

**FUNDAMENTAL ANALYSIS OF STOCK RETURNS OF NON
FINANCIAL FIRMS LISTED AT THE NAIROBI SECURITIES
EXCHANGE**

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**A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF
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DECLARATION

This research project report is my original work and has not been presented for a degree in any other university.

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DEDICATION

I dedicate this research project to my family for the special part they occupy in my life and for the support they accorded me during the entire period of study.

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ABSTRACT

The overall objective of this study was to examine relevance of firm fundamentals in explaining stock returns of non financial firms listed at the Nairobi Securities Exchange. The fundamental factors considered are change in total assets, change in revenue and change in financial leverage. The specific objectives of the study were to determine the relationship between stock returns change in total assets, change in revenue growth and change in leverage; to determine the effect of change in total assets, change in revenue and change in leverage on stock returns. Existing studies based on fundamental analysis of firms characteristic at the Nairobi Securities Exchange have not considered the effect of changes in total assets, changes in revenue and change in financial leverage on stock returns. The study employed a descriptive research design. A census targeting the 44 non-financial firms listed between the years 2004 and 2013 was conducted. The study used secondary data obtained from Nairobi Securities Exchange authorized data vendors and companies published financial statements. The relationship between stock returns and the three fundamentals was measured using the Karl Pearson moment correlation coefficient while regression analysis was used to determine the effect of change in total assets, change in revenue and change in financial leverage on stock returns. The overall significance of the model was tested using F test while the significance of the individual independent variable was tested using t-test. The study found a weak positive correlation between stock returns and change in total assets, while change in revenue and change in financial leverage exhibited a negative relationship with stock returns. However, the relationship between stock returns, change in total assets, change in revenue and change in financial leverage was found to be not significant. The coefficient of determination R^2 for the regression model was found to be 0.3% indicating that the model had very low explanatory power. The result of F test indicated that the overall regression was not significant at 5% level of significance. The t-test for the significance of change in total, change in revenue and change in financial leverage showed that the three variables were not significant in explaining stock returns. The study concluded that change in total assets, change in revenue and change in financial leverage cannot be used to meaningfully estimate stock returns for non financial firms listed at the Nairobi Securities Exchange. Investors should not rely on information contained in change in total assets, change in revenue and change in financial leverage in selecting their investment stock at the Nairobi Securities Exchange. Also managers cannot rely on changes in these variables as indicators of the effect of their decisions on value of their firms. Further studies may explore what fundamental factors significantly influences stock returns at the Nairobi Securities Exchange by further analyzing the information reported in financial statements. Such study may evaluate the effect of managerial discretion that results in change in total assets, change in revenue or change in financial leverage due to accrual and due to real change in firms' cash flows.

LIST OF ABBREVIATIONS

ATS: Automated Trading System

CDS: Central Depository Corporation

EMH: Efficient Market Hypothesis

NSE: Nairobi Securities Exchange

NPV: Net Present Value

CAPM: Capital Asset Pricing Model

LIST OF TABLES

Table 1: Correlation Matrix.....	21
Table 2: Model Summary	22
Table 3: Analysis of Variance.....	23
Table 4: Regression Coefficients.....	23

TABLE OF CONTENTS

LIST OF ABBREVIATIONS	vi
LIST OF TABLES	vii
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background of the Study	1
1.1.1 Fundamental Drivers of Stock Returns	2
1.1.2 Stock Returns	4
1.1.3 Fundamental Drivers of Stock Returns versus Stock Returns	5
1.1.4 Non-Financial Firms at Nairobi Securities Exchange	6
1.2 Research Problem	7
1.3 Research Objectives.....	8
1.4 Value of the Study	9
CHAPTER TWO: LITERATURE REVIEW.....	10
2.1 Introduction.....	10
2.2 Theoretical Review	10
2.2.1 Capital Asset Pricing Theory	10
2.2.2 Efficient Market Hypothesis	11
2.2.3 Revenue and Investment Catering Theory	12
2.2.4 Signaling Theory	13
2.3 Empirical Review	14
2.4 Summary of Literature Review.....	16
CHAPTER THREE: RESEARCH METHODOLOGY	18
3.1 Introduction.....	18
3.2 Research Design	18
3.3 Target Population of the Study	18
3.4 Data Collection	18
3.5 Data Analysis.....	19
3.5.1 Analytical Model.....	19
CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION.....	21
4.1 Introduction.....	21

4.2	Correlation between Stock Returns, Change in Total Assets, Change in Revenue and Change in Leverage	21
4.3	The Effect of Change in Total Assets, Change in Revenue and Change in Leverage on Stock Returns	22
4.4	Interpretation of the Result	24
CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....		26
5.1	Introduction.....	26
5.2	Summary of the Findings.....	26
5.2.1	Correlation between Stock Returns, Change in Total Assets, Change in Revenue and Change in Leverage.....	26
5.2.2	Effect of Change in Total Assets, Change in Revenue and Change in Financial Leverage on Stock Returns	27
5.3	Conclusions.....	27
5.4	Recommendations.....	28
5.5	Limitations of the Study	29
5.6	Suggestions for Further Study	29
REFERENCES.....		30
APPENDICES		34
	Appendix 1: Nairobi Securities Exchange Listed companies.....	34
	Appendix 2: Non financial firms listed at the NSE	36

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Fundamental analysis is the examination of the underlying forces that affect the well being of the economy, industry groups and companies. At the company level, fundamental analysis involves examination of financial data, management, business concept and competition. It is a method of analyzing a company's stock prices using historical accounting and financial data. In addition to understanding the business, fundamental analysis allows investors to develop an understanding of the key value drivers within the company as stock's price are heavily influenced by firm fundamentals (Bauman, 1996). Pinto, Henry, Robinson and Stowe (2013) define fundamentals as characteristics of a company related to its assets, profitability, financial strength, risk or growth. They argue that market prices reflect the market assumptions and expectations on the company underlying fundamentals. Fundamentals drive cash flows and the market value securities as the present value of the future cash flows discounted at the appropriate required rate of return.

Fama (1970) asserted that the stock market movements are driven by news about firm economic fundamentals. Accordingly the price of a stock at any point in time reflects the market unbiased assessment of the net present value of all future cash flows, discounted at a rate commensurate with the riskiness of those cash flows. The efficient market hypothesis suggests that developed capital markets incorporate into the stock price all available public and private information about present and past operational performance of the firm. An important body of research in the last two decades and recent and growing research in emerging markets suggest that the efficient market hypothesis does not always consistently hold (Aggarwal and Gupta, 2009). Xie (2001) asserts that the more developed a capital market, the closer to market efficiency it is, and in

emerging markets it is likely that prices do not efficiently incorporate all available information into stock prices in a timely and accurate manner.

Investment research seeks to identify what factors explain stock price movements so that investors trading on such information can generate abnormal returns. In light of the increasing value of equities at the Nairobi Securities Exchange and the growing investors' interest from both local and foreign investors, retail as well as institutional, analysis of pertinent financial information play a crucial role in identifying profitable investments. An item on the financial statement is considered as value relevant if it is significantly correlated with equity returns (Barth, 2000). Fundamental analysis is a useful technique to identifying value relevant signals which investors can profitably exploit especially when markets are not fully efficient. Odumbe (2010) find that the NSE exhibit weak form efficiency and only reacts to new information in a lagged manner. Therefore it can be expected that some scope exhibit for gainfully using fundamental analysis at the NSE. The challenge would then be identifying fundamental signals that are value relevant.

1.1.1 Fundamental Drivers of Stock Returns

Over the years, researchers and practitioners have delved into the factors that drive stock returns. Commonly observed factors include firm fundamentals, macro economic factors, investors' sentiment and momentum indicators. Firm fundamentals refer to characteristics of a company related to its assets, profitability, financial strength, risk or growth. Security market prices reflect the market assumptions and expectations on the company underlying fundamentals. Fundamentals drive cash flows and the market value securities as the present value of the future cash flows discounted at the appropriate required rate of return (Pinto et al, 2013). This study

considers three firm fundamentals drivers of returns namely revenue growth, assets growth and change in leverage.

Revenue is typically the single largest item reported in a company's financial statements. As with the all important bottom line and cash flows, companies' reported revenues are not only significant to these companies' financial statements in money terms, but also in the weight and importance that investors place on them in making investment decisions. Trends and growth in the top line of a company's income statement are barometers investors use to assessing the company's past performance and future prospects (Aghion and Stein, 2008).

Graham, Harvey and Rajgopal (2005) find that executives consider revenue growth one of the three most important performance measures for external constituents. Hubbard and Bromiley (1994) find sales growth is the most common objective mentioned by senior managers. An emphasis on sales growth also provides a useful and visible benchmark to motivate managers. Kaplan and Norton (1992) argue that firms must use a wide variety of goals, including sales growth, to effectively reach their financial objectives.

Asset growth is form of investment in which the company management adds value to shareholders wealth. This investment strategy is emerging to be the normative idea for many firms. It is common for the management of a company to expect that an asset bought now as an investment will perform better in the future resulting to higher shareholders return. However, the management has to assess the derivative impact of investing heavily on assets in relation to stock returns (Chen and Zhang, 2009). Asset growth illustrates how changes in company's assets will affect the returns of the companies, which believe that change of percentage in total assets is a better indicator in measuring the growth of the company (Putrakisnanda, 2009). The use of asset

growth is motivated by the findings of Cooper, Gulen, and Schill (2008) they show that asset growth at the firm-level is a strong and robust negative predictor of cross-sectional variation in stock returns.

Leverage refers to the proportion of debt to equity in the capital structure of a firm. The financing or leverage decision is a significant managerial decision because it influences the shareholder's return and risk and the market value of the firm. The ratio of debt-equity has implications for the shareholders' dividends and risk, this affect the cost of capital and the market value of the firm (Pandey, 2007). According to the theory by Myers and Majiluf (1984) the capital structure of companies always stays at optimal level. Change in leverage occurs when firms need more money due to various reasons, for example financing new projects, maintaining liquidity position or repaying loans etc. The change in leverage serves a signal to investors who will make investing decision with regards to this information. Therefore, the change in leverage is value relevant because it will affect the decision of investors (Dimitrov and Jain, 2008).

1.1.2 Stock Returns

Stock returns are used to measure the performance of a company stock. The financial objective of the firm is maximizing investment returns which are reflected by the change in the company stock prices. Financial performance of a company is measured using stock returns. Pinto, Henry, Robinson and Stowe (2013) defines holding period return as the return earned from investing in an asset for a specified time period. The specified time period is the holding period under consideration whether it is one day, a year, a month or any other length of time. The stock return includes change in the value of a stock (capital gain yield) and cash dividend paid during the period.

When it comes to stock returns, studies have explored links between firm characteristics and stock returns. The capital asset pricing model of Sharpe (1964) explain stock returns as a function of stocks systematic risk using the beta coefficient. However, over the year the capital asset pricing model has come under criticism for failing to explain stock returns. Some firm characteristics have been shown to have a strong ability to explain and forecast stock returns. Fama and French (1992) Size and Market-to-Book have been found to be important measures in explaining cross sectional stock returns. Banz (1981) provide empirical evidence to show that on average, small-size firms yield higher stock returns than large-size firms.

1.1.3 Fundamental Drivers of Stock Returns versus Stock Returns

Fundamental analysis involves assessing a firm's equity value based on the analysis of published financial statements and other information without reference to the prices at which a firm's securities trade in the capital markets. When fundamental conditions are good share prices moves upward and when bad stock prices moves downward (Bauman, 1996). Penman (1992) states that the task of research is to discover what information explains past performance and that may be useful in projecting future earnings and, from a financial statement analysis point of view, what information in the financial statements does this.

Financial research shows that number of firm characteristics such as firm size, past stock price performance, and value and growth attribute are useful in explaining stock returns (Piotroski, 2000). Fundamental analysis deals with the company's earnings and expenses, assets, liabilities, management experience, profits, and industry dynamics. Investors used historical financial information contained in financial statements-firm fundamentals, to predict future stock returns.

On the basis of these predictions they make investments strategies to get excess returns (Fama and French, 2004).

1.1.4 Non-Financial Firms at Nairobi Securities Exchange

In 1954 the Nairobi securities exchange was constituted as a voluntary association of stockbrokers registered under the Societies Act. The NSE is a stock market that has been characterized by humble beginnings and it has grown considerably over time. The NSE successfully instituted the central securities depositories (CSD) in November 2004 and installed an automated trading system (ATS) in November 2007. The exchange is also undergoing restructuring of its governance system through demutualization. Characterized by its liquidity, market capitalization and turnover, the NSE may be classified as both emerging market and frontier market. NSE is therefore a model market in view of its high returns, vibrancy and well developed market structure. It therefore, raises interest and sets a precedent for comparison with other emerging markets in Eastern Africa and the world at large (Nyambura, 2005)

There are 44 non financial firms listed at the NSE under the following sectors: Agriculture, Commercial and services, telecommunication and technology, automobiles and accessories, investment, Manufacturing and allied, Construction and allied, Energy and petroleum sectors, see Appendix 2. The NSE is open for trading from Monday to Friday, and closed on Saturday and during public holidays (Mokua, 2003). Given the important role that a capital market plays in the economy, it is crucial to understand the fundamental drivers of stock returns in a particular market. It is of great significance to identify the fundamental variables affecting returns in emerging markets such as the Nairobi Securities Exchange. Based on this background, this study seeks evaluate the effect of growth in revenue, growth in total assets and change in leverage on returns of non financial firms listed on the NSE.

1.2 Research Problem

The efficient market hypothesis suggests that developed capital markets incorporate into the stock price all available public and private information about present and past operational performance of the firm. Aggarwal and Gupta (2009) suggest that in emerging markets the efficient market hypothesis does not always consistently hold. Most researchers would agree that the more developed a capital market, the closer to market efficiency it is. When markets are less than fully efficient investment strategies based on fundamental analysis can realize market beating returns. Fundamental analysis is the examination of the underlying forces that affect the well being of the economy, industry groups and companies. It attempts to discover value relevant attributes that explain a valuation attached to a stock by the market. In addition to understanding the business, fundamental analysis allows investors to develop an understanding of the key factors that drive security returns (Bauman, 1996). Piotroski (2000) assert that a number of firm characteristics such as firm size, past stock price performance, and value and growth attribute are useful in predicting stock returns. Abarbanell and Bushee (1997) suggest the use fundamental analysis to forecast earnings and future stock returns. Brown and Ball (1968) assert that result of fundamental analysis is value relevant because they are contemporaneously associated with stock prices

For emerging markets such as Nairobi Securities Exchange it is likely that prices do not efficiently incorporate all available information into stock prices in a timely and accurate manner. Ngugi (2004) finds that the NSE is efficient in the weak form with respect to earnings announcement while Munyi (2010) found that stock prices at the NSE responded to stock split announcement with a lag. The inefficiency in capital markets implies that scope may exist for

investment strategies based on fundamental analysis to forecast future returns. Fundamental analysis aims to find important signals that should be related to future earnings and future stock prices changes.

Fundamental analysis is a useful technique to identifying value relevant signals which investors can profitably exploit especially when markets are not fully efficient. Ou and Penman (1989) finds leverage, activity and profitability as having power to explain stock returns and predict future returns while Cooper, Gulen and Schill (2007) finds that stock returns can be predicted by annual asset growth of the firm. Locally Oliech (2002) found that size and book to market ratio have no relationship with stock returns, Ondimu (2012) found a negative relationship between asset growth and stock returns. Odumbe (2010) assert that the NSE exhibit weak form efficiency and only reacts to new information in a lagged manner. The studies conducted so far at the Nairobi Securities exchange have not evaluated the effect of change in revenue, change in assets and change in leverage on stock returns. The study sought to fill this gap by evaluating the effect of change in revenue, change in asset level and changing leverage as value signals and their relevance for investment decision making. This study sought to address the following research questions: Does change in total assets, change revenue and change in leverage explain stock returns at the NSE? Are changes in total assets, revenue and leverage correlated to stock returns?

1.3 Research Objectives

This study sought to examine the relevance of a set of fundamental signals in driving stock returns of non financial firms listed at the NSE. The specific objectives were;

- i. To determine the relationship between stock returns and change in total asset, change in revenue growth and change in leverage.
- ii. To determine effect of change in total assets, change in revenue and change in leverage on stock returns at the Nairobi Securities Exchange.

1.4 Value of the Study

This study will contribute to the existing literature on the efficiency of Nairobi Securities Exchange to value firms on the basis of the firms' fundamentals. It also provided further evidence on the efficiency of capital markets in absorbing fundamental accounting information.

The findings of this study will provide indication to investors whether it is possible to predict stock returns given projected growth in revenue and investments measured by change in total assets and potential changes in capital structure. Investors are also able to evaluate whether details analysis of financial statement information is a worthwhile endeavor.

Through this study corporate managers will be able to assess whether growth necessarily creates value for their shareholders. The study brings to the focus the decision of managers to grow the assets of their businesses by making additional investments or change the capital structure and the effort to grow sales and how such affects stock returns.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviewed the theories relevant to this study and the relevant studies that have been conducted. The chapter is organized to begin with a discussion of the relevant theories followed by an empirical review; a summary of the literature concludes the chapter.

2.2 Theoretical Review

Several theories have been advanced to explain the behavior of stock returns and the factors that influence those returns. The capital asset pricing model is popularly used in finance to explain the relationship between returns and risk. The actions taken by corporate managers are likely implications on stock valuation. Such actions provide signals to the market regarding their firm's future prospects. Where markets are less than fully efficient fundamental analysis can be a valuable investment tool.

2.2.1 Capital Asset Pricing Theory

Sharpe (1964) and Lintner (1965) contributed their efforts to develop CAPM as an equilibrium asset pricing model for pricing risky assets. CAPM is a model for pricing risky security in relation with risk and expected return of the security. The model states that the expected return of an underlying security or a portfolio is equal to the rate on a risk free security plus a risk premium. CAPM provides a tool how to measure risk and the relation between expected return and risk of a particular security. The model is used to determine the required rate of return of an underlying security if the underlying asset is subject to a portfolio and the assets systematic risk is given. Systematic risk of a security is measured by the beta coefficient. Beta is a measure of the sensitivity of returns on a security to the returns on the market portfolio.

Since Sharpe (1964), Lintner (1965) formulated the Capital Asset Pricing Model (CAPM), it has become one of the most used in financial modeling either by academics and practitioners. However, some anomalies in the stock market have emerged where the return characteristics of stocks seem to contradict the CAPM principle that risk beta is able solely to explain the cross-section of expected return. Fama and French (1992) showed that beta could not explain neither alone nor joined with other fundamental variables- the differences between stock returns for NYSE and AMEX stocks during the period 1963-1990. Firm size and book to market ratio were statistically significant instead.

2.2.2 Efficient Market Hypothesis

Fama (1970) defined the efficient market as a market in which prices always fully reflect available information. Information in efficient market shall be recognized as anything that may lead to changes in share prices but is unknown at the present, and thus appears randomly in the future. Consequently market is being efficient when it reacts to the introduction of new, relevant for stock shares, information by adjusting quickly and precisely. From that perspective it is impossible for an investor to outperform the market using investment strategy based on available information, except through luck.

This study is based on growth in revenue, total assets and change in leverage. When such new information enters to the market, assuming it is an efficient market, it causes some corrections to be applied in the evaluated economic value of securities and its cost in accordance with the offered information to be defined. This implies that the price of securities will be defined efficiently. Stock market efficiency has the important implication for investors. It affects the

method of persons' attitude on the process of investment and investment decisions. One of the information sources is the financial statements and information provided by the companies. Such information is the basis of fundamental analysis. If the information provided by companies is dependable, creditable, timely, reliable, honest and totally qualified, it can be an effective tool in investment decision making (Bauman, 1996).

2.2.3 Revenue and Investment Catering Theory

Academic literature use the term “catering” to describe the behavior of firm managers to give what the investors want in order to maintain high valuation of their firms’ securities. Catering refers to any actions intended to boost share prices above fundamental value. According to Aghion and Stein’s (2008) catering theory, if firm managers care about current stock prices, they will devote more effort to increasing sales when investors place a greater emphasis on revenue. They argue that investors have time-varying demand for revenue growth and managers will cater to this demand by delivering higher revenue when investors place a higher premium on revenue. If the manager cares about current stock price, she is better off devoting her effort to increasing sales when the market puts a premium on revenue.

Stein (1996) proposed an investment catering theory in which a firm’s investment decision is affected by market valuation of the company, even if new investment projects are not financed by new equity. He argue that if investors have short horizons, managers will rationally choose to invest in projects that are overpriced and avoid projects that are underpriced, thus catering to sentiment in order to maximize near-term stock prices. If the market misprices firms according to their level of investment, managers may try to boost short-run share prices by catering to current

sentiment. Managers with shorter shareholder horizons, and those whose assets are more difficult to value, should cater more.

Managers who care about current stock prices will cater to this time-varying investor preference by devoting more effort to increasing revenue when investors place a higher premium on revenue. Investors demand for revenue growth can be inferred from the pricing weight that investors place on revenue (Aghion and Stein, 2008). Polk and Sapienza (2009) test a catering channel, through which deviations from fundamentals may affect investment decisions directly. They find strong positive correlation between stock mispricing and investment. The positive correlation is due to the fact that overpriced firms take investment projects that have negative net present values while underpriced firms forego investment projects with positive net present value.

2.2.4 Signaling Theory

Jensen and Meckling (1976) argued that corporate managers typically have access to more detailed and extensive information about the company than do outside investors. Information asymmetry occurs when one group of participants has better or timelier information than other groups. Ross (1977) argued that firm's management being more informed about the firms prospect may use signals that provide clues to investors about how management views the firms prospects. He argued that financial leverage can be used by managers as a means of sending unambiguous signals to the public about the future performance of the firm.

Copeland, Weston and Shastri (2005) assert that managers of a high-quality firm may wish to signal their superiority to the market. Examples of such signals include the level of investment in

the firm, the amount of debt issued, the size of the dividend declared, the type of financing used for an investment, and the decision to split stocks.

2.3 Empirical Review

Ou and Penman (1989) using various fundamental signals; leverage, activity, profitability, and market based indicators and found the forecasting power of these signals. They found that fundamental signals have the power to explain contemporaneous stock returns and are useful to forecast future stock returns.

Hatta (2012) studied the firm financial factors and variation in stock returns. Financial signals earnings per share, price earnings ratio, debt to equity ratio, current ratio, net profit margin, dividend per share, and return on assets were selected for the study. The study found that earnings per share and price earnings ratio had positive relation with stock return, while debt to equity and net profit margin had negative relation with stock returns.

Mahmoud and Sakr (2012) investigated the predictive power of fundamental analysis in terms of firm performance and stock returns in Egypt. By using ten financial indicators-changes in asset turnover, changes in leverage, gross profit margin, return on assets, changes in return on assets, cash flow from operation, changes in cash flow from operation, changes in current ratio, accrual, and cash flow from stock holder) they found that aggregate signals had positive correlation with stock return and firm performance.

Dimitrov and Jain (2008) examined the effect of the change in leverage on future accounting performance and future equity returns. They found a significant negative association between the change in leverage and the current stock returns. Their result shows that the change in leverage is as value relevant as accounting earnings and cash flow. Besides, the study also has found out that growth in assets is a value relevant indicator.

Cai and Zhang (2011) studied the effects of changing leverage on stock prices in the United States. They observed that the change in leverage ratio had a negative effect on stock prices. They suggested that the change in leverage gives a signal to the market participants concerning the value of the stock. The evidence is that stock price in the current and the next quarter is influenced by the change in leverage in the current period.

Cooper, Gulen and Schill (2007) asserted that cross-section of future stock returns can be predicted by annual asset growth rate of a firm. They have found the growth in assets affect returns of firms. Firm asset growth can be used as a reliable predictor than other standard variables, such as book-to-market equity and market capitalization of firms. The reason behind is that firm asset growth can capture common returns effect by examining elements in the overall financing and investment activities. This reason is supported by assumption that the capital market uses efficient pricing in real investment.

Kerstein and Kim (1995) study the value relevance of capital expenditures for explaining returns beyond the use of current earnings. Their findings show that changes in the level of capital expenditure were strongly and positively related to excess returns. This exhibits the fact that

current capital expenditure has good news for the future performance of a firm and supports the use of capital expenditures for predicting future earnings or returns.

Oliech (2002) studied the relationship between size, book to market and return at the Nairobi Securities Exchange. The study found that size and book to market ratio have no relationship with returns. Low levels of significance were achieved in his study and this shows that return for companies quoted at the NSE are determined by factors other than size and ratio of book –to – market value.

Ondimu (2012) studied the effect of asset growth on returns for firms listed on the NSE. The study found that the market is inefficient in the allocating capitals and valuing investment opportunities. He found that assets growth had a negative growth effect on stock returns. However, his study failed to control for financing effect.

Kivale (2013) studied the effect of financial leverage and revenue growth on dividend policy of firms listed at Nairobi securities exchange. The study found there exist negative association between financial leverage, revenue growth and dividend payout. Firms pay dividend as a sign of current and future prospects.

2.4 Summary of Literature Review

Empirical evidence indicates that fundamental firm factors affect stock returns. Ou and Penman (1989) found that leverage, activity, profitability, have power to explain stock returns and are useful in forecasting future stock returns. Hatta (2012) found that earnings per share and price earnings ratio had positive relation with stock return, while debt to equity and net profit margin

had negative relation with stock returns. Dimitrov and Jain (2008) found a significant negative association between the change in leverage and the current stock returns while. Cooper, Gulen and Schill (2007) found that growth in assets affect returns of firms and that cross-section of future stock returns can be predicted by annual asset growth rate of a firm. Kerstein and Kim (1995) showed that changes in the level of capital expenditure are strongly and positively related to excess stock returns.

Oliech (2002) found that size and book to market ratio have no relationship with returns for firms listed on the NSE. Ondimu (2012) found that assets growth had a negative growth effect on stock returns. Kivale (2013) found that there exist negative association between financial leverage, revenue growth and dividend payout. The studies conducted so far at the Nairobi Securities exchange have not evaluated the effect of change in revenue, change in assets and change in leverage on stock returns. The study seeks to fill this gap by evaluating the effect of change in revenue, change in asset level and changing leverage as value signals and their relevance for investment decision making.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter focused on the research design and methodology used in the study. It also discussed the population of the study and how the data used was collected and analyzed.

3.2 Research Design

A descriptive research design was used in this study. Bruce (2003) indicates that descriptive research method includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is description of the state of affairs as it exists at present. This method is justified on the basis that the methods of research utilized in descriptive research are survey methods of all kinds, including comparative and regression methods. The researcher equally has no control over the variables; he can only report what has happened or what is happening. Regression technique will be used as the analysis tool.

3.3 Target Population of the Study

The study targeted 44 non financial companies listed at the NSE as at December 31, 2013. Appendix 2 provides a list of the non financial companies. Firms in the financial sector were excluded because of the differing reporting requirements in the sector and the regulations that do not apply to the non financial companies. A census study was conducted. The study included only those firms that were listed and continuously traded between 2004 and 2013.

3.4 Data Collection

This research study made use secondary data. Stock price data was be obtained from Nairobi Securities Exchange authorized vendors. Data relating to revenue, total assets and debt was

obtained from annual published financial statements. For each company end of year stock price, number of shares outstanding, revenue, total assets and total debt at the end of each year was recorded.

3.5 Data Analysis

To evaluate whether information contained in growth in revenue, total assets and changes in leverage is contained in stock returns, stock returns were regressed against change in revenue, change in total assets and changes in leverage as the independent variables. The significance of each explanatory variable were tested using student t-test while an F test for the significance of the regression model was conducted. Coefficient of determination R^2 was used to interpret the explanatory power of the regression model. To establish the nature and the strength of correlation between the variables, correlation analysis between stock returns and each of the independent variable was carried out and tested for significance using t-test. A 5% significance level was used for each of the test.

3.5.1 Analytical Model

The following analytical model based on three firm fundamentals namely changes in aggregate firms revenue, change in aggregate assets and change in financial leverage was used.

$$R_{i,t} = \alpha + \beta_1 \Delta \text{AGGREV} + \beta_2 \Delta \text{AGGTA} + \beta_3 \Delta \text{FLEV} + \varepsilon_i$$

Where $R_{i,t}$ = Return of stock i in period t

ΔAGGREV = Change in aggregate revenue

ΔAGGTA = Change in aggregate total assets

ΔFLEV =Change in financial leverage

ε_i =Residual term

Stock returns were measured as the natural logarithm of change in the market capitalization for each stock. Change in aggregate revenue was measured as the difference between the aggregate revenue in a current period and the aggregate revenue in the previous period while change in total assets was measured as total assets in the current period less total assets in the previous period. Change in financial leverage was determined as change in total assets in a period divided by change in shareholders' equity for that period.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter focused on the analysis of the data collected and discussions of the findings. Data was collected from secondary source, the NSE handbook. The study covered all the non financial firms that were continuously traded between the years 2004 to 2013. Twenty eight firms satisfied the requirement for inclusion in the analysis.

4.2 Correlation between Stock Returns, Change in Total Assets, Change in Revenue and Change in Leverage

Correlation between the variables was measured using the Karl Pearson product moment correlation coefficient. The results are reported in table 1 below.

Table 1: Correlation matrix

		Return	Change TA	Change REV	Change LEV
Return	Pearson Correlation	1	.010	-.045	-.010
	Sig. (2-tailed)		.874	.453	.866
Change TA	Pearson Correlation	.010	1	.237**	.028
	Sig. (2-tailed)	.874		.000	.635
Change REV	Pearson Correlation	-.045	.237**	1	.023
	Sig. (2-tailed)	.453	.000		.704
Change LEV	Pearson Correlation	-.010	.028	.023	1
	Sig. (2-tailed)	.866	.635	.704	

** . Correlation is significant at the 0.05 level (2-tailed).

a. Listwise N=280

The above matrix show the correlation between the dependent variable, stock returns and the three independent variables, change in total assets, change in revenue and change in leverage. It also indicates the correlation between the independent variables. Stock returns exhibit a positive correlation of 0.01 with change in total assets and a negative correlation with change in revenue and change in leverage of -0.045 and -0.01 respectively. The correlation between stock returns and asset growth is not significant at 5% level since $0.874 > 0.05$. Also the correlation between stock returns and change in revenue are not significant at the 5% level since 0.453 and 0.866 significance levels are greater than 0.05. Notably change in total assets exhibit a positive significant correlation of 0.237 with change in revenue. The significance level in this case is $0.00 < 0.05$.

4.3 The Effect of Change in Total Assets, Change in Revenue and Change in Leverage on Stock Returns

To evaluate the effect of change in total assets, change in revenue and change in leverage on stock returns a regression analysis was carried out using a pooled analysis approach. The results of the regression are presented below.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.051 ^a	.003	-.008	.55561

a. Predictors: (Constant), Change LEV, Change REV, Change TA

Table 2 provides a summary of the result of regression. The coefficient of determination-R square for the model is 0.003. This indicates that change in total assets, change in revenue and

change in leverage jointly explain only 0.3% of the variation in stock returns. This provides a very low predictive/ explanatory power.

Table 3: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.217	3	.072	.233	.873 ^a
Residual	85.140	275	.310		
Total	85.357	278			

a. Predictors: (Constant), Change LEV, Change REV, Change TA

b. Dependent Variable: Return

From table 3 the F-statistic for the model is 0.233 with a significance level of 0.873. The model is not statistically significant at the 5% level of significance.

Table 4: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.029	.035		.829	.408
Change TA	2.255E-9	.000	.022	.349	.727
Change REV	-2.352E-9	.000	-.050	-.807	.420
Change LEV	.000	.001	-.010	-.160	.873

a. Dependent Variable: Return

Table 4 indicates the coefficients of the independent variables for the regression model. Change in total assets has a coefficient of 0.00000000226 while change in revenue has a coefficient of -

0.000000002352 and change in leverage has a coefficient of 0.00. Using these coefficients a regression model as discussed in chapter three is as follows:

$$R_{i,t}=0.029+0.00000000226\Delta AGGTA -0.000000002352\Delta AGGREV +0.00\Delta FLEV.$$

The variables are not significant at a 5% level since $0.727 > 0.05$, $0.42 > 0.05$ and $0.873 > 0.05$ for change in total assets, change in revenue and change in financial leverage respectively.

4.4 Interpretation of Results

The first objective of this study was to determine the nature of the relationship between stock returns, change in total assets, change in revenue and change in leverage. The result of this analysis is presented in table 1. The results show a positive but very weak relationship between stock returns and change in total assets with a correlation coefficient of 0.01. This indicates that an increase or decrease in the level of investment as measured by the increase or decrease in total assets would result in an increase in stock returns. However, the relationship is not significant at a 5% level since 0.874 significance level is greater than 0.05. The correlation between returns and the other two variables-change in revenue, change in leverage is negative and very weak indicating that an increase or decrease in revenue or financial leverage will result in decrease or increase in stock returns. Specifically the relationship between stock returns and change in revenue is -0.045 while that between stock returns and change in leverage is -0.01. Again relationship is not significant at the 5% level of significance. The minimum level of significance required for change in revenue to be significant is 0.453 and 0.866 for change leverage. Given that $0.453 > 0.05$ and $0.866 > 0.05$ change in revenue and change in leverage are not significant predictors.

The second objective sought to establish the effect change in total assets, change in revenue and change in leverage on stock returns. The results of the regression analysis are presented in table

2, 3 and 4. From table 2, the coefficient of determination is 0.3% indicating that variation in the three variables jointly explain or account for only 0.3% of the variation in stock returns. 99.7% of the variation in stock returns are due to other factors other than changes in total assets, change in revenue and change in financial leverage. The model has a very low predictive/explanatory power. In table 3 the F-statistic for the model is 0.233, which has a significance level of 0.873. Since $0.873 > 0.05$ the model is not statistically at a 5% level of significance. Table 3 reports the regression coefficients. The coefficient of change in total assets is 0.00000000226 indicating that for every shilling one increase or decrease in total assets would result in 0.00000000226 points increase or decrease. Change in revenue has a coefficient of -0.000000002352 meaning that shilling one increase or decrease in revenue would result in 0.000000002352 point decrease or increase in return. Change in leverage has a coefficient of 0.00; a change in leverage will have no effect on stock returns. However, the significance levels for the predictive variables are 0.727, 0.42 and 0.873 for change in total assets, change in revenue and change in leverage. These significance levels are greater than 0.05 hence the variables; change in total assets, change in revenue and change in leverage are not statistically significant.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter a summary of the findings from the study, conclusions and recommendations are presented. Also areas for further research are suggested.

5.2 Summary of the Findings

This study sought to establish the relationship between stock returns, change in total assets, change in revenue and change in financial leverage for firms listed at the Nairobi Securities Exchange. It also sought to determine the effect of changes in total assets, change in revenue and change in financial leverage on stock returns. Key findings are summarized below.

5.2.1 Correlation between Stock Returns, Change in Total Assets, Change in Revenue and Change in Leverage

Karl Pearson product moment correlation coefficient was used to measure correlation between stock returns, change in total assets, change in revenue and change in leverage. The correlation coefficients and their levels of significance are reported in table 1. It was found that there exist a very positive correlation of 0.01 between stock returns and change in total assets. Since $0.874 > 0.05$ the correlation is not significant at 5% level of significance. Stock returns exhibited a negative correlation with change in revenue and change in leverage. The correlation coefficient between stock returns and change in revenue was found to be 0.045 as reported in table 1. This indicates a low level of association between stock returns and change in revenue. The correlation is not statistically significant at 5% level since its level of significance $0.453 > 0.05$. Also stock returns exhibit a low level of association with change in leverage with a correlation coefficient of -0.01 as reported in table 1, which is not significant at the 5% level. The level of significance for change in leverage is 0.866 which is greater than 0.05.

5.2.2 Effect of Change in Total Assets, Change in Revenue and Change in Financial Leverage on Stock Returns

Regression analysis was used to determine the effect of change in total assets, change in revenue and change in leverage on stock returns. Table 2 reports the model summary statistics. Of particular importance in the analysis is the coefficient of determination, R^2 . The coefficient of determination is 0.003 for the model. This indicates that the model does not have good explanatory power as it explains only 0.3% of the variation in stock returns. Table 3 indicates the analysis of variance for the regression. The resulting F-ratio for the model is 0.233. Table 4 report the coefficient of regression variable. The coefficient of change in total assets is 0.00000000226 which is significant at 0.727 level of significance. Since 0.727 is greater than 0.05 changes in total assets have no significant effect on stock returns at 5% significance level. Change in revenue has a coefficient of -0.000000002352 that is significant at 0.42 level of significance. Because 0.42 is greater than 0.05 changes in revenue is not a significant explanatory variable at the 5% significance level. The coefficient of change in leverage was found to be 0.00 with a significance value of 0.873, since 0.873 is greater than 0.05 change in leverage is also not significant at the 5% level of significance.

5.3 Conclusions

This study sought to determine the relationship between stock returns and change in total assets, change in revenue and change in leverage. The result of correlation analysis indicated that stock returns and change in total assets have a weak positive correlation while change in revenue and change in leverage have a negative correlation with stock returns. However, the t-test for the significance of the relationship showed that the relationship is not significant at 5% significance level. The study concludes that there exist a positive but statistically insignificant relationship between change in total assets and stock returns and a negative and statistically insignificant

relationship between stock returns and change in revenue as well as stock returns and change in financial leverage.

The study also sought to determine the effect of change in total assets, change in revenue and change in financial leverage on stock returns. The coefficient of determination R^2 indicated that the three variables did not significantly explain variation in stock returns. The F test on the regression model for the effect of change in total assets, change in revenue and change in leverage is not statistically significant at 5% level. The t-test on the significance change in total assets, change in revenue and change on leverage indicate that the three independent variable are not statistically significant at the 5% level of significance. In overall the regression model has poor predictive power and is not statistically significant. Change in total assets, change in revenue and change in leverage cannot be used to meaningfully estimate stock returns.

5.4 Recommendations

This study recommends stock returns at the Nairobi Securities exchange exhibit a positive relationship with change in total assets but a negative correlation with change in revenue and change in financial leverage. However, the relationships are not statistically significant. The study also recommends that change in total assets, change in revenue and change in financial leverage do not have a significant effect on stock returns. Accordingly investors may not rely on changes in these variables in selecting and evaluating the performance of their investments at the Nairobi Securities Exchange.

5.5 Limitations of the Study

The study relied on book value measures of return which may not be sufficient reflective of a firms value. Managers have substantial discretion in reporting the information contained in the financial statements through the application of accrual accounting. Thus the quality of information reported in financial information statements will have a major effect on the findings of this study and the recommendations thereof.

5.6 Suggestions for Further Study

Further study may seek to identify what fundamental factors are relevant in explaining stock returns. This should focus on the various components of the financial statements. For instance, a decomposition of the firms change in total assets so as to analyze the effect of change in current assets and change in noncurrent assets separately may help reveal whether such changes have a significant effect on stock returns. Further study may focus on the change in individual items of current and noncurrent assets, change in current liabilities, and change in long term liabilities. Also given the managerial discretion in reporting revenue and assets a further study may focus may focus on analyzing the change in total assets and revenue that is due to accrual accounting and change that is due to change in firms' cash flows and their effect on stock returns.

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APPENDICIES

Appendix 1: Nairobi Securities Exchange Listed companies as at 31/12/2013

<p>AGRICULTURAL SECTOR</p> <p>Eaagands</p> <p>Kakuzi</p> <p>Kapchorua tea company</p> <p>Limuru tea company ltd</p> <p>Rea vipingo plantation ltd</p> <p>Sasini ltd</p> <p>Williamson tea (K) ltd</p> <p>COMMERCIAL AND SERVICES SECTOR</p> <p>Express Ltd</p> <p>Kenya airways Ltd</p> <p>Nation Media Group ltd</p> <p>Standard Group Ltd</p> <p>TPS Eastern Africa (Serena) Ltd</p> <p>Scangroup Ltd</p> <p>Uchumi Supermarket Ltd</p> <p>Hutching Beimer Ltd</p> <p>Longhorn (K) Ltd</p> <p>CONSTRUCTION AND ALLIED</p>	<p>MANUFACTURING AND ALLIED</p> <p>BOC Kenya ltd</p> <p>British American Tobacco ltd</p> <p>Carbacid Investments ltd</p> <p>East African Breweries ltd</p> <p>Mumias Sugar co ltd</p> <p>Unga Group ltd</p> <p>Eveready E.A ltd</p> <p>Kenya Orchards ltd</p> <p>A.Bauman co ltd</p> <p>INVESTMENT</p> <p>City Trust ltd</p> <p>Olympia Capital ltd</p> <p>Centum Investment ltd</p> <p>Trans-Century ltd</p> <p>AUTOMOBILES</p> <p>Car and General ltd</p> <p>CMC ltd</p> <p>Sameer Africa ltd</p> <p>Marshals ltd</p>
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Athi River Mining ltd	TELECOMMUNICATIONS AND
Bamburi Cement ltd	TECHNOLOGY
Crown Berger ltd	Access Kenya Group ltd
East African Cables ltd	Safaricom ltd
East African Cement ltd	INSURANCE
ENERGY AND PETROLEUM	Jubilee Holding ltd
Kenolkobil ltd	Pan Africa Insurance Holding ltd
Total Kenya	Kenya Re-Insurance Corporation ltd
Kengen ltd	CFC Insurance holding ltd
Kenya power and Lighting Co. ltd	British American Investment Co (K) ltd
	CIC Insurance Group
BANKING	
Barclays Bank ltd	
CFC Stanbic Holding ltd	
Diamond Trust Bank ltd	
Housing Finance	
Kenya Commercial Bank ltd	
National Bank of Kenya	
NIC Bank ltd	
Standard Chartered Bank ltd	
Equity Bank ltd	
Cooperative Bank ltd	

Source: NSE

Appendix 2: Non financial firms listed at the NSE

AGRICULTURAL SECTOR	MANUFACTURING AND ALLIED
Eaagands	BOC Kenya ltd
Kakuzi	British American Tobacco ltd
Kapchorua tea company	Carbacid Investments ltd
Limuru tea company ltd	East African Breweries ltd
Rea vipingo plantation ltd	Mumias Sugar co ltd
Sasini ltd	Unga Group ltd
Williamson tea (K) ltd	Eveready E.A ltd
COMMERCIAL AND SERVICES	Kenya Orchards ltd
SECTOR	A.Bauman co ltd
Express Ltd	INVESTMENT
Kenya airways Ltd	City Trust ltd
Nation Media Group ltd	Olympia Capital ltd
Standard Group Ltd	Centum Investment ltd
TPS Eastern Africa (Serena) Ltd	Trans-Century ltd
Scangroup Ltd	AUTOMOBILES
Uchumi Supermarket Ltd	Car and General ltd
Hutching Beimer Ltd	CMC ltd
Longhorn (K) Ltd	Sameer Africa ltd
CONSTRUCTION AND ALLIED	Marshals ltd
Athi River Mining ltd	TELECOMMUNICATIONS AND
Bamburi Cement ltd	TECHNOLOGY

Crown Berger ltd	Access Kenya Group ltd
East African Cables ltd	Safaricom ltd
East African Cement ltd	
ENERGY AND PETROLEUM	
Kenolkobil ltd	
Total Kenya	
Kengen ltd	
Kenya power and Lighting Co. ltd	

Source: NSE