Jones-based earnings quality metrics examine focus on the unsigned abnormal accrual, which we interpret as an inverse indicator of earnings quality.

#### **Dechow and Dichev's [2002] model**

Dechow and Dichev's (2002) model posits a relation between current period working capital accruals and operating cash flows in the prior, current and future periods. In this framework, working capital accruals reflect managerial estimates of cash flows, and the extent to which those accruals do not map into cash flows (due to intentional and unintentional estimation errors) is an inverse measure of earnings quality.

Jennifer (2002) study examined the relation between eight EQ metrics (four based on the Jones model, three based on the Dechow-Dichev model, and one based on a factor analysis of the other seven) and firms' costs of debt and equity capital. The results showed that firms with lower quality earnings have lower debt ratings and higher ratios of interest expense to interest-bearing debt than firms with higher quality earnings (all differences significant at the .001 level). Controlling for other variables known to affect debt costs (leverage, firm size, return on assets, interest coverage, and earnings

volatility), the results suggest that firms with the best earnings quality enjoy an 80-160 basis point lower cost of debt relative to firms with the worst earnings quality.

Other studies that examine unsigned abnormal accruals include Warfield, Wild and Wild [1995], Becker, DeFond, Jiambalvo and Subramanyan [1998], Bartov, Gul and Tsui [2000], and Klein [2002]. Indirect tests show that firms with lower earnings quality have significantly (at the .001 level) larger earnings-price ratios relative to their industry peers; that is, a dollar of earnings commands a lower price multiple when the quality of those earnings is low.

While the Jones-type model was developed to identify management's intentional estimation errors, research indicates that this identification is imperfect (e.g., Dechow, Sloan and Sweeney (1995)). In addition, earnings quality measures based on the Dechow-Dichev's model reflect accruals estimation errors from all sources, including firm-specific accounting and governance choices, managerial expertise and business fundamentals. In fact, Dechow-Dichev's report statistically reliable associations between their measure of earnings quality and firm characteristics such as length of operating cycle and firm size.

Ecker et al (2005) describe a returns-based representation of earnings quality, in the form of the coefficient estimate (the e-loading) from firm-specific regressions of daily excess returns on a factor-mimicking portfolio capturing earnings quality, controlling for other risk factors. The analysis is predicated on Francis et al.'s (2005) analysis of accruals

quality as a valid empirical measure of information risk as a priced factor. Theoretical support for information risk as a priced factor is provided by analytical models, for example, Easley and O'Hara (2004), Leuz and Verrecchia (2005), and Lambert, Leuz and Verrecchia (2005). Each of these studies posits a different information risk pricing mechanism: Easley and O'Hara provide a trading model in which better quality reporting reduces the information risk faced by investors who have access to public signals only; Leuz and Verrecchia provide a real effects model in which higher quality reporting supports a better alignment between investors and managers with respect to investment decisions (a solution to an agency problem); and Lambert et al. posit a framework in which information risk may be priced because of the inability to fully specify a forward-looking CAPM beta. The reading of these papers suggests that different reasons for why information risk is priced may coexist; for example, Lambert et al. (2005) explicitly note that apart from their own model, effects such as those in Easley and O'Hara can influence firms' costs of capital.

Ecker et al (2005) document that e-loadings are a reliable returns-based representation of earnings quality as measured by accruals quality. That is, e-loadings are positively associated with other measures of earnings quality; they proxy for the uncertainty in earnings as viewed by investors and by analysts; and they exhibit expected over-time patterns as a function of firm age. Further, in settings where earnings quality has arguably changed (restatements, lawsuits, and bankruptcies), e-loadings show predictable patterns both over-time and in relation to e-loadings for firms, which did not experience these events.

Ball and Lakshmanan (2002) measure a single attribute of earnings quality—timeliness in financial-statement recognition of economic losses. The two authors argue that timely loss recognition increases the economic efficiency of financial statement use, particularly in corporate governance and loan agreements. Their measure timeliness of loss recognition follows from the time-series behavior of private and public firms' earnings. The measure exploits the transitory nature of economic income. Economic income is defined as change in market value of equity, adjusted for dividends and capital contributions, and incorporates changes in the present values of expected earnings as viewed by investors and by analysts; and they exhibit expected over-time patterns as a function of firm age.

Watts and Zimmerman (1986) introduced the notion that the incentives of managers and auditors exert an important influence on financial reporting practice. Ball and Shivakumar (2002) argue that there is a lower incentive of managers and auditors in private firms to recognize economic losses in a timely fashion.

Chan et al (2001) paper documents that there are at least three possible explanations for why accruals predict stock returns. Under the conventional interpretation, high accruals smell of earnings manipulation by managers. On the other hand accruals may serve as leading indicators of changes in a firm's prospects, without any manipulation by managers. Accruals may also predict returns if the market views accruals as reflecting past growth, and extrapolates such growth to form expectations about future performance.



### 2.1.3 Evaluation of Earnings.

According to Van Horne (2001), several indicators may be used in valuing a company.

Net Operating Income (NOI), which is the earnings from operations before interest and taxes, is a useful tool in the evaluation of a firm's earning power. If there are no recurring items on the income statement, then NOI is equal to the Earnings Before Interest and Taxes (EBIT).

Return On Net Assets (RONA) is the measure of the firm's operating performance. It indicates the firm's earning power. It is a product of assets turnover, gross profit margin and operating leverage. Operating leverage is the change in EBIT for a given change in sales.

$$\text{RONA} = \text{EBIT} / \text{NA} = \text{SALES} / \text{NA} * \text{GP} / \text{SALES} * \text{EBIT} / \text{GP}$$

#### Profitability Ratios

Profitability is the net result of a large number of policies and decisions. It shows the combined effects of liquidity, assets management, and debt management on the operating results.

##### i) Profit margin on sales:

This is computed by dividing net income by sales, and it gives profit per shilling of sales.

$$\text{Profit Margin on Sales} = \text{Net Income available to Common Stockholders} / \text{Sales}.$$

## ii) **Basic Earnings Power Ratio:**

This is calculated by dividing earnings before Interest and Taxes (EBIT) by the total assets:

$$\text{BEPR} = \text{EBIT} / \text{Total Assets}$$

It is useful for comparing firms in different tax situations and with different degrees of financial leverage.

## iii) **Return on Common Equity**

The ratio of net income to Common Equity measures the return on Common Equity (ROE), or the rate of return on the stockholders investment:

$$\text{ROE} = \text{Net Income available to Stockholders} / \text{Common Equity}$$

## **Market Value ratios.**

These relate the firm's stock price to its earnings and book value per share. These ratios give management an indication of what investors think of the Company's past performance and future prospects. If the firm's liquidity, asset management, debt management, and profitability ratios are good, then its market value ratios will be high, and its stock price will probably be as high as can be expected.

## **Price Earnings ratio**

The price earnings ratio is used to value the firm's performance as expected by investors. It indicates investor's judgment or expectations about the firm's performance.

$$\text{P/E ratio} = \text{Price per share} / \text{EPS}$$

P/E ratio is higher for firms with high growth prospects.

## Other Valuation Methods

### Capital Asset Pricing Model (CAPM)

This approach is helpful in determining the appropriate discount rate to employ in discounting expected dividends to their present values. This rate is the risk free rate plus a premium that is sufficient to compensate for the systematic risk associated with the expected dividend stream.

### Dividend Discount model

This method involves determining the market price per share by discounting the future dividends at the required rate of return.

$$P_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1+k)^t}$$

Where:

$P_0$  = market Price per share

$D_t$  = Expected Dividend

$t$  = End of period  $t$

$k$  = required rate of return

The market price per share is multiplied by the number of outstanding shares to determine the market value of the firm. The total value of the Company's existing stock is equal to the discounted value of the total dividend stream, which will be paid to the stock outstanding.

The book value concept is an Accounting concept where assets are recorded at their historic value, and then depreciated over their useful life. The difference between the book values of assets and liabilities is the net worth.

The replacement value is the amount that a Company would be required to spend if it were to replace all its existing assets in the current condition. This method ignores the benefits of intangible assets and the utility of existing assets.

If a Company were to sell all its assets, after terminating its business the proceeds make up the liquidity value.

Going concern value is the amount that a Company could realize if it sold its business as an operating one. The value includes the price paid for the intangible assets such as goodwill.

The market value of an asset or security is the current price at which the asset or security is being sold or bought in the market. For profitable firms, the market value is expected to be higher than the book value.

Some scholars however, seem to agree that the value of the firm is the worth of the common stock which is a function of the expected return, risk to which the stockholder is exposed, and the timing of returns.

The expected return is the cash flows the stockholder is expected to receive in the future.

Risk is the degree of uncertainty that the expected cash flows will be received and timing is the pattern of expected future cash flow receipt.

According to Pandey (2001), the value of a firm depends upon its expected earnings stream and the rate of return or the cost of capital.

An estimate of the expected returns from an investment encompasses the size but also the form, time pattern, and the uncertainty of return.

The returns from an investment may take many forms such as earnings, dividends, interest payments, or capital gains during a given period.

For an investor to calculate accurately the value of a security, he must be able to estimate when the returns are likely to be received; and the pattern that they are received. This is because of the time value of money. This knowledge will make it possible to properly value the streams of returns relative to alternative investments with a different time pattern of returns.

The required rate of returns on an investment is determined by the economy's real risk free rate of return, the expected rate of inflation during the holding period and a risk premium that is determined by the uncertainty of returns.

All investments are affected by the risk-free rate and the expected rate of inflation because these two variables determine the nominal risk-free rate. This implies that the risk premium is the only factor that causes the difference in required rate of returns.

## 2.2 Empirical Literature Review

Published pioneering studies to investigate issues related to earnings quality were conducted by Wilson (1986, 1987) using an event study methodology. Event studies generally use short return windows to measure the association between returns and the independent variable of interest. Studies cited above measure the association between stock returns and accrual components of earnings around the release of the annual financial report. Wilson's key conclusions are that operating cash flows and total accruals are differentially valued and that both are value relevant. That is the market appears to react to the disclose detailed cash flow and accrual data (value relevance) and that cash flows are more valued than accruals (differential valuation).

Wilson's findings are also supported by a number of studies that use an association methodology including Rayburn (1986), Bowen et.al (1987), Charitou and Ketz (1990), Livnat and Zarowin (1990), Vickrey (1993), Ali (1994), Pfeiffer et.al (1998), Vickrey et.al (2000). In contrast to event studies, association methodology generally use long return windows to gauge the association between contemporaneous returns and the variable of interest. In the context of earnings related studies this means that returns are measured over a long interval during in which information about the earnings is gradually released to the market place.

The fact that the market value of a shilling of cash flow more than a shilling of current on concurrent accruals imply that higher levels of accruals are indicative of lower quality of earnings. That is to say that, the degree to which a company must rely on accruals to

boost net income results in lower quality earnings. Nevertheless it is possible for the financial market to codify this deception and appropriately value companies based on some notion of baseline or sustainable earnings. Studies that have addressed this particular issue (Sloan, 1996 and Swanson and Vickrey (1997) find that contrary to the efficient markets hypothesis, disaggregating earnings into cash flow and accrual components is useful in identifying securities that are likely to outperform (or underperform) in the future. Thus the results of these studies imply that security prices do not fully reflect the information contained in cash flow and accrual components of earnings.

Following on the path of Sloan (1996) and Swanson and Vickrey (1997), academic researchers continue to develop simple empirical models that objectively assess earnings quality in order to predict return performance (for example Sloan et al, 2001, Chan et al 2001, Penman and Zang, 2001). The table below summarizes the result of recent academic working papers that focus on the predictability of simple earnings quality models. As shown in the table, these studies find that firms with higher (lower) levels of accruals tend to underperform (outperform) for the periods between 12-36 months after the detailed financial data.

**Table 2.1: Academic working papers on the predictability of simple earnings quality models.**

Study	Major findings
Sloan et al (2001)	<ul style="list-style-type: none"> <li>❖ Higher (lower) levels of accruals are associated with higher (lower) future returns</li> <li>❖ When firms are placed on deciles based on the level of total accruals, firms in the top decile (highest level of accruals) return 5.9% in the ensuing 12 months while firms in the bottom decile (lowest level of accruals) return 27.6%</li> <li>❖ Given their approach to operationalizing accruals variables, they find no benefit to disaggregating current and concurrent accruals.</li> </ul>
Chan et al 2001	<ul style="list-style-type: none"> <li>❖ Earnings increases accompanied by high (low) levels of accruals (suggesting low quality earnings) are associated with poor (strong) future returns</li> <li>❖ When firms are placed on deciles based on the level of total accruals, firms in the top decile (highest level of accruals) return 9% in the ensuing 12 months while firms in the bottom decile (lowest level of accruals) return 17.8%. Moreover the return differentials between deciles 1 to 10 persist for at least 36 months.</li> <li>❖ There is some evidence that individual accrual accounts provide incremental information over aggregated total accruals.</li> </ul>
Penman and Zang, 2001).	<ul style="list-style-type: none"> <li>❖ Higher (lower) levels of Q-score (High Q-score implies high earnings quality) are associated with higher (lower) returns</li> <li>❖ When firms are placed on deciles based on the value of the Q-score, firms in the lowest decile (worst earnings quality) return 17% in the ensuing 12 months while firms in the topmost decile (best earnings quality) return 26.1%.</li> <li>❖ There is some evidence that individual accrual accounts provide incremental information over aggregated total accruals</li> </ul>

Source: Gradient (2005).



## **CHAPTER THREE**

### **3.0 RESEARCH METHODOLOGY**

#### **3.1 Design**

This was an exploratory study meant to measure the reliability of earnings quality in financial statements of companies listed at the NSE. The design that was used in collecting the data was a cross –sectional survey of firms quoted at the NSE from 2000 to 2004.

#### **3.2 Population**

All firms that traded at the equity section of the Nairobi Stock Exchange for the period 2000 to 2004 were considered. There are 48 companies presently listed at the Nairobi Stock Exchange. This period is considered long enough to provide sufficient data to assist in time series correlation of earnings per share and stock returns. This study comprised a census since the population size is small (Mugenda and Mugenda, 1999)

#### **3.3 Data Collection**

The empirical tests employed two secondary data sources: annual financial statements and stock returns reports. Financial statement data were obtained from annual financial statements. Data on stock returns were obtained from Annual Stock Exchange Reports. This information was readily available from the Nairobi Stock Exchange.

### 3.4 Data Analysis

Our analysis of the quality of reported earnings adopted a comparison between earnings per share and stock returns. According to Sloan (2001) this measure is the stock returns over the twelve-month period encompassing the release of the next year's earnings. The monthly stock returns were computed using the closing prices of stocks. It was assumed that the dividend data did not affect the results as shown by Coutts (1997), Draper and Paual (1997). Earnings per share were adjusted for annual bonuses as appropriate. The following equation for return on stocks was used:

$$R_{i,t} = (P_{i,t+1} - P_{i,t}) / P_{i,t}$$

Where  $R_{i,t}$  = return on stock  $i$  for month  $t$  where  $t=1, 2, 3, \dots, 12$

$P_{i,t}$  = market price for stock  $i$  at the beginning of month  $t$

$P_{i,t+1}$  = market price for stock  $i$  at the end of month  $t$

The monthly return on stocks for each listed company was averaged over a 12-month period to obtain a representative stock return for each year.

In analyzing the data, a time series auto correlation of earnings per share and return on stocks was conducted to check for consistency.

A time series auto correlation is a diagnostic tool for time series data analysis and helps in describing the evolution of the process through time. Sample autocorrelations measure the correlations between observations at different observations at different distances

apart. A similar idea can also be applied to time series to check if successive observations are correlated. The autocorrelation coefficient measures the correlation between successive observations. The consistency of this autocorrelation coefficient defines reliability. The consistency in the autocorrelation of both stock returns (SR) and earnings per share (EPS) defines earnings quality. Also T-Test for difference between means of annual earnings per share and annual return on stocks was conducted to see if there is any significant difference between the two variables.

## CHAPTER FOUR

### 4.0 DATA ANALYSIS AND FINDINGS

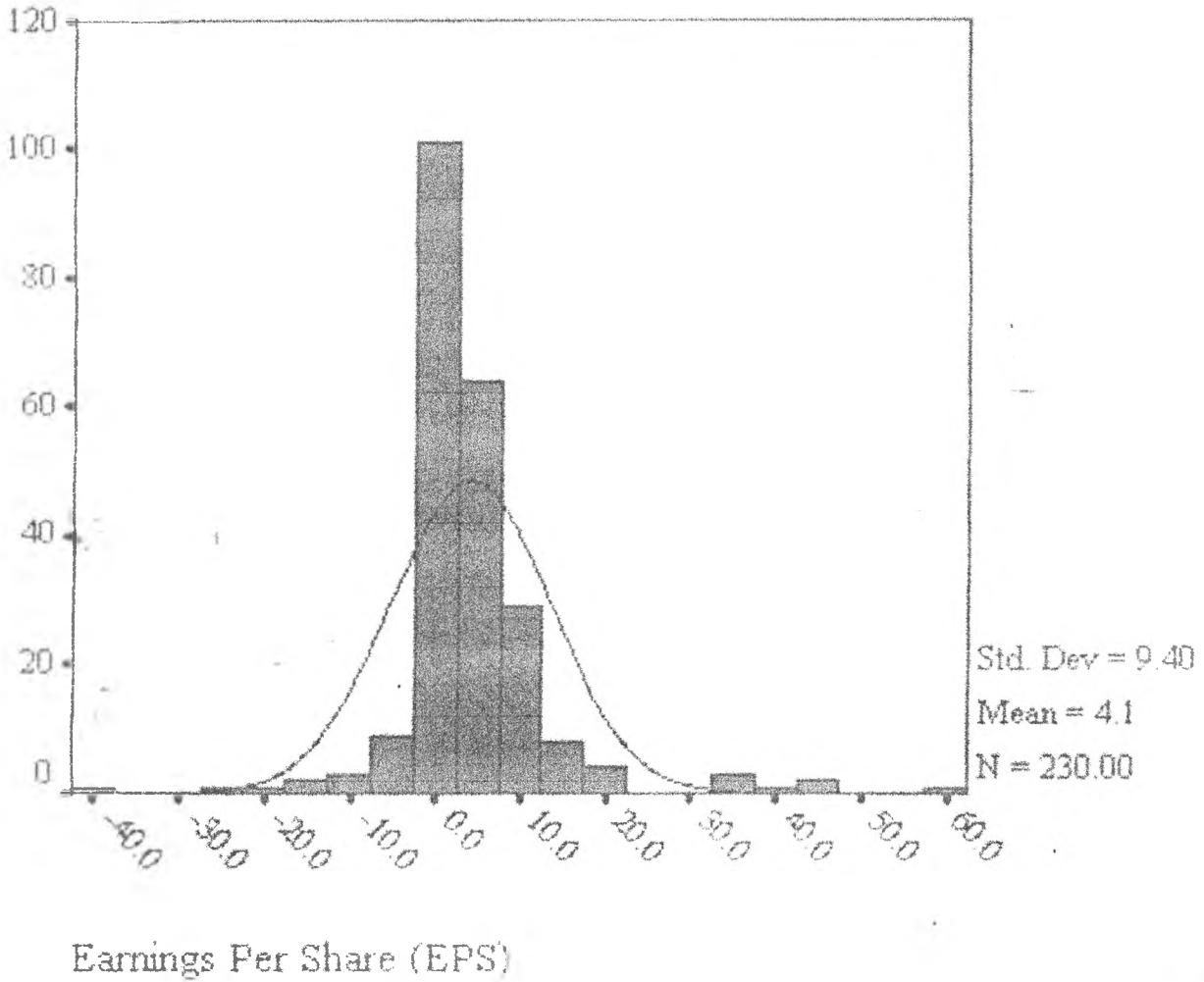
#### 4.1 Introduction

This study sought to establish the quality of earnings in financial statements of companies listed at the Nairobi Stock Exchange. The autocorrelation and t-test comparison of means between stock returns (SR) and earnings per share (EPS) were used as proxies for earnings quality to check for consistency between them. Independent t-test was used to test for significant difference between means of annual earnings per share and annual return on stocks while autocorrelation was used to assess the consistency between the two variables. Secondary data on stock returns (SR) and earnings per share (EPS) for the 48 companies was collected for 5 years covering 2000 to 2004 (see in appendix i for details).

#### 4.2 Distributional Assumptions

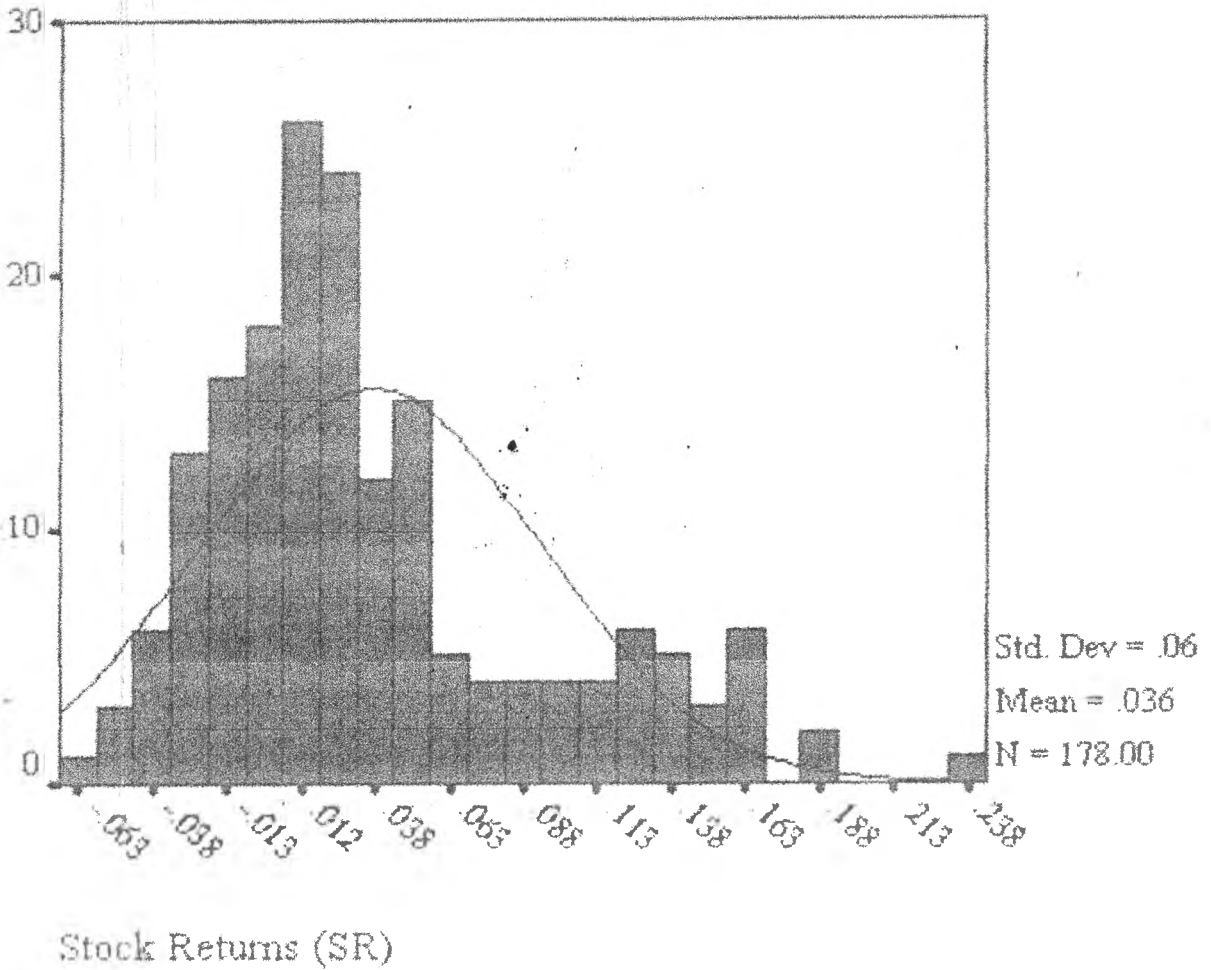
Time series modelling are usually carried out on the assumption that the data are normally distributed. Therefore, distributional assumptions for the two variables were first verified. The data for both the variables, earnings per share (EPS) and stock returns (SR) were plotted to test for normality conditions. Distribution of the normal curve for the earnings per share data satisfies the normality assumption. It can be seen that most of the observations are clustered around the mean earnings per share, forming a bell-shaped curve (Figure 4.1).

Figure 4.1: Distribution of earnings per share



Distribution of the normal curve for the stock returns data also satisfies normality assumption. It is clear from figure 4.2 that most of the observations are clustered around the mean stock returns.

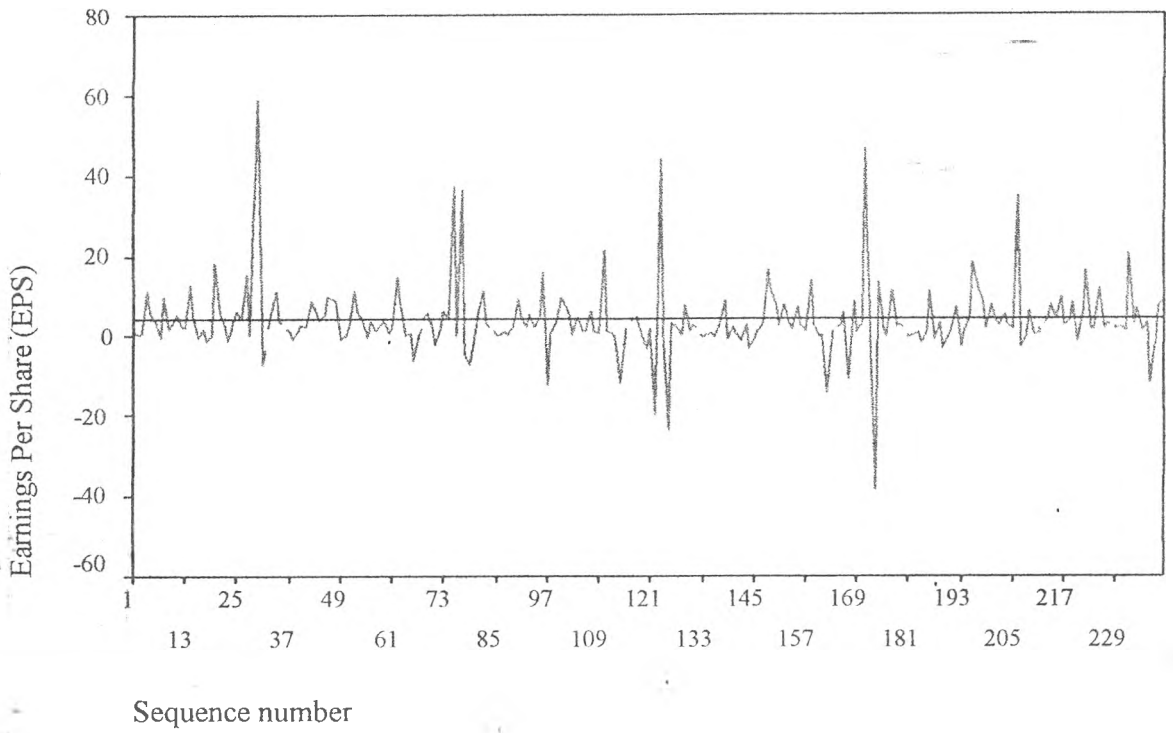
Figure 4.2: Distribution of stock returns



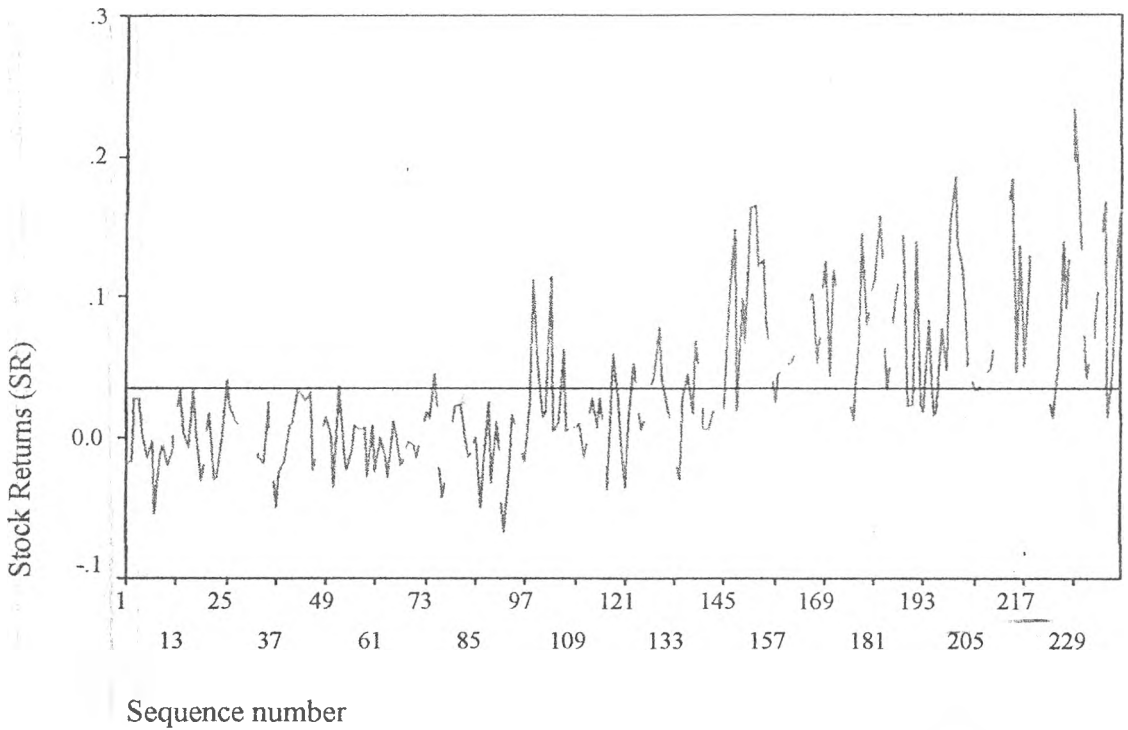
### 4.3 Time Series Descriptives

Next, the variation in the data was decomposed in a trend series to check the long-term change in the mean level of the two variables. Figure 4.3 and figure 4.4 show the cyclic sequence components of earnings per share and stock returns. It can be seen from the reference line that the mean of the series is 0.36 for stock returns and 4.1 for earnings per share.

**Figure 4.3: Cyclic trend for stock returns**



**Figure 4.4: Cyclic trend for stock returns response variable**



#### 4.4 Autocorrelations

Time series autocorrelations was then run to measure the correlations between the observations for earnings per share (EPS) and stock returns (SR). Table 4.1 shows that the autocorrelations for stock returns are consistently positive ( $>0$ ) for all the 16 lags while the autocorrelations for earnings per share (EPS) are both positive and negative. The results are also graphically represented in the autocorrelation functions (ACFs) figures 4.5 and 4.6. The consistency of the autocorrelation coefficients for stock returns (SR) depicts data reliability while the inconsistency of the autocorrelations for stock earnings per share depicts low earnings quality.

**Table 4.1: Autocorrelations**

Lag	Earnings Per Share (EPS)	Stock Returns (SR)
1	-.017	.444
2	-.125	.349
3	.073	.412
4	-.112	.367
5	.006	.240
6	.100	.243
7	-.032	.235
8	.012	.214
9	-.030	.257
10	.051	.273
11	-.018	.261
12	-.056	.268
13	.024	.308
14	-.002	.269
15	-.014	.333
16	.084	.293



Figure 4.5: ACF for earnings per share

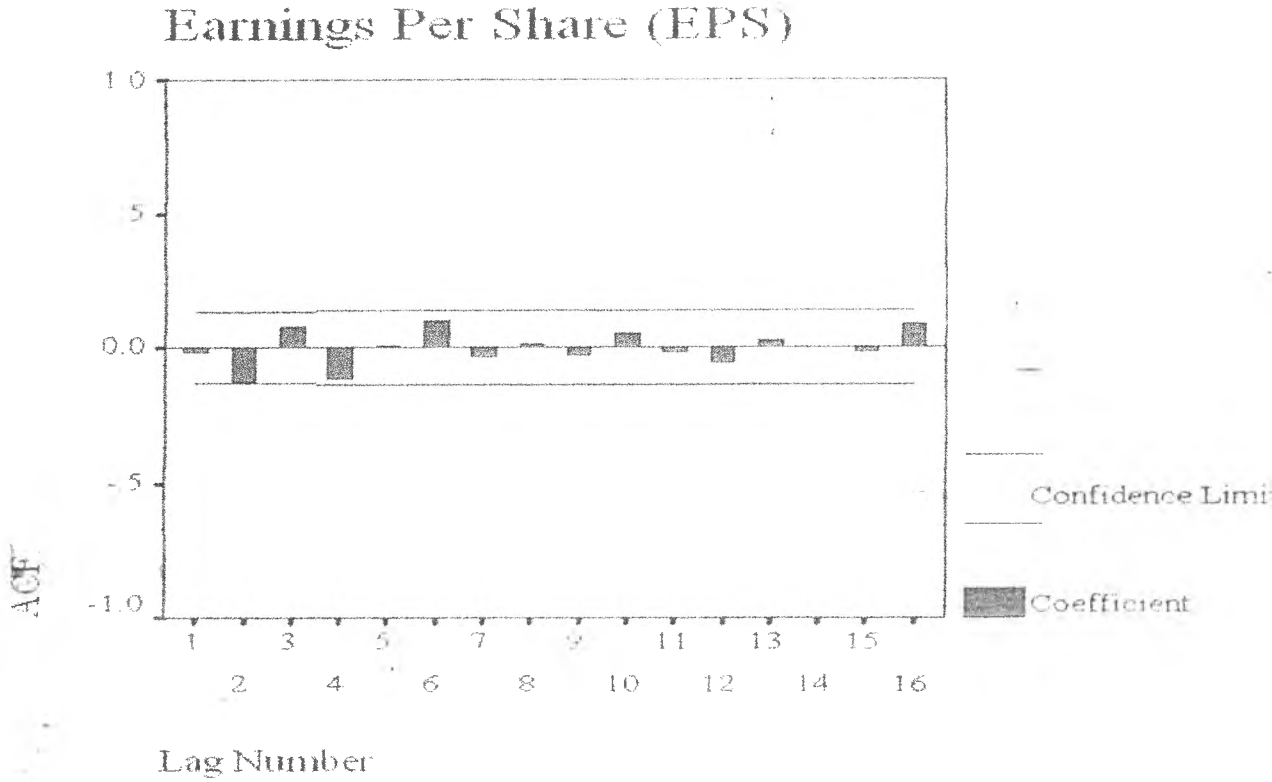
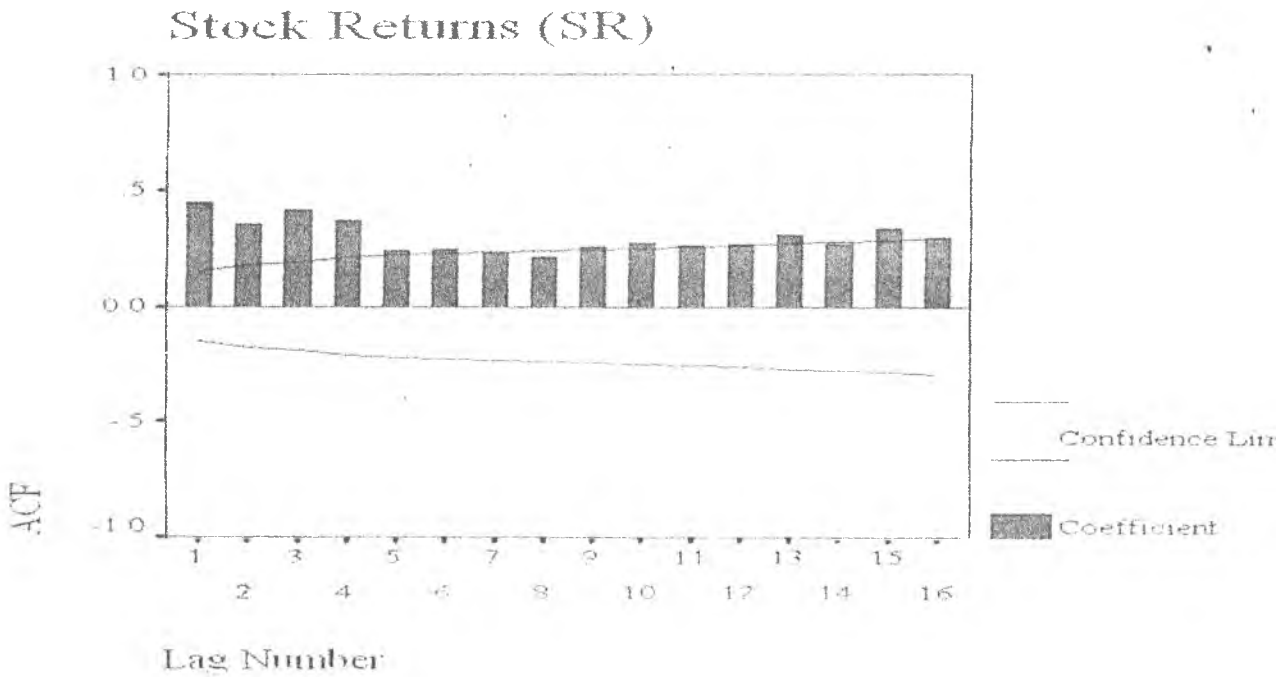


Figure 4.6: ACF for stock returns



#### 4.5 Paired Samples T-Statistics

Table 4.2 presents the paired sample t-statistics. On the basis of the T- values (6.869) and significance (0.000) with 177 degrees of freedom at 95% confidence level, significant difference between earnings per share and stock returns was observed. The large difference in the means of the two variables is a pointer to the fact that earnings per share might have been over specified in most of the firms to blind fold investors. This is a further indication of low earnings quality in reporting in the financial statement of companies listed at the Nairobi Stock Exchange.

**Table 4.2: Paired Samples T-Statistics**

	Mean	N	Std. Deviation	Std. Error Mean	T	Df	Sig. (2-tailed)
Earnings Per Share (EPS)	4.321	178	8.33	.624	6.869	177	.000
Stock Returns (SR)	.0361	178	.057	.00427			

## CHAPTER FIVE

### 5.0 SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

Concerns about the quality of accounting intensify as economies turn down, companies founder, and investors lose. With the bursting of the recent stock market bubble, business powerhouses like Enron-Andersen in the US and Uchumi in Kenya collapsing, the quality of reported earnings is again under scrutiny. One role of responsible accounting is to anchor investors on fundamentals. It has been extensively argued in (Helsingfors, 2005) that it would be useful if the value of the firm could be read directly from the balance sheet. This would be the case if assets and liabilities would reflect proper estimates for expected net present values and the firm's all future cash flows. However, the estimation of fair values of assets without observable market prices would be dependent on managers' competence and discretion and would thus be unreliable (Helsingfors, 2005). It is against this background that current study sought to establish the quality of earnings in financial statements of companies listed at the Nairobi Stock Exchange for the period covering 2000 to 2004.

#### 5.2 Summary Of Findings

The autocorrelations for stock returns were consistently positive for all the 16 lags while the autocorrelations for earnings per share (EPS) were both positive and negative. The consistency of the autocorrelation coefficients for stock returns (SR) depicts data reliability while the inconsistency of the autocorrelations for earnings per share depicts

low earnings quality. The paired sample t-statistics revealed a substantial difference between earnings per share and stock returns

### **5.3 Conclusions**

The inconsistency between the autocorrelation coefficients for stock returns and earnings per share depicts low earnings quality reporting in the financial statements of companies listed at the NSE. Again the large difference in the means of earnings per share and stock returns is a pointer to the fact that earnings per share might have been over specified in most of the firms to blindfold investors. This is a pointer to the low earnings quality that is characteristic of the reporting in the financial statements of companies listed at the Nairobi Stock Exchange. It can therefore be concluded that quality of earnings in financial statements are compromised and therefore cannot be relied on by investors, lenders, government authorities, customers, suppliers, and employees of these listed organizations in their decisions for investment, taxes and trading.

### **5.4 Implications and Recommendations**

The concept of low quality earnings in reported financial statements has been a subject of research for many academicians including but not limited to Helsingfors (2005), Sloan (1996), Beaver in Bauman (1996) and Gradient (2005). There has been the concern that management can manipulate accounting numbers either through: recording fictitious transactions/ amounts, recording transactions incorrectly, recording transactions either early or late, misstating percentages or amounts involved in a transaction. This research is in tandem and concurrence with earlier researches and supports the findings and

in tandem and concurrence with earlier researches and supports the findings and conclusions.

Current firm earnings are useful for predicting future earnings and that future earnings are an indicator of future dividend-paying ability. Quality and credibility of financial statement representation and reporting practices are important fundamentals of the economic process and that various parties are affected by the way financial reporting is conducted. High-quality financial reporting is essential to liquid and efficient capital markets. Investors, creditors, government authorities and other users of financial statements rely on the availability of transparent, credible and comparable financial information. Therefore measures of earnings and information about earnings disclosed by financial reporting should, to the extent possible, be useful for the intended purposes as they are important aspects of evaluating an entity's financial performance.

The results of the study is an awakening call on the Capital Markets Authority (CMA) to come into play and ensure reliability, quality and value-relevance of reported earnings in financial statements of companies listed at the NSE. In the meantime, investors are urged to consult investment analysts in identifying firms with different degrees of value-relevant earnings rather than on reported earnings.

### **5.5 Limitations of the Study**

The data available could only allow a period coverage of 5 years, possibly a large period could have yielded more relevant results. Interpreting financial statements was a problem

as the data given was in summary form giving fewer details in relation to individual subsidiaries in the case of consolidated statements.

There was limited time allocated to finish this study. Given more time the study would have been more enhanced by comparing results with those of firms that are not quoted at the Nairobi Stock Exchange. Again the study could have been more authoritative if earnings quality was measured using both earnings per share- returns ratio approach and accruals.

#### **5.6 Suggestions for Further Research**

To improve on this study it is suggested that:

A similar study could be carried out over a longer period of time to obtain more reliable findings. Again measuring earnings quality using accruals approach and comparing the results would validate the current research

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**APPENDIX I: DATA ON STOCK RETURNS (SR) AND EARNINGS PER SHARE**

COMPANY	EPS 2000	EPS 2001	EPS 2002	EPS 2003	EPS 2004	SR 2000	SR 2001	SR 2002	SR 2003	SR 2004
A BAUMAN & COMPANY LTD	1.12	-0.67	-12.52	-0.63	-2.75	-0.01839075	0.015344309	0.0170767	0.0223326	0.01852
ATHI - RIVER MINING LTD	0.4	0.4	0.62	1.04	1.26	-0.01705179	0.002155558	0.0273929	0.1041026	0.08410
BAMBURI CEMENT LTD	0.8	2.01	3.38	2.94	4.73	0.02880418	-0.035590182	0.1124915	0.1483330	0.01575
BARCLAYS BANK OF KENYA	11.2	11.2	9.6	16.5	18.1	0.02835923	0.037898999	0.0516901 15	0.0197406	0.01885 06
BAT KENYA LTD	5.83	6.04	8.23	11.4	12.2	0.00290448	-0.010309694	0.0148722	0.0994005	0.07845
BOC KENYA LTD	3.83	3.84	5.4	7.82	8.2	-0.01353649	-0.022089612	0.0188137	0.0676915	0.04858
CAR AND GENERAL (KENYA) LTD	-0.19	-0.26	0.33	2.72	1.64	-0.00242718	-0.009451002	0.1146176	0.1631900	0.14890
CARBAID INVESTMENT LTD	9.77	3.97	4.93	7.81	7.99	-0.0542767	0.00925562	0.0046368	0.1657756	0.18488
CFC BANK	1.61	1.18	1.45	2.49	3.01	-0.01307145	0.006240225	0.0097347	0.1218505	0.13849
CITY TRUST LTD	2.68	2.23	1.28	1.66	2.64	-0.00477229	0.007645561	0.0634630	0.1265719	0.11878
CMC HOLDINGS LTD	5.05	3.58	6.29	7.29	5.42	-0.01906788	-0.027741312	0.0047367	0.0853767	0.05849
CROWN BERGER KENYA LTD	2.13	0.9	1.08	2.57	2.74	-0.00812392	0.00925562			
DIAMOND TRUST BANK (KENYA) LTD	2.06	2.06	0.95	1.4	1.65		-0.023655611	0.0077432	0.0258616	0.03489
EA BREWERIES LTD	12.91	14.88	21.28	13.76	35.05	0.03436766	0.000475159	0.0109333	0.0455896	0.03459
EA PORTLAND CEMENT COMPANY	4.66	8.18	1.37	2.51	-2.99	0.00536739	-0.014596701	0.0145967		
EAAGADS LTD	0.133	0.12	0.48	-0.53	-0.18	-0.00748062	-0.028772538			
EAST AFRICA CABLES LTD	1.5	0.79	-0.29	0.46	6.11	0.03436766	0.011973906	0.0289486	0.0544542	0.04982
EXPRESS KENYA LTD	-1.24	-6.55	-11.67	-14.2	0.14	0.00355969	0.00286133	0.0081875		
HOUSING FINANCE COMPANY LTD	0.45	0.45	0.49	0.45	0.52	-0.03173787	-0.020418577	0.0294831		
HUTCHINGS BIEMER LTD	18.53									
ICDC INVESTMENT COMPANY LTD	5.92	5.92	4.48	2.89	4.39	0.01717805	-0.002751105	0.0364642		
JUBILEE INSURANCE COMPANY LTD	2.17	2.17	4.57	5.91	7.68	-0.02972567	-0.005145798	0.0612883	0.1026630	0.18356
KAKUZI LTD	-1.44	-2.31	0.39	-10.6	4.27	-0.0282799	-0.013368319	0.0298720	0.0537873	0.04829
KAPCHORUA TEA COMPANY LTD	3.8	1.6	-3.54	8.9	9.88	0		0		0.13598
KENYA AIRWAYS	6.03	6.03	1.88	0.87	2.82	0.04145367	0.019287307	0.0357500	0.1246575	0.05219
KENYA COMMERCIAL BANK LTD	4.14	4.14	-20.06	3.25	3.94	0.02303094	0.0125967	0.0100390	0.0452935	0.12934

KENYA OIL COMPANY LTD	15.15	37.21	43.8	46.5	8.32	0.01204092	0.046150919	0.0531053	0.1192717	
KENYA ORCHARDS LTD	-0.02	0	0.07	-0.89	-1.24					
KPLC LTD	40.33	36.36	-23.75	38.56	5.79		-0.043153272	0.0055151		
LIMURU TEA COMPANY LTD	59.12	-4.97	3.465	13.41	16.1					
MARSHALLS (EA) LTD	-7.24	-7.24	2.03	1.53	1.55					
MUMIAS SUGAR COMPANY LTD		0.95	0.13	-0.42	1.55		0.022957575	0.0452320	0.0121843	0.01529
NATION MEDIA GROUP	5.7	5.7	7.55	11.27	11.99	-0.01358256	0.024876044	0.0786051	0.0679523	0.04923
NATIONAL BANK OF KENYA LTD	11.03	11.03	0.99	2.02	1.91	-0.01851704	0.011861597	0.0424290	0.1455159	0.13992
NIC BANK LTD	3.79	3.12	2.78	2.94	3.17	0.02588007	-0.014463077	0.0239284	0.0807702	0.09213
OLYMPIC CAPITAL HOLDINGS LTD										
PAN AFRICA INSURANCE COMPANY LTD	1.36	0.41	-0.33	-0.49	1.95	-0.0494101	0		0.1121635	0.23192
REA VIPINGO PLANTATIONS LTD	-0.57	0.07	0.41	0.05	2.14	-0.0239018	-0.049687777	0.0297147	0.1582624	0.16319
SAMEER AFRICA LTD	1.05	1.2	0.83	0.56	0.99	-0.01741826	-0.020418577	0.0294831		
SASSINI TEA & COFFEE LTD	2.91	0.4	-0.18	-1.77	20.29	0.008473	0.02608755	0.0466017	0.0344268	0.04321
SERENA HOTELS	2.15	2.15	2.74	0.65	3.37	0.00980172	-0.033095929	0.0181843		
STANDARD CHARTERED BANK LTD	8.8	9.07	8.92	11.28	6.74	0.03270376	0.011569896	0.0694858	0.0983760	0.08218
STANDARD GROUP LTD	7.33	4.9	-0.94	-0.76	1.19	0.03270376				
TOTAL KENYA LTD	3.69	2.23	2.31	3.1	3.34	0.02723201	-0.066617951	0.0066067	0.1435702	0.16834
UCHUMI SUPERMARKETS	5.33	5.33	0.83	-3.28	11.65	0.03313288	-0.024560109	0.0062230	0.0235645	0.01423
UNGA GROUP LTD	9.81	2.2	-1.07	-0.43	-1.62	-0.02234942	0.016197706	0.0200377	0.0250539	0.04602
UNILIVER TEA KENYA	9.19	4.57	2.54	1.27	7.39				0.1399102	0.11256
WILLIAMSON TEA K LTD	8.93	15.56	-3.07	7.35	9.18				0.0243923	0.16233