The Extent To Which Interim Earnings Can be Used To Forecast Year-End Earnings: A Study of Companies Quoted At the Nairobi Stock Exchange For The Period 1996 to 2000.

BY

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DECLARATION

This Management Research Project is my original work and has not been presented for a degree in any university.

Signed .... Date 26TH OCT., 2001

Lilian W. Muriithi – Ollows.

This Management Research Project has been submitted for examination with my approval as the University Supervisor.

Signed .... Date 26.10.2001

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DEDICATION

To my husband Fred, my son John, my parents Mr. and Mrs. Mathenge and brothers Ian and Brian for their love and patience.

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This project has been made possible with the assistance of a number of people to whom I would like to express my gratitude.

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May God Bless you all.

ABSTRACT

This study is aimed at determining the extent to which there is a relationship between the two numbers of earnings that quoted companies on the Nairobi Stock exchange are required to submit. If indeed there is a relationship, can interim earnings be used to predict final earnings?

The data used in this study was collected mainly from companies that consistently submitted interim and year-end earnings, to the Nairobi Stock Exchange, between the years 1996-2000. The data was then analysed using regression analysis applying such tests as coefficient of determination, t-value and f-test for overall significance.

The results of the tests generally indicate that there is no relationship between interim earnings and eventual year-end earnings. There were exceptions however, in the commercial and services as well as the industrial and allied sectors.

This conclusion agrees with what other researchers, for instance Edwards and Bell (1961), have observed, that the value of accounting numbers like earnings figures, do not lie in their predictive ability. They simply are a measure of what has already occurred.

In view of these conclusions, I have recommended the following research questions:

a] Why are interim earnings submitted?

b] Would other methods of analysis indicate that there is a relationship between interim and year-end earnings?

c] Would the relationship found between interim and year-end earnings in companies of the commercial and services as well as the industrial and allied sectors hold over a longer period of study?

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CHAPTER ONE: INTRODUCTION

1.1 Background to The Study

Earnings are a useful variable in determining the value of an asset. In the finance and investment literature research valuation models use earnings, dividends and discount rate to determine asset value. In most cases it is the future earnings and not historical earnings that is of interest to investors. It follows that investors, analysts and financial advisors need to identify variables that help them in forecasting earnings. A number of variables such as industry size, asset structure and asset mix have been suggested as useful in predicting future earnings. In addition to those variables, quoted companies are required to publish interim earnings. It would therefore be interesting to find the extent to which interim earnings are useful in forecasting year-end earnings. This study seeks to exploit such a relationship.

The Stock Exchange

The Stock Exchange is a market that facilitates deals in the exchange of shares of publicly quoted companies and government and municipal securities for money. It is a place where investors register their opinion on the future of the economy. It thus follows that the stock market is a barometer that reflects important economic changes. The Nairobi Stock market is everybody's discounting of the Kenyan economic outlook. (Simiyu, 1992).

The Nairobi Stock Exchange was formed in 1954 as a voluntary organisation of stock brokers and is now one of the most active capital markets in Africa. The Nairobi Stock Exchange deals in both variable income and fixed income securities. Variable income securities are the ordinary shares, which have no fixed rate of dividend payable, as the dividend is dependent upon both the profitability of the company and what the board of directors decides. The fixed income securities include Treasury and Corporate bonds, preference shares, debenture stocks - these have a fixed rate of interest/dividend, which is not dependent on profitability.

The Nairobi Stock Exchange currently comprises of fifty-four quoted companies divided into four sectors, that is: -

1. Agricultural
2. Commercial and Services
3. Finance and Investment
4. Industrial and Allied

The Nairobi Stock Exchange requires all companies quoted on the exchange to submit annual reports. Interim reports are additional sources of information on profitability; these are reports that cover fiscal periods of less than one year. A number of regulations make this interim data available to the investing public. What is observed in financial statements is the product of a diverse set of demand and supply forces. Parties demanding financial statement information include: -

(A) shareholders, investors and security analysts;

(B) managers;

(C) employees;

(D) lenders and other suppliers;

(E) customers; and

(F) government regulatory agencies.

These parties will demand financial statement information to facilitate decision making; to facilitate the monitoring of management; or to interpret contracts or agreements that include provisions based on such information.

On the supply side, emphasis is placed on regulatory and market forces that affect the content of financial reports or the timing with which these reports are released.

Financial statement analysis includes the study of relationships within a set of financial statements at a point in time and with trends in these relationships over time. Data can either be analysed cross sectionally or by using time-series.

When using cross-sectional techniques comparisons between companies are carried out over a period of time, whereas time-series analysis examines the trend of one company over a period of time. Time series analysis exploits any systematic patterns in the behaviour of a series over time when forecasting subsequent values of that series.

At least three approaches to analysing time-series data can be used: -

1. Economic - This can involve both ex-ante hypothesizing about systematic patterns expected in the time series data and ex-post analysis of causal factors underlying the behaviour of the time series.
2. Visual - This involves plotting the data and then visually examining the plot for any systematic patterns.
3. Statistical - This involves using statistical tools such as autocorrelation to detect systematic patterns in the data. These three approaches are not mutually exclusive.

For instance an economic approach can suggest systematic patterns that the visual or statistical approaches might confirm. Moreover, the visual and statistical approaches can reinforce each other in identifying systematic patterns in the time series.

1.2 Statement of the Problem.

The Nairobi Stock Exchange listing manual in its appendix four details continuing requirements for listing. Under periodic reports, it states that,

(1) " An issuer shall give to the Exchange a half yearly report immediately figures are available and in any event not later than two months after the end of the first half yearly period in the financial year. Where an Issuer has subsidiaries, the said report shall be based on the group accounts."

(2) " An issuer shall give to the Exchange a preliminary financial statement immediately figures are available and in any event not later than two months after the end of the financial year. Where a company has subsidiaries, the said statement shall be based on the group accounts."

(3) "The report shall contain the following particulars relating to the period covered by the report: -

(a) turn-over

(b) profit before and after tax or loss

(c) dividend

(d) earnings per share

Under requirements for the Annual Report the Nairobi Stock Exchange states the following: -

(1) " The interval between the close of the financial year of a listed company and the issue of the printed annual report to the company's shareholders and Exchange shall not exceed six months."

(2) " Where a limited company has subsidiaries, its annual audited accounts shall be prepared in consolidated form in accordance with the Companies Act and the relevant International Accounting Standard."

Interim reports contain more estimates in the financial data than annual reports; interim reports are also unaudited. For these reasons, they are also less reliable than annual reports.

Interim statements must disclose the seasonal nature of the activities of the firm. It is also recommended that firms that are seasonal in nature supplement their interim report by including information for twelve-month periods.

This study will therefore investigate if there is any relationship between the interim and the annual earnings and try to determine, if any, the sort of relationship.

1.3 Objective of the study

The study will: -

Determine if there is any relationship between interim and year-end earnings and if there is, if interim earnings are a reliable predictor of year-end earnings.

1.4 Significance of the Study

The findings of this study will: -

1. Provide a vital source of information on earnings trends of companies quoted on the stock exchange for the last five years.
2. Provide knowledge to investors both potential and current on the performance of companies quoted on the Nairobi Stock Exchange.
3. Be a valuable addition to the existing body of knowledge in the Nairobi Stock Exchange and usefulness of annual reports.

CHAPTER TWO: LITERATURE REVIEW

The primary test of an accounting theory is its ability to explain or predict. Accounting theory is here defined as logical reasoning in the form of a set of broad principles that (1) provide a general frame of reference by which accounting practice can be evaluated and (2) guide the development of new practices and procedures.

Predictability is a relative term, being improved gradually with the development of better theories and the development of better methods of applying the theories operationally. But the reliability of predictions is frequently difficult to measure because of the behavioral implications of the prediction itself. The prediction of an economic depression may cause the state to take actions to avert the depression, or it may cause individuals to take actions that may actually create or deepen a depression. Examples include hoarding or panic selling of securities. A theory that could lead to the prediction of business failure could actually bring about such a failure if people believed the prediction. By denying funds to a firm having difficulties, investors and creditors could cause the firm to go into bankruptcy. Accountants are not unaware of this possibility with traditional accounting procedures, and more accurate predictions could even multiply these concerns. Therefore the ability to predict is not the only consideration in the development of theories in accounting. In most situations, an additional consideration is the ability of the theory to measure risk, or the probability of the prediction being an accurate statement of future events.

Two excellent discussions of the theoretical framework of traditional accounting practice are those of Ijiri[2] and Sterling.[3] Ijiri's model is an attempt to explain traditional accounting practice; however, he does place emphasis on the historical cost system. Certain deviations, such as the lower of cost or market, are considered anomalies and are not explained by the theory. Sterling attempts to explain "what accountants do when they account," but again most of the discussion is limited to the historical cost system.

Regardless of the level of theory selected for study, all formal theories that can be tested and verified must include some elements of both deductive and inductive reasoning. At least some of the propositions or premises in a deductive theory must be inductively conceived, and any theory that is primarily inductively oriented must contain some deductive reasoning or follow interconnective rules of logic.

The deductive method of reasoning in accounting is the process of starting with objectives and postulates and, from these, deriving logical principles that provide the bases for concrete or practical applications.

The inductive approach consists of drawing generalized conclusions from detailed observations and measurements. However, it is not possible to divorce the inductive from the deductive approach because the latter provides a guide to the selection of the data to be studied. In accounting, the inductive process involves the making of observations of financial data regarding business enterprises. If recurring relationships can be found, generalizations and principles can be formulated.

[2] Yuji Ijiri, *The Foundations of Accounting Measurement: A Mathematical, Economic and Behavioral Inquiry* (Englewood Cliffs, N.J.: Prentice Hall, 1967).
[3] Robert R. Sterling,:" Elements of Pure Accounting Theory," Accounting Review, January 1967, pp. 62-73, and Robert R. Sterling and Richard E. Flaherty, " The Role of Liquidity in Exchange Valuation," *Accounting Review*, July 1971, pp. 441-56.

Earnings are a basic and important item of financial statements. Earnings are generally perceived as a basis for taxation, a determinant of dividend-payment policies, an investment and decision-making guide and an element of prediction.

The earnings are a useful indicator of the maximum amounts to be distributed as dividends (if the firm is to avoid distributing capital) and retained for expansion or reinvested in the firm. Earnings may also be perceived as a measure of efficiency; both as a measure of management's stewardship of an entity's resources and of management's efficiency in conducting the affairs of a firm.

For a firm, the allocation of resources is based upon forecasts of financial information that may affect its survival. Earnings and dividends forecasts, and the growth rates in these forecast are key informational inputs in investor decision models (Chang and Most, 1980). Accounting based financial forecasts are used in a variety of ways. Banks and non-bank financial institutions use forecasts to evaluate credit. Earnings forecasts are useful to financial analysts who attempt to isolate a firm's intrinsic characteristics such as residual income after removing the effect of economy and industry conditions through the use of index models. Auditors use accounting forecasts as a basis for expectations concerning reported items to determine the extent of detailed tests (Stringer, 1975: Kinney, 1971). Lev (1980, p.525) stated that the"...crucial stage of the analytical review process is the generation of expected, or reasonable, values of financial statement items." Managers use internally generated earnings forecasts for resource allocation decisions concerning present operations as well as future operations and expansions or contractions.

2.1 Previous Research

The traditional emphasis on income determination (especially in the last forty years) and the recent stress on prediction have converged in arguments that one criterion for acceptance of proposed income determination schemes is projectability. That characteristic of income is here defined as the capacity of current income, or a series of incomes, to be used to predict similarly defined and determined future incomes within fairly close tolerances.

It may be that accountants no longer search for the one "true value" or immutable concept" on which to erect an edifice of thought. Whether that conclusion is correct or not, a more favourable interpretation of the writings under consideration is that income prediction is important because income serves as a distillation of a congeries of data too voluminous and complex for individual presentation. Income then is deemed to be the best single indicant of enterprise progress and a surrogate for, or even determinant of, future dividends and future share prices.

The pervasiveness of the notion that one criterion for acceptance of income meanings and operations is projectability may be illustrated by the amounts of research directed toward ascertaining the extent to which various income determination methods can be used to predict future incomes similarly determined.

Simmons and Gray (1965) used a simulation technique while Frank (1969) employed adjustments to published data to determine whether a particular computation scheme could be judged better than others in reference to projectability. Frank (1969) noted that "closeness" to a theoretical ideal could be one criterion for acceptance, but that projectability was an independent and important criterion. Other studies aimed at determinations of income projectability have been conducted by Green and Segall and by Brown and Niederhoffer.

Advocates of the development of meanings and operations for income determination, which is projectable, may contend that income prediction is well recognised as a tool of security analysis. Textbooks in financial analysis do assert a need to form expectations about incomes. It is, however, self-serving to state that income prediction is useful because it is used.

Another point of the advocates of income prediction might be that incomes, dividends and share prices do move in the same direction over time. Even though coefficients of change are not now available, it is likely they could be developed once research efforts are directed to that end.

Increasing attention is being given to time-series properties of quarterly accounting data. This attention is related to both (1) the importance of research on quarterly accounting issues and (2) the importance of time-series research in accounting and finance. Foster (1976), provides evidence on the time series behaviour (via the Box-Jenkins (B-J) methodology) of the quarterly earnings, sales and expense series. He also examines the predictive ability of Box-Jenkins forecasting models vis-à-vis the forecasting models used in previous studies of the information content of quarterly data. Predictive ability is examined in two contexts: (1) first, the ability to forecast future values of the same series and (2) second, the ability to approximate the capital market's expectation model when examining the market's reaction to accounting data. The diverse use of forecasts results in considerable research focusing an ex-post evaluation of forecasts. For example research, concentrating on the question of public disclosure of forecasts (management forecasts and those provided by parties external to the firm), indicated the need for evaluating earnings forecast methods. This was followed by research comparing the accuracy of earnings forecasts made by management, security analysts, and extrapolative models, Cragg and Malkiel, 1968; Copeland and Marioni, 1972; Elton and Gruber, 1972; Johnson and Schmitt, 1974; Basi, Carey and Twark, 1976;

Lorek, McDonald and Patz, 1976; Brandon and Jarrett, 1979; Deschamps and Mehta, 1980; Imhoff and Pare, 1983.

2.2 Fiscal Year End

The preparation of financial reports is normally done over a period of time. The period for which financial reports are prepared - called the fiscal, financial or accounting period - is normally one year, beginning on any given date and ending twelve months later. Some companies, however, prepare financial reports for periods of less than or more than a year. The Company Act defines the financial year as "the period in respect of which any profit and loss account of the body corporate laid before it in a general meeting is made up, whether that period is a year or not."

Most firms use the calendar year or what the Income Tax Act refers to as the "Year of Income" i.e. "the period of twelve months commencing on 1st January in any year and ending on 31st December in that year." Other firms prefer using their natural business year. This is the period beginning and ending in the slack seasons of the business activity of the firm. The reason for using a natural business year is, as Walter B. Meigs, et al, put it "... to simplify year end procedures and facilitate a better measurement of income and financial position."

However, while it may be true that year-end procedures are simplified by using a natural business year, the idea of facilitating "a better measurement of income and financial position" is questionable. Furthermore, it is difficult to tell what time of the year will result in a financial position statement that will be representative of the asset and equity balance which were held during the period.

2.3 Year End

The Company Act leaves the choice of a financial year-end to the companies concerned. However, in the case of a holding company section 153(1) requires that "a holding company's directors shall ensure that except where in their opinion there are good reasons against it, the financial year of each of its subsidiaries shall coincide with the company's own financial year."

A survey on the fiscal year endings of the 58 survey companies revealed that the popular months for year endings were December, September, June, March and July. Most firms, however, used December as the financial year-end.

2.4 The Profit and Loss Account (Income Statement)

Section 149(1) of the Company Act states in part "... every profit and loss account of a company shall give a true and fair view of the profit and loss of the company for the financial year." The Company Act uses the term "Profit and Loss Account" to refer to the Income Statement. The term "Income and Expenditure Account" is used by the Act in the case of a company not trading for profit.

The Company Act does not advocate the use of any specific form of the Profit and Loss Account. But paragraph 14(6) of the sixth Schedule seems to suggest the use of an "all inclusive" Profit and Loss Account, whereby both operating and non-operating (extra-ordinary or non-recurrent) gains and losses are included in the Profit and Loss Account.

In this study, I wish to determine if there is a relationship between interim earnings and year-end (annual) earnings.

William Beaver et al (1968) acknowledged the fact that alternative accounting measurements are used to predict events of interest to decision-makers. Therefore the measure with the greatest predictive power with respect to a given event is considered to be the best method for that particular purpose.

Edward and Bell (1961) observed that the value of accounting numbers such as earnings figures does not lie in their so-called predictive ability. They contend repeatedly that the primary contribution which accounting can make lies in its feedback role i.e. accounting numbers should be viewed as a measure of that which has already occurred and not as a measure of future occurrence (forecast). They are therefore of the opinion that interim earnings should be used as a yardstick to measure how well a firm has performed in that period, no more and no less. Bell goes ahead to say that shareholders should regard the earnings figure as a measure of the management's effectiveness and possibly of the firm's maximum capacity to pay out interim dividends for the period.

Bevis (1965) like Edward and Bell, rejects the notion that accounting involves or should involve prediction. He warns that shareholders bear in mind at all times that financial statements are not designed to predict the future, but report on the past and present.

Simmons and Gray (1965) are of the view that predictive ability of earnings has relevance to the user who employs externally reported accounting numbers in making predictions of future events. An example of such a user is a prospective investor in the firm who, unlike the firms management and possibly its present investors, has no access to the management's budgets and other explicit forecasts of the firms prospects.

The American Accounting Association has emphasized the importance of earnings forecast. Almost all external users of financial information reported by profit-oriented firms are involved in efforts to predict the earnings of the firm for some future period. The past earnings of the firm are considered to be the most important single item of information relevant to the prediction of future earnings. It follows from this that past earnings should be measured and disclosed in such a manner as to give the user as much aid as practicable in efforts to make this prediction with a minimum of uncertainty.

Sprouse (1966) is even more definite about the purpose of accounting information. He says, the primary purpose of the measurement of last years earnings (or even interim earnings) reported to investors is to provide a basis for predicting future years income. In considering this objective of accounting income, some accountants have proposed that alternative income concepts be reported rather than the traditional accounting income concept (the historical cost approach). A common alternative income concept is the current cost approach. International Accounting Standard 15 titled, "Accounting for price level changes" reiterates the fact that historical cost accounting does not reflect the impact of changing prices on the firms assets and earnings. The benchmark treatment therefore required so that accounts reflect a true and fair view of the firm's state of affairs is the use of current cost accounting. The International Accounting Standards Committee (IASC) agrees that to date there has been no consensus on adoption of this technique as a means of enhancing predictive ability of accounting numbers such as interim earnings.

The American Accounting Association has suggested that current cost approach is a more effective predictor because it makes use of current replacement costs which take into account inflation adjustment of important numbers such as depreciation, cost of sales, monetary working capital and gearing (leverage) which are used in the computation of earnings forecast.

2.5 Some Forecasting Techniques

Profit estimation is used to denote an attempt to measure historical costs and revenue streams. Profit forecasting on the other hand is used to predict what costs will be incurred and what revenue will be earned in the future. Lucey (1990) further outlines some forecasting techniques.

2.5.1. Industrial engineering

This technique uses analytical measurements so as to derive a relationship between inputs (interim earnings in our case) and outputs (forecasted year-end earnings). This method is suitable for situations where a clear input–output relationship exists. This method is very convenient when forecasting direct and fixed cost components. However, it is difficult to forecast variable costs, semi-variable costs and revenues, which are all functions of earnings. This is especially so in hyper-inflationary economics because price levels in these economics are erratic.

2.5.2 Accounts analysis

This entails costs and sales analysis. The analyst should proceed through the ledger accounts and classify the costs into variable and fixed components of total costs. The most common accounts analysis model used in profit planning is cost-volume-profit analysis (C-V-P analysis). Using the interim statements, the analyst will obtain the sales units, fixed costs and variable cost values. Using these values he shall then determine the estimated sales units, fixed costs, unit price of the commodity and the variable cost per unit. The values are then slotted into the following formula:

$$\pi = (p-v)\,x - f$$

Where:

x = estimated sales units

π = estimated profit

f = fixed costs

p = price per unit

v = variable cost per unit

C-V-P analysis is an effective tool if the costs (variable and fixed) and prices remain stable. If this is not the case, this model becomes ineffective because the model doesn't allow for inflation adjustment.

2.5.3. Graphical Method

The most popular graphical method is the visual fit technique, which makes use of scatter diagrams. Scatter diagrams are constructed to visually deduce the relationship from the observed pattern. Scatter diagrams are simple to construct yet very powerful tools of analysis in forecasting, as they help to establish if there is a pattern in the relationship between two variables (interim earnings and year end earnings in our case) and if there is a relationship, the diagram helps to uncover the functional form of that relationship.

2.5.4. High-low method

This method uses a composite of interim earnings over a period of time (say 10 years). It takes the lowest and the highest points, measured by the x variable (interim earnings) and obtains the straight line connecting them. This line becomes the predictive model given by the following equation:

$$y = a + bx$$

where:

y = predicted value (year end earnings)

x = independent value (interim earnings)

Lucey (1994) is however skeptical about the use of this model because it doesn't consider all relevant observations. It only considers the lowest and highest interim earnings levels over a specified period of time.

2.5.5. Time series analysis

The International Accounting Standards (IAS) have emphasized the importance of forecasted accounting earnings in the formulation of investment decisions. Empirical investigations into various aspects of investment decision process such as cost of capital and business valuation have utilised forecasted accounting earnings extensively as a measure of earnings expectation. A widely used forecasting technique is time series analysis. Collins and Hopwood (1979) classify time series analysis into two: univariate time series models and comprehensive or multivariate models. Comprehensive models incorporate numerous input variables both endogenous and exogenous to the firm. In contrast, the univariate time series models incorporate a single variable, past earnings. Both comprehensive and univariate models have advantages and disadvantages. A major question is the value of a comprehensive model relative to a univariate mode. Another question is the ability of the model to react to endogenous and exogenous events such as threats of strikes, reaction to aggressive advertising by a major competitor and other significant events.

Irrespective of the type of model (univariate or multivariate), Griffin (1977) recognises the fact that time series data consists of 5 components: trend, cyclical fluctuations, seasonal variations and erratic occurrences.

Trend represents a steady increase or decrease generally over a long period of time inspite of short term or medium term variations. Trends are attributed to permanent changes such as demand for the firm's product due to population increase or even increased efficiency due to adoption of new technology.

Cyclical fluctuations occur above or below the trend line. They occur in the medium term and are characterised by business cycles. There are years business is at its peak above trend and there are other times when it's at its ebb i.e. during depression. Griffin (1977) however says that there is not yet a satisfactory explanation of cyclical fluctuation and there is no mathematical technique of capturing this component for forecasting purposes.

Seasonal variations are changes that occur within the span of one year and tend to be repeated say weekly, monthly, quarterly or half yearly depending on what is causing it. For example particular items sales are highest during certain seasons – umbrellas during the rainy season.

Random variations represent a large number of small environmental influences, some uplifting and some depressing, that operate on a time series at any one time, none of which is significantly important to warrant its isolation. This is the error term of a time series.

Erratic occurrences are non-recurring influences which cannot be mathematically captured yet they can have profound consequences on a time series e.g. strikes, floods, wars and so on. It is possible to tell an erratic event from history but difficult to predict. The model is thus:

$$Y = f(T, C, S, R)$$

Where:

Y = observation e.g. year end earnings

T = Trend

C = cyclical fluctuation

S = seasonal variation

R = random variation

Time series analysis is however very cumbersome especially when your observations are numerous. Moving averages usually use quarterly data. Our study would therefore require slightly fewer than 40 observations of quarterly earnings (from 1990 – 1999) if we were to use time series analysis.

2.5.6. Exponential smoothing

Lucey (1990) recommends this method over the time series technique. He says it largely overcomes the limitation of moving averages because it involves the automatic weighting of past data with weights that decrease exponentially with time i.e. the most current values receive the greatest weighting and the older observations receive decreasing weighting. The exponential smoothing technique is a weighted moving average system and the underlying principle is described by the formula:

New forecast = old forecast + a proportion of the forecast error

which translates into:

New forecast = old forecast + $\propto$ (latest observation – old forecast)

where $\propto$ = smoothing constant

The value of the smoothing constant ($\propto$) can range between 0 and 1. The higher the value of $\propto$, the more sensitive the forecast becomes to current conditions, whereas the lower the value, the more stable the forecast will be i.e. it will react less sensitively to current conditions.

In our study, the model will look as follows:

Year end forecast = interim + $\propto$ (actual interim earnings – interim forecast.)

According to Lucey, the disadvantage of this method is that the smoothing constant is not determined mathematically. It is determined based on the outlook and sentiment of the analyst.

2.5.7. Markov Analysis

This technique though not common, may be used in forecast earnings. Koutsoyiannis (1975) describes Markov Analysis as a stochastic system whereby the state of a given phenomenon can be predicted if we know its previous state and we have a matrix of transition probabilities. Using this method we are able to forecast the status of the phenomenon at time t_1 if at time t_0 we have the current state and matrix of transition probabilities.

Since we have the level of actual interim earnings, all that we need is a transition matrix so that we can translate interim earnings to the forecasted ear end earnings. The model looks as follows:

$$(e_i) \begin{pmatrix} p_i \\ p_j \end{pmatrix} = e_y$$

where: e_i = current state (interim earnings)

$\begin{pmatrix} p_i \\ p_j \end{pmatrix}$ = matrix of transition probabilities

where $p_i + p_j = 1$

ey = forecasted year end earnings

Koutsoyiannis (1975) observes that transition probabilities are static. In practice however, the actions of completing firms are precisely to influence these probabilities in their favour. There is therefore need for a more dynamic forecasting technique – one that has in-built features to allow it take into account any significant events when and as they occur.

2.5.8 Regression Analysis

Regression analysis is a technique that uses a statistical model to measure the average amount of change in one variable (the dependent or response variable) that is associated with unit changes in the amount of one or more (independent or predictor) variables.

Keller et al (1994) says that economic theory specifies deterministic relationships that are less realistic and do not conform to the real world. Such a relationship could be as follows:

$$y = a + bx$$

Where:

y = year end earnings

x = interim earnings

a, b = coefficients

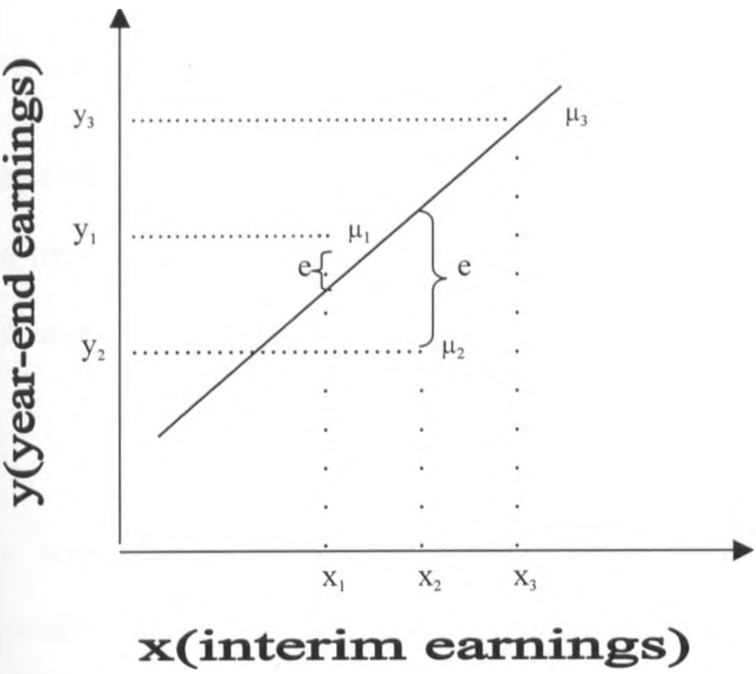
To make such relationships more realistic, they need to be transformed into stochastic relationships. This is done by adding an error term.

$$y = a + bx + \mu$$

The error term is appended to take into account factors that are not included in the model yet they help to explain variation in the dependent variable.

Estimation of the regression line can be by:

i) Use of a scatter plot



This method is not precise. It gives only the general relationship since it takes an average course through the scatter of observations. The deviations between the line of best fit and the actual observations such as points (x_1, y_1) or (x_2, y_2) gives us the error term (μ). The error could be positive, negative or zero. The assumption made in regression is that the sum of the error terms is equal to zero.

$$\Sigma\mu = 0$$

ii) The Ordinary Least Square Method (OLS)

The OLS method is a regression method that minimises the square error. It does this using a set of normal equations, which depend on the type of model (simple regression or multiple regression model).

The popularity of this method is due to the fact that it makes use of all observations, it is objective and the results of the prediction error can be evaluated. OLS estimators are linear and unbiased.

(a) Linearity

In regression analysis, it is assumed that there's a linear relationship between the variables. However, even where there is a non-linear relationship, it is still possible to use the method of OLS to find the curve of best fit, provided the functional form is known. Linearity is best assessed using a scatter diagram.

(b) Unbiasedness

The error term is said to be normally distributed with:

a) Zero mean, $\sum\mu = 0$

b) Constant variance, $E(\mu^2) = \sigma^2$

The observations are independent i.e. there is no auto correlation. For multiple regression, we assume the independent variables are not correlated i.e. no multi-collinearity.

Gupta (1986) says that the regression model is a very effective predictive model since we are able to test the effectiveness of the model using model evaluation techniques such as the standard error of estimate, coefficient of determination and Analysis of variance (ANOVA).

Greenball in an article, 'the predictive – ability criterion: its relevance in evaluating accounting data' goes further than other writers and seeks to explain how a predictive or forecasting method may be used assuming there exists two alternative methods, m_1 and m_2. The event to be predicted is the level of year-end earnings, say e^y, given interim earnings, e'. First, a sample of firms (j) in the industry would be selected. Next, the investigator would select an earnings forecasting model, say, f. This model should be a rule specifying a relationship between earnings forecast, e^y ,and the interim earnings number, e'

$$e^y = f(e')$$

For each firm j in the sample, the earnings numbers corresponding to methods m_1 and m_2 would be computed. These numbers therefore represent the earnings forecast corresponding to methods m_1 and m_2 Greenball advocates for the use of two forecasting methods so that we may observe the forecast errors'. Let us assume at the year-end, actual year-end earnings are e*. The forecast errors defined by method m_1 and m_2 would be ($|e_1^y - e^*|$), and ($|e_2^y - e^*|$) respectively. These errors show the reliability or predictive ability of the forecasting model used. If in our example, the mean of

($|e_1^y - e^*|$), were significantly lower than the mean of ($|e_2^y - e^*|$), the inference drawn is that method m_1 generates numbers having better predictive ability when used in the particular predictive model, f, than those generated by m_2.

Greenball acknowledges that there is no single forecasting model which works well in all situations. He however adds that those models, which can measure the size of error (confidence interval) such as regression analysis, are more reliable. He concluded that the task of predicting variables such as earnings of a particular firm is an art, with each financial statement user employing his own prediction model, which varies from period to period. For this reason, the significance of a single predictive ability study is very limited indeed.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Population of the Study

The population of this study shall consist of all companies that are quoted on the Nairobi Stock Exchange. The rationale behind the choice of these companies is that data is readily available as compared to companies that are not quoted.

3.2 Sample of the Study

Judgemental sampling method shall be used in this study. All firms in the industry categories for which complete data can be obtained will be included in this analysis rather than selecting firms on a random basis. Therefore the number of companies in this study will be limited to those that have submitted interim and final earnings consistently for the period under study (1996-2000).

3.3 Data Collection Method

This study will make use of secondary data obtained from the following sources: -

1. The Nairobi Stock Exchange library
2. Periodicals, for instance, newspapers, publications by the Nairobi Stock Exchange
3. Published financial statements obtained from the quoted companies.
4. Reports by the Capital Markets Authority

3.4 Data Analysis Method

Since the companies of the Nairobi Stock Exchange are divided into four sectors, data is analyzed in these four groups. The data obtained for this study will be analyzed using regression analysis, which is a statistical technique of data analysis. We shall use the least squares method of linear regression to come up with a line of best fit mathematically. Least squares regression analysis gives equal importance to all the items in the time series, the older and the more recent.

The general form of the equation is: $y = \mathbf{a} + \mathbf{bx}$

That is, we must find a formula to calculate the slope b and the intercept a. The slope b is the change in y that accompanies a unit change in x. Once b is calculated, the intercept a can then be found from the formula: $a = \mathbf{y} - \mathbf{bx}$

When the values of **a** and **b** have been calculated, predictions or forecasts can be made for values of x which have not yet occurred. On occasion it is useful to describe the deviation of y from its expected value as the disturbance or error e; so that the equation may be written as: $Y = a + bx + e$

The error could be caused by two factors:

1. Measurement – for instance in calculation or reporting inaccuracies.
2. Inherent variability – occurs inevitably in biological and social phenomena.

Regression analysis provides several statistical measures of its precision and reliability. Precision refers to the accuracy of the estimates from the regression and reliability indicates whether the regression reflects actual relationships among the variables. These statistical measures include: -

1. R^2 (co-efficient of multiple determination) – measures proportion of total variation in the dependent variable that is explained by variations in the independent variable. The value ranges from 0-1.

   0 – No correlation, that is no relationship between independent and dependent variable. 1 – All variables in he independent variable are explained by deviations in the dependent variable. R^2 should be closer to 0.8 or 0.9. {Why? Explain......... What is r square...........}?
2. t – value is a measure of the reliability of the independent variable, that is, the degree to which an independent variable has a valid, stable and long term relationship with the dependent variable. A relatively small t – value (generally the t – value should be greater than 2) is an indication of little or no relationship between the independent and dependent variables.
3. the f - test for overall significance – this is determined by an analysis of variance (ANOVA). F is the ratio of explained variance to unexplained variance. We test the null hypothesis (Ho) that y – year-end earnings has no linear relationship to x – interim earnings. The question is whether the ratio of explained to unexplained variance is large enough to reject the Ho.
4. SE – the standard error of estimate is a measure of accuracy of the regression estimates. Because it is used to measure a confidence range, the SE must be interpreted by its relationship to the average size of the dependent variable. If the SE is small relative to the dependent variable then the precision of the regression can be assessed as relatively good. A threshold of approximately 5percent to 10percent of the average of the dependent variable can be used.

CHAPTER FOUR: ANALYSIS AND FINDINGS

4.1 Introduction

Our study is comprised of 37 companies, which is more than half of the companies quoted on the stock exchange. These are those companies that have consistently submitted both interim and year end earnings for the period 1996-2000.

4.2 Results of Data Analysis

The table below is a summary of relationships or no relationships between interim and final earnings of companies quoted at the Nairobi Stock Exchange.

TABLE I: Results of Regression Analysis

COMPANY	Beta	Alpha	R-Squared	Standard Error Beta	Standard Error Alpha	t-ratio of Beta	f - statistic
BBOND	-5.74	165035	0.74	1.95	71155	-2.94	8.62
GWK	-0.56	60847	0.38	0.41	20741	-1.36	1.84
KAKUZI	-0.06	10202	0	0.88	29503	-0.06	0
LIMTEA	-0.26	13168	0.55	0.14	1833	-1.91	3.65
REAVIP	0.72	10654	0.5	0.42	13808	1.71	2.96
SASINI	-0.07	34266	0.01	0.43	17998	-0.16	0.03
EXPRES	4.59	-44994	0.96	0.52	6443	8.77	76.86
KENAIR	0.03	34318	0	0.97	32482	0.03	0
NMG	1.13	476	0.19	1.34	41137	0.84	0.7
SERENA	0.51	8066	0.19	0.6	23668	0.84	0.71
UCHUMI	0.11	46238	0.03	0.36	12371	0.31	0.1
BBK	-0.03	3538	0.6	0.02	506	-2.11	4.47
CFC	13.58	-230171	0.06	29.85	691318	0.45	0.21
HFCK	0.88	148327	0.02	3.21	130499	0.28	0.08
ICDC	1.14	30324	0.075	2.3	126520	0.05	0.25
JUB	-0.47	32030	0.33	0.39	10097	-1.21	1.48
KCB	0.38	-49330	0.29	0.34	426431	1.11	1.23
NBK	0.87	-1345791	0.08	1.75	743182	0.49	0.24
NIC	-2.28	92534	0.25	2.29	60001	-0.99	0.99
PANAFR	-0.71	110046	0.66	0.29	19646	-2.4	5.75
SCBK	-0.6	56266	0.57	0.3	12299	-1.98	3.91
ARM	2.78	166	0.89	0.98	9405	2.83	7.99
BAMB	-0.04	50051	0.01	0.22	4828	-0.19	0.04
BAT	-0.23	60102	0.91	0.04	2362	-5.64	31.77
BOC	1.17	-14570	0.43	0.78	24904	1.5	2.26
CARB	0.69	25489	0.59	0.33	9288	2.09	4.39
CBERG	1.3	-6501	0.81	0.62	16158	2.09	4.39
EABL	0.07	37101	0	0.6	22111	0.11	0.01
EACABL	-0.35	49972	0.02	1.41	51774	-0.25	0.06
EAPORT	0.15	-175473	0.02	0.62	308772	0.25	0.06
FIRES	0.38	24063	0.26	0.37	11782	1.03	1.07
KENOL	3.44	-155882	0	46.6	2411451	0.07	0.01
KNMILL	0.88	-266380	0.06	1.99	241583	0.45	0.2
KPLC	1.38	-362187	0	17.66	936277	0.08	0.01
TOTAL	14.99	-773046	0.04	42.42	2103981	0.35	0.12
UNGA	-15.97	362048	0.07	32.96	1445767	-0.48	0.23

A measure of the relationship between interim earnings and final earnings relied on straight-line regression. For instance, the line that the regression program fitted to plot the earnings changes of Brooke Bond Limited, is –5.74. It is the slope of the line relating interim earnings to year-end earnings and **alpha** is the intercept.

The other statistic in the table that is the result of regression is **R-squared (R^2)**. Companies that have at least an R^2 of 0.8 are Express Kenya Limited, Athi River Mining Limited, BAT Kenya Limited Crown Berger (K) Ltd. This means that in these companies a fairly strong relationship exists between interim and year-end earnings. For instance Express Kenya Limited has an R^2 of 0.96. This means that interim earnings account for 96percent of the final earnings. For Athi River Mining Limited, 89 percent of the final earnings are accounted for by interim earnings whereas 91percent of the final earnings of BAT Kenya Limited are accounted for by interim earnings. A company like Kakuzi shows R^2 of 0.00 indicating no relationship between interim and final earnings.

We used the **standard error of alpha and standard error of beta** to help us determine the possible range of values for alpha and beta. It emphasizes that our beta or alpha estimates are based on a sample of 5 observations. To have an idea of the possible error of this estimate, we refer to column labeled standard error of beta or alpha. Using statistics we can set up a confidence interval of the estimated value plus (+) or minus (-) two (2) standard errors. For example the confidence interval for the beta of Brooke Bond Kenya Limited is –5.74 + or – (1.95*2) or between –9.64 and 1.84. In other words we have a 95percent chance of being right if we state that the beta of Brooke Bond Limited is between –9.64 and 1.84.

To investigate this relationship further we use the **t-ratio test**. It is observed that only 7 out of the 37 companies in our sample have a t-ratio of greater than two (2). These are: Brooke Bond Kenya Limited, Express Kenya Limited, Barclays Bank of Kenya Limited, Pan African Insurance Co. Ltd., Athi River Mining Ltd., BAT Kenya Ltd. and Carbacid Investments Kenya Ltd. and Crown Berger (K) Limited. Using the t-ratio test we can conclude that interim earnings are a reliable measure of final earnings for these companies.

The final test we shall use is the **f-test** for overall significance. In this case we look for companies that have an f-value greater than 5.54 (f-value given 1,3 degrees of freedom at 95percent confidence interval. In only 5 companies do we fail to reject the null hypothesis that interim and final earnings are unrelated. These are Brooke Bond Kenya Ltd., Express Kenya Ltd., Pan African Insurance Co. Ltd., Athi River Mining Ltd. and BAT Kenya Ltd.

Only three (3) companies out of the 37 in the sample pass all the tests used in this study. These are Express Kenya Ltd., Athi River Mining Ltd. and BAT Kenya Ltd. Express Kenya Ltd. is in the commercial sector whereas Athi River Mining and BAT Kenya Ltd. are in the industrial sectors. This is a very small percentage (3/37=8percent) of the total number of companies in the sample whether within or outside sector groupings.

4.3 Conclusions

Our objective of the study was to determine if there is any relationship between interim and final/year-end earnings. From our analysis, we can conclude that a relationship exists for a few companies at the NSE. For those companies analysts may rely on interim earnings to predict future earnings. However for a large number of companies there is no relationship and interim earnings cannot be successfully used to predict year-end earnings. Even by just glancing at the numbers for both interim and final earnings we can see that in some cases interim earnings could be positive whereas final (second half earnings) are negative, for instance in the case of Express Kenya Ltd., interim earnings for year 2000 are KShs.7,494,000=00 whereas final earnings are KShs. –13,467,000=00. In the year 1999, interim earnings for the same company are KShs.-7,872,000=00 while final earnings are KShs. –21,271,000=00. The increase in final earnings in the year 2000 is not proportionate to the decrease in interim earnings. This rate of change is not proportionate indicating that it may not be possible to use interim earnings to predict year-end/final earnings. This unproportionate rate of change may also be due to the timing of reporting of earnings figures. Probably the first half of the reporting year, in this case January to June, is the best period in terms of performance for Express Kenya Limited.

Our conclusion may well go to agree with what Edward & Bell (1961) observed that the value of accounting numbers such as earnings figures, does not lie in their so called predictive ability. They contend that these figures would be viewed as a measure of what has already occurred, how well a firm has performed in that period, so that interim earnings should be viewed as the maximum capacity to pay out interim dividends for the period.

Bevis (1965) also rejects the notion that accounting involves or should involve prediction. He warned that shareholders bear in mind at all times that financial statements are not designed to predict the future but report on the past and present.

Personally, I expected there to be a relationship between interim and final/year end earnings so that one could be used to predict the other. I think there is no relationship because of the various changes in Kenya's economy during the period under study. During this period 1996-2000, Kenya has experienced a lot in terms of weather - the El Nino period (1999), the bomb blast (1998), elections (1997). These and other factors could have contributed to earnings figures that did not follow any pattern.

We can also observe that the three companies that passed all the tests are either from the commercial and services (Express Kenya Ltd.) or the industrial and allied sectors (Athi River Mining and BAT Kenya Ltd.) This may indicate some consistency in some companies in these sectors, whereby it may be possible to use interim earnings to forecast year-end earnings.

This may also tell us something about the agricultural and finance and investment sectors, which are not well represented in our results after using the various tests. This may indicate that it may not be possible to use interim earnings figures in these sectors to predict final/year-end earnings. This may be an indication of the volatile nature of these industries.

Finally we can observe that our study used an inductive method of reasoning in accounting, one advantage of this approach being that it is not necessarily constrained by a preconceived model or structure, researchers being free to make any observations they may deem relevant. However, the main disadvantage of the inductive process is that observers are likely to be influenced by subconscious ideas of what the relevant relationships are and what data should be observed.

Another difficulty with the inductive approach is that, in accounting, the raw data are likely to be different for each firm. Relationships may also be different, making it difficult to draw generalizations and basic principles. For example, the relationship between total revenues and costs of goods sold may be a constant over time for some firms, but this does not necessarily mean that the historical gross margin concept is necessarily a good measurement for the prediction of the future operations of a firm in all cases or vice versa.

4.4 Limitations of the Study

1. The number of years used for the study were 5 the reason being data for interim earnings was only available for most of the companies only as far back as five years.
2. The study could only be carried for quoted companies due to ease in availability of data so we cannot conclusively say that interim earnings do not have a relationship with final earnings for all companies but only for those quoted on the Nairobi Stock Exchange.

4.5. Suggestions for further Research

1. A case study or a study of a group of companies not quoted on the Nairobi Stock Exchange should be carried out to determine if there is any relationship between their interim and final earnings.
2. A study to determine what interim earnings are useful for can be carried out so as to justify reporting of these earnings.
3. A further study (probably for a longer period of time) of companies in the commercial and industrial sectors should be carried out to determine if a relationship exists in these sectors between interim and year-end earnings
4. The use of lead indicators would emphasize the ability of accounting data to predict turning points, rather than a mere extrapolation of past data into the future. That is, research can be carried out for data whose movements precede the movements in the objects or events being predicted, in our case, earnings. For instance, an increase in debt-equity ratio, might precede a deterioration in the cash flows to the firm available for dividends.
5. Corroborating information may also be used as predictive indicators. That is, specific accounting data may not be useful alone in the making of predictions, but they may be relevant along with other information in evaluating future prospects of the firm. For example, the ratio of cost of goods sold to average inventory and gross profit margins may be helpful in evaluating managerial efficiency and thus help in the prediction of future operating cash flows and the ability of the firm to pay dividends in the future.

APPENDIX 1 - Quoted Companies by Industrial Groupings – 1996 - 2000

Agricultural:

1. Brooke Bond Kenya Limited
2. Eaagads Ltd.
3. George Williamson Kenya Ltd.
4. Kakuzi Ltd.
5. Kapchorua Tea Co. Ltd.
6. Limuru Tea Co. Ltd.
7. Rea Vipingo Plantations Ltd.
8. Sasini Tea & Coffee Ltd..

Commercial & Services:

1. African Lakes Corp.
2. A. Baumann & Co. Ltd.
3. African tours & Hotels Ltd. (Suspended)
4. Car & General (K) Ltd.
5. CMC Holdings Ltd.
6. Express Kenya Ltd.
7. Hutchings Biemer Ltd.
8. Kenya Airways Ltd.
9. Lonhro Motors (E.A.) Ltd.
10. Marshalls (E.A.) Ltd.
11. Nation Printers & Publishers Ltd.
12. Pearl Drycleaners Ltd.
13. The Standard Newspapers Ltd.
14. T.P.S. (Serena) Ltd.
15. Uchumi Supermarkets Ltd.

Finance and Investment:

1. Barclays Bank of Kenya Ltd.
2. CFC Bank Ltd.
3. City Trust Ltd.
4. Diamond Trust Bank (K) Ltd.
5. Housing Finance Co. of Kenya Ltd.
6. I.C.D.C. Investments Co. Ltd.
7. Jubilee Insurance Co. Ltd.
8. KenyaCommercial Bank Ltd.
9. National Bank of Kenya Ltd.
10. NIC Bank Ltd.
11. Pan Africa Insurance Co. Ltd.
12. Standard Chartered Bank (K) Ltd.

Industrial and Allied:

1. Athi River Mining Ltd.
2. Bamburi Cement Ltd.
3. B.A.T. Kenya Ltd.
4. BOC Kenya Ltd.
5. Carbacid Investments Ltd.
6. Crown Berger (K) Ltd.
7. Dunlop (K) Ltd.
8. E.A. Breweries Ltd.
9. E.A. Cables Ltd.
10. E.A. Packaging Industries Ltd.
11. E.A. Portland Cement Ltd.
12. Firestone East Africa (1969) Ltd.
13. Kenya National Mills Ltd.
14. Kenya Oil Co. Ltd.
15. Kenya Power & Lighting Co. Ltd.
16. Total Kenya Ltd.
17. Unga Group Ltd.
18. Kenya Orchards Ltd.

APPPENDIX II - Interim Earnings

Kshs'000

YEAR	2000In	1999In	1998In	1997In	1996In	Total	Avr	StdDev	Coefficient Of Variation
BBOND	31516	16633	16574	59016	39898	163637	32727.4	15899.3	0.49
GWK	46925	181	63372	53273	61496.5	225247.5	45049.5	23197.2	0.51
KAKUZI	26223	10890	37109	58172	8960	141354	28270.8	18173.5	0.64
LIMURU	14440	-471	-25454	1971	6201	-3313	-662.6	13392.4	-20.2
REA	-50043	9197	7301	24289	45761	36505	7301	31811	4.36
SASINI	3137	1044	58572	35327	63044.5	161124.5	32224.9	26351.5	0.82
EXPRES	7494	7872	12471	14256	16744.5	58837.5	11767.5	3602.66	0.31
KENAIR	34952	48744	25248	34568	12712	156224	31244.8	11920	0.38
NMG	14520	29848	31756	40286	31210	147620	29524	8353.08	0.28
TPS	48878	47476	2508	39109	38804	176775	35355	16939.3	0.48
UCHUMI	57254	36177	35469	13897	3004.5	145801.5	29160.3	18949.3	0.65
BBK	36600	38352	20848	30992	22064	148856	29771.2	7221.88	0.24
CFC	26206	22155	24083	22025	20963.5	115432.5	23086.5	1856.12	0.08
DTB	63533	45782	38589	58843	46371	253118	50623.6	9171.35	0.18
HFCK	2304	55532	56593	41804	14326	170559	34111.8	22030	0.65
ICDC	35122	62542	63966	56579.71	51396	269605.71	53921.14	10412.2	0.19
JUBILE	53045	6585	19387.25	13027	4892	96936.25	19387.25	17591.5	0.91
KCB	-2239000	-1408000	-890993	60643	22384	-4454966	-890993	874561	-0.98
NBK	-941422	61451	65219	59426	33850	-721476	-144295	398717	-2.76
NIC	26175	23441	25941	32501	21647	129705	25941	3682	0.14
PAN	41986	62317	61601	74916	84724	325544	65109	14392	0.22
SCHB	15208	13352	53960	40298	57706	180524	36105	18748	0.52
ARM	14690	2040	5512	13115	8526	43883	8777	4688	0.53
BAMBUR	21248	6712	-7824	-22360	-36896	-39120	-7824	20557	-2.63
BAT	20104	5032	61017	69631	90087	245871	49174	31706	0.64
BOC	16258	23322	30386	37450	44514	151930	30386	9990	0.33
CARB	8218	5480	6089	32521	52497	104805	20961	18716	0.89
CBERG	46253	57716	15800	39147	15483	174399	34880	16789	0.48
EABL	37960	55032	6104	43834	16728	159658	31932	17944	0.56
EACAB	23684	32842	29324	44820	47640	178310	35662	9154	0.26
EAPORT	-692269	-298144	-822592	30820	-34341	-1816527	-363305	342625	-0.94
FIRES	7295	35404	4506	8806	60725	116736	23347	21756	0.93
KENOL	51541	51645	51749	51853	51957	258745	51749	147	0.00
KNMILL	-171632	-209197	9813	-23299	6620	-387695	-77539	93640	-1.21
KPLC	45527	8205	64017	57740	66985	242473	48495	21449	0.44
TOTAL	56392	60320	45856	43653	38385	244607	48921	8172	0.17
UNGA	58624	53999	52879	7536	20396	193434	38687	20680	0.53

APPENDIX III - Final Earnings

Kshs'000

YEAR	2000Sh	1999Sh	1998Sh	1997Sh	1996Sh	Total	Avr	StdDev	Coefficient Of Variation
BBOND	29932	6503	26490	-288085	-53036	-278196	-55639	119973	-2.16
GWK	-30746	61135	-36215	7093	-47312	-46045	-9209	39646	-4.31
KAKUZI	-69854	27002	-25548	-35909	6091	-98218	-19644	33641	-1.71
LIMURU	-2616	9772	46216	14697	1956	70024	14005	17190	1.23
REA	16033	-15800	36783	31336	-25037	43315	8663	24873	2.87
SASINI	39967	20340	209	902	-62563	-1145	-229	34426	-150.4
EXPRES	-13467	-21271	806	3427	16775	-13730	-2746	13341	-4.86
KENAIR	3464	-21392	-21968	30000	30123	20227	4045	23142	5.72
NMG	-11028	21144	32600	-18130	-3713	20873	4175	19426	4.65
TPS	-31362	-33676	-1682	6205	13869	-46646	-9329	19576	-2.10
UCHUMI	650	11604	14999	14443	59977	101673	20335	20486	1.01
BBK	-34532	-36098	-17848	-28305	-19587	-136370	-27274	7477	-0.27
CFC	12096	-12502	255267	9861	36106	300828	60166	98758	1.64
DTB	-63533	-45782	-28633	-393489	-193657	-725094	-145019	137213	-0.95
HFCK	49919	-50382	229141	255323	238551	722552	144510	122651	0.85
ICDC	24501	-35206	85778	52115	62880	190069	38014	41575	1.09
JUBILE	-40302	38081	-8015	-2714	30743	17793	3559	28383	7.98
KCB	1774531	-146665	953825	-50135	-11819	2519737	503947	750079	1.49
NBK	-1264832	-2490213	-2886992	586	9732	-6631719	-1326344	1211597	-0.91
NIC	24270	15238	22624	-27156	2685	37661	7532	18942	2.51
PAN	31491	11160	7307	-10455	-44871	-5369	-1074	25638	-23.88
SCHB	37385	36348	-34217	-24084	-22611	-7179	-1436	31530	-21.96
ARM	-14690	18165	7354	21751	19621	52201	10440	13513	1.29
BAMBUR	21072	53928	51536	81464	83000	291000	58200	22792	0.39
BAT	38318	52718	-18215	-25406	-48730	-1315	-263	38985	-148.2
BOC	-7079	-9137	-8903	-32207	10508	-46818	-9364	13581	-1.45
CARB	18459	37530	9229	26581	3403	95202	19040	12164	0.64
CBERG	-46253	-14760	6810	5296	-10180	-59087	-11817	19168	-1.62
EABL	22725	-41214	13974	10796	30043	36324	7265	25162	3.46
EACAB	6710	-10993	34361	19110	-39397	9791	1958	25474	13.01
EAPORT	272801	-580442	870619	-5857	101552	658674	131735	467523	3.55
FIRES	23046	27205	18022	6355	-26447	48181	9636	19347	2.01
KENOL	-28483	-37121	-12406	-46892	-22327	-147229	-29446	11876	-0.40
KNMILL	-418097	-154147	-804879	65436	24527	-1287160	-257432	322467	-1.25
KPLC	-1653509	51873	-41534	-11040	-64807	-1719016	-343803	656022	-1.91
TOTAL	961861	-483742	-863405	-48216	-9416	-442919	-88584	611200	-6.90
UNGA	-2684859	429501	787153	43727	-47187	-1471665	-294333	1231546	-4.18

APPENDIX IV - EAT

Earnings After Tax

Kshs'000

	2000Y	1999Y	1998Y	1997Y	1996Y	Total	Avr	StdDev	Coefficient Of Variation
BBOND	61448	23136	43064	-229069	-13138	-114559	-22911.8	106005.75	-4.63
GWK	16179	61316	27157	60366	14185	179203	35840.6	20887.507	0.58
KAKUZI	-43631	37892	11561	22263	15051	43136	8627.2	27651.963	3.21
LIMTEA	11824.016	9300.567	20762.181	16667.556	8156.676	66710.996	13342.199	4725.3243	0.35
REAVIP	-34010	-6603	44084	55625	20724	79820	15964	32842.22	2.06
SASINI	43104	21384	58781	36229	482	159980	31996	19821.649	0.62
EXPRES	-5973	-13399	13277	17683	33519.08	45107.08	9021.416	16856.904	1.87
KENAIR	38416	27352	3280	64568	42835	176451	35290.2	20057.677	0.57
NMG	3492	50992	64356	22156	27497	168493	33698.6	21554.897	0.64
SERENA	17516	13800	826	45314	52673	130129	26025.8	19692.764	0.76
UCHUMI	57904	47781	50468	28340	62981	247474	49494.8	11865.935	0.24
BBK	2068	2254	3000	2687	2477	12486	2497.2	326.37365	0.13
CFC	38302	9653	279350.49	31886	57069	416260.49	83252.098	99212.851	1.19
DTK			9956	-334646	-147286	-471976	-157325.3	140862.17	-0.90
HFCK	52223	5150	285734.46	297127.31	252876.7	893111.47	178622.29	124176.96	0.70
ICDC	59623	27336	149744.2	108694.96	114276.23	459674.39	91934.877	43218.112	0.47
JUB	12743	44666	11372	10313	35635	114729	22945.8	14355.63	0.63
KCB	-464469	-1554665	62832	10508	10565	-1935229	-387045.8	614469.26	-1.59
NBK	-2206254	-2428762	-2821773	60012	43582	-7353195	-1470639	1258606.4	-0.86
NIC	50445	38679	48565	5345	24332	167366	33473.2	16838.42	0.50
PANAFR	73476.503	73476.503	68908.098	64460.82	39852.871	320174.8	64034.959	12545.818	0.20
SCBK	52593	49700	19743	16214	35095	173345	34669	14904.729	0.43
ARM		20205	12866	34866	28147.474	96084.474	24021.119	8270.9989	0.34
BAMB	42320	60640	43712	59104	46104	251880	50376	7862.3876	0.16
BAT	58422	57750	42802	44225	41357	244556	48911.2	7548.8865	0.15
BOC	9179	14185	21483	5243	55022	105112	21022.4	17844.834	0.85
CARB	26677	43010	15318	59102	55900	200007	40001.4	16813.447	0.42
CBERG		42956	22610	44443	5303	115312	28828	16089.731	0.56
EABL	60685	13818	20078	54630	46771	195982	39196.4	18798.441	0.48
EACABL	30394	21849	63685	63930	8243	188101	37620.2	22519.094	0.60
EAPORT	-419468	-878586	48027	24963	67210.94	-1157853	-231570.6	370726.06	-1.60
FIREST	30340	62609	22528	15161	34278	164916	32983.2	16206.746	0.49
KENOL	23058	14524	39343	4961	29630	111516	22303.2	11881.703	0.53
KNM	-589729	-363344	-795066	42137	31147	-1674855	-334971	332760.25	-0.99
KPL	-1607982	60078	22483	46700	2178	-1476543	-295308.6	656638.52	-2.22
TOTAL	1018253	-423422	-817549	-4563	28969	-198312	-39662.4	612781.56	-15.45
UNGA	-2626235	483500	840032	51263	-26791	-1278231	-255646.2	1225814.6	-4.79

APPENDIX V - SUMMARY OUTPUTS

Regression Statistics	
Multiple R	0.861334722
R Square	0.741897504
Adjusted R Square	0.655863338
Standard Error	69526.42838
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	41684327476	41684327476	8.623289357	0.060679154
Residual	3	14501772729	4833924243		
Total	4	56186100205			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	165035.071	71155.72066	2.319350706	0.103145347	-61414.40177	391484.5437
BBONDin	-5.742798725	1.955631913	-2.936543777	0.060679154	-11.96649812	0.480900669

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.616475909
R Square	0.380042547
Adjusted R Square	0.173390062
Standard Error	21232.04961
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	829039893.8	829039893.8	1.839041752	0.268106242
Residual	3	1352399791	450799930.5		
Total	4	2181439685			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	60847.3744	20741.14502	2.933655511	0.060820801	-5160.267871	126855.0167
GWKin	-0.555095493	0.409328427	-1.356112736	0.268106242	-1.857762454	0.747571469

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.036623867
R Square	0.001341308
Adjusted R Square	-0.331544923

Standard Error	35674.58194
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5128027.617	5128027.617	0.004029328	0.95337947
Residual	3	3818027389	1272675796		
Total	4	3823155417			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	10202.59217	29503.96954	0.345804051	0.752319201	-83692.29475	104097.4791
KAKUZIin	-0.055725065	0.877878271	-0.063476984	0.95337947	-2.849528148	2.738078017

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.741072623
R Square	0.549188633
Adjusted R Square	0.398918177
Standard Error	4095.938484
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	61313313.49	61313313.49	3.654668046	0.151868985
Residual	3	50330136.19	16776712.06		
Total	4	111643449.7			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	13168.94451	1833.999944	7.180449789	0.005565366	7332.33269	19005.55633
LIMURUin	-0.261477042	0.136775904	-1.911718611	0.151868985	-0.696759422	0.173805338

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.704431948
R Square	0.496224369
Adjusted R Square	0.328299159
Standard Error	30093.69112
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2676166351	2676166351	2.955031996	0.184102853
Residual	3	2716890735	905630245		

Total	4	5393057086

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent
Intercept	10654.21639	13808.22202	0.771584957	0.496564787	-33289.74999	54598.18277
REAin	0.727267992	0.42307112	1.71902065	0.184102853	-0.619134394	2.073670378

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.093667856
R Square	0.008773667
Adjusted R Square	-0.32163511
Standard Error	25477.13449
Observations	5

ANOVA

	df	SS	MS	F	Significance F
Regression	1	17235772.15	17235772.15	0.026553978	0.880913005
Residual	3	1947253146	649084382		
Total	4	1964488918			

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent
Intercept	34266.47859	17998.68054	1.903832812	0.153052447	-23013.40953	91546.36671
SASINIin	-0.070457273	0.432375463	-0.162953913	0.880913005	-1.44647026	1.305555714

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.981037013
R Square	0.96243362
Adjusted R Square	0.949911493
Standard Error	4217.954338
Observations	5

ANOVA

	df	SS	MS	F	Significance F
Regression	1	1367402722	1367402722	76.85863946	0.003125754
Residual	3	53373416.4	17791138.8		
Total	4	1420776139			

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent
Intercept	-44994.7985	6443.663328	-6.98279786	0.00602854	-65501.43029	-24488.16671
EXPRESin	4.590288039	0.523592711	8.766905923	0.003125754	2.923980787	6.256595291

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.018490508
R Square	0.000341899
Adjusted R Square	-0.332877468
Standard Error	25889.92327
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	687747.4403	687747.4403	0.001026047	0.976458495
Residual	3	2010864381	670288127.1		
Total	4	2011552129			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	34318.05739	32482.72385	1.056501836	0.368292466	-69056.56408	137692.6789
KENAIRin	0.031113741	0.971333806	0.032031976	0.976458495	-3.060106842	3.122334324

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.436071243
R Square	0.190158129
Adjusted R Square	-0.079789161
Standard Error	25042.08281
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	441750264.2	441750264.2	0.704426885	0.462913101
Residual	3	1881317735	627105911.7		
Total	4	2323067999			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	476.1422225	41137.23131	0.011574484	0.99149179	-130441.0104	131393.2948
NMGin	1.125269536	1.340721581	0.839301427	0.462913101	-3.141508907	5.392047979

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.436944855
R Square	0.190920807
Adjusted R Square	-0.078772258

Standard Error	22867.91466
Observations	5

ANOVA

	df	SS	MS	F	Significance F
Regression	1	370200165.4	370200165.4	0.70791886	0.461912348
Residual	3	1568824563	522941521.1		
Total	4	1939024729			

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent
Intercept	8066.556566	23668.49417	0.340814101	0.755715251	-67257.22592	83390.33905
TPSin	0.507968984	0.60373375	0.841379142	0.461912348	-1.41338306	2.429321028

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.178348586
R Square	0.031808218
Adjusted R Square	-0.290922376
Standard Error	15073.2542
Observations	5

ANOVA

	df	SS	MS	F	Significance F
Regression	1	22393050	22393050	0.098559661	0.774129175
Residual	3	681608976.8	227202992.3		
Total	4	704002026.8			

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent
Intercept	46238.15858	12371.24237	3.73755175	0.033400748	6867.30707	85609.01008
UCHUMIin	0.111680656	0.355736439	0.313942131	0.774129175	-1.020432523	1.243793834

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.773597606
R Square	0.598453256
Adjusted R Square	0.464604342
Standard Error	266.997699
Observations	5

ANOVA

	df	SS	MS	F	Significance F
Regression	1	318735.4861	318735.4861	4.471110267	0.124832353

Residual	3	213863.3139	71287.77129			
Total	4	532598.8				

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	3538.022223	506.5064711	6.985147131	0.006022742	1926.091063	5149.953383
BBKin	-0.034960708	0.016533794	-2.114500004	0.124832353	-0.087578669	0.017657254

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.253986934
R Square	0.064509362
Adjusted R Square	-0.24732085
Standard Error	123883.0888
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	3174889462	3174889462	0.206873356	0.680125143
Residual	3	46041059064	15347019688		
Total	4	49215948526			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	-230171.3554	691318.7185	-0.332945354	0.761085595	-2430258.121	1969915.41
CFCin	13.57604892	29.84840403	0.454833327	0.680125143	-81.41498331	108.5670812

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.157555591
R Square	0.024823764
Adjusted R Square	-0.300234981
Standard Error	158309.4944
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1913902043	1913902043	0.076367009	0.800227076
Residual	3	75185688093	25061896031		
Total	4	77099590136			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	148327.7648	130499.4801	1.136615753	0.338274874	-266980.2129	563635.7426
HFCKin	0.888095292	3.213709944	0.276345814	0.800227076	-9.33937364	11.11556422

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.275276672
R Square	0.075777246
Adjusted R Square	-0.232297005
Standard Error	53638.73083
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	707685674.2	707685674.2	0.245970723	0.653985152
Residual	3	8631340334	2877113445		
Total	4	9339026009			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	30324.84676	126520.0524	0.239684115	0.826018228	-372318.8042	432968.4977
ICDCin	1.142595039	2.30383104	0.495954356	0.653985152	-6.189230419	8.474420497

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.574217124
R Square	0.329725306
Adjusted R Square	0.106300408
Standard Error	15173.05487
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	339755712.9	339755712.9	1.475776911	0.31132962
Residual	3	690664781.9	230221594		
Total	4	1030420495			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	32030.51649	10097.96071	3.17197872	0.050403879	-105.7314141	64166.76439
JUBILEin	-0.468592322	0.385731239	-1.214815587	0.31132962	-1.696162429	0.758977786

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.539469065
R Square	0.291026873

Adjusted R Square	0.054702497
Standard Error	667943.031
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5.49419E+11	5.49419E+11	1.231472088	0.348074424
Residual	3	1.33844E+12	4.46148E+11		
Total	4	1.88786E+12			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	-49330.41699	426431.33	-0.115681972	0.915213462	-1406426.501	1307765.667
KCBin	0.379032482	0.341557749	1.109717121	0.348074424	-0.707957735	1.466022699

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.274095437
R Square	0.075128309
Adjusted R Square	-0.233162255
Standard Error	1562625.985
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5.9505E+11	5.9505E+11	0.243693183	0.655431294
Residual	3	7.3254E+12	2.4418E+12		
Total	4	7.92045E+12			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	-1345791.835	743182.891	-1.810848784	0.167848084	-3710933.699	1019350.03
NBKin	0.865220501	1.75269001	0.493652897	0.655431294	-4.712626577	6.443067579

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.497819873
R Square	0.247824626
Adjusted R Square	-0.002900499
Standard Error	18853.20845
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	351331541.8	351331541.8	0.988431558	0.393407896

Residual	3	1066330407	355443469
Total	4	1417661949	

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	92534.74179	60001.50421	1.542207033	0.22069349	-98417.00272	283486.4863
NICin	-2.276764265	2.290048947	-0.994198953	0.393407896	-9.564728911	5.011200382

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.810710692
R Square	0.657251826
Adjusted R Square	0.543002435
Standard Error	9482.239655
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	517249120.9	517249120.9	5.752781859	0.096004278
Residual	3	269738606.6	89912868.87		
Total	4	786987727.6			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	110046.9572	19646.79424	5.601267862	0.011243341	47522.03078	172571.8836
PANin	-0.706694468	0.294640701	-2.398495749	0.096004278	-1.644373558	0.230984621

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.752422894
R Square	0.566140211
Adjusted R Square	0.421520281
Standard Error	12674.27586
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	628842908	628842908	3.914676297	0.142257375
Residual	3	481911806	160637268.7		
Total	4	1110754714			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	56266.55234	12299.70376	4.57462663	0.019602837	17123.36884	95409.73584
SCHBin	-0.59819061	0.302337253	-1.978554093	0.142257375	-1.560363588	0.363982368

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.942727092
R Square	0.888734369
Adjusted R Square	0.777468738
Standard Error	5318.460707
Observations	3

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	225934655.5	225934655.5	7.987501289	0.216503354
Residual	1	28286024.29	28286024.29		
Total	2	254220679.7			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	166.5513263	9405.873707	0.017707162	0.988728449	-119345.8937	119678.9964
2040	2.776113874	0.982272094	2.82621678	0.216503354	-9.704782985	15.25701073

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.108498037
R Square	0.011771824
Adjusted R Square	-0.317637568
Standard Error	10090.37815
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	3638502.4	3638502.4	0.035736152	0.862127524
Residual	3	305447193.6	101815731.2		
Total	4	309085696			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	50051.32768	4828.341274	10.36615368	0.001915386	34685.37642	65417.27895
BAMBURin	-0.041496973	0.219514154	-0.189040079	0.862127524	-0.740089636	0.65709569

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.955892227
R Square	0.913729949
Adjusted R Square	0.884973266

Standard Error	2862.445955
Observations	5

ANOVA

	df	SS	MS	F	Significance F
Regression	1	260347644.3	260347644.3	31.77452456	0.011046181
Residual	3	24580790.54	8193596.847		
Total	4	284928434.8			

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent
Intercept	60102.84553	2362.339662	25.44208459	0.000133169	52584.81935	67620.87171
BATin	-0.227591971	0.040375453	-5.636889618	0.011046181	-0.356084803	-0.09909914

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.655751038
R Square	0.430009424
Adjusted R Square	0.240012565
Standard Error	17392.84935
Observations	5

ANOVA

	df	SS	MS	F	Significance F
Regression	1	684656953.6	684656953.6	2.263244912	0.229528336
Residual	3	907533625.6	302511208.5		
Total	4	1592190579			

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent
Intercept	-14570.17055	24904.68409	-0.585037357	0.599616351	-93828.06477	64687.72366
BOCin	1.171347678	0.778610121	1.504408492	0.229528336	-1.306539549	3.649234906

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.770630327
R Square	0.593871101
Adjusted R Square	0.458494801
Standard Error	13832.89477
Observations	5

ANOVA

	df	SS	MS	F	Significance F
Regression	1	839413014.4	839413014.4	4.386817348	0.127233243
Residual	3	574046932.8	191348977.6		

Total	4	1413459947

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent
Intercept	25489.97271	9288.32885	2.744301276	0.071081191	-4069.662849	55049.60827
CARBin	0.692307002	0.330539943	2.094473048	0.127233243	-0.359619605	1.744233609

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.902500327
R Square	0.81450684
Adjusted R Square	0.62901368
Standard Error	11946.35733
Observations	3

ANOVA

	df	SS	MS	F	Significance F
Regression	1	626668459.3	626668459.3	4.39103436	0.283458939
Residual	1	142715453.4	142715453.4		
Total	2	769383912.7			

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent
Intercept	-6501.099458	16158.31064	-0.402337819	0.756480133	-211811.0231	198808.8241
57716	1.304263785	0.62241782	2.095479506	0.283458939	-6.60427058	9.21279815

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.062618147
R Square	0.003921032
Adjusted R Square	-0.32810529
Standard Error	24221.05702
Observations	5

ANOVA

	df	SS	MS	F	Significance F
Regression	1	6928099.019	6928099.019	0.011809402	0.920324233
Residual	3	1759978810	586659603.4		
Total	4	1766906909			

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent
Intercept	37101.63744	22111.14718	1.677960765	0.191947549	-33265.96722	107469.2421
EABLin	0.065601553	0.603670804	0.108671072	0.920324233	-1.855550169	1.986753275

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.140788661
R Square	0.019821447
Adjusted R Square	-0.306904737
Standard Error	28782.45844
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	50258229.59	50258229.59	0.060666846	0.821336274
Residual	3	2485289741	828429913.7		
Total	4	2535547971			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	49972.13931	51774.27306	0.965192486	0.405646913	-114796.8593	214741.1379
EACABin	-0.346361374	1.406221542	-0.246306406	0.821336274	-4.821590124	4.128867377

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.142702532
R Square	0.020364013
Adjusted R Square	-0.306181317
Standard Error	473707.0643
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	13993926945	13993926945	0.062361978	0.818924063
Residual	3	6.73195E+11	2.24398E+11		
Total	4	6.87189E+11			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	-175473.8941	308772.7001	-0.568294717	0.609590177	-1158127.355	807179.5665
EAPORTin	0.154406536	0.618309243	0.249723803	0.818924063	-1.813331278	2.122144349

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.512867005
R Square	0.263032565

Adjusted R Square	0.017376753
Standard Error	17961.5721
Observations	5

ANOVA

	df	SS	MS	F	Significance F
Regression	1	345438841.6	345438841.6	1.070736177	0.376875867
Residual	3	967854217.2	322618072.4		
Total	4	1313293059			

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent
Intercept	24063.36638	11782.64985	2.042271195	0.133754072	-13434.31927	61561.05203
FIRESin	0.382053172	0.36921775	1.034763827	0.376875867	-0.792963596	1.55706994

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.042622667
R Square	0.001816692
Adjusted R Square	-0.330911078
Standard Error	15325.27327
Observations	5

ANOVA

	df	SS	MS	F	Significance F
Regression	1	1282356.1	1282356.1	0.005459994	0.945747571
Residual	3	704592002.7	234864000.9		
Total	4	705874358.8			

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent
Intercept	-155882.5394	2411451.902	-0.064642608	0.952524954	-7830205.935	7518440.856
KENOLin	3.443269231	46.59881664	0.073891774	0.945747571	-144.8551017	151.7416402

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.248929112
R Square	0.061965703
Adjusted R Square	-0.250712396
Standard Error	416068.8198
Observations	5

ANOVA

	df	SS	MS	F	Significance F

Regression	1	34307119757	34307119757	0.198177304	0.686358031
Residual	3	5.1934E+11	1.73113E+11		
Total	4	5.53647E+11			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percen*
Intercept	-266380.3924	241583.0316	-1.102645292	0.35069714	-1035206.14	502445.355
KNMILLin	0.884595599	1.987091272	0.445171095	0.686358031	-5.439221612	7.208412809

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.045048828
R Square	0.002029397
Adjusted R Square	-0.330627471
Standard Error	846856.0747
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	4375117497	4375117497	0.006100571	0.942661457
Residual	3	2.1515E+12	7.17165E+11		
Total	4	2.15587E+12			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	-362187.8194	936277.3066	-0.386838191	0.724684327	-3341842.87	2617467.231
KPLCin	1.379104632	17.65679862	0.078106154	0.942661457	-54.81276162	57.57097088

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.199916238
R Square	0.039966502
Adjusted R Square	-0.280044664
Standard Error	775127.7028
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	75037356379	75037356379	0.124890961	0.747164574
Residual	3	1.80247E+12	6.00823E+11		
Total	4	1.87751E+12			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	-773046.5785	2103981.961	-0.367420725	0.737695103	-7468862.478	5922769.321

TOTALin	14.99109138	42.41971513	0.353399153	0.747164574	-120.0075009	149.9896837

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.269361598
R Square	0.07255567
Adjusted R Square	-0.236592439
Standard Error	1524028.491
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5.45119E+11	5.45119E+11	0.234695501	0.661231815
Residual	3	6.96799E+12	2.32266E+12		
Total	4	7.51311E+12			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95percent*	*Upper 95percent*
Intercept	362048.6679	1445767.308	0.250419736	0.818433158	-4239032.477	4963129.813
UNGAin	-15.96655365	32.95784467	-0.484453817	0.661231815	-120.8532231	88.92011575

REFERENCES

1. **Ajinkya, B.B.** and **Gift, M.J.** (1984), "Corporate Managers' Earnings Forecasts and Symmetrical Adjustments of Market Expectations," Journal of Accounting Research, 22, 425-44
2. **Amwayi, F.** and **Muhati, M.** (1978): Financial Reporting Practices in Kenyan Public Companies. A Survey of Published Annual Reports of 58 Kenyan Public Companies for the Fiscal Years Ended in 1974, 1975 and 1976." MBA Project.
3. **Ball, R.** and **Watts, R.** (1972), " Some Time Series Properties of Accounting Income," Journal of Finance, 27, 69-99.
4. **Barefield, R.** and **Comiskey, E.** (1975), "The Accuracy of Analysts' Forecasts of Earnings Per Share," Journal of Business Research, 3, 241-52.
5. **Basi, B., Carey, K.J.** and **Twark, R.D.** (1976), "A Comparison of the Accuracy of Corporate and Security Analysts' Forecast of Earnings," The Accounting Review, 51, 244-54.
6. **Beaver, W.H., Kettler, P.** and **Scholes, M.** (1970), "The Association Between Market Determined and Accounting Determined Risk Measures," The Accounting Review, 45, pp. 654-81.
7. **Belkaoui Ahmed** (1985): Accounting Theory, Harcourt Brace Jovanovich, Publishers, 2nd Ed.
8. **Bevis, Herman W.** (1965), Corporate Financial Reporting In A Competitive Economy, New York, Macmillan.
9. **Brandon, C.H., Jarrett, J.E.** and **Khumawala, S.B.** (1983) Revising Forecasts of Accounting Earnings: A Comparison with the Box-Jenkins Method," Management Science, 29, 256-64.
10. **Brandon, C.H.,** and **Jarrett, J.E.** (1979), " Revising Earnings Per Share Forecast: An Empirical Test," Management Science, 25, 211-20.
11. **Brealey, R.A.** (1968), "The Influence of the Economy on the Earnings of the Firm,"

Paper presented at the Sloan School of Management Seminar, Massachusetts Institute of Technology.

12. **Brooks, L.R.** and **Buckmaster, D.** (1980), "First Difference Signals and Accounting Income Time Series Properties." Journal of Business Finance & Accounting, 7,3,437-54.
13. **Brown, P.** and **Ball, R.** (1967), "Some Preliminary Findings on the Association Between the Earnings of a Firm, Its Industry, and the Economy." Empirical Research in Accounting: Selected Studies, Supplement to 15 Journal of Accounting Research, 55-77.
14. **Chang, L.** and **Most K.** (1980), "Financial Statements and Investment Decisions." (Manuscript, Florida International University, Miami).
15. **Chant, P.D.** (1980), "On the Predictability of Corporate Earnings Per Share Bahavior," Journal of Finance, 1 13-20.
16. **Collins, W.A.** and **Hopwood W.S.** (1980), "A Multivariate Analysis of Annual Earnings Forecasts Generated from Quarterly Forecasts of Financial Analysts and Univariate Time-Series Models." Journal of Accounting Research, 18,2,390-404
17. **Copeland, R.M.** and **Marioni, R.J.** (October 1972), "Executives' Forecasts of Earnings per Share Versus Forecasts of Naïve Models." Journal of Business, pp.497-512
18. **Cragg, J.G.,** and **Malkeil B.G.** (1968), "The Consensus and Accuracy of Some Predictions of the Growth of Corporate Earnings." Journal of Finance, 4 67-84.
19. **Deschamps, B.,** and **Mehta D.R.** (1980), "Predictive Ability and Descriptive Validity of Earnings Forecasting Models." Journal of Finance, 4 933-50.
20. **Eckel, N.** (1982), "An EPS Forecasting Model Utilizing, Macroeconomics Performance Expectations." Financial Analysts Journal, 38, 3-12.
21. **Edwards, E.O.** and **Bell, P.W.** (1961), The Theory and Measurement of Business Income, Berkeley and Los Angeles: University of California Press.
22. **Elliot, I.W.** and **Uphoff H.L.** (1972), "Predicting the Near Term Profit and Loss Statement with an Econometric Model: A Feasibility Study." Journal of Accounting Research, 10, No. 2, 259-74.

23. **Elton, E.J.,** and **Gruber, M.J.** (1972), "Earnings Estimates and the Accuracy of Expectational Data," Management Science, 19, 4, 409-42.

24. **Foster, G.** (1973), "Stock Market Reaction to Estimates of Earnings Per Share by Company Officials," Journal of Accounting Research, 11, 25-27.

25. **Foster, George** (1986), Financial Statement Analysis, Prentice-Hall International, 2nd Ed.

26. **Gray, W.S.** (1974), "The Role of Forecast Information in Investment Decisions." In Public Reporting of corporate Financial Forecasts, (eds.) P. Prakash and A. Rappaport. Chicago: Commerce Clearing House, pp.47-79

27. **Griffin, P.A.** (Spring 1977), "The Time-Series Behavior of Quarterly Earnings: Preliminary Evidence," Journal of Accounting Research, pp. 71-83

28. **Gupta, S.** (1986), Business Statistics, Sultan and Sons Publishers, New Delhi.

29. **Hassell, J.M.** and Jennings, R.H. (1986), "Relative Forecast Accuracy and the Timing of Earnings Forecast Announcements," The Accounting Review, 61, 58-75.

30. **Ijiri, Yuji** (1967), The Foundations of Accounting Measurement: A Mathematical. Economic and Behavioral Inquiry, Englewood Cliffs; N.J. :L Prentice- Hall.

31. **Imhoff, E.** and **Pare, P.** (1982), Analysis and Comparisons of Earnings Forecast Agents," Journal of Accounting Research, 20, 2, 429-439.

32. **Jaggi, B.** (1980), "Further Evidence on the Accuracy of Management Forecasts Vis-à-Vis Analysts Forecasts." The Accounting Review, 55, 96-101.

33. **Johnson, T.E. and Schmitt** (1974), "Effectiveness of Earnings Per Share Forecasts," Financial Management, 3, 64-72.

34. **Keller et al** (1994), Statistics for Management and Economics, Wadsworth Publishing Company, Bellent, California.

35. **Kinney, W.R., Jr.,** (spring 1971), "Predicting Earnings: Entity versus Sub-entity Data," Journal of Accounting Research, pp. 127-36.

36. **Kodde, D.A.** and **Schreuder, H.** (1984), "Forecasting Corporate Revenue and Profit: Time Series Models versus Management and Analysts, " Journal of Business Finance & Accounting, 11, 3, 381-96.

37. **Koutsoyiannis**, (1975), Modern Microeconomics, Macmillan, London.

38. **Lev, B.** (1980), "On the Use of Index Models in Analytical Reviews by Auditors." Journal of Accounting Research, 18, 2, 524-50.

39. **Lisiolo, L.** (1989) : An analysis of the Relationship between Certain Corporate Attributes and Timeliness of annual Reports of Companies Listed on the Nairobi Stock Exchange." MBA Project

40. **Lorek, K.S., McDonald, C.L.** and Patz, D.H. (1976), "A Comparative Examination of Management Forecasts and Box-Jenkins Forecasts of Earnings." The Accounting Review, 51, 321-30.

41. **Louderback III, Joseph G.** (April 1971) "Projectability as a Criterion for Income Determination Methods." Accounting Review, pp. 298-305

42. **Lucey, T.** (1990), Quantitative Techniques, Macmillan, London.

43. **Mincer, J.** and **Zarnowitz** (1969), The Evaluation of Economic Forecasts, New York: National Bureau of Economic Research

44. Nairobi Stock Exchange Limited, Listing Manual, March 21, 1997.

45. **Omosa F.Y.B.** (1989): "Predictive Ability of Selected Asset Pricing Models on the Nairobi Stock Exchange." MBA Thesis.

46. The Nairobi Stock Exchange Hand Book, (December, 1998).

47. **Nichols, D.** and **Tsay, J.** (1979), "Security Price Reactions to Long Range Executive Earnings Forecasts." Journal of Accounting Research, 17, 1 140-55.

48. **Patell, J.** (1976), "Corporate Forecast of EPS and Stock Price Behaviour: Empirical Tests." Journal of Accounting Research, 14,2, 246-76.

49. **Penman, S.** (1980),"An Empirical Investigation of the Voluntary Disclosure of Corporate Earnings Forecasts." Journal of Accounting Research, 18, 1, 132-60.

50. **Ruland, W.** (1978), " The Accuracy of Forecasts by Management and by Financial Analysts." The Accounting Review, 53, 434-47.

51. **Simiyu, M.** (1992), "Measuring Market Performance of the Nairobi Stock Exchange." MBA Thesis

52. **Simmons, John K.** (October 1967), "A Concept of Comparability in Financial Reporting." The Accounting Review, pp.680-92

53. **Sprouse, R.** "The Measurement of Financial Position and Income: Purpose and Procedure." University of California Press, California.
54. **Sterling, Robert R.** (1967), "Elements of Pure Accounting Theory." Accounting Review, pp. 62-73
55. **Sterling, Robert R.** and **Flaherty Richard E.** (1971), "The Role of Liquidity in Exchange Valuation." Accounting Review, pp. 441-56
56. **Stringer, K.W.** (1975), "A Statistical Technique for Analytical Review Studies on statistical Methodology in Auditing." Supplement to the Journal of Accounting Research, 13, 1-9.
57. **Theil, H.** (1971), Applied Forecasting, North Holland Publishing Company.
58. **Werner, Frank** (Spring, 1969) "A Study of the Predictive Significance of Two Income Measures." The Journal of Accounting Research, pp. 122-33.