

# **CHANGES IN SHARE PRICES AS PREDICTORS OF ACCOUNTING EARNINGS**

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**BY**

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**OCTOBER 2003**

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**CHANGES IN SHARE PRICES AS PREDICTORS OF  
ACCOUNTING EARNINGS**

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BY  
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**A management research project in partial fulfilment of the  
requirements for the award of masters of Business and  
Administration Degree, Faculty of Commerce, University of  
Nairobi.**

**OCTOBER 2003.**

## DECLARATION

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

Signed..........Date.....24-4-2004

**KAMURUCI BENJAMIN**

This project has been submitted for examination with my approval as University Supervisor.

Signed..........Date.....24-4-2004

**OTIENO ODHIAMBO LUTHER**

## **DEDICATION**

To the great love of my life- My family

## ACKNOWLEDGEMENTS

To my wife Roseirene and daughter Mercy. Thank you for your support and words of encouragement.

To my parents, Daniel and Alice. I owe you my life and more. Thank you for all that you have done for me.

To all my friends, for always being there for me.

To my supervisor Otieno Odhiambo Luther, for your constructive and competent guidance throughout the research project

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# CHANGES IN SHARE PRICES AS PREDICTORS OF ACCOUNTING EARNINGS

## Abstract

This study examines the predictability of accounting earnings using changes in share prices of companies listed at the Nairobi Stock Exchange during the 1996 to 2001 period. From data obtained at the Nairobi Stock Exchange, yearly changes in accounting earnings were calculated for all the companies. Weekly changes in prices of shares were also calculated for these companies and then a summary of total positive changes, total negative changes and total zero changes for each of the companies was done.

Out of between 43 to 53 companies for the six year period, empirical results do indicate that share prices have a predicting ability on the accounting earnings. Results were obtained for companies which had positive changes in share prices being followed by either positive or negative changes in accounting earnings and also for those with negative changes in share prices being followed by either negative or positive changes in accounting earnings.

The results shows that, on average about 60.38 % of the companies had their share prices moving in the same direction with accounting earnings. These findings are consistent with common findings in literature (Forster 1984) that share prices can predict accounting earnings.

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## **CHAPTER 1: INTRODUCTION**

### **1.1: Background**

The prediction of earnings has preoccupied accountants and market analysts for a long time. The importance of accurate predictions of earnings cannot be understated because it has profound effects on asset (security) prices and the subsequent allocation of financial resources. Earnings not only influence the cash payment (dividends) to shareholders but also the growth of the firm through re-investments.

Earning forecasting has traditionally been approached in two ways. Firstly, the accounting or technical approach that is largely time series based. These models assume that future earnings are a function of current earnings. Secondly there are earning prediction based on analysis by financial analysts. These do not use specific well-defined models. Empirical evidence does not seem to show the superiority of one model over the other, Brown (1993). A recent development in the academic literature on earnings forecasting is to use stock prices as the predicting variable.

Basu (1997), Ball et al (1998) present evidence that earnings growth may be modeled in terms of price changes. Such a relationship is important because it tells us how efficient a stock market is. Since the last general election held in December 2002, share prices at the Nairobi Stock Exchange have increased substantially. The assumption is that earnings will also increase. Investors rely on share prices to buy or sell a share. The prices must be right. Wilcox (1984), Rappoport (1986), Downs (1991) attribute current share price changes to anticipated changes in earnings. Event based studies established direct relation between share prices changes and earnings, Ball and Brown (1968), Baskin (1989). The assumption in these studies is that changes in share prices is as a result of changes in fundamental variables such as anticipated earnings, dividends and capital structure, Ariff and Khan (2000).

Beaver et al., (1980) found that earnings growth is useful in explaining share prices and that Price to Earnings based forecasts are better predictors than a random walk model. Elgers and Murray (1992) used a regression of future earnings growth modeled by current abnormal returns and Price to Earnings ratio, both variables are controlled for size, and found that their forecast model out performed a random walk model in predicting accounting earnings.

The motivation of this paper is to provide evidence on the relationship between share price and accounting earnings and determine whether share prices can be used to predict accounting earnings.

This study is intended to establish the appropriateness of relying on share prices to predict changes in accounting earnings. Earlier studies have concentrated on using current (post) earnings to predict future earnings.

Investors are interested in earning good returns from the investment they make. Thus they can only achieve this when they select their investments carefully. This is because investments are about sacrifice of current shillings for future shillings. It involves waiting (time) and risk. Whereas the sacrifice takes place now and is certain, the rewards come later or may not come at all. Furthermore investors have different preferences for different aspects that show different risks.

A common finding in the literature is that systematic post-announcement changes in security prices are associated with the sign or magnitude of accounting earnings, Forster (1984). The argument has been that fundamental factors that affect changes in security prices also affect accounting earnings. We need better evidence than has been available about the usefulness of share prices in predicting accounting earnings.

## **1.2 Statement of the problem**

Earlier study, Omanwa, (1991) used time series in predicting accounting earnings. This study seeks to establish how effective changes in share prices are in predicting future changes in earnings. It is a fundamental assumption in this study that investors choose only those share that promote much improved earnings.

We set to determine whether by examining, changes over time in stock prices, insight can be gained about changes in future profitability.

It has been documented that of all information about an individual firm which becomes available during a year, one half or more is captured in that years share price, Beaver, Lambert and Morse(1980) . However the annual income report does not rate highly as a timely medium,

since most of its content (about 85 – 90 percent) is captured by more prompt media, and incorporated in share prices. Since the efficiency of the capital market is largely determined by the adequacy of its information sources, it has not been found disconcerting that the market has turned to other sources, which can be acted upon more promptly than annual net income. Therefore this study seeks to gather evidence on the association between the security price changes and the accounting earnings in the period upto and including the earnings announcement date. The main concern is whether changes in accounting earnings are correlated with the information cues the capital market uses in revising security prices. This is because any meaningful share price is built on expectation of a company future performance, Reiley (1994) .

### **Hypothesis:**

H<sub>0</sub>: Current share prices do not capture future earnings.

H<sub>1</sub>: Current share prices capture future earnings.

### **1.3 Objectives of the study**

The objectives of this study were stipulated as follows:-

To establish whether accounting earnings can be predicted by share prices.

To establish whether changes in accounting earnings are correlated with the information cue that the capital market uses in revising security prices

### **1.4 Importance of the study**

The study is important in the following ways:-

- i) **Academicians:** The study gives a good insight to academicians who want to do further research in this area.
- ii) **Individual and institutional investors:** The study is an eye opener to individuals and institutional investors who don't have to wait until the results are announced to make their investment decisions.
- iii) **Capital Market Intermediaries:** The study provides a guidance to be used in designing optional investments selection for their client. They are able to predict the company that is likely to do better in the future.
- iv) **Asset Management/ fund managers:** The study provides guidance on how best to place investor funds in a combination of high yield returns across the different market segments.

## 1.5 Overview of the study:

Chapter 1 gives a brief background of the study. The problem that the study addressed, the objectives of the study, key definitions of terms used in this study and finally the value that is likely to accrue from this study.

Chapter 2 looks at what has been done by other academicians and scholars both in Kenya and the rest of the world as pertains to this area of relationship between share prices and accounting returns.

Chapter 3 outlines the research procedures that was adopted in resolving the research problem and specifically addresses the tools that were used in interpreting and understanding the data collected on the subject.

## 1.6 Key definitions

**Abnormal return** – The return earned on a financial asset in excess of that required to compensate for the risk of the asset.

**Accounting earning-** A firms revenues less its expenses. Equivalently, the change in the firms book value of the equity plus dividends paid to share holders.

**Earnings per share** – A company's accounting earnings dividend by the number of its common shares outstanding.

**Earnings price ratio** – The reciprocal of the price earnings ratio.

**Economic earnings** – The changes is the economic value of the firm plus dividends paid to shareholders.

**Listed Security** – A security that is traded in the Nairobi Stock Exchange.

**Share price-** Share price is the price that buyers and sellers establish when they trade the shares or stocks. The market value of the common equity of a firm is the market price of a share

of common stock multiplied by the number of shares outstanding. Sometimes the word “fair market value” is used to describe market prices. Fair market value is the amount at which common stock would change hands between a willing buyer and a willing seller, both having knowledge of the relevant facts. Thus market prices reflect the true worth of the assets of a firm. In an efficient stock market, market prices reflect all relevant facts about firms, and thus market price reveals the true value of the firms underlying asset.

The change in share prices can be determined as follows:-

$$\frac{P1 - P0}{P0}$$

where

P0 – Original share price

P1 – New share price.

**Earnings Before Tax And Interest-** This is an important component of earnings since it measures all income less all expenses but before deducting taxes and the cost of financing. It helps to indicate how effectively a firm is using all of its assets. At this level the earnings does not only accrue to shareholders but to taxes and the debt holders.

**Earnings After Tax-** This is earnings available to shareholders and which unless the company decides to retain can be given out as dividend.

**Changes In Cash Flow-** Accounting earnings can be measured in terms of improved cash flow. Ultimately, any investment must generate a positive cash flow to be worthwhile. Cash flow helps to explain the change in accounting cash. Cash flow is basically the changes in cash movement from prior year to current year. One ratio that is very helpful in financial analysis is called the sustainable growth ratio. This is the maximum rate of growth a firm can maintain without increasing its financial leverage and using internal equity only. The precise value of sustainable growth can be calculated as

Sustained growth rate = ROE X Retention Ratio.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1: Earnings Forecasts

The importance of earnings forecasts to market based accounting research, security valuation and the work of financial analysts has led to a considerable amount of work on modelling earning patterns, Collins and Kothari, (1989). These models have had varying amounts of success but have generally failed to match the forecasts provided by analysts, Brown (1993).

However, research into analysts' forecasts has identified that their superiority over time series based forecasts models is only obvious for relatively short horizons Capstaff et al., (1995). In addition, U.S, U.K and continental European evidence, De Bondt and Thaler (1990); Capstaff et al., (1995) indicates that analysts tend to optimism, overreact to new information and could improve their forecasts by incorporating information contained in share prices. Whilst analysts may well have good reason to forecast in what appears at first sight to be an irrational manner, mechanical models which compete with the accuracy of analysts' forecasts may well be of considerable value to academic researchers and market participants alike.

Two of the established models of the predictive value of price to earnings are Beaver et al. (1980) and Elgers and Murray (1992). Beaver et al. (1980) analysed earnings growth rates in the years following the segmentation of their sample by E/P decile. They found that earnings growth was clearly related to the deciles and that E/P based forecasts are better predictors than a random walk. Elgers and Murray (1992) used an OSL regression of future earnings growth modelled by current abnormal returns and P/E, where both variables are controlled for size. They also found that their forecast model out performed a random walk but that it was dominated by financial analysts' forecasts. Both papers used positive earnings firms only. Whilst Ou and Penman (1989b) were not focussing on the predictive ability of the price to earnings ratio they show that an OSL model of the percentage change in earnings with the E/P ratio as the regressor has predictive power. They contrast this with a model based on the accounting information contained in the prior set of accounts which is also statistically significant but has lower explanatory power. As they also demonstrate that the E/P ratio can be modelled using financial ratios it can be viewed as a convenient operational measure of the information available from a more detailed analysis of the financial statements. Unlike the Beaver et al. (1980) and Elgers and Murray (1992) studies, the work by Lin et al. (1995) incorporates both positive and negative earnings firms. They show that the E/P decile based forecast is not significantly improved by decomposing E/P into preceding price and earnings

changes, and that both analysts' and E/P based forecasts are dominated by a composite forecasts. The authors interpret their results as demonstrating that E/P based forecasts are superior to analysts' forecasts.

### 2.2.1 Overview of existing literature

Economy generally does not waste information and expectations depend specifically on the structure of the entire system, Muth (1961). A common finding in the literature is that systematic post announcement changes in security returns are associated with the sign or magnitude of it unexpected earnings changes. For a class of expectations models based on the time series of reported quarterly earnings variables coding (1) the sign and magnitude of the earnings forecast error and (2) firm size, independently explain 81 percent and 61 percent, respectively of the variation in post – announcement changes. The joint explanatory power of (1) and (2) is 85 percent, indicating that the effect of these two variables is highly collinear.

The changes are a persistent phenomenon with no evidence of being concentrated in a specific sub period. The expectations model based on security returns have the appealing property that the assignment of firms to unexpected earnings change portfolios better approximates the independence over time assumption.

The literature on market efficiency anomalies is both large in size and broad – based in terms of all topic areas covered. One frequently cited anomaly relates to the behavior of security returns subsequent to earnings announcements by firms. Many studies have reported evidence that the sign and magnitude of security returns in the post earnings announcement period are positively correlated with the sign and magnitude of the unexpected component of the earnings release, Wilcox (1984), Rapoport (1986) and Downs 91991). This finding is consistent with the speed of adjustment to information contained in earnings releases being gradual rather than instantaneous.

Based on the available literature several conclusions appear warranted. (1) There is a significant positive correlation between price changes and earnings changes. (2) Although significant, it is not a simple one-to-one relationship. (3) Security prices act as though investors “see through” accounting method differences among firms. At least with respect to depreciation method differences. (4) Price changes appear to be more highly correlated with earnings changes than with changes in “cash flow”. (5) Prices act as if accounting earnings are an important



source of information, but only one of many sources. (6) Prices can be used to forecast earnings. (7) Measures of systematic risk in security prices are significantly positively correlated with measures of systematic risk in accounting earnings, Beaver, Lambert and Morse (1980).

Benstom (1966) and Ball and Brown (1968) explored the relationship between security price changes and earnings changes. Ball and Brown found a significant association between the sign of the price changes and the sign of the earnings changes. For the years in which a firm experiences positive residual earnings change, there tends to be positive residual price change and conversely, for the years in which there is a negative residual change. Beaver, Clarke, and Wright (1979) subsequently extended the Ball and Brown study by incorporating the magnitude of the earnings change, as well as its sign. There is a significant, positive correlation between the residual percentage change in earnings and the residual percentage change in price. Over the years studied, the average rank correlation is .74 and is statistically different from zero. Moreover, not only is the relationship positive and significant, but the magnitude of the differences in security price changes is sizeable. The magnitude of the differences in price changes indicate that not only is the relationship statistically significant, but it is also large enough to be economically important.

What are the implications of these findings? At a minimum, the findings imply that there is a correlation between the events that affect accounting earnings changes and changes in security prices. The evidence is also consistent with the contention that prices behave as if investors perceive that accounting earnings convey information about the value of a security. Security prices behave as if investors perceive that current earnings are statistically dependent with future earnings and the future dividend paying ability of the firm. Hence, prices act as if current earnings changes possess a permanent component, Foster (1984). In other words, a portion of the change in earnings is associated with a permanent alteration in the level of expected future earnings in a manner that implies an altered expected dividend paying ability. In this context, the evidence is also consistent with the contention that prices behave as if investors perceive that earnings convey information (i.e., altering their beliefs) about future earnings and future dividend paying ability. What is not known is whether the same results can be replicated in the developing markets like the Nairobi Stock Exchange.

### 2.2.2: Security Prices As Predictors Of Accounting Earnings

In the past empirical evidence regarding the relationship between security prices and earnings tended to treat earnings as a predictor (i.e., an explanatory variable) for prices, Brown (1978) and Kiweu (1991). This is a natural way to view the relationship since earnings are typically viewed as one of the sources of information used in assessing dividend-paying ability, which in part determines security price or value. However, recent research has turned around the familiar price and earnings relationship and has used price as a predictor (i.e., forecaster) of accounting earnings, Neil and William,(2000).

Prices at any given point in time can be viewed as if they are a function of future expected earnings. Prices reflect investor's expectations regarding future earnings. The potential richness of price with respect to expectations is described in Muth's (1961) seminal essay on rational expectations. If prices are based upon an information system with many signals other than earnings, prices can potentially reflect information about future earnings that is not reflected in current and past earnings. For example, prices may respond before earnings to certain events or information.

If prices are viewed as "reflecting" other information, then prices can be used as a surrogate or proxy for that information. Recent work by Beaver, Lambert, and Morse (1980) indicates that price-based forecasting models of earnings can predict future earnings "better" (i.e., with a lower mean error) than forecasting models based upon a statistical extrapolation of past and current earnings. In particular, previous evidence by Ball (1972), albercht, Lookabill, and McKeown (1977), and by Watts and Leftwich (1977) indicates that the "best" statistical model for forecasting earnings using current and past earnings data is called the *random walk with a drift model*. Under this model, next year's earnings are forecasted to be equal to this year's earnings plus a drift term equal to the average change in earnings over some past period. This model has been extremely robust against challenges since its use by Ball and Brown (1968). Beaver, Lambert, and Morse (1980) used a price-based forecasting model, which resulted in lower forecasting errors than the random walk with a drift model. The price-based model produces a lower error in 55% of the cases. In the higher price – earnings portfolios the margin of superiority tends to be more pronounced. This superiority is possible because the information upon which earnings forecasts are based is expanded to include price in addition to past earnings. Price is used as a surrogate for other data that convey information about future earnings.

Beaver, Lambert, and Morse also examined the relationship between percentage changes in price and concurrent percentage changes in earnings. Based on sensitivity of price changes to earnings changes, prices act as if investors perceive the earnings process to be dramatically different from a random walk with a drift. In particular, prices act as if earnings are perceived to be a compound process (i.e., mixture of two processes). The first process reflects the effects of events on earnings that have no impact on security prices. This first process is called a garbling process. The second process reflects the impact on earnings of events that also have an impact on security prices. The second process appears to behave in a lagged manner with respect to price changes. The earnings process, which is a mixture of these two processes, can be viewed as a garbling of the second process. If earnings are a mixture of two processes, security prices can be used to extract information about the behavior of compound processes that cannot be obtained from the earnings series alone.

Reilly et al (1994) explain why we connect price to earnings and argue that any share price is built on expectations of a company future performance. Some of these expectations will be based on fundamentals such as the company's recent performance derived from its new product lines, and the prospects for its sector. The rest will reflect prevailing moods, fashion and sentiment. By relating the share price to actual profits, the P/E ratio highlights the connection between the price and recent company performance. If prices get high and profits get higher, the ratio stays the same. The ratio only changes if the moves on price and profits are not proportionate. For this reason when the ratio is higher or lower than normal we know that the recent profit levels is no longer the main factor in pricing. This happens when investors expect a much better or worse performance in the near future. Investors will decide if they agree with the prevailing P/E ratio (is it too high or too low) by comparing it to the P/E ratio of the aggregate market or the industry.

### **2.2.3: Earnings Volatility And Systematic Risk**

Mean-variance portfolio theory suggests that price is a function of the perceived systematic risk (i.e., beta) of the security, among other factors. Empirical evidence by Beaver, Kettler, and Scholes (1970) and Beaver and Manegold (1975) among others has shown that measures of systematic earnings volatility (i.e., accounting earnings betas) show significantly positive correlation with a security's beta defined in terms of security returns. For example, the correlation at the portfolio levels ranges between 0.7 and 0.8. Beaver, Clarke, and Wright (1979) have shown that securities with the greatest percentage changes in earnings also have the highest

betas. Extreme portfolios 1 and 6 have higher betas than the intermediate portfolios do.

In sum, prices act as if earnings volatility are associated with systematic risk. Moreover, the evidence is consistent with the more ambitious interpretation that earnings convey information about the systematic risk of the common stock.

### 2.3: Additional Empirical evidence

Research that documents post-earnings announcement in security returns has been published in many studies, Latane and Jones (1979), Bidwell and Riddle (1981), and Rendleman, Jones and Latane (1982). Two review papers-Ball (1978) and Joy and Jones (1979) summarize at least eight studies reporting post-announcements changes for unexpected good news or unexpected bad news observations.. The last cited study examined quarterly earnings announcement over the 1971 – 1980 period. Using a standardized unexpected earnings (SUE) measure, each observation was placed into one of ten SUE categories (category 1 = most negative ..... category 10 = most positive).

Summary results of this study are:

Standard Unexpected Earnings Category	Cumulative Average Residual (Days -20 to -1)	Average Residual (Day 0)	Cumulative Average Residual (Days 1 to 90)	Average Beta
1. (Most Negative)	- 8.7	- 1.4	- 4.0	1.02
2	- 7.3	- 1.0	- 3.2	1.00
3	- 5.6	- 0.7	- 3.3	0.97
4	- 3.6	- 0.2	- 1.8	1.00
5	- 1.1	0.1	- 0.8	1.03
6	1.2	0.3	0.5	1.03
7	2.8	0.6	1.2	1.01
8	3.9	0.8	1.6	1.02
9	6.9	1.3	3.4	1.02
10 (Most Positive)	8.0	1.3	4.3	1.02

The authors concluded that their “results are remarkably consistent in suggesting that the market does not assimilate unexpectedly favorable or unfavorable quarterly earnings information by the day of earnings announcement” (P. 283).

A smaller set of studies has reported evidence of less significant or insignificant systematic drift behavior. Watts (1978) examined a sample of 73 firms over the 1962 to 1968 period and reported that “abnormal returns” were found in “the 1962 – 1965 period but not in the 1965 – 1968 period” (P. 148). Moreover, he argued that the “inefficiency (in the 1962 – 1965 period) is not substantial. Only those who can avoid some of the direct transaction costs can make abnormal returns after quarterly earnings announcements” (P. 146). Reinganum (1981) examined 566 firms over the 1975 – 1977 period and reported that abnormal returns cannot be earned over the period studied by constructing portfolios on the basis of firms’ standardized unexpected earnings” (P. 24).

#### 2.4: Competing Explanations for Systematic Drifts

Systematic drifts are those orderly changes that take place in the security returns as a result of changes in prices of securities prior to earnings announcement. These are the changes that we are interested in evaluating to determine whether they are followed by changes in accounting earnings. A number of explanations have been put forward for these changes. The set of explanations reported in many studies can be classified into (a) capital market inefficiency explanations, and (b) non capital market inefficiency explanations.

A. *Capital Market Inefficiency Explanations.* The most frequently referenced explanation for the reported systematic drift is market inefficiency. For instance, Brown (1978, p. 27) concludes his study thus:

*The most important results of this study are the findings relative to market efficiency. The excess returns from purchasing the qualifying securities at the time of publication of the EPS number substantially exceed transaction costs. The adjustment process, rather than being instantaneous, is lengthy (about 45 market days). Thus, with respect to this particular sample of securities, the market exhibited inefficiencies.*

In a review of much of this literature, Joy and Jones (1979, p. 51) conclude, “that, at least with respect to quarterly earnings announcements there have been marked inefficiencies.”

The notion of market efficiency implicit in the anomalies literature appears to preclude a trading strategy yielding “abnormal returns” if it is based only on publicly available information. Following Fama (1976), let  $a$  be the information set available in the capital market

at time  $t$  and  $b$  be the information set used by the market at time  $t$  in setting equilibrium prices. If the capital market is efficient with respect to  $a$ , then equilibrium prices will be set "as if"

$$a=b \quad (1)$$

Tests of (1) typically have used the two parameters model of Sharpe (1964) to give content to what is an "abnormal return":

$$E(R_{it}) = R_{ft} + B_{it}(E(R_{Mt}) - R_{ft}), \quad (2)$$

Where

$R_{it}$  = return on  $i$ th security in period  $t$ ,

$R_{Mt}$  = return on the market portfolio in period  $t$ ,

$R_{ft}$  = return on a riskless asset in period  $t$ , and

$B_{it}$  = the relative (systematic) risk of firm  $i$  in period  $t$ .

Market efficiency implies that;

$$f(R_{it}/B_{it}, E(R_{Mt}), R_{ft}, a) = f(R_{it}/B_{it}, E(R_{Mt}), R_{ft}, b), \quad (3)$$

where  $f(\cdot)$  is a distribution function. Let

$$u_{i,t} = (R_{it}/B_{it} - (E(R_{it})/B_{it}), R_{Mt}, R_{ft}, a) \quad (4)$$

Assume zero information processing costs for data in  $a$  and unbiased estimates of  $B_{it}$ ,  $R_{Mt}$  and  $R_{ft}$ .

An implication of (1) and (2) is that  $u_{i,t}$  in (4) should not behave in a systematic way that is related to an information cue that is already in  $a$ .

Direct empirical tests of the above market efficiency notion do not appear possible; the left-hand side of (3) is an unobservable. Empirical tests concentrate on the descriptive validity of implications of the market efficiency notion. Assumption typically made in these tests include:

- i) That the two-parameter asset pricing model in (2) - CAPM - is descriptively valid,
- ii) That unbiased estimates of  $E(R_{it})$ ,  $B_{it}$ ,  $E(R_{Mt})$  and  $R_{ft}$  are used in the test,
- iii) That the specific information cue is part of  $a$  and

- iv) That the processing costs of using the information are zero.

Note that if one or more of these assumptions does not hold, conclusions drawn about market inefficiencies can be premature.

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### B. Non – Capital Market Inefficiency

This section outlines non- market inefficiency explanations for the systematic post – announcement drifts.

- (i) CAPM – An Inadequate Model of Asset Pricing. This explanation asserts that some model other than the two – parameter model is descriptively valid. Ball (1978) summarizes the argument thus:

The hypothesis is that: (i) the two-parameter model, when applied to a portfolio of common stocks, misspecifies the process generating securities yields in equilibrium; and (ii) earnings and dividend variables proxy for the underlying determinants of equilibrium yields. The implication is that the estimated post- announcements excess returns result from earnings and dividends proxying for omitted variables or other misspecification effects (p. 111)

Using a multi-factor model approach, Sharpe (1982) presents results that “call into question naive applications in which expected returns are assumed to be related only to estimates of future betas based on past patterns of returns” (p.18). Factors reported to be significant by Sharpe include the alpha and beta from a market model regression of  $R_{it}$  against  $R_{Mt}$ ,  $B_{it}$ , dividend yield, firm size, and a bond beta from a regression of  $R_{it}$  against a long term government bond index. Several other papers also report results consistent with firm size being (or proxying for) an omitted variable in the CAPM Banz (1981), Reinganum(1981) and Keim (1983). This paper examines the ability of the share price variable to explain the post – earnings announcements drifts.

In addition to examining share price as an omitted variable, the paper analyzes the “proxy” argument of Ball (1978), i.e., that the variables used to classify firms into earnings change categories proxy for variables omitted in the CAPM but priced by the capital market. Proxy effects are more likely with earnings expectations models that exhibit period-by-period dependencies in their classification of firms to earnings change categories. To illustrate, suppose a study examined the earnings releases of one large firm and one small firm over 20 quarters and

ranked the two firms each quarter into a high and low earnings category. Pooling the 40 observations, 20 observations will be in the high earnings category and 20 will be in the low earnings category. Inferences about the market reaction to the two earnings classifications will be most reliable if the classifications on earnings are independent of firm size. Under independence, both earnings categories would include approximately ten large firms and ten small firm observations randomly drawn from the 20 quarters. If, however, the earnings change classification perfectly proxies for the firm-size classification, the high/low earnings category each would include all observations of the one firm size category. In this context, the experiment cannot discriminate between firm size or earnings classification being the causal variable in a capital market reaction study.

- ii) **Biased Estimates of Parameters of Adopted Asset Pricing Model.** To illustrate this explanation, assume the CAPM is a descriptively valid model. To employ the CAPM in empirical research, estimates of  $B_{it}$ ,  $R_{ft}$ , and  $R_{Mt}$  are required. Let  $U_{i,t}^T$  be the ‘true’ abnormal return and  $U_{i,t}^E$  be the ‘‘estimated’’ abnormal return.

This explanation posits that

$$E(u_{i,t}^T / b) = E(U_{i,t}^T / a) = 0 \quad (5)$$

in the post- announcement period, but that  $u_{i,t}^E$  behaves in a systematic way due to estimation errors in  $B_{it}$ ,  $R_{ft}$  or  $R_{Mt}$ . Given that many prior studies report positive  $u_{it}^E$  for positive unexpected earnings changes and negative  $u_{it}^E$  for negative unexpected earnings changes, the precise form that the estimation error would have to take would depend on the sign of the unexpected earnings change and the sign of  $(R_{MT} - R_{ft})$ .

Rendleman, Jones and Latane (1982) examine the importance of relative risk adjustments and conclude that ‘‘the typical SUE (Standardized Unexpected Earnings) portfolio has a beta of approximately 1.0, and that risk adjustment procedures are not the critical issue here. One must look elsewhere for an explanation of these results’’ (p. 287).

- iii) **Use Of Hindsight Information In The Experiment.** One assumption made when testing market efficiency with respect to a specific information item is that the information item is that the information is available to the market at the time it is used to classify securities differentially. In several studies, information appears to have been assumed available before it is



publicly released; e.g., Jones and Litzenberger (1970) assume all interim releases to be available to the market within two months subsequent to the end of the fiscal quarter. This assumption is correct for many but not all firms – see Foster (1981, Table 2). The effect of this violation of a “predictive experiment” design is to include as part of the post – announcement returns the announcement month effect of those firms releasing their interim report after the two – month post fiscal year –end period. Typically this will result in the post – announcements returns for positive (negative) earnings change groups being overstated (understated). The research in this paper uses actual earnings announcement dates (as reported at the Nairobi Stock Exchange) in an attempt to avoid this problem.

Another example of the use of hindsight information is in the Watts (1978) study. The 1962 to 1968 period first was used to choose the “best” time – series model to employ in the research. Then the same 1962 to 1968 period was used to examine the post-announcement drifts associated with the unexpected earnings increase and decrease classifications from the “best” time-series model.

A third example of the use of hind-sight information is the classification of firms into portfolios based on information not available at the time a trading strategy is implemented. For example, a trading strategy based on the rank of each firm’s earnings change has to wait until the last firm in the sample has announced its earnings. A related problem is when observations are placed into portfolios each quarter and the mean aggregate results based on the mean of the individual quarter’s (mean) results; this implicitly “assumes that the trader knows the distribution of standardized forecast errors at the time of the first earnings announcement in each calendar quarter” (Holthausen, 1983, p. 41). Holthausen notes that the trading strategies in Watts (1978) and Rendleman, Jones and Latane (1982) suffer from this experimental defect. He reports that use of a ranking scheme based on publicly released information results in “the association between posts earnings announcements abnormal performance and the size of forecast errors (being) much weaker than those reported by Rendleman, Jones and Latane (1982)”, (p. 56).

iv) Time- Period Phenomenon. This explanation has two variants. The first variant hypothesizes that the underlying process is one for which

$$E(u_{it} / a) = 0 \quad (6)$$

but that the time period examined is one in which the realizations of  $u_{it}$  appear inconsistent with

(6); this possibility exists especially when short time periods are examined. Beaver and Landsman (1981) illustrates how a process consistent with (6) holding over the 46 period from 1932 to 1977 can show apparent systematic drifts in  $u_{it}$  for (say) two – or three year sub periods. The second variant of this explanation is that in an early sub period examined,

$$E(u_{it}/a) \neq 0 \quad (7)$$

but that in a later sub period learning occurs such that (6) holds. Watts (1978, p. 146) puts forward this argument in a study examining the 1962 to 1968 period:

*“The observations of abnormal returns in the 1962 – 1965 period but not in the 1965 – 1968 period raises several possibilities. One is that the 1962 – 1965 abnormal returns are observed by chance.*

*....( another possibility is) that the market was inefficient in the 1962 – 1965 period but learned over time. Discrimination among these alternative explanations requires estimation of abnormal returns outside the 1962 – 1968 period”*

#### (v) Capital Market Efficient But Anomalies Due To Attributes Of Other Markets.

This explanation posits that the market for information could explain the pattern of post-announcement drifts –see Gonedes (1976). The explanation has been offered only in a very general way, with no specific reference to earnings announcement – based anomalies. A priori, the costs of processing information about the magnitude of unexpected earnings changes appear minimal. Moreover, there are no obvious barriers to the entry of individual market participants employing the ranking procedures used in this and prior papers.

One variant of the information market explanation posits a link between the size of a company and the efficiency with which that stock is priced. For instance, the following comment was made in a brochure circulated by Equity Research Associates (undated), an investment company that focuses on so-called “junior companies”.

*“The larger and more visible a company, the more “perfect” its market is likely to be – “perfect” meaning that most of the likely factors affecting the price of its securities are presumably known to the market. Conversely, the smaller a company is, the less visible it is to the investing public and the more “imperfect” the market price for its shares is likely to be.”*

As applied to the post-earnings announcement drift anomaly, this argument would imply larger systematic drifts for smaller firms than for larger firms.

## **2.5: Empirical evidence in Kenya**

Mwangi (1997) did a study to analyze the price movement for selected stocks in Nairobi Stock Exchange. He developed a model using a PC (version 6) software package and using this model, he computed and compared the prices from the month of Jan, 1992 to April, 1997 with the actual ones. He did T-test to determine whether the two prices were significantly different from one another. He concluded that it is not always possible to develop models that are accurate predictions of share prices in the NSE. This was mainly attributed to parameters of the forecasting models varying over time to reflect changes in the underlying earnings generating process. He concluded that variables used in the valuations models are only as good as being proxy for the investors decision process and are limited by the inaccuracies in estimating future earnings of the company. At best they are only a framework for analyses, which is useful for structuring the way an investor can conceptualize share valuation.

Asiemwa (1992) did an empirical study to identify the relationship between investment ratios, and share performance of companies quoted on the Nairobi Stock Exchange. She did multiple regression analysis to establish the relationship between investment ratios and share prices and concluded that earnings per share, dividend per share, price earnings and dividend yield have a significant effect on share prices. She concluded that a significant association between share prices and investment ratios exists.

Kiweu (1991) did an empirical study to determine the behavior of share prices in the Nairobi stock Exchange. He did an examination of the behavior of ordinary share price of ten selected "blue chip" companies in the Nairobi Stock Exchange. He investigated the behavior of bid price change over five years from Jan, 1986 to Dec, 1990. He concluded that weekly returns of shares traded in the Nairobi Stock Exchange are serially independent (random). The evidence presented suggested that no important dependencies could be identified in the stock market.

Omanwa (1991) in his empirical study to investigate the behavior of annual corporate earnings among Kenyan publicly quoted companies selected a sample of thirty four companies quoted in the Nairobi Stock Exchange. He found that successive changes in reported annual corporate earnings for Kenyan publicly quoted companies are essentially independent and can be well approximated by a random walk.

Gathoni (2002) did a study on forecasting ability of valuation ratios (Nairobi Stock Exchange). She did predictive regression models on a small sample of fourteen organizations with a financial accounting year end of 31<sup>st</sup> December, over a period of five years (1996 to 2000). The valuations ratios were then lagged for one quarter in order to see what impart this had on the predictive ability of the valuation model. She concluded that price earnings ratio explains future stock returns. She concluded that price earnings ratio have predictive ability in majority of samples observed. She also concluded that price earnings ratio is a determinant of future stock returns.

Our study is intended to move further and try to see whether share prices have forecasting ability on accounting earnings.

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1: Population of interest**

The population of interests consisted of all the companies quoted at the Nairobi Stock Exchange and classified under the various market segments.

### **3.2: Sampling Method**

All the fifty three (53), publicly quoted companies at the Nairobi Stock Exchange-NSE (Appendix 1) were selected. These companies were grouped into four market segments as follows:-

- (i) Agricultural market segment
- (ii) Commercial and services market segment
- (iii) Finance and investment market segment
- (iv) Industrial and allied market segment

Weekly data as pertains to share prices and annual data regarding accounting earnings from 1996 to August 2001 for all the individual companies was obtained and analyzed.

### **3.3: Data collection method**

The research relied on secondary data obtained from Nairobi Stock Exchange or other financial intermediaries. Where data was not available from Nairobi stock Exchange, we referred to financial statements published by companies being studied. Such data included; movement in share prices and accounting earnings.

### **3.4: Data analysis method**

The main objective being to determine the relationship between the share price changes in the year and the change in accounting earnings, accounting earnings to be used here were earnings after tax and interests. The aim was to examine the relationship between percentage changes in price and concurrent percentage changes in earnings.

We got weekly data from 1996 to August 2001 for individual companies. For all these companies we calculated the changes in prices of shares and grouped separately the total positive changes and negative changes for each company for the year for the whole period and then using cross tabs, determined whether an earlier positive change in share price was followed

by positive change in accounting earnings and if negative or decline in share price whether this was followed by decrease in accounting earnings. The results were then summarized to give a picture of all the companies.

We were able to tell how many companies resulted in their share prices movement being in the same direction with that of accounting earnings.

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## **CHAPTER 4: DATA ANALYSIS AND INTERPRETATION OF RESEARCH FINDINGS**

### **4.1 Introduction**

In order to be able to analyze the data the whole period from 1996 to 2001 was separated into 6 periods of 1 year each. Over each of these periods analyses was done on the companies on which data for price changes and earning changes were available for the whole year. These companies were about 43 to 46 depending on the particular year. On each of these companies the number of positive changes in weekly share prices movement, number of negative changes in weekly share price movement, number of zero changes, the mean of these figures and their standard deviations were calculated. Changes in accounting earnings at the end of each of the six years were calculated. These results were then summarized in tables for each of the six years. From the tables results were obtained to determine;

- i) How many positive changes in share prices were followed by positive changes in accounting earnings.
- ii) How many positive changes in share prices were followed by negative changes in accounting earnings.
- iii) How many negative charges in share prices were followed by positive changes in accounting earnings.
- iv) How many negative charges in share prices were followed by negative changes in share prices.
- v) Results were also obtained on the companies which had zero change in share prices and also for those which had equal positive and negative changes in share prices.

This information was later used to conclude whether changes in share prices can be used to predict accounting earnings.

## 4.2 1996 Findings

In 1996, Forty-Two companies listed at the Nairobi Stock Exchange were analyzed and out of these companies, thirty four companies had clear cut results while seven had zero changes in share prices and one had equal positive and negative changes. Out of the thirty-four companies with clear-cut changes;

- a) Fourteen companies had positive changes of share prices being followed by positive changes of accounting earnings i.e 41.18% of all companies
- b) Eight companies had negative changes of share prices being followed by negative changes of accounting earnings i.e 23.53% of all companies
- c) Five companies had positive changes of share prices being followed by negative changes of accounting earnings i.e 14.71% of all companies
- d) Seven companies had negative changes of share prices being followed by positive changes of accounting earnings i.e 20.58% of all companies.

So if we combine the percentage of (a) and (b) we will find that in twenty two companies or about 65% of the companies analyzed, there was either positive changes in share prices followed by positive changes in accounting earnings (41.18%) or negative changes in share prices being followed by negative changes in accounting earnings (23.53%). The seven companies with zero changes in share prices and the one company with equal positive and negative changes in share prices were inactive during the period of study. Assuming average is 50%, then 65% is above average. The fact that we found correct sign on 65% of the cases could suggest the existence of a relationship between changes in share prices and changes in accounting earnings. One is tempted to conclude that those changes could be related.



Table 2 1996 Clear Cut Companies												
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGES	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING	IS THE TEST POSITIVE?
SMG	19	10	10	-4.35	5.31	0.00	4.40	1.37	0.00	17,041.00	-398.97	YES
DTK	21	18	0	-2.60	1.56	0.00	4.16	1.56	0.00	-147,286.00	-152.89	YES
KNM	21	17	0	-1.67	1.66	0.00	1.56	1.84	0.00	31,147.00	-86.04	YES
CBERG	22	14	3	-4.15	1.73	0.00	6.74	2.62	0.00	5,303.00	-82.85	YES
TOTAL	24	15	0	-2.15	1.68	0.00	1.98	2.26	0.00	173,080.00	-42.66	YES
KENAIR	20	10	0	-3.63	3.14	0.00	3.02	2.82	0.00	1,419,091.00	-33.59	YES
CFC	21	18	0	-3.11	2.35	0.00	3.00	3.41	0.00	188,141.00	-14.85	YES
SASINI	19	18	2	-2.15	3.46	0.00	2.67	3.50	0.00	66,018.00	-13.71	YES
SCB	17	22	0	-1.68	1.75	0.00	1.11	2.41	0.00	1,149,207.00	1.75	YES
KCB	17	22	0	-3.59	4.04	0.00	3.22	4.38	0.00	2,500,933.00	5.40	YES
NMG	9	30	0	-1.87	1.64	0.00	1.66	1.82	0.00	206,870.00	6.03	YES
ICDC	16	23	0	-2.89	2.73	0.00	2.81	2.98	0.00	114,276.23	7.09	YES
BAMB	17	22	0	-1.95	2.25	0.00	1.89	3.12	0.00	767,000.00	12.47	YES
JUB	19	20	0	-2.82	1.72	0.00	2.89	2.21	0.00	101,171.00	18.04	YES
GWK	11	19	9	-2.30	2.61	0.00	2.65	3.06	0.00	14,185.00	18.68	YES
PORTL	16	18	5	-3.41	4.35	0.00	3.82	3.80	0.00	67,210.94	20.28	YES
BAT	17	20	2	-1.38	0.82	0.00	1.41	0.98	0.00	631,181.00	27.52	YES
CMC	14	24	1	-2.11	1.38	0.00	2.38	1.77	0.00	197,213.00	34.77	YES
HFCK	19	20	0	-3.65	5.06	0.00	3.20	8.01	0.00	2,528,766.96	39.74	YES
CARB	9	17	13	-1.14	4.46	0.00	0.92	7.18	0.00	55,900.00	51.94	YES
KAKUZI	12	21	6	-2.34	1.85	0.00	3.19	2.27	0.00	146,123.00	83.30	YES
EABL	19	20	0	-3.14	4.08	0.00	3.06	3.69	0.00	505,523.00	172.56	YES
KAPCHO	2	37	0	3.78	0.00	0.00	1.18	0.00	0.00	5,377.00	-178.77	NO
BBOND	15	20	4	-1.04	0.74	0.00	1.65	1.00	0.00	-13,138.00	-149.00	NO
UNGA	12	16	11	-1.26	1.30	0.00	1.36	1.41	0.00	57,056.00	-76.68	NO
EXPRESS	15	20	4	-1.79	2.39	0.00	1.26	2.17	0.00	33,519.08	-51.64	NO
KPLC	12	27	0	-2.35	3.09	0.00	1.73	2.32	0.00	1,116,290.00	-3.51	NO
FIRE	20	19	0	-3.93	5.53	0.00	3.97	5.69	0.00	689,638.00	2.92	NO
NICB	21	18	0	-2.98	4.37	0.00	4.37	7.29	0.00	352,012.00	7.72	NO
BBK	20	18	1	-1.68	1.19	0.00	1.44	1.66	0.00	2,477.00	16.84	NO
UCHUMI	20	19	0	-1.41	3.74	0.00	1.87	4.31	0.00	259,589.00	23.14	NO
NBK	24	12	3	-3.29	3.18	0.00	2.99	3.44	0.00	502,334.00	35.68	NO
BOC	16	9	14	-1.66	1.71	0.00	1.54	1.53	0.00	120,558.00	55.01	NO
REAY	25	12	0	-2.24	1.89	0.00	2.44	1.96	0.00	86,260.00	109.46	NO

(Table showing companies which had clear cut results in 1996)

Table 3 1986 Zero Change Companies											
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGES	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING
ABOUM	5	6	28	-2.88	1.78	0.00	1.71	1.07	0.00	-13,948.60	-194.28
CAR GEN	10	9	20	-2.92	4.23	0.00	2.37	3.96	0.00	-106,520.00	-11878.3
KENOL	4	1	34	-2.05	2.89	0.00	1.72	0.00	0.00	95,168.00	12.98
EAPACK	10	10	19	-1.28	1.08	0.00	0.81	0.57	0.00	49,103.00	-25.88
DUN	6	6	27	-2.07	2.49	0.00	1.73	2.21	0.00	15,273.00	-17.54
PAN	9	5	25	-4.54	3.63	0.00	3.69	2.31	0.00	398,528.71	62.85
CTRUST	9	8	22	-4.51	4.94	0.00	3.75	6.21	0.00	72,163,439.00	721.77
1986 Equal Change Company											
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGES	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING
EACABLE	14	14	11	-3.37	2.83	0.00	4.60	3.77	0.00	73,779.00	25.21
(Table showing companies which had either zero change or equal changes in share prices)											

### 4.3 1997 Findings

In 1997, Forty Six companies listed at the Nairobi Stock Exchange were analyzed and out of these companies, Thirty Three companies had clear cut results while Nine had zero changes in share prices and Four had equal positive and negative changes. Out of the thirty-three companies with clear-cut changes;

- a) Eleven companies had positive changes of share prices being followed by positive changes of accounting earnings i.e 33.33 % of all companies
- b) Six companies had negative changes of share prices being followed by negative changes of accounting earnings i.e 18.18 % of all companies
- c) Five companies had positive changes of share prices being followed by negative changes of accounting earnings i.e 15.16 % of all companies
- d) Eleven companies had negative changes of share prices being followed by positive changes of accounting earnings i.e 33.33 % of all companies.

So if we combine the percentage of (a) and (b) we will find that in seventeen companies or about 52 % of the companies analyzed, there was either positive changes in share prices followed by positive changes in accounting earnings (33.33 %) or negative changes in share prices being followed by negative changes in accounting earnings(18.18 %). The nine companies with zero changes in share prices and the four companies with equal positive and negative changes in share prices were inactive during the period of study. Assuming average is 50%, then 52% is above average. The fact that we found correct sign on 52% of the cases could suggest the existence of a relationship between changes in share prices and changes in accounting earnings. One is tempted to conclude that those changes could be related.

Table 4 1997 Clear Cut Companies

	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING	IS THE TEST POSITIVE?
EXPRESS	25	15	12	-2.86	2.55	0.00	2.96	2.96	0.00	17,683.00	-47.25	YES
TOTAL	28	23	1	-3.05	3.14	0.00	3.59	7.17	0.00	129,798.00	-25.01	YES
NBK	28	24	0	-1.55	1.67	0.00	2.82	4.25	0.00	387,692.00	-22.82	YES
SERENA	20	13	0	-2.54	1.66	0.00	2.78	2.60	0.00	45,314.00	-13.87	YES
UCHUMI	26	24	2	-2.27	2.98	0.00	2.17	3.04	0.00	224,948.00	-13.34	YES
FIRE	28	25	1	-4.84	4.93	0.00	4.57	4.44	0.00	670,521.00	-2.77	YES
KCB	19	33	0	-4.48	3.04	0.00	4.39	2.60	0.00	2,586,412.00	2.62	YES
BOC	18	22	12	-1.86	1.60	0.00	1.39	1.46	0.00	136,315.00	13.07	YES
NICB	18	36	0	-4.70	2.90	0.00	5.33	2.81	0.00	396,581.00	13.22	YES
PORTL	20	25	7	-6.93	6.21	0.00	6.63	6.72	0.00	90,499.00	34.65	YES
NMG	16	36	0	-2.95	3.07	0.00	3.64	3.81	0.00	284,300.00	37.43	YES
KPLC	24	27	1	-3.55	9.57	0.00	4.21	18.40	0.00	1,554,028.00	39.21	YES
KAKUZI	15	26	11	-4.85	3.14	0.00	7.46	4.54	0.00	218,871.00	49.79	YES
SASINI	21	29	2	-2.62	3.68	0.00	2.94	3.18	0.00	101,765.00	54.15	YES
SMG	18	32	2	-4.39	9.36	0.00	3.67	11.95	0.00	34,185.00	100.49	YES
GWK	16	26	10	-3.37	3.29	0.00	7.71	5.14	0.00	60,368.00	325.56	YES
CBERG	21	27	4	-4.11	3.47	0.00	3.54	3.93	0.00	44,443.00	738.07	YES
CTRUST	14	19	19	-1.89	2.91	0.00	1.73	3.27	0.00	24,299,755.00	-66.33	NO
REAY	24	28	0	-3.87	3.19	0.00	5.54	3.59	0.00	55,625.00	-35.51	NO
EACABLES	21	23	8	-2.52	2.24	0.00	4.21	3.92	0.00	63,930.00	-13.35	NO
SCB	25	27	0	-2.55	2.28	0.00	2.62	2.95	0.00	1,064,790.00	-7.35	NO
ICDC	22	30	0	-5.14	5.55	0.00	3.60	6.23	0.00	106,694.96	-4.86	NO
BAMB	26	25	1	-3.53	6.57	0.00	3.61	9.29	0.00	780,000.00	1.69	NO
CARB	25	22	5	-2.67	1.81	0.00	1.77	1.05	0.00	59,102.00	5.73	NO
BAT	32	18	2	-1.98	2.52	0.00	3.19	4.67	0.00	634,049.00	6.45	NO
BBK	26	25	1	-1.76	2.54	0.00	1.99	2.93	0.00	2,887.00	8.48	NO
JUB	29	22	1	-3.32	5.23	0.00	4.13	6.14	0.00	141,385.00	39.75	NO
KENOL	22	17	13	-5.31	5.46	0.00	5.26	5.84	0.00	136,033.00	42.94	NO
CFC	29	20	3	-2.88	4.30	0.00	3.71	8.19	0.00	294,030.00	56.26	NO
EABL	29	23	0	-2.65	3.42	0.00	3.21	3.14	0.00	906,598.00	79.34	NO
DTK	32	19	1	-3.05	3.30	0.00	3.92	4.76	0.00	-334,646.00	127.21	NO
KNM	29	22	1	-3.21	3.67	0.00	3.44	4.10	0.00	173,209.00	456.10	NO
BBOND	28	22	2	-2.61	1.51	0.00	2.28	1.85	0.00	-229,089.00	1643.56	NO

(Table showing companies which had clear cut results in 1997)

Table 5 1997 Zero Change Companies											
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING
UNGA	13	10	29	-4.80	3.75	0.00	6.01	5.63	0.00	294,278.00	415.77
ETEA	3	1	48	-8.12	0.59	0.00	7.50	0.00	0.00	16,667,556.00	104.34
EGAADS	4	5	43	-1.04	13.41	0.00	1.63	29.06	0.00	-7,778,668.00	83.57
PAN	9	11	32	-5.35	5.72	0.00	7.22	4.83	0.00	64,460,820.00	61.75
CAR GEN	11	13	28	-3.36	1.32	0.00	4.28	1.41	0.00	-121,247.00	13.83
MARSH	10	18	24	-5.50	9.17	0.00	5.17	10.74	0.00	72,484.00	-9.12
DUN	12	9	31	-6.82	24.40	0.00	11.66	39.91	0.00	8,711.00	-42.96
ABOUM	13	5	34	-6.40	12.72	0.00	13.69	13.82	0.00	-7,851.00	-43.71
EAPACK	15	8	29	-5.38	7.44	0.00	6.64	12.26	0.00	8,461.00	-80.84
1997 Equal Change Companies											
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING
ATHI	9	9	1	-8.02	6.01	0.00	5.46	4.91	0.00	34,666.00	23.87
HFCK	26	26	0	-1.91	2.21	0.00	2.49	3.36	0.00	297,127,312.00	17.50
CMC	24	24	4	-2.62	3.60	0.00	3.13	3.62	0.00	188,517.00	-4.41
KENAIR	26	26	0	-4.75	4.77	0.00	4.80	5.24	0.00	851,000.00	-40.03
(Table showing companies which had either zero change or equal changes in share prices in 1997)											

#### 4.4 1998 Findings

In 1998, Forty Six companies listed at the Nairobi Stock Exchange were analyzed and out of these companies, thirty seven companies had clear cut results while seven had zero changes in share prices and two had equal positive and negative changes. Out of the thirty-seven companies with clear-cut changes;

- a) Twelve companies had positive changes of share prices being followed by positive changes of accounting earnings i.e 32.43 % of all companies
- b) Fifteen companies had negative changes of share prices being followed by negative changes of accounting earnings i.e 40.54 % of all companies
- c) Six companies had positive changes of share prices being followed by negative changes of accounting earnings i.e 16.21 % of all companies
- d) Four companies had negative changes of share prices being followed by positive changes of accounting earnings i.e 10.82 % of all companies.

So if we combine the percentage of (a) and (b) we will find that in twenty seven companies or about 73 % of the companies analyzed, there was either positive changes in share prices followed by positive changes in accounting earnings (32.43 %) or negative changes in share prices being followed by negative changes in accounting earnings(40.54 %). The seven companies with zero changes in share prices and the two companies with equal positive and negative changes in share prices were inactive during the period of study. Assuming average is 50%, then 73% is above average. The fact that we found correct sign on 73% of the cases could suggest the existence of a relationship between changes in share prices and changes in accounting earnings. One is tempted to conclude that those changes could be related.

Table 6 1998 Clear Cut Companies

	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING	IS THE TEST POSITIVE?
NBK	28	24	0	-4.70	3.77	0.00	5.13	4.57	0.00	-2,821,773.00	-827.84	YES
KNM	27	23	2	-5.08	5.37	0.00	8.97	7.77	0.00	-795,088.00	-559.02	YES
SMG	26	17	9	-8.68	9.79	0.00	10.15	13.13	0.00	-2,698.00	-107.89	YES
KCB	33	19	0	-2.43	2.94	0.00	2.39	3.88	0.00	914,800.00	-64.35	YES
DUN	29	13	10	-3.33	9.75	0.00	3.88	28.96	0.00	6,047.00	-30.58	YES
BAMB	29	21	2	-3.76	6.02	0.00	4.61	7.34	0.00	568,000.00	-27.18	YES
EXPRESS	19	14	19	-5.62	3.15	0.00	5.38	7.24	0.00	13,277.00	-24.92	YES
NICB	32	20	0	-3.70	4.29	0.00	4.40	4.90	0.00	310,709.00	-22.04	YES
REAY	32	19	1	-2.42	2.57	0.00	2.92	2.66	0.00	44,084.00	-20.75	YES
CMC	23	22	7	-3.02	2.73	0.00	3.87	6.23	0.00	154,898.00	-17.83	YES
FIRE	29	22	1	-3.05	4.47	0.00	4.22	5.91	0.00	612,352.00	-8.68	YES
KPLC	27	24	1	-2.22	2.70	0.00	2.46	2.71	0.00	1,464,275.00	-5.78	YES
CFC	22	19	11	-3.03	3.13	0.00	3.66	3.87	0.00	279,350.50	-4.99	YES
HFCK	27	25	0	-3.12	3.66	0.00	3.78	3.74	0.00	285,734,461.00	-3.83	YES
EACABLES	21	14	17	-3.29	2.22	0.00	3.46	2.15	0.00	63,688.00	-0.38	YES
JUB	25	26	1	-1.93	1.70	0.00	1.81	1.62	0.00	142,444.00	0.75	YES
BBK	21	31	0	-1.91	2.28	0.00	1.71	2.49	0.00	3,000.00	11.65	YES
NMG	16	36	0	-3.64	4.21	0.00	5.57	9.26	0.00	326,500.00	14.84	YES
KENOL	13	22	17	-3.45	2.86	0.00	4.62	4.45	0.00	170,415.00	25.27	YES
CARB	21	22	9	-3.39	3.46	0.00	3.49	2.93	0.00	80,854.00	36.80	YES
ICDC	23	28	1	-4.13	4.11	0.00	3.53	5.05	0.00	149,744.20	37.77	YES
UCHUMI	21	30	1	-3.87	3.48	0.00	3.39	3.94	0.00	312,612.00	38.97	YES
SERENA	22	29	1	-4.12	3.10	0.00	5.31	4.36	0.00	66,362.00	46.45	YES
SCB	24	28	0	-2.38	2.42	0.00	1.94	2.88	0.00	1,592,607.00	49.57	YES
KENAIR	25	27	0	-3.59	3.63	0.00	4.78	4.52	0.00	1,314,000.00	54.40	YES
BAT	15	34	3	-1.45	1.60	0.00	2.30	2.21	0.00	1,156,914.00	82.46	YES
GWK	17	29	6	-2.96	3.53	0.00	4.13	4.03	0.00	289,301.00	378.24	YES
UNGA	23	26	4	-7.32	17.11	0.00	16.02	38.14	0.00	-758,488.00	-357.75	NO
BBOND	23	27	2	-2.07	2.74	0.00	1.95	2.69	0.00	239,672.00	-204.63	NO
DTK	24	26	2	-1.99	2.11	0.00	2.72	1.86	0.00	208,564.00	-181.73	NO
ABOUM	3	4	0	-1.75	3.53	0.00	1.25	4.13	0.00	3,393.00	-143.22	NO
EABL	24	27	1	-2.33	2.95	0.00	3.42	3.28	0.00	282,222.00	-88.87	NO
KAKUZI	13	23	16	-4.31	4.38	0.00	3.96	5.10	0.00	142,633.00	-34.83	NO
PAN	22	10	20	-3.04	1.81	0.00	3.06	2.22	0.00	68,908,088.00	6.90	NO
SASINI	27	22	3	-3.10	4.84	0.00	3.26	8.84	0.00	124,317.00	22.16	NO
TOTAL	28	23	1	-3.06	2.56	0.00	2.03	3.97	0.00	321,063.00	147.36	NO
PORTL	21	13	18	-5.07	8.61	0.00	5.91	15.69	0.00	375,707.00	315.15	NO
(Table showing companies which had clear cut results in 1998)												

Table 7 1998 Zero Changes Companies											
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING
KAPCHO	0	5	47	0.00	7.92	0.00	0.00	5.19	0.00	74,573.00	295.15
CTRUST	12	6	34	-8.04	22.54	0.00	14.71	46.66	0.00	33,701,707.00	38.89
ETEA	3	3	46	-0.85	0.86	0.00	0.44	0.54	0.00	20,762,181.00	24.57
BOC	13	18	21	-1.37	1.49	0.00	1.06	1.26	0.00	152,555.00	11.91
MARSH	16	8	28	-3.65	2.35	0.00	6.56	1.95	0.00	38,838.00	-49.45
CAR GEN	14	10	28	-6.54	8.01	0.00	10.17	8.82	0.00	-33,839.00	-72.09
EAPACK	17	7	28	-6.60	0.94	0.00	7.26	0.53	0.00	-37,557.00	-881.29
1998 Equal Changes Companies											
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING
CBERG	22	22	8	-3.51	2.96	0.00	4.38	2.67	0.00	22,810.00	-48.13
ATHI	26	26	0	-5.31	3.79	0.00	4.61	3.46	0.00	12,666.00	-63.10
(Table showing companies which had either zero change or equal changes in share prices in 1998)											

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## 4.5 1999 Findings

In 1999, Forty Six companies listed at the Nairobi Stock Exchange were analyzed and out of these companies, thirty four companies had clear cut results while twelve had zero changes in share prices and none had equal positive and negative changes. Out of the thirty-four companies with clear-cut changes;

- a) Nine companies had positive changes of share prices being followed by positive changes of accounting earnings i.e 26.47 % of all companies
- b) Eleven companies had negative changes of share prices being followed by negative changes of accounting earnings i.e 32.35 % of all companies
- c) Nine companies had positive changes of share prices being followed by negative changes of accounting earnings i.e 26.47 % of all companies
- d) Five companies had negative changes of share prices being followed by positive changes of accounting earnings i.e 14.71% of all companies.

So if we combine the percentage of (a) and (b) we will find that in twenty companies or about 59 % of the companies analyzed, there was either positive changes in share prices followed by positive changes in accounting earnings (26.47%) or negative changes in share prices being followed by negative changes in accounting earnings(32.35 %). The twelve companies with zero changes in share prices were inactive during the period of study. Assuming average is 50%, then 59% is above average. The fact that we found correct sign on 59% of the cases could suggest the existence of a relationship between changes in share prices and changes in accounting earnings. One is tempted to conclude that those changes could be related.

Table 8 1999 Clear Cut Companies

	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING	IS THE TEST POSITIVE?
KCB	33	20	0	-3.90	3.50	0.00	3.48	3.21	0.00	-1,554,665.00	-269.95	YES
EXPRESS	22	12	19	-5.00	6.74	0.00	5.68	8.01	0.00	-13,399.00	-200.92	YES
SASINI	26	19	8	-2.77	1.58	0.00	2.76	1.61	0.00	21,384.00	-82.80	YES
HFCK	31	22	0	-3.27	3.31	0.00	4.02	3.33	0.00	70,686,000.00	-75.26	YES
UNGA	28	19	6	-6.25	8.09	0.00	10.01	10.71	0.00	-276,741.00	-63.51	YES
KNM	25	24	4	-5.70	5.51	0.00	10.87	7.46	0.00	-363,344.00	-54.30	YES
CFC	23	18	12	-3.10	3.63	0.00	3.42	3.62	0.00	206,261.00	-26.16	YES
NMG	31	22	0	-2.57	2.42	0.00	3.45	3.53	0.00	247,600.00	-24.17	YES
JUB	26	24	3	-2.56	2.64	0.00	2.77	5.41	0.00	110,202.00	-22.63	YES
NBK	31	22	0	-4.26	5.16	0.00	6.30	8.98	0.00	-2,428,782.00	-13.93	YES
KPLC	32	21	0	-2.29	2.41	0.00	2.40	2.71	0.00	1,305,262.00	-10.86	YES
BAT	24	29	0	-2.90	2.94	0.00	2.99	3.80	0.00	1,237,398.00	6.96	YES
SCB	19	34	0	-2.33	1.74	0.00	2.85	1.95	0.00	1,753,636.00	10.11	YES
SERENA	18	35	0	-2.94	2.34	0.00	4.68	2.79	0.00	79,336.00	19.55	YES
CARB	12	21	20	-8.53	11.71	0.00	18.64	42.32	0.00	108,546.00	34.25	YES
ATHI	24	25	4	-7.41	8.52	0.00	8.49	8.47	0.00	20,205.00	57.04	YES
TOTAL	21	32	0	-3.36	3.11	0.00	3.70	5.57	0.00	551,420.00	71.75	YES
CBERG	19	28	6	-6.68	6.59	0.00	6.46	9.17	0.00	42,856.00	89.99	YES
ICDC	16	37	0	-0.91	1.22	0.00	0.89	1.66	0.00	355,016.00	137.06	YES
EABL	24	28	1	-2.71	3.25	0.00	3.33	4.07	0.00	1,127,930.00	299.66	YES
REAY	25	26	2	-3.14	2.31	0.00	2.48	2.80	0.00	-8,603.00	-114.98	NO
DTK	22	29	2	-2.56	2.51	0.00	2.15	2.43	0.00	104,224.00	-49.54	NO
FIRE	24	28	1	-2.50	2.34	0.00	2.89	4.69	0.00	390,289.00	-36.26	NO
BBK	26	27	0	-2.60	1.81	0.00	2.86	1.62	0.00	2,254.00	-24.87	NO
UCHUMI	23	30	0	-2.32	1.31	0.00	2.70	1.04	0.00	244,389.00	-21.82	NO
BBOND	19	27	7	-2.70	1.02	0.00	6.20	1.31	0.00	219,744.00	-8.31	NO
KENAIR	25	28	0	-3.24	3.33	0.00	3.74	2.96	0.00	1,207,000.00	-8.14	NO
BOC	18	19	16	-2.41	1.94	0.00	4.18	3.23	0.00	145,257.00	-4.78	NO
NICB	26	27	0	-3.95	4.07	0.00	4.01	3.68	0.00	300,623.00	-3.18	NO
PAN	19	15	19	-5.34	11.75	0.00	6.95	18.22	0.00	73,478,503.00	6.83	NO
CMC	19	17	17	-2.43	2.31	0.00	2.84	3.32	0.00	167,671.00	8.25	NO
DUN	25	18	10	-5.29	4.37	0.00	5.07	6.18	0.00	7,572.00	25.22	NO
BAMB	25	19	9	-3.63	3.46	0.00	3.33	4.02	0.00	716,000.00	26.06	NO
SMG	25	18	10	-6.53	8.44	0.00	12.03	11.88	0.00	-120,571.00	4372.22	NO

(Table showing companies which had clear cut results in 1999)

Table 9 1999 Zero Change Companies											
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING
ABOUM	2	0	51	-5.99	0.00	0.00	7.44	0.00	0.00	12,678.00	273.85
KENOL	9	14	30	-5.46	5.58	0.00	6.27	7.08	0.00	211,132.00	23.69
EAPACK	17	8	28	-5.94	11.76	0.00	9.66	18.97	0.00	-26,204.00	-30.23
ETEA	1	0	52	-13.33	0.00	0.00	0.00	0.00	0.00	9,300,567.00	-55.20
EACABLES	12	10	31	-8.77	10.90	0.00	8.68	15.50	0.00	21,849.00	-85.69
KAPCHO	0	3	50	0.00	13.97	0.00	0.00	9.25	0.00	23,600.00	-66.35
KAKUZI	17	11	25	-4.31	2.78	0.00	4.93	3.08	0.00	37,892.00	-73.43
CTRUST	9	7	37	-8.02	6.05	0.00	4.94	4.96	0.00	8,333,600.00	-75.27
GWK	19	11	23	-3.01	1.92	0.00	4.12	1.48	0.00	61,316.00	-78.81
CAR GEN	5	5	43	-16.55	21.42	0.00	20.31	43.95	0.00	16,155.00	-147.74
PORTL	15	18	20	-8.07	6.53	0.00	14.63	7.65	0.00	-878,586.00	-333.65
MARSH	3	5	45	-7.31	3.59	0.00	1.90	5.01	0.00	211,118.00	-676.23

(Table showing companies which had zero changes in share prices in 1999)

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## 4.6 2000 Findings

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In 2000, Forty Three companies listed at the Nairobi Stock Exchange were analyzed and out of these companies, twenty eight companies had clear cut results while fourteen had zero changes in share prices and one had equal positive and negative changes. Out of the twenty eight companies with clear-cut changes;

- a) Eight companies had positive changes of share prices being followed by positive changes of accounting earnings i.e 28.58 % of all companies
- b) Seven companies had negative changes of share prices being followed by negative changes of accounting earnings i.e 25 % of all companies
- c) Six companies had positive changes of share prices being followed by negative changes of accounting earnings i.e 21.42 % of all companies
- d) Seven companies had negative changes of share prices being followed by positive changes of accounting earnings i.e 25 % of all companies.

So if we combine the percentage of (a) and (b) we will find that in fifteen companies or about 54 % of the companies analyzed, there was either positive changes in share prices followed by positive changes in accounting earnings (28.58%) or negative changes in share prices being followed by negative changes in accounting earnings(25 %). The fourteen companies with zero changes in share prices and the one company with equal positive and negative changes in share prices were inactive during the period of study. Assuming average is 50%, then 54% is above average. The fact that we found correct sign on 54% of the cases could suggest the existence of a relationship between changes in share prices and changes in accounting earnings. One is tempted to conclude that those changes could be related.

Table 10 2000 Clear Cut Companies												
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING	IS THE TEST POSITIVE?
KPLC	31	21	0	-3.90	2.87	0.00	5.46	4.93	0.00	-1,607,982.00	-223.19	YES
JUB	26	19	7	-2.58	2.06	0.00	3.32	2.17	0.00	78,279.00	-28.97	YES
KENOL	20	18	14	-2.71	2.55	0.00	1.91	3.02	0.00	154,130.00	-27.00	YES
HFCK	31	21	0	-3.66	2.88	0.00	3.76	3.05	0.00	52,223,000.00	-26.12	YES
FIRE	34	15	3	-2.64	4.42	0.00	3.93	6.88	0.00	292,484.00	-25.06	YES
NMG	30	22	0	-1.91	1.04	0.00	2.72	1.27	0.00	197,100.00	-20.40	YES
ICDC	27	25	0	-3.03	2.95	0.00	3.37	4.18	0.00	321,767.00	-9.37	YES
NICB	22	30	0	-2.96	2.27	0.00	3.58	3.67	0.00	312,589.00	3.91	YES
EABL	25	27	0	-1.82	1.85	0.00	1.74	1.83	0.00	1,174,797.00	4.16	YES
SERENA	24	28	0	-1.23	1.03	0.00	1.79	1.44	0.00	83,052.00	4.68	YES
CFC	20	21	11	-2.99	2.15	0.00	3.73	2.18	0.00	234,910.00	13.89	YES
SCB	20	32	0	-2.89	2.24	0.00	3.07	4.00	0.00	2,149,745.00	22.59	YES
UCHUMI	16	36	0	-2.01	1.48	0.00	2.19	1.24	0.00	320,048.00	30.96	YES
GWK	14	19	19	-3.48	3.03	0.00	2.89	4.15	0.00	81,715.00	33.27	YES
KENAIR	22	30	0	-2.23	2.11	0.00	3.78	2.38	0.00	2,922,000.00	142.09	YES
KCB	24	28	0	-4.97	3.04	0.00	4.60	3.46	0.00	-464,469.00	-70.12	NO
ABOUM	14	38	0	-3.08	0.00	0.00	3.79	0.00	0.00	4,302.00	-66.07	NO
TOTAL	24	28	0	-1.74	2.10	0.00	3.18	3.51	0.00	206,509.00	-62.55	NO
BAT	23	28	1	-2.63	2.41	0.00	3.54	4.00	0.00	582,710.00	-52.91	NO
BAMB	17	34	1	-1.04	1.32	0.00	1.12	1.41	0.00	370,000.00	-48.32	NO
BBK	24	28	0	-3.53	2.30	0.00	4.54	5.05	0.00	2,068.00	-8.25	NO
ATHI	26	19	7	-4.25	4.16	0.00	4.04	4.43	0.00	29,890.00	47.93	NO
DTK	30	15	7	-2.82	2.02	0.00	4.36	2.27	0.00	163,574.00	56.94	NO
KNM	29	18	5	-4.37	6.21	0.00	4.61	10.77	0.00	-589,729.00	62.31	NO
BBOND	25	18	9	-2.69	3.67	0.00	3.88	5.31	0.00	454,664.00	106.91	NO
UNGA	28	17	7	-4.57	4.98	0.00	6.12	8.03	0.00	-659,689.00	138.38	NO
SASINI	20	18	14	-3.71	2.84	0.00	4.14	2.69	0.00	108,640.00	408.04	NO
REAY	30	21	1	-3.59	3.32	0.00	4.44	3.94	0.00	-34,010.00	415.01	NO

(Table showing companies which had clear cut results in 2000)

Table 11 2000 Zero Change Companies												
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING	
EAPACK	6	11	35	-11.87	6.81	0.00	26.06	6.28	0.00	-99,818.00	260.18	
KAKUZI	17	13	22	-4.44	2.59	0.00	4.32	1.64	0.00	-43,631.00	215.15	
CTRUST	3	3	46	-4.00	6.14	0.00	1.32	7.70	0.00	9,333,353.00	12.00	
PAN	18	6	28	-5.32	3.24	0.00	5.10	2.80	0.00	73,476,503.00	0.00	
CARB	19	12	21	-4.71	5.39	0.00	4.71	7.09	0.00	92,213.00	-15.05	
SMG	11	18	23	-7.71	3.38	0.00	7.31	3.89	0.00	-93,915.00	-22.11	
CMC	16	7	29	-4.55	1.92	0.00	6.16	2.49	0.00	122,458.00	-26.97	
BOC	11	10	31	-5.43	3.23	0.00	4.57	2.82	0.00	74,715.00	-48.56	
MARSH	1	0	51	-21.29	0.00	0.00	0.00	0.00	0.00	-104,235.00	-50.63	
PORTL	13	6	33	-2.25	6.11	0.00	3.26	6.91	0.00	-419,468.00	-52.28	
CBERG	6	7	39	-6.23	2.51	0.00	7.28	2.96	0.00	19,480.00	-54.65	
EXPRESS	13	5	34	-2.11	4.65	0.00	1.46	4.52	0.00	-5,973.00	-55.42	
DUN	14	11	27	-3.79	1.48	0.00	4.38	1.35	0.00	3,151.00	-58.40	
CAR GEN	3	2	47	-16.88	51.47	0.00	25.04	53.15	0.00	-4,287.00	-126.54	
2000 Equal Change Company												
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING	
NBK	25	25	2	-3.73	2.04	0.00	5.63	2.21	0.00	-2,206,254.00	-9.16	
(Table showing companies which had either zero change or equal changes in share prices in 2000)												

## 4.7 2001 Findings

In 2001, Forty Five companies listed at the Nairobi Stock Exchange were analyzed and out of these companies, twenty eight companies had clear cut results while sixteen had zero changes in share prices and one had equal positive and negative changes. Out of the twenty eight companies with clear-cut changes;

- a) Seven companies had positive changes of share prices being followed by positive changes of accounting earnings i.e 25 % of all companies
- b) Ten companies had negative changes of share prices being followed by negative changes of accounting earnings i.e 35.71% of all companies
- c) Four companies had positive changes of share prices being followed by negative changes of accounting earnings i.e 14.29 % of all companies
- d) Seven companies had negative changes of share prices being followed by positive changes of accounting earnings i.e 25 % of all companies.

So if we combine the percentage of (a) and (b) we will find that in seventeen companies or about 61 % of the companies analyzed, there was either positive changes in share prices followed by positive changes in accounting earnings (25%) or negative changes in share prices being followed by negative changes in accounting earnings(35.71 %). The sixteen companies with zero changes in share prices and the one company with equal positive and negative changes in share prices were inactive during the period of study. Assuming average is 50%, then 61% is above average. The fact that we found correct sign on 61% of the cases could suggest the existence of a relationship between changes in share prices and changes in accounting earnings. One is tempted to conclude that those changes could be related.

Table 12 2001 Clear Cut Companies													
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN AVC EARNING	IS THE TEST POSITIVE?	
TOTAL	30	18	3	-3.73	3.07	0.00	3.23	3.32	0.00	-222,101.00	-207.56	YES	
KCB	27	24	0	-4.33	8.09	0.00	4.51	7.16	0.00	381,980.00	-182.24	YES	
SABINI	28	14	9	-3.83	2.84	0.00	3.57	3.37	0.00	13,863.00	-87.24	YES	
DTK	22	18	11	-3.12	1.45	0.00	3.46	1.58	0.00	40,932.00	-74.98	YES	
UCHUMI	31	20	0	-2.80	2.27	0.00	3.43	2.61	0.00	89,198.00	-72.13	YES	
UNGA	30	13	8	-5.38	7.79	0.00	4.52	13.03	0.00	-224,522.00	-85.97	YES	
KNM	23	11	17	-4.28	10.32	0.00	4.00	16.50	0.00	-228,087.00	-81.32	YES	
KENAIR	27	24	0	-2.80	2.76	0.00	4.07	3.76	0.00	1,357,000.00	-53.56	YES	
CFC	28	16	7	-1.87	2.88	0.00	2.15	2.49	0.00	141,392.00	-39.81	YES	
CMC	21	13	17	-4.42	3.31	0.00	4.08	3.59	0.00	88,642.00	-27.61	YES	
SCB	21	30	0	-3.37	3.47	0.00	4.25	4.24	0.00	2,235,228.00	3.98	YES	
SERENA	21	30	0	-1.18	1.09	0.00	1.27	1.25	0.00	98,706.00	16.44	YES	
ATHI	21	23	7	-3.81	3.75	0.00	3.78	4.20	0.00	35,288.00	17.99	YES	
EABL	19	32	0	-1.58	1.02	0.00	1.75	0.84	0.00	1,573,408.00	33.83	YES	
BBK	23	28	0	-2.88	3.08	0.00	2.27	4.25	0.00	2,855.00	42.89	YES	
KENOL	22	23	6	-3.46	6.02	0.00	7.92	8.85	0.00	385,535.00	150.14	YES	
HFCK	26	25	0	-3.45	2.18	0.00	3.11	2.92	0.00	-186,543,000.00	457.21	YES	
NBK	25	26	0	-7.09	10.29	0.00	9.86	28.39	0.00	298,888.00	-113.55	NO	
REAY	21	24	6	-7.39	8.08	0.00	8.42	11.67	0.00	-6,888.00	-80.34	NO	
ICDC	24	27	0	-2.12	2.65	0.00	2.22	3.59	0.00	210,088.00	-34.71	NO	
NICB	24	27	0	-3.69	3.04	0.00	3.85	3.73	0.00	253,834.00	-18.80	NO	
BAT	28	23	0	-2.11	2.23	0.00	2.32	1.71	0.00	604,109.00	3.67	NO	
FIRE	29	21	1	-3.28	2.37	0.00	3.76	4.05	0.00	333,800.00	14.08	NO	
CSBERG	22	14	15	-3.92	3.77	0.00	4.24	4.30	0.00	23,210.00	19.15	NO	
NMG	32	19	0	-3.02	2.77	0.00	2.59	3.08	0.00	256,700.00	30.24	NO	
JUB	28	19	6	-2.12	2.09	0.00	2.10	3.01	0.00	121,399.00	55.07	NO	
KPLC	31	20	0	-5.11	4.87	0.00	5.50	6.82	0.00	-2,878,711.00	78.90	NO	
BAMB	27	13	11	-3.48	2.54	0.00	3.28	2.76	0.00	787,000.00	112.70	NO	
				(Table showing companies which had clear cut results in 2001)									



Table 13 2001 Zero Change Companies												
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING	
ETEA	1	0	50	-7.58	0.00	0.00	0.00	0.00	0.00	23,210.00	-100.03	
KAPCHO	4	2	45	-2.94	2.60	0.00	2.50	1.37	0.00			
KAKUZI	13	7	31	-8.55	21.14	0.00	15.40	46.54	0.00	-54,159.00	24.13	
GWK	16	18	19	-3.74	1.83	0.00	4.51	1.97	0.00	136,238.00	66.72	
MARSH	1	0	50	-1.61	0.00	0.00	0.00	0.00	0.00	-308,673.00	196.13	
SMG	12	11	28	-13.36	22.26	0.00	17.97	26.72	0.00	62,842.00	-166.91	
ABOUM	11	5	35	-4.25	7.53	0.00	4.22	5.06	0.00			
EXPRESS	10	1	40	-9.23	1.96	0.00	10.14	0.00	0.00	-31,422.00	426.07	
CARB	14	10	27	-4.12	4.98	0.00	3.77	6.06	0.00	42,640.00	-53.76	
BOC	19	10	22	-3.75	2.97	0.00	3.94	3.16	0.00	75,050.00	0.45	
PORTL	12	11	28	-4.95	7.86	0.00	4.60	19.01	0.00	736,485.00	-275.58	
EAPACK	5	7	39	-4.36	4.29	0.00	2.97	3.39	0.00	57,574.00	-157.80	
EACABLES	17	14	20	-2.25	4.46	0.00	2.58	5.33	0.00	17,729.00	-41.67	
DUN	14	9	78	-5.35	6.14	0.00	3.06	4.23	0.00			
PAN	16	16	19	-2.16	3.40	0.00	2.11	3.34	0.00			
CTRUST	5	3	43	-8.77	10.33	0.00	6.28	15.21	0.00	9,261,370.00	-0.56	
2001 Equal Change Company												
	NEGATIVE CHANGES (PRICES)	POSITIVE CHANGES (PRICES)	ZERO CHANGES (PRICES)	MEAN OF NEGATIVE CHANGES	MEAN OF POSITIVE CHANGE	MEAN OF ZERO CHANGES	STD.DEV. NEGATIVE CHANGES	STD.DEV. POSITIVE CHANGES	STD.DEV. OF ZERO CHANGES	ACCOUNTING EARNING	CHANGES IN A/C EARNING	
BBOND	22	22	7	-2.23	1.79	0.00	2.34	2.78	0.00	221,842.00	-\$1.21	
(Table showing companies which had either zero change or equal changes in share prices in 2001)												

## **CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Summary and Conclusions of Findings .**

The research objective of this study was to establish the extent to which changes in share prices can predict accounting earnings.

We analyzed results for the six years from 1996 to 2001. In 1996 the results were that 64.71% of the companies had their share prices moving in the same direction as the accounting earnings. In 1997 the figure was 51.51%, in 1998 it was 72.97%, in 1999 it was 58.82% while in 2000 and 2001 it was 53.58% and 60.71% respectively. On average the figure was 60.38% for the six years.

The results have been summarized in the table on page 43. Companies with no clear cut results were separated since presence of zero changes or equal changes could mean low level of trade in their shares and therefore being inactive companies. A look at the sectors reveals that commercial sector had 76.17% predictability, financial sector 62.01%, Industrial sector 57.64% and Agricultural sector 43.06%

These results present evidence that earnings growth may be modeled in terms of price changes. Basu (1997), Ball et al (1998) did studies in this area and concluded that earnings growth may be modeled in terms of price changes. In an earlier study, Omanwa (1991) used time series in predicting accounting earnings. Our findings has shown that share prices can also be used to predict accounting earnings. In a study by Beaver, Lambert and Morse (1980), it was found that of all information about an individual firm which becomes available during a year one half or more is captured in that years share prices. This makes it possible for share prices to be used to predict accounting earnings since they will capture information about fundamental factors that will later affect the accounting earnings. Benstom (1966) and Ball and Brown (1968) explored the relationship between security price changes and earnings changes. They found a significant association between the sign of the price changes and the sign of the earnings changes. For the years in which a firm experiences positive residual earnings change, there tends to be positive residual price change and conversely, for the years in which there is a negative residual change.

What are the implications of these findings? At a minimum, the findings imply that there is a

correlation between the events that affect accounting earnings changes and changes in security prices. The evidence is also consistent with the contention that prices behave as if investors perceive that accounting earnings convey information about the value of a security. Security prices behave as if investors perceive that current earnings are statistically dependent with future earnings and the future dividend paying ability of the firm. Hence, prices act as if current earnings changes possess a permanent component, Foster (1984). In other words, a portion of the change in earnings is associated with a permanent alteration in the level of expected future earnings in a manner that implies an altered expected dividend paying ability. In this context, the evidence is also consistent with the contention that prices behave as if investors perceive that earnings convey information (i.e., altering their beliefs) about future earnings and future dividend paying ability

## **5.2 Limitations of the Study**

Availability of raw data that takes time to be adjusted- the basic promise of the analysis is that changes in accounting earnings are associated with changes in Share prices. Therefore in the event that there are errors in the market data- changes in earnings and changes in prices, this will hamper the reliability of the results. In the Nairobi Stock Exchange the data provided has to be adjusted over a period of time to make it comparable. These adjustments involve aggregating data, which could result in averaging out variations in observations. To clean up the data would be time consuming and prone to error if care is not taken

<b>SUMMARY OF FINDINGS OVER THE YEARS</b>									
When	Followed by	1996	1997	1998	1999	2000	2001	<b>AVERAGE</b>	
Changes of Share prices are;	Changes of Accounting Earnings;								
Positive	Positive	41.18%	33.33%	32.43%	26.47%	28.58%	25.00%	31.17%	
Negative	Negative	23.53%	18.18%	40.54%	32.35%	25.00%	35.71%	29.21%	
Positive	Negative	14.71%	15.16%	16.21%	26.47%	21.42%	14.29%	18.05%	
Negative	Positive	20.58%	33.33%	10.82%	14.71%	25.00%	25.00%	21.57%	
<b>SUMMARY OF FINDINGS ACCORDING TO SECTOR</b>									
		1996	1997	1998	1999	2000	2001	<b>AVERAGE</b>	
Agriculture		50.00%	60.00%	40.00%	33.33%	25.00%	50.00%	43.06%	
Commercial		68.67%	100.00%	87.50%	42.86%	80.00%	80.00%	76.17%	
Industrial		68.66%	46.15%	69.23%	69.23%	40.00%	54.55%	57.64%	
Financial		70.00%	30.00%	81.81%	63.64%	66.66%	60.00%	62.01%	

### **5.3 Recommendations and Suggestions for Further Research**

The findings of this study implies that share prices can be used to predict accounting earnings.

Therefore earnings growth may be modeled in terms of price changes.

It was a basic study to see whether there is a relationship between changes in share prices and accounting earnings. Further research could be done using advanced statistical methods to measure the magnitude and the direction of the relationship.

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## Appendix 1.

### TOTAL POPULATION

The Nairobi Stock Exchange (NSE), founded in 1954, was among the very first stock exchanges to be established in Africa. In 1991 the NSE changed status from a society to a corporate entity limited by guarantee. Trade is conducted on ordinary shares, preference shares, debentures, corporate bonds and Government bonds. There were fifty-three organizations listed on the Nairobi Stock Exchange as at 31<sup>st</sup> December 2001. These organizations are classified according to sectors. There are four sectors:

1. Agricultural
2. Industrial
3. Commercial
4. Financial

### AGRICULTURAL

1. Brooke Bond
2. Eaagads
3. George Williamson
4. Kakuzi (Tea & Coffee)
5. Kapchorua
6. Limuru Tea
7. Ol Pejeta
8. REA Vipingo
9. Sasini Tea & Coffee
10. Theta Group

### COMMERCIAL

11. Baumann
12. Car & General
13. CMC Holdings
14. Express Kenya
15. Hutchings Biemer
16. Kenya Airways
17. Lonrho Motors
18. Marshalls
19. Nation Media Group

20. Pear Drycleaners
21. Tourism P.S (Serena)
22. Standard Newspapers
23. Uchumi Supermarkets

#### INDUSTRIAL

24. Athi River Mining
25. B.A.T Kenya
26. Bamburi Cement
27. BOC Kenya
28. Carbacid Investments
29. Crown Berger
30. Dunlop Kenya
31. E.A. Cables
32. E.A. Packaging
33. E.A. Portland
34. Firestone E.A.
35. E.A Breweries
36. Kenya National Mills
37. Kenya OILS
38. Kenya Orchards
39. Kenya Power & Light.
40. Total Kenya
41. Unga Group

#### FINANCIAL

42. Barclays Bank
43. City Trust
44. CFC Bank
45. Diamond Trust Bank
46. I.C.D.C. Investment
47. Housing Finance Co.
48. Jubilee Insurance
49. Kenya Commercial Bank
50. National Bank
51. NIC Bank
52. Pan Africa Insurance
53. Standard Chartered Bank

## Appendix 2.

## Earnings after tax

Earnings After Tax							
	Year	2001	2000	1999	1998	1997	1996
BBOND		221842	454664	219744	239672	-229069	-13138
GWK		136238	81715	61316	289301	60366	14185
KAKUZI		-54159	-43631	37892	142633	218871	146123
KAPCHO			14867	23600	74573	18872	5377
LIMTEA		-2983	11824016	9300567	20762181	16667556	8156676
REAVIP		-6688	-34010	-6603	44084	55625	86260
SASINI		13863	108640	21384	124317	101765	66018
ABAUM			4302	12678	3393	-7851.04	-13948.6
CARGEN		-5870	-4287	16155	-33839	-121247	-106520
CMC		86642	122458	167671	154896	188517	197213
EXPRES		-31422	-5973	-13399	13277	17683	33519.08
KENAIR		1357000	2922000	1207000	1314000	851000	1419091
MARSH		-308673	-104235	-211118	36638	72484	79758
NMG		256700	197100	247600	326500	284300	206870
SERENA		96706	83052	79336	66362	45314	52673
SNG		62842	-93915	-120571	-2696	34165	17041
UCHUMI		89198	320048	244389	312612	224948	259589
BBK		2955	2068	2254	3000	2687	2477
CFC		141392	234910	206261	279350.49	294030	188141
CTRUST		9281370	9333353	8333600	33701707	24299755	72163439
DTK		40932	163574	104224	206564	-334646	-147286
HFCK		-186543000	52223000	70686000	285734461	287127312	252876696
ICDC		210066	321767	355016	149744.195	108694.96	114276.23
JUB		121389	78279	110202	142444	141385	101171
KCB		381980	-464469	-1554665	914800	2566412	2500933
NBK		298868	-2206254	-2428762	-2821773	387692	502334
NIC		253834	312589	300823	310709	398561	352012
PANAFR			73476503	73476503	68908098	64460820	39852871
SCBK		2235228	2149745	1753636	1592607	1064790	1149207
ARM		35266	29890	20205	12866	34866	28147.474
BAMB		787000	370000	716000	568000	780000	767000
BAT		604109	582710	1237398	1156914	634049	631181
BOC		75050	74715	145257	152555	136315	120558
CARB		42640	92213	108546	80854	59102	55900
CBERG		23210	19480	42956	22610	44443	5303
DUNLOP			3151	7572	6047	8711	15273
EABL		1573406	1174797	1127930	282222	906598	505523
EACABL		17729	30394	21849	63685	63930	73779
EAPACK		57574	-99618	-26204	-37557	6461	49103.62
EAPORT		736485	-419468	-878586	375707	90499	67210.94
FIREST		333600	292484	390289	612352	670521	689638
KORCHARDS			-7809002	-140507	-7130404	-7778688	-4237540
KENOL		385535	154130	211132	170415	136033	95166
KNM		-228097	-589729	-363344	-795066	173209	31147
KPL		-2876711	-1607982	1305262	1464275	1554028	1116290
TOTAL		-222101	206509	551420	321063	129796	173080
UNGA		-224522	-659689	-276741	-758488	294278	57056