

**THE RELATIONSHIP BETWEEN INTRINSIC AND MARKET VALUES OF
LISTED COMPANIES IN THE NAIROBI SECURITIES EXCHANGE**

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DECLARATION

This research project is my original work and has not been presented for examination in any other University.

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This research project has been forwarded for examination with my approval as the University of Nairobi supervisor.

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DEDICATION

This project is dedicated to **KIRANGA** family at large.

ABSTRACT

The objective of the study was to establish whether there exists any relationship between the intrinsic and market values of listed firms in the Nairobi Securities Exchange. Market value is the price at which a stock would trade in a competitive auction market setting. Intrinsic value refers to the actual value of a stock determined through analysis of the stock's total returns without reference to its market value. This intrinsic value may or may not be the same as the current market value.

To achieve the study objective, the researcher adopted a descriptive research survey design to show how the study variables relate to each other. The target units of analysis for this study were all the sixty one (61) companies currently listed in the Nairobi Securities Exchange (NSE) thus the study used a census methodology to gather data. The study used secondary data from the financial statements of the companies listed in the NSE. The study used Statistical Package for Social Sciences (SPSS) to generate the descriptive statistics and also to generate inferential results. The presentation of the results was done by use of graphs and tables and cross-tabulations for clarity and ease of understanding of the findings. The simple linear regression model was used to measure the relationship between the intrinsic value and market value which is explained in the model.

The study revealed that there exists a positive relationship between intrinsic and market value as analyzed by the linear regression analysis. The positive relationship of intrinsic and market value is further confirmed by Pearson's Bivariate correlation which means that a positive change in the intrinsic value of the firm results in a positive change in market value of the firm. ANOVA results of the study presented the model used to determine the relationship between market value and intrinsic value to be statistically significant.

The conclusion derived from this study is that an investor can use intrinsic value to determine whether a firm is underpriced, perfectly priced or overpriced when making investment decisions relating to a firm's stock.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The primary objective of a profit making organization is to maximize shareholders wealth through profits maximization which increases the firm's market price (Sakthivel, 2011). Investors invest in many types of securities in capital markets with stocks being one these securities. To find reliable information about stocks, investors use different investment analysis methodologies, broadly classified into two categories, fundamental and technical analysis. Investors need to calculate the intrinsic value of a stock to determine whether a stock is underpriced or overpriced. Investors should sell overpriced stock, because stock market price will most likely fall in the future and buy underpriced stocks, which have chances of market price appreciation in the future (Shleifer and Vishny,2003).

Stock prices fluctuate from time to time. This fluctuation is influenced by external and internal factors. The external factors include the economy and industry state, government fiscal and monetary policies, inflation rate, opinion of investors and stock traders and market forces. The internal factors consists of company's future earnings potential, the management style, company's policies made by board of directors, products portfolio, brands and copyrights (Usman, 1990; Jones, 1998).

Stock prices often represent the company value, so that shareholders often compare the stock market price with the true stock price before deciding to buy or sell stocks. This true value (intrinsic value or fundamental value), can be calculated using fundamental security analysis

(Hartono, 2000). Financial reports are used in fundamental analysis (analyzing a company's financial statements and health, its management, competitive advantages, its competitors and markets). Stock market data is used in technical analysis (forecasting the direction of prices through the study of past market data, primarily price and volume from the stock market).

1.1.1 Market Value

Market value is the price at which an asset would trade in a competitive market auction setting. Market value is often used interchangeably with open market value, fair value or fair market value, although these terms have distinct definitions in different standards, and may differ in some circumstances (Mocciaro, Picone & Minà, 2012).

In regard to stocks, market price is the most recent price at which the stock was traded. The significance of market value is providing information necessary in determining an object or property's value in the open market, assuming that both buyer and seller agree to a sale, but are under no obligation to make that sale. If an investor has stock certificates, knowing the market value of those stock shares is important in the event a sale of those stocks is made.

1.1.2 Intrinsic Value

The goal of company or stock valuation is to give owners, potential buyers and other interested stakeholders an approximate value of what the company or stock is worth. In finance, intrinsic value refers to the actual value of a company or stock determined through fundamental analysis without reference to its market value. It is also frequently called fundamental value. It is ordinarily calculated by summing the future income generated by the company, and discounting

it to the present value (Foerster and Sapp, 2006). Intrinsic value assesses what a company or stock is worth by taking into account the quantitative and qualitative factors. Knowing the intrinsic value gives investors information about the worth of a business before taking any ownership in it.

One of the premises of fundamental analysis is that securities, whose market price does not equal to its intrinsic value, really exist and they are listed in some stock exchanges. Proponents of fundamental analysis believe that the intrinsic value can be calculated for every security. Ideally stocks price should be equal to the intrinsic value. Stocks are overvalued when intrinsic value is greater than the market price, whereas stocks are undervalued when intrinsic value is less than the market price. If intrinsic value equals to the stock price, stocks are fairly valued (Capozza, 2009).

Shleifer and Vishny (2003) suggest that stock market overvaluation motivates corporate acquisitions. If a firm's stock is overvalued, managers of this firm may use the overpriced stock as cheap currency to buy the other firm as long as the stock of the target is less overvalued. Intrinsic value of a firm can be calculated by various fundamental analysis methods which include the following among others; Discounted Cash Flow method, Benjamin Graham valuation formula, Relative Valuation using Market Multiples (Trading Comparables) Analysis, Dividend Discount Models (DDM) and Residual Income Model.

1.1.3 The Relationship between Intrinsic and Market Value

Intrinsic theory of value (also called theory of objective value) is a theory of value in economics which holds that the value of an object, good or service is intrinsic or contained in the item itself.

The theory focus on the process of producing an item, and the costs involved in that process, as a measure of the item's intrinsic value. The actual value of a company or an asset is based on an underlying perception of its true value including all aspects of the company, in terms of both tangible and intangible factors. This intrinsic value may or may not be the same as the current market value. Value investors use a variety of analytical techniques in order to estimate the intrinsic value of securities in the hope of finding investments where the true value of the investment exceeds its current market value.

For call options, this is the difference between the underlying stock's price and the strike price. For put options, it is the difference between the strike price and the underlying stock's price. In the case of both puts and calls, if the respective difference value is negative, the intrinsic value is given as zero. Value investors who follow fundamental analysis look at both qualitative factors (business model, governance, target market factors, competitors) and quantitative factors (financial ratios, financial statements analysis) to analyze if the business is currently out of favor with the market and whether it's really worth much more than its current valuation. The relationship between the stock market price and the calculated stock intrinsic value enable the investors to buy or sell stock. Stock can be overvalued, fairly valued or undervalued. These valuation opinions about stocks are related to sell or buy recommendations. Future fundamentals determine value, so that forecasts and recommendations should be related. Bradshaw (2000) tests for evidence of this relationship using residual income valuation model. He generates intrinsic value estimates for a comprehensive range of plausible calibrations of the model parameters. Based on the results, it is clear, that analysts' stock recommendations are generally related to the deviation of intrinsic value estimates from trading prices. The evidence suggests that analysts

incorporate their earnings forecasts into their buy or sell recommendations in a manner consistent with earnings based heuristics.

1.1.4 The Nairobi Securities Exchange

In Kenya dealing in shares and stock started in the 1920's when the country was still under the British colony. There was no formal market, no rules and no regulations to govern stock broking activities. Trading took place on gentlemen agreement in which standard commissions were charged with clients being obligated to honor their contractual commitments of making good delivery and settling relevant costs. At that time, stock broking was a sideline business conducted by accountants, auctioneers, estate time agents and lawyers who met to exchange price over a cup of coffee. Since these firms were engaged in other areas of specialization, the need for association did not rise.

In 1951 an Estate Agent by the name of Francis Drummond established the first professional stock broking firm. They impressed upon Sir Ernest Vasey the idea of setting up a stock exchange in 1953 and the London Officials accepted to recognize the setting up of the Nairobi Stock Exchange (NSE) as an overseas stock exchange (Muga, 1974). The Nairobi Stock Exchange was constituted as a voluntary association of stock brokers registered under the societies Act in 1954. The dealing in shares was then confined to the resident European community, since Africans and Asians were not permitted to trade in securities until after the attainment of independence in 1963.

The Nairobi Stock Exchange (NSE, 2011) was established in 1954 as a voluntary association of stock brokers with the objective to facilitate mobilization of resources to provide long term

capital for financing investments. Through stringent listing requirements the market promotes higher standards of accounting, resource management and transparency in the management of business.

The NSE is regulated by Capital Markets Authority (CMA, 2011) which provides surveillance for regulatory compliance. The exchange has continuously lobbied the government to create conducive policy framework to facilitate growth of the economy and the private sector to enhance growth of the stock market (Ngugi, 2005). The NSE is also supported by the Central Depository and Settlement Corporation (CDSC) which provides clearing, delivery and settlement services for securities traded at the Exchange. It oversees the conduct of Central Depository Agents comprised of stockbrokers and investments banks which are members of NSE and Custodians (CDSC, 2004). These regulatory frameworks are aimed to sustain a robust stock market exchange that supports a cogent and efficient allocation of capital allowing price discovery to take place freely based on the market forces. The changes in stock prices and the trend of changes have always been of interest in the capital market given their effect on the stock market stability and strategies adopted by investors (Wang, 2010). Understanding why prices move up and down is of critical importance to investors and from studies already undertaken there are various variables that drive stock prices. The Factor models based on Arbitrage Pricing Model (APT) developed by Ross (1976) has been suggested as a tool that can be applied to estimate stock prices based on identified factors such as Inflation, level of Industrial production, exchange rates volatility, interest rates and money supply.

1.1.5 Discounted Cash Flow (DCF) Valuation Model

The DCF method values the company on the basis of the Net Present Value (NPV) of its future free cash flows (FCF_t) which are discounted by an appropriate discount rate. Brigham & Gapenski (1997) gives the formula for determining the NPV of numerous future cash flows as,

$$\text{NPV} = \text{Sum of present value of FCF}_t = (\text{FCF}_t / 1+r)$$

The free cash flow is the amount of “cash not required for operations or reinvestment” (Brealey, Myers, & Allen, 2006). Another possibility to analyze a company’s value using discounted cash flows is the Adjusted Present Value (APV). The APV is the net present value of the company’s free cash flows assuming pure equity financing and adding the present value of any financing side effect, like tax shield (Brealey, Myers, & Allen, 2006). In general, the APV is based on the “principle of value additivity” (Luehrmann, 1997). However, APV and NPV lead to the same result.

Since the DCF method is a valuation technique that is based on predictions, a scenario analysis is usually conducted to examine the effects of changes in the underlying assumptions. Such a scenario analysis is usually based on three scenarios, namely the “base case” or “management scenario” that uses the management’s estimations for the relevant metrics, a “bull case” which uses very optimistic assumptions and a “bear case” that calculates the company’s value if it performs badly.

The process of valuing a company with the DCF method contains different stages. In the first stage scenarios are developed to predict Future Free Cash flows (FCF) for the next five to ten

years. Afterwards, an appropriate discount rate, the Weighted Average Cost of Capital (WACC) has to be determined to discount all future FCFs to calculate their NPVs. In the next step the Terminal Value (TV) has to be identified. The TV is the net present value of all future cash flows that accrue after the time period that is covered by the scenario analysis. In the last step the net present values of the cash flows are summed up with the terminal value;

Company Value = Sum of FCFt/ (1+r) + Terminal Value

Stock intrinsic value = Company Value / Number of shares outstanding

1.1.6 Benjamin Graham Valuation Model

The Graham formula proposes to calculate a company's intrinsic value V^* as:

$$V^* = \frac{EPS \times (8.5 + 2g) \times 4.4}{Y}$$

Where;

V^* : Intrinsic Value

EPS: the company's last 12-month earnings per share

8.5: the constant represents the appropriate P-E ratio for a no-growth company as proposed by Graham

g: the company's long-term (five years) earnings growth estimate

4.4: the average yield of high-grade corporate bonds in 1962, when this model was introduced

Y: the current yield on AAA rated corporate bond

1.1.7 Relative Valuation Model Using Market Multiples (Trading Comparables)

In this method a peer group of listed companies is built, usually using firms with similar Standard Industry Classification (SIC) and other similarities to the target company like geographic focus, financing structure, maturity, industry and client segments (Hughes David, 2012). If the company is listed, the equity value is simply the market capitalization (share price multiplied by the number of shares outstanding). The Enterprise Value (EV) can be calculated based on this Equity Value (Eq.V) as afore described. Some multiples are calculated to state relationship between EV and Eq. V to a company's fundamental data.

Usually the multiples used are; EV/Sales, EV/EBIDA, EV/EBIT, Eq. V/Net Income. The median and arithmetic average of these multiples is then calculated for the peer group. These figures are a good approximation for a target's EV and Eq. V., but they tend to be lower than actual transaction values, since trading comparables do not include majority premiums that have to be paid when acquiring a majority stake in a company.

Transactions comparables valuation approach also uses market multiples, but the peer group consists of previous transactions and therefore includes all premiums that arise during transactions. This method is very reliable but since it is very difficult to find previous transactions that are similar, it is difficult to build peer groups that are statistically significant.

1.1.8 Dividend Discount Valuation Model (DDM)

When computing a stock's intrinsic value, cash flow relating to the stock from dividends is a very important factor to consider. The basic DDM is given below:

$$\text{Value of Stock} = \frac{Div_1}{(1+r)^1} + \frac{Div_2}{(1+r)^2} + \dots + \frac{Div_n}{(1+r)^n}$$

Where;

Div = Dividends expected in one period

r = Required rate of return

One variety of the DDM model is the Gordon Growth Model. The model assumes that the company in consideration is within a steady state - that is, with growing dividends in perpetuity (Gordon, 1962) . It is expressed as:

$$\text{Value Of Stock} = \frac{DPS_1}{R_e - G}$$

Where:

DPS_1 = Expected dividends one year from the present

R_e = Required rate of return for equity investors

G = Annual growth rate in dividends in perpetuity

The model accounts for the dividends that a company pays out to shareholders which reflect on the company's ability to generate cash flows. There are multiple variations of this model, each of which factor in different variables depending on the assumptions included. Despite its very basic and optimistic assumptions, the Gordon Growth model has its merits when applied to the analysis of blue chip companies and broad indices.

1.1.9 Residual Income Valuation Model

Dong, Hershleifer, Richardson, and Teoh (2006), used the residual income model to estimate the intrinsic value of equity. This model is expressed in its simplest form as:

$$\text{Value Of Stock} = B_0 + \sum_{n=1}^{\infty} \frac{(ROE_n - r)B_{n-1}}{(1 + r)^n}$$

Where;

B_0 = Current Per Share Book value

B_n = Expected per-share book value of equity at n

ROE_n = Expected EPS

r = Required rate of return on investment

The model seeks to find the intrinsic value of the stock by adding its current per-share book value with its discounted residual income (which can either lessen the book value, or increase it.)

1.2 Research Problem

The market prices of stocks are available on a daily basis in the securities exchanges as investors buy and sell stocks. The market prices are determined by market forces of demand and supply.

The stock intrinsic value as determined by fundamental analysis of a firm may be different from the actual market price. The relationship between the stock market price and the calculated stock intrinsic value enable investors to make the decision on whether to buy or sell stocks of a firm. Stocks can be overvalued, fairly valued or undervalued. Future firm's fundamentals determine intrinsic stock value, so that forecasts and sell or buy recommendations should be related. The analysis of the relationship between stock intrinsic value and market price is of utmost importance to all stakeholders, especially the common equity investors (Abate, James et al., 2004).

The Nairobi Securities Exchange (NSE) has witnessed growth both in the number of firms listings as well as trading activity, trade volumes and price volatility. The heightened activity in the NSE has resulted in the need to predict the intrinsic values of stocks and compare with the market prices in order to form informed decision on whether to sell or buy a firm's stocks. The question on every investors mind is whether the intrinsic value matches the market price of stocks in order to buy or sell stocks. Consequently, investment analysts and academic researchers have come up with many models to determine stock intrinsic value. It is argued that for a stock to be properly valued, its intrinsic value and the market value should be the same. The job of the analyst is therefore to identify undervalued and overvalued stocks by comparing the intrinsic and market value in order to arrive at a sell or buy recommendation. Though a firm's stock value can be analyzed along multiple company's qualitative and quantitative dimensions, this study confines to the financial quantitative aspects and engaging in an analysis of the firms listed in the Nairobi Securities Exchange in Kenya. The stocks' price and return were the units of the study's analysis.

Previous studies (Ebrahimi and Chadegani, 2011; Seetharaman and Raj, 2011; Al-Dini et al., 2011) have investigated the relationship between stock price and fundamental factors such as dividends, earning per share and price to earnings ratio. Ebrahimi and Chadegani (2011) showed that there is a significant relationship between current period earning divided by stock price at the beginning of the stock market period and stock return. Thus, results theoretically support the existence of relationship between earnings, dividends and stock return. Local studies on the area of the relationship between the intrinsic stock value and the market value of listed companies in the NSE have been inadequate. The following Masters of Business Administration (MBA) research projects have been carried out on the relationship between the determinants of a firm's intrinsic value and market prices. Bett (2005) conducted a study on the relationship between net operating income and the value of firms quoted in the NSE. Onsomu (2003) conducted a study on the relationship between debt financing and the value of firms quoted in the NSE. Ouma (2011) conducted a study on the relationship between gearing and value of firms listed in the NSE. Ngacha (2009) conducted a comparative study on performance between value and growth stocks for firms listed in the NSE. Rajab (2009) conducted a study on the effect of Initial Public Offers (IPOs) on the performance of other stocks in the NSE. However, the identified studies failed to investigate the relationship between the firm's intrinsic value computed from the stock price and return and the market value. The research problem therefore is; is there any relationship between the intrinsic and market values of listed companies in the NSE?

1.3 Research Objective

The aim of the study was to establish whether there exists any relationship between the intrinsic and market values of listed companies in the Nairobi Securities Exchange.

1.4 Value of the Study

The main objective of stock valuation is to give stockholders, potential buyers and other interested stakeholders in a firm an approximate value of what a stock is worth.

The study findings will benefit investors in common equity stocks in investment planning and decision making by identifying the underpriced stocks to invest in or overpriced stocks to divest from based on the information about the stock intrinsic value.

The study will be of use to researchers who can undertake more research on the identified research gaps and factor other variables that could affect the stock's relationship between the stock intrinsic value and the market value.

The companies listed in the NSE can use the study findings for strategic planning in order to maximize the wealth of common equity stockholders if a significant relationship between the stock's intrinsic and market value is established to exist.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discussed theories relevant to the study. Literature related to the study was also reviewed with the aim of identifying literature gaps. The literature review guided the relevance of the study findings.

2.2 Theoretical Review

This section contains review of valuation theories relevant to the study.

2.2.1 The Capital Asset Pricing Theory

Sharpe (1964) formalized the Capital Asset Pricing Theory which resulted in the formulation of Capital Asset Pricing Model (CAPM) which estimates the cost of capital and evaluating the performance of managed portfolios. The CAPM formula is as detailed below;

Expected Return = $R_f + \text{Beta} (\text{Market Return} - \text{Stock Return})$.

Where;

R_f = Risk Free Interest Rate

Beta = Asset's market beta

The theory makes strong assumptions that lead to several conclusions. According to CAPM, all investors should hold the market portfolio, leveraged or de-leveraged with positions in the risk-

free asset. Not only does the market portfolio sit on the efficient frontier, but it is actually Tobin's super-efficient portfolio.

CAPM also introduced beta and relates an asset's expected return to its beta. The risk and return model has been in use the longest and is still the standard in most real world analyses.

The capital asset pricing model assumes that there are no transactions costs, all assets are traded and investments are infinitely divisible (an investor can buy any fraction of a unit of the asset). It also assumes that everyone has access to the same information and that investors therefore cannot find under or overvalued assets in the market place. Making these assumptions allows investors to keep diversifying without additional cost. While diversification reduces the exposure of investors to firm specific risk, most investors limit their diversification to holding only a few assets. Even large mutual funds rarely hold more than a few hundred stocks and many of them hold as few as ten to twenty.

There are two reasons why investors stop diversifying. One is that an investor or mutual fund manager can obtain most of the benefits of diversification from a relatively small portfolio, because the marginal benefits of diversification become smaller as the portfolio gets more diversified. Consequently, these benefits may not cover the marginal costs of diversification, which include transactions and monitoring costs. Another reason for limiting diversification is that many investors and fund managers believe they can find undervalued assets and thus choose not to hold those assets that they believe to be fairly or overvalued. At the limit, their portfolios will not only include every traded asset in the market but will have identical weights on risky assets. The fact that this diversified portfolio includes all traded assets in the market is the reason it is called the market portfolio, which should not be a surprising result, given the benefits of

diversification and the absence of transactions costs in the capital asset pricing model. If diversification reduces exposure to firm-specific risk and there are no costs associated with adding more assets to the portfolio, the logical limit to diversification is to hold a small proportion of every traded asset in the market. If this seems abstract, consider the market portfolio to be an extremely well diversified mutual fund that holds stocks and real assets, and treasury bills as the riskless asset. In the CAPM, all investors will hold combinations of treasury bills and the same mutual fund.

2.2.2 Efficient Market Hypothesis

Ross (1976) states that a market is efficient with respect to a set of information if it is impossible to make economic profits by trading on the basis of this information set and that consequently no arbitrage opportunities, after costs, and after risk premium can be tapped using ex ante information as all the available information has been discounted in current prices.

Müslümov et al (2004) noted that capital markets with higher informational efficiency are more likely to retain higher operational and allocation efficiencies.

According to Samuelson (1965) and Fama (1970), under the ‘Efficient Market Hypothesis’ (EMH), stock market prices must always show a full reflection of all available and relevant information and should follow a random walk process. Successive stock price changes (returns) are therefore independently and identically distributed. Based on the information set, Fama (1970) categorizes the three types of efficient markets as weak-form, semi-strong-form, and strong-form efficient if the set of information includes past prices and returns only, all public information, and any information public as well as private, respectively. The implication here is that all markets can be weak-form but the reverse cannot be the case.

2.2.3 Information Signaling Theory

The concept of signaling was first studied in the context of job and product markets by Akerlof and Arrow and was developed into signal equilibrium theory by Spence (1973), which says a good firm can distinguish itself from a bad firm by sending a credible signal about its quality to capital markets. The signal will be credible only if the bad firm is unable to mimic the good firm by sending the same signal. If the cost of the signal is higher for the bad type than that of the good type firm, the bad type may not find it worthwhile to mimic, and so the signal could be credible. Ross (1977) shows how debt could be used as a costly signal to separate the good from the bad firms. Under the asymmetric information between management and investors, signals from firms are crucial to obtain financial resources. Ross assumes that managers (also referred to as the insiders) know the true distribution of firm returns, but investors do not. Signaling of higher debt by managers then suggests an optimistic future and high quality firms would use more debt while low quality firms have lower debt levels. In this way, a good firm can separate itself by attracting scrutiny while the bad firm will not mimic because the bad firm will not want to be discovered.

2.2.4 Subjective Theory of Value

The subjective theory of value is a theory of value which advances the idea that the value of a good is not determined by any inherent property of the good, nor by the amount of labor required to produce the good, but instead value is determined by the importance an acting individual places on a good for the achievement of their desired ends. This theory is one of the core concepts of the Austrian School of Economics, but is also accepted by most other mainstream schools of economics. While the modern version of this theory was discovered independently and nearly simultaneously by William Stanley Jevons, Léon Walras, and Carl Menger in the late

19th century it had in fact been advanced in the Middle Ages and Renaissance but did not gain widespread acceptance at that time.

In the context of a free market, several major conclusions follow from the theory. The theory contrasts with normative versions of the labor theory of value that say the exchange value of a good should be proportional to how much socially necessary labor went into producing it. The subjective theory of value is a denial of intrinsic value. It leads to the conclusion that there is no proper price of a good or service other than the rate at which it trades in a free market. Whereas the labor theory of value has been used to condemn profit as exploitation, the subjective theory of value rebuts that condemnation: a buyer in a free market who offers to pay a price lower than that which is commensurate with the amount of labor used to produce the good merely communicates information to the seller about the value the good might create for the buyer. (The price offered is not a measure of subjective value; it is just a means of communication between the buyer and the seller.) The offer is in one sense an expression of the buyer's opinion, which the seller is free to reject.

The subjective theory of value supports the inference that all voluntary trade is mutually beneficial. An individual purchases a thing because he values it more than he values what he offers in trade; otherwise he wouldn't make the trade, but would keep the thing he values more highly. Likewise, the seller agrees to trade only if he values his good less than the price or good he receives. In a free market, both parties therefore enter the exchange in the belief that they will both receive more value than they give up.

In turn, this leads to a third important conclusion: the mere act of voluntary trade increases total wealth in society, where wealth is understood to refer to an individual's subjective valuation of

all of his possessions. In contrast to intrinsic-value theories, which tend to support the conclusion that wealth creation is impossible (zero-sum), or that wealth creation is possible only by the application of labor, the subjective-value theory holds that one can create value simply by transferring ownership of a thing to someone who values it more highly, without necessarily modifying that thing. For example, value investors that follow fundamental analysis look at both qualitative (business model, governance, target market factors etc.) and quantitative (ratios, financial statement analysis, etc.) aspects of a business to see if the business is currently out of favor with the market and is really worth much more than its current valuation.

2.4 Empirical Review

KPMG-BS Study (1998) assessed top companies on Economic Value Added (EVA), sales, Profit after Tax (PAT), and Market Value Added (MVA) criteria in India. The survey used the BS 1000 list of companies using a composite index comprising sales, profitability and compounded annual growth rate of those companies covering the period 1996-97. Sixty companies were found able to create positive shareholder value whereas 38 companies were found to destroy it. Accounting numbers failed to capture shareholder value creation or destruction as per the findings of the study. Twenty four 24 companies destroyed shareholder value by reporting negative MVA.

Anand, et.al (1999) revealed that EVA, REVA (Refined Economic Value Added) and MVA are better measures of business performance than Net Operating Profit After Tax (NOPAT) and Earnings Per Share (EPS) in terms of shareholders' value creation and competitive advantage of a firm. Since conventional management compensation systems emphasize sales / asset growth at

expense of profitability and shareholders' value. Thus, EVA is a measure that shifts focus on an organizational culture of concern for value.

Johnson and Xie (2004) analyze the convergence of stock price to fundamental value. They advert to Frankel and Lee study published in 1998, which show that fundamental Value-to- Price ratios (V/P ratio) predict future stock returns for up to three years. This empirical regularity is known as a V/P effect and it is consistent with the notion that extreme V/P ratio identify stocks that are initially mispriced but whose prices converge to fundamental value estimates over time. Johnson and Xie find whether price convergence explains the V/P effect and how price discovery occurs. The results of their research work imply that only 23 % of the top and bottom V/P quintile stocks exhibit price convergence over the ensuing 36 months. Price convergent subsample returns are disproportionately concentrated around future quarterly earnings announcements. The collective evidence supports mispricing, rather than risk, as an explanation for the V/P effect.

Malik Madhu (2004) examined the relationship between shareholder wealth and certain financial variables like EPS, RNOW and ROCE. By using correlation analysis, it was found that there was positive and high correlation between EVA and RONW, ROCE. There was a positive but low correlation between EVA and EPS. By using coefficient of determination (R²), EVA was compared with Traditional performance measures and it was found that not a single traditional performance measure explains to the fullest extent variation in shareholder wealth.

Panigrahi (2005) examined how the Economic Value Added (EVA) is superior to Market Value Added (MVA). This has been examined by financial performance of ITC Ltd, which has adopted the EVA as its performance measurement. This study found that by increasing Economic Value

Added (EVA), Shareholder Wealth is created and established the fact that the Economic Value Added (EVA) is superior to the Market Value Added (MVA).

Foerster and Sapp (2006) analyze the dependence between the actual values and estimated intrinsic values of the Standard & Poor's Composite Index. They analyze data with one month period using a comprehensive database of U.S. economic and price-based factors during 1871-2005. The intrinsic value of a stock is estimated by dividend discount model, which is based on an estimated 30-year rolling equity premium and corresponding cost of equity combined with perfect foresight of dividends. They find, that stocks are undervalued, on average, by approximately 26% over the entire sample. Prior to 1945, the stocks were permanently undervalued and they displayed more bond-like characteristics since. Since 1945, stocks were, on average, fairly valued but with long periods of undervaluation and overvaluation. Since 1945, the Federal Reserve System model also finds equities were undervalued, but its predictive ability decreases when one considers other factors.

Bhayani (2006) studied economic value added of Cholamandalam Investment and Finance Co. Ltd for the period of 1998-99 to 2002-03. The company has been successfully able to create value for its shareholders. The company's earnings are much higher than the overall cost of capital. The traditional performance indicators are showing quite high values of ROCE, EPS growth as compared to EVACE. It is observed that the traditional parameters indicated quite a rosy and healthy picture of the company during all five years of the stuffy.

Capozza and Israelsen (2009) find how quickly equity prices converge to intrinsic value. They focus on markets where information costs, transactions costs and the economic impact of information can vary widely. They find that 15-30% of the difference between the stock price

and the estimated intrinsic value is removed in a year. Moreover, levels of predictability vary with firm characteristics like leverage, size and number of analysts. While momentum is stronger for larger firms with more analysts, reversion to the intrinsic value is greater for smaller firms with more analysts. They reach that the value of information is the net payoff from trading on the information. Information is less costly to acquire for some securities, especially large firms and widely followed firms. Net revenue from information is higher for more levered firms and more liquid firms. Private information is more valuable than public information so that corporate insiders have an information advantage. Barriers to entry increase the value of information, for example market makers and specialists.

2.5 Chapter Summary

Many researchers try to explain the relationship between stock market price and intrinsic value in detail. Their research is based on theoretical formulation of intrinsic value to verify any theoretical relationship between these two values. Results of the empirical analyses depend on the samples of stocks used, time period covered and the method applied to estimate the intrinsic value. Mostly they do not incorporate the different types of stocks (common stocks, preferred stocks, staff stocks and stocks with embedded options) all at once in the models. Research focused on relationship between theoretical intrinsic price and market price is important not only for academic purposes but also to investors. Results are needed for different reasons by the various participants in the capital market.

Previous studies (Ebrahimi and Chadegani, 2011; Seetharaman and Raj, 2011; Al-Dini et al., 2011) have investigated the relationship between stock price and fundamental factors such as dividends, earning per share and price to earnings ratio. Ebrahimi and Chadegani (2011) showed

that there is a significant relationship between current period earning divided by stock price at the beginning of the stock market period and stock return. Thus, results theoretically support the existence of relationship between earnings, dividends and stock return. Local studies on the area of the relationship between the intrinsic stock value and the market value of listed companies in the NSE have been inadequate. Bett (2005) conducted a study on the relationship between net operating income and the value of firms quoted in the NSE. Onsomu (2003) conducted a study on the relationship between debt financing and the value of firms quoted in the NSE. Ouma (2011) conducted a study on the relationship between gearing and value of firms listed in the NSE. However, the identified studies failed to investigate whether there exist any relationship between the firm's intrinsic value and the market value that investors and investment analysts can rely on to form informed decisions on buy or sell stock.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter reviewed of research design, population, sample and sample design and data analysis. The chapter covered the research ethical issues to be observed. Research methodology is the architecture or the layout of the research framework. According to Polit and Hungler (2003) methodology refers to ways of obtaining, organizing and analyzing data.

3.2 Research Design

Research design refers to how data collection and analysis are structured in order to meet the research objectives through empirical evidence in an economical manner (Chandran, 2006). Cooper and Schindler (2006) note that research design is the plan and structure of investigation so conceived as to obtain answers to research questions. An explanatory research survey design was used to show how the study variables relate to each other. Explanatory research focuses on “why” questions. Answering the “why” questions involves developing causal explanations (De Vaus, 2001). It aims at establishing a cause and effect between variables (Mugenda and Mugenda, 2003).

3.3 Population

A population is the total collection of elements about which a researcher wishes to make some inferences (Cooper et al., 2000). Newing (2011) describes a population as the set of sampling units or cases that the researcher is interested in while Burns and Grove (2003) describe

population as all the elements that meet the criteria for inclusion in a study. The target units of analysis for this study were all the sixty one (61) companies currently listed in the NSE.

3.4 Sample

A sampling frame is a list of population from which a sample was drawn (Leary, 2001). It is the source material or device from which list of all elements within a population that can be sampled is drawn. The sample of the study involved the target population of the companies listed in the NSE. Kothari (2004) defined a sample size as the number of items to be selected from the universe to constitute a sample. The optimum sample size will be used to fulfill the requirements of efficiency, representativeness and reliability will be unnecessarily large sample size will bring about data duplicity besides having cost and time implications while a small sample size will not be representative of the population. The study used a census methodology since the firms listed in the NSE are not many to justify sampling. The sample size for the study was the sixty one (61) companies listed in the NSE.

3.5 Data Collection

The study used secondary data from the financial statements of the companies listed in the NSE. The selected period covered year 2003 through to year 2012 (10 years). A data collection questionnaire was used to collect the required data from the NSE with prior request for authorization to access the required data using the request letter as outlined in Appendix 3: Letter of Introduction.

3.6 Data Analysis

The study used stock market prices, stock returns and stocks' intrinsic value. The study used Statistical Package for Social Sciences (SPSS) to generate the descriptive statistics and also to generate inferential results. Regression analysis were used to demonstrate the relationship between the stock market value and the intrinsic value. According to Mugenda and Mugenda (2003), the regression technique was used to analyze the degree of relationship between two variables.

Simple linear regression model was used to analyze the data using Statistical Package for the Social Sciences (SPSS) version 20. The simple linear regression model was used to measure the relationship between the independent variable (intrinsic value) and the dependent variable (market value) which is explained in the model. The simple linear regression model helps to explain the magnitude and direction of relationship between the two variables of the study through the use of coefficients like the correlation factor, coefficient of determination and the level of significance. Analysis of data using regression model has been used previously by Aduda (2011) in a study which investigated the relationship between executive compensation and firm performance in the Kenyan banking sector.

The relationship between the intrinsic and market values will be analyzed using the Statistical Package for Social Sciences (SPSS).

The simple linear regression model adopted for the study is as follows:

$$Y = a + \beta_i X_i + e$$

Where; Y_i : is the market value

X_i : is the intrinsic value,

a : is a constant,

β_i : is the regression coefficient of the model,

e is the model error term.

The null hypothesis for the study is, H_0 : There is no relationship between intrinsic and market values of listed companies in the Nairobi Securities Exchange

The alternative hypothesis is, H_A : There is significant relationship between intrinsic and market values of listed companies in the Nairobi Securities Exchange

In statistical significance testing the p -value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true. The null hypothesis is rejected when the p -value is less than the predetermined significance level for the study which has been set at 0.05.

Model variables

Market Value (Capitalization) for a firm = Number of issued shares on 31st December 2012 \times Stock's share price on 31st December 2012.

Intrinsic Value = Number of issued shares on 31st December 2012 \times Stock Intrinsic value

Stock return = Dividends + Share Price appreciation (Share Price _{t} - Share Price _{$t-1$}) / Share Price _{$t-1$} $\times 100$

$$\text{Stock Intrinsic Value} = \sum_{n=1}^{\infty} \left(\frac{\text{Stock Return}}{(1+r)^{n=1 \text{ to } 10 \text{ years}}} + \frac{\text{Stock Terminal Value}}{(1+r)^{10 \text{ years}}} \right)$$
 This is the sum of discounted stock total return (Annual dividends + Stock share price appreciation) from 2013 to 2022 + Discounted Terminal Value of stock total return (dividends and capital gains from the year 2022).

$$\text{Stock Terminal Value} = \frac{\text{Year 2022 stock total return}}{r-g}$$

Stock return from 2013 to 2022 = Stock total return for 2012 $(1 + g)^n$.

Where;

g = moving average stock return growth rate from 2003 to 2012;

n = number of year from 2012 to 2022.

r = Discounting factor rate = Stock required rate of return = $R_f + \text{Stock Beta} (\text{Market Return} - \text{Risk Free Rate}, R_f)$.

Where;

R_f = 10 years Kenya Government Treasury Bond Yield Rate,

Market Return = Nairobi Securities Exchange 20 Share Index, $(\text{NSE}_t - \text{NSE}_{t-1} / \text{NSE}_{t-1}) \times 100$

$$\text{Stock Beta} = \beta_a = \frac{\text{Cov}(r_a, r_b)}{\text{Var}(r_b)},$$

Where;

r_a = Stock rate of return,

r_b = Nairobi Securities Exchange All Share Index rate of return

$Var(r_b)$ = Nairobi Securities Exchange 20 Share Index return variance

$Cov(r_a, r_b)$ = Covariance between the stock rate of return and Nairobi Securities Exchange 20 Share Index rate of return.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter discusses analysis of data and findings. The data has been analyzed using descriptive statistics to determine the relationship between intrinsic and market value of listed companies at the Nairobi Securities Exchange.

4.2 Descriptive Statistics

Descriptive statistics are used to describe the basic features of the data in a study

This section provides results on measures of central tendency of intrinsic and market values as measured inclusive of dividends and stock share price appreciation (capital gains).

4.2.1 Measures of Central Tendency

Results on Table 4.1 indicate that the firms in the NSE provide a mean intrinsic value of Kes 13.6b and a mean market value of Kes 24.7b. The calculation of the intrinsic and market value was done by multiplication of the number of issued shares as at 31st December 2012 by the calculated stock intrinsic value and the market share price as at 31st December 2012 respectively. Average dividend and stock return recorded a mean of 2.195 and 0.633 respectively. This indicates that dividends are fairly declared in the companies thus affecting market share prices and that dividends and stock returns have a relationship as both are benefits received from trading stock. Previous studies (Ebrahimi and Chadegani, 2011; Seetharaman and Raj, 2011; Al-Dini et al., 2011) have investigated the relationship between stock price and fundamental factors such as dividends, earning per share and price to earnings ratio. Their results indicated an

existence of relationship between earnings, dividends and stock return and the market share price.

Table 4.1: Descriptive Statistics

Variable	Minimum	Maximum	Mean	Std. Deviation
Intrinsic value	-3.15E+09	4.085E+11	13608045967	62016256405
Market Value	123913265	2.09555E+11	24700343877	46432041550
Average dividend	0.03	13.37	2.195	2.89498
Average stock return	-0.24	8.34	0.6334	1.28163

From comparative analysis of intrinsic and market values as indicated in Table 4.2, 87% of firms listed in the NSE are overpriced as their market values are higher than their intrinsic values. A percentage of 13% of the firms listed in the NSE are underpriced as their market values are less than their intrinsic values. None of the firms listed is perfectly priced where the market value is equal to the intrinsic value. This gives investors viable information on which firm to invest in when making investment decisions prior to investing their funds in the securities market. Investors should invest in shares whose firms are underpriced. These findings agree with those of Bhayani (2006) who studied economic value added of Cholamandalam Investment and Finance Co. Ltd for the period of 1998-99 to 2002-2003. Their findings led to the conclusion that market values create a healthy picture of the company during all five years of the study.

Table 4.2: Pricing of firms listed in the NSE

	Company	Firm Market Value	Firm Intrinsic Value	Perfectly Priced Firms	Over-priced firms	Under-priced firms
1	Eaagads Ltd	803,925,000	49,409,037	Not Perfectly priced	Over-priced	
2	Kapchorua Tea Co. Ltd	461,616,000	60,691,824	Not Perfectly priced	Over-priced	
3	Kakuzi Ltd	1,411,199,928	90,155,744	Not Perfectly priced	Over-priced	
4	Limuru Tea Co. Ltd	516,000,000	3,935,682	Not Perfectly priced	Over-priced	
5	Rea Vipingo Ltd	1,140,000,000	209,173,983	Not Perfectly priced	Over-priced	
6	Sasini Ltd	2,668,249,350	(1,644,395,542)	Not Perfectly priced	Over-priced	
7	Williamson Tea (K) Ltd	1,751,264,000	53,902,247	Not Perfectly priced	Over-priced	
8	Express Ltd	123,913,265	221,608,108	Not Perfectly priced		Under-priced
9	Kenya Airways Ltd	17,059,746,999	9,538,823,553	Not Perfectly priced	Over-priced	
10	Nation Media Group	34,880,322,984	1,338,027,311	Not Perfectly priced	Over-priced	
11	Standard Group Ltd	1,772,222,147	67,234,834	Not Perfectly priced	Over-priced	
12	TPS E. A. (Serena) Ltd	5,928,425,600	177,017,663	Not Perfectly priced	Over-priced	
13	Uchumi Supermarket Ltd	5,069,648,327	7,190,224	Not Perfectly priced	Over-priced	
14	AccessKenya Group Ltd	915,570,902	(546,428,290)	Not Perfectly priced	Over-priced	
15	Safaricom Ltd	202,000,000,000	114,473,722,791	Not Perfectly priced	Over-priced	
16	Car and General (K) Ltd	802,066,176	362,984,453	Not Perfectly priced	Over-priced	

	Company	Firm Market Value	Firm Intrinsic Value	Perfectly Priced Firms	Over-priced firms	Under-priced firms
17	CMC Holdings Ltd	7,866,577,440	378,754,549	Not Perfectly priced	Over-priced	
18	Sameer Africa Ltd	1,155,120,931	141,583,899	Not Perfectly priced	Over-priced	
19	Marshalls (E.A.) Ltd	204,382,105	34,274,344	Not Perfectly priced	Over-priced	
20	Barclays Bank Ltd	85,546,692,000	408,499,559,628	Not Perfectly priced		Under-priced
21	CFC Stanbic	16,603,508,796	1,730,947,399	Not Perfectly priced	Over-priced	
22	Diamond Trust Bank	25,311,511,040	1,882,424,328	Not Perfectly priced	Over-priced	
23	Housing Finance Co Ltd	3,642,337,500	941,881,448	Not Perfectly priced	Over-priced	
24	Kenya Commercial Bank Ltd	88,364,928,010	6,507,291,929	Not Perfectly priced	Over-priced	
25	National Bank of Kenya Ltd	4,830,000,000	1,276,183,780	Not Perfectly priced	Over-priced	
26	NIC Bank Ltd	20,769,143,661	6,861,546,102	Not Perfectly priced	Over-priced	
27	Standard Chartered Bank Ltd	72,652,485,790	327,427,852	Not Perfectly priced	Over-priced	
28	Equity Bank Ltd	87,940,954,225	2,869,978,879	Not Perfectly priced	Over-priced	
29	Jubilee Holdings Ltd	10,361,835,000	264,140,195	Not Perfectly priced	Over-priced	
30	Pan Africa Insurance Ltd	3,864,000,000	314,720,079	Not Perfectly priced	Over-priced	
31	Olympia Capital ltd	136,000,000	157,991,437	Not Perfectly priced		Under-priced

	Company	Firm Market Value	Firm Intrinsic Value	Perfectly Priced Firms	Over-priced firms	Under-priced firms
32	Centum Invest Ltd	8,218,205,921	13,024,025,420	Not Perfectly priced		Under-priced
33	B.O.C Kenya Ltd	1,942,781,877	43,626,013	Not Perfectly priced	Over-priced	
34	B. A. T Kenya Ltd	49,300,000,000	803,031,779	Not Perfectly priced	Over-priced	
35	E. A. Breweries Ltd	209,555,204,340	4,446,015,818	Not Perfectly priced	Over-priced	
36	Mumias Sugar Co. Ltd	7,420,500,000	9,560,774,050	Not Perfectly priced		Under-priced
37	Unga Group Ltd	988,000,793	154,799,626	Not Perfectly priced	Over-priced	
38	Eveready E. A Ltd	430,500,000	(408,971,109)	Not Perfectly priced	Over-priced	
39	Athi River Mining	22,039,737,500	4,737,972,413	Not Perfectly priced	Over-priced	
40	Bamburi Cement Ltd	67,147,465,875	1,339,573,309	Not Perfectly priced	Over-priced	
41	Crown Berger	1,008,397,500	171,723,687	Not Perfectly priced	Over-priced	
42	E.A.Cables Ltd Ord	2,961,562,500	5,475,190,852	Not Perfectly priced		Under-priced
43	E.A.Portland Cement Ltd	3,510,000,000	354,956,661	Not Perfectly priced	Over-priced	
44	Total Kenya Ltd	2,424,147,578	150,019,404	Not Perfectly priced	Over-priced	
45	KenGen Ltd	19,345,580,813	(3,147,870,836)	Not Perfectly priced	Over-priced	
46	Kenya Power Ltd	33,370,086,470	32,613,487,939	Not Perfectly priced	Over-priced	
			Percentage	0%	87%	13%

4.3 Trend Analysis

4.3.1 Average Dividends Trend Analysis

This section provides graphical representation of the movement and changes of the dividend and stock return over the years 2003 to 2012.

Figure 4.1 show that dividends trend was highly volatile. Dividends rose in 2004 from a low in 2003 but declined in 2005. Thereafter dividends increased in year 2006 and decreased in year 2007 and 2008 followed by an increase in 2009 up to 2011. The trend in dividends recorded a sharp drop in year 2012. The drop recorded in year 2007 could be explained by firms holding on their reserves rather than paying out dividends due to uncertainties in the year due to the general elections that were held in that year. Year 2008 also experienced a drop in dividends as a result of post-election violence resulting from the general elections held in the year 2007 as the country's economy took time to recover from the political instability which resulted in low levels of economic activities. The drop in year 2012 dividends could be explained by firms withholding their reserves before the general elections as a result of fear of losses as experienced in the 2007 post-election violence.

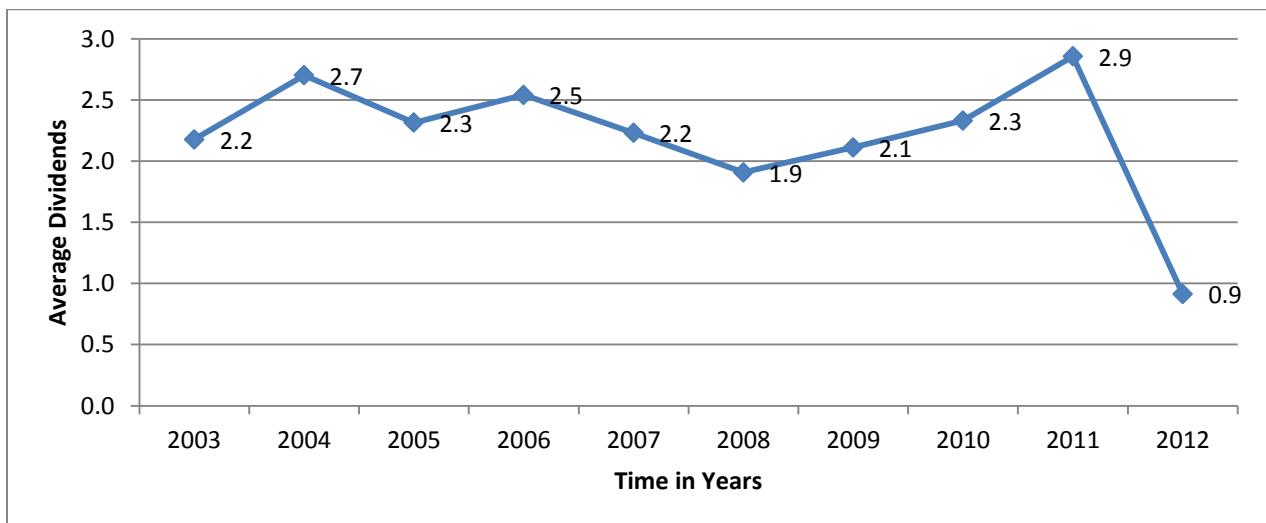


Figure 4.1: Trend Analysis in Average Dividends

4.3.2 Average Share Capital Gain Trend Analysis

Figure 4.2 show that capital gains trend was also highly volatile. Capital gains were highest in year 2003 but declined sharply in 2004 before slightly improving in 2005 and 2006. Thereafter capital gains decreased in year 2007 and 2008 followed by an increase in 2009 and 2010. The trend in capital gains recorded a sudden drop in year 2011. The drop recorded in year 2007 could be explained by investors selling shares due to uncertainties in the year due to the general elections that were held in that year. Year 2008 also experienced a drop in capital gains as more investors sold their shares as a result of post-election violence resulting from the general elections held in the year 2007 as the country's economy took time to recover from the political instability which resulted in low levels of economic activities.

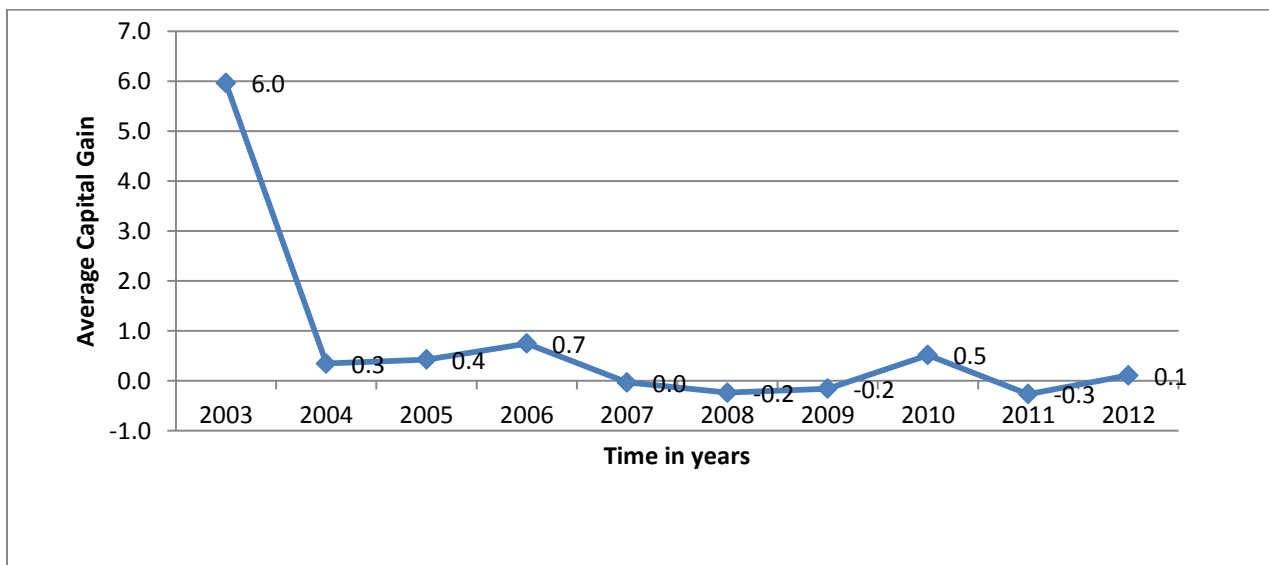


Figure 4.2: Trend Analysis in Average Share Capital Gain

4.3.3 Average Stock Total Returns Trend Analysis

The trend analysis presented in Figure 4.3 shows that stocks total returns were highest in year 2003 and thereafter recorded an inconsistent trend from year 2004 up to year 2012. Growth in

total returns was recorded in 2006 and 2010. This could be explained by an increase in share price (capital gains) as more investors bought shares which caused an increase in stock prices thus increasing the stocks total returns. From the trend analysis, the highest decline was recorded in 2008 and 2011. Decline in year 2008 can be explained by the post-election violence in the country. This event caused many investors to become pessimistic which might have led to some selling the stock and others avoided trading in the stock market and consequently causing the share prices to decline. Also firms avoided paying dividends during these years.

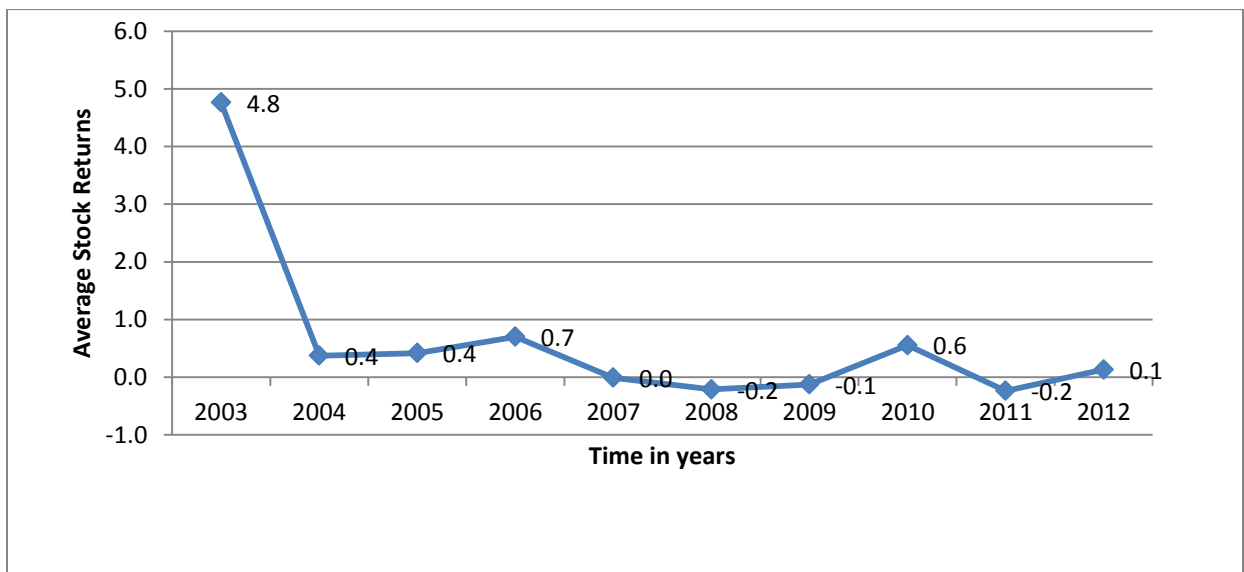


Figure 4.3 Trend Analysis in Average Stock Returns

4.4 Inferential Statistical Analysis

Inferential analysis conducted generated correlation results, model of fitness, and analysis of the variance and regression coefficients.

4.4.1 Pearson's Correlation

Pearson's correlation measure the strength and direction of the linear relationship between the two study variables, intrinsic and market values giving a value between +1 and -1 inclusive, where +1 is total positive correlation, 0 is no correlation, and -1 is negative correlation. A

positive correlation indicates that the two variables relate positively and move in the same direction when one variable changes. If the significance level found is less than the critical value also known as the probability value (p) which was statistically set at 0.05 for the purpose of this study, then the conclusion would be that the model is significant in explaining the relationship between the two variables; else the model would be regarded as non-significant. In statistical significance testing, the p-value indicates the level of relation of the independent variable to the dependent variable.

Correlation of the variables presented in Table 4.2 indicates that the intrinsic and market values have a positive correlation coefficient of 0.357 and a significance value of 0.015. The results indicate that there exists a significant positive relationship between intrinsic and market values of companies listed in the NSE.

Table 4.3: Pearson’s Bivariate Correlation

Variable	Correlation	Market Value	Intrinsic value
Market Value	Pearson Correlation	1	
	Sig. (2-tailed)		
Intrinsic value	Pearson Correlation	0.357	1
	Sig. (2-tailed)	0.015	
	N	46	46

The null hypothesis for the study is, H_0 : There is no relationship between intrinsic and market values of listed companies in the Nairobi Securities Exchange

The alternative hypothesis is, H_A : There is significant relationship between intrinsic and market values of listed companies in the Nairobi Securities Exchange.

In statistical significance testing the p -value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true. The null hypothesis is rejected when the p -value is less than the predetermined significance level for the study which has been set at 0.05.

The p -value calculated of 0.015 is less than the predetermined significance level set at 0.05. Hence the null hypothesis is rejected and the alternative hypothesis accepted.

4.4.2 Regression Analysis

Table 4.3 below shows the fitness of the regression model in explaining the study variables. The results indicate that the intrinsic value can be used to satisfactorily explain the market value. This conclusion is supported by the R square of 0.128. The results show that intrinsic value explains 12.8 % of market value.

$$Y = a + \beta_i X_i + e$$

Where; Y_i : is the market value

X_i : is the intrinsic value,

a : is a constant,

β_i : is the regression coefficient of the model,

e is the model error term.

Table 4.4: Fitness of Model

Indicator	Coefficient
R	0.357
R Square	0.128
Adjusted R Square	0.108
Std. Error of the Estimate	43858254032

ANOVA statistics presented on Table 4.4 indicate that the overall model was statistically significant. This was supported by an F statistic of 6.437 and a probability (p) value of 0.015. The reported p value of 0.015 was less than the significance level of the study set at 0.05. These results indicate that there exist a significant relationship between intrinsic and market values of firms listed at the NSE.

Table 4.5: Analysis of Variance

Indicator	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.2381E+22	1	1.2381E+22	6.437	0.015
Residual	8.46E+22	44	1.92355E+21		
Total	9.70171E+22	45			

Regressions of coefficient results indicate that there is a positive relationship between market value and the intrinsic value whose beta coefficient of 0.267 and a significance level value of 0.015.

Studies by Foerster and Sapp (2006) analyze the dependence between the actual values and estimated intrinsic values of the Standard & Poor's Composite Index. The researcher found a positive relationship between intrinsic values and market value of the company which agree with the findings of this study.

Table 4.6: Regression of Coefficient

Variable	Beta	Std. Error	T	Sig.
Constant	21060674227	6623771334	3.18	0.003
Intrinsic value	0.267	0.105	2.537	0.015

4.5 Summary

The results analyses of the data are summarized on the Table 4.6 below. The statistics of variable (intrinsic value) analyzed below will form the key summary points and conclusions for the study.

Table 4.7: Summary of Key Statistical Variables

Variable	Beta	Std. Error	t	Sig.
Constant	21060674227	6623771334	3.18	0.003
Intrinsic value	0.267	0.105	2.537	0.015

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter contains summary key findings of the study based on the results from the data analysis and the objectives of the study. The chapter also includes conclusions, recommendations and areas of further studies.

5.2 Summary of Findings

The results of comparison analysis of intrinsic and market values of the firms analyzed in the study show that 87% of the analyzed firms listed in the NSE are overpriced. The overpriced firms have a higher market value (market share price as at 31st December 2012 multiplied by the issued number of shares as at 31st December 2012) than the computed intrinsic share value (share intrinsic value multiplied by the issued number of shares as at 31st December 2012). Results also show that only 13% of the analyzed firms listed in the NSE are underpriced. None of the listed firm was found to be perfectly priced (market value and intrinsic value are exactly the same).

The regression and correlation results indicate that the study variables, market and intrinsic value are related positively and therefore investors could use the model in order to analyze whether a firm is perfectly priced, overpriced or underpriced in order to make an investment decision on whether to invest in the firm's shares or to divest from. When market share prices are above the share intrinsic value, a rational investor may sell shares in anticipation of share prices falling in the future. On the other hand, when market share price is below the share intrinsic value, a rational investor may buy the shares with the expectation of future share price appreciation. The

share prices are primarily driven by market forces of supply and demand as investors seek returns on their investments in stocks.

5.3 Conclusions

The study results show that the market and intrinsic values can be used to measure a firm's worth or value. The comparison of intrinsic and market values presented showed that some firms were overpriced while others were underpriced. No firm was found to be perfectly priced. The underpriced firms are worth investing in by purchasing its shares. The intrinsic value is a good estimator of the market value of a firm as it explains 12.8% of a firm's market value.

Results from the study also led to the conclusion that intrinsic value positively correlates to the market value by a positive beta of 0.267. Therefore a change in the intrinsic value will result to a positive change by a factor of 0.267 in the market value. An evaluation of the intrinsic value of a stock will provide information as to the possibility of stability, rise or fall in the stock's market price. When market prices are rising far above intrinsic value, the market price may be more susceptible to reversal than when market prices are rising from a level far below intrinsic value.

In contrast, intrinsic value is the fundamental value, which is generally not something that is readily provable. Intrinsic value is usually internal or private estimates of a firm's value or worth. It is the value determined by incorporating all applicable information and data necessary to value a firm, whether that information is generally available or only known to the insiders of a firm. For example, all five of firm's shareholders may have differing opinions and information about the firm's intrinsic value in which they hold shares. If asked to provide an estimate of that number with support, all would do so, but most likely with varying result.

5.4 Recommendations

Research focused on establishing whether there exists any relationship between the intrinsic and market values of firms listed in the NSE and thus the results of the study presents a recommendation to potential and current investors in the NSE and the management of firms listed in the NSE.

Potential and current investors should carry out a comparison of the intrinsic and market values of a firm listed in the NSE before investing their funds in the stocks. Since a significant relationship was established to exist between the intrinsic and market values of firms listed in the NSE, investors should sell overpriced stocks and buy the underpriced stocks. Overpriced stocks have a market price that is higher than their intrinsic value whereas underpriced stocks have market price which is less than their intrinsic value.

The management of firms listed in the NSE could maximize the stock total returns by developing and implementing a dividend payout policy that will maximize the intrinsic value of stocks in order to maximize the stock investor's wealth.

5.5 Limitations of the Study

The aim of the study was to determine whether there exist any relationship between the intrinsic and the market value of firms listed in the NSE. The study focused on analyzing 10 years stock's total returns data and projecting future stock returns for 10 years and a terminal value to compute the firm's intrinsic value. The study had anticipated to get the required data for all the 61 firms listed in the NSE. However, the required data was obtained for only 46 firms. The study findings may have been affected by non-inclusion of the 15 companies whose data was not available.

The study used the 10 years period from 2003 to 2012 to compute the stock's total return growth rate. This period could be affected by some factors and events (for instance political violence) that only occurred or were unique within that period and therefore may have affected the quality of the growth rate computed.

Also, the lack of a similar empirical research done in Kenya that investigates the relationship between the intrinsic and market value of firms listed in the NSE hindered a critical comparison of previous research findings with the study findings.

Another limitation is that the study used a 10 year constant growth rate period from 2013 to 2022 to calculate future stock's total returns. However, stock's total return could grow unevenly during this period due to market forces of demand and supply.

The terminal value computation assumed a constant growth rate of stock's total returns into the future. This assumption is a limitation in that the stock's total return could grow at either a slower or a higher rate than the computed growth rate.

5.5 Areas for Further Studies

The study analyzed the relationship between the intrinsic and market value of firms listed in the NSE. The firms' intrinsic value focused on analyzing the stock's historical total returns and projecting the future total returns and discounting the total returns.

Further studies could be carried out to establish other factors and their weights that affect the stocks' value of a firm that ultimately affect the market value of firms listed in the NSE. Such factors could be both quantitative and qualitative. Qualitative factors could include the possession of special proprietary rights, copyrights, licenses, tax exemptions, highly qualified management and workforce, trading and brand goodwill, access to special natural resources, and

political favoritism. Quantitative factors could include further analysis of the firms Balance Sheet, Cash Flow Statement, Profit and Loss Statement and Statement of Equity in order to assess the financial position of the firm and its capacity to generate future earnings which affects the firm's market value.

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APPENDICES

Appendix 1: LIST OF COMPANIES LISTED IN THE NAIROBI SECURITIES EXCHANGE

CATEGORY	COMPANY
AGRICULTURAL	
1	Eaagads Ltd
2	Kapchorua Tea Co. Ltd
3	Kakuzi
4	Limuru Tea Co. Ltd
5	Rea Vipingo Plantations Ltd
6	Sasini Ltd
7	Williamson Tea Kenya Ltd
COMMERCIAL AND SERVICES	
8	Express Ltd
9	Kenya Airways Ltd
10	Nation Media Group
11	Standard Group Ltd
12	TPS Eastern Africa (Serena) Ltd
13	Scangroup Ltd
14	Uchumi Supermarket Ltd
15	Hutchings Biemer Ltd
16	Longhorn Kenya Ltd
TELECOMMUNICATION AND TECHNOLOGY	
17	AccessKenya Group Ltd
18	Safaricom Ltd
AUTOMOBILES AND ACCESSORIES	
19	Car and General (K) Ltd
20	CMC Holdings Ltd
21	Sameer Africa Ltd
22	Marshalls (E.A.) Ltd
BANKING	
23	Barclays Bank Ltd
24	CFC Stanbic Holdings Ltd
25	I&M Holdings Ltd
26	Diamond Trust Bank Kenya Ltd
27	Housing Finance Co Ltd

CONTINUATION

28	Kenya Commercial Bank Ltd
29	National Bank of Kenya Ltd
30	NIC Bank Ltd
31	Standard Chartered Bank Ltd
32	Equity Bank Ltd
33	The Co-operative Bank of Kenya Ltd
	INSURANCE
34	Jubilee Holdings Ltd
35	Pan Africa Insurance Holdings Ltd
36	Kenya Re-Insurance Corporation Ltd
37	Liberty Kenya Holdings Ltd
38	British-American Investments Company (Kenya) Ltd
39	CIC Insurance Group Ltd
	INVESTMENT
40	Olympia Capital Holdings ltd
41	Centum Investment Co Ltd
42	Trans-Century Ltd
	MANUFACTURING AND ALLIED
43	B.O.C Kenya Ltd
44	British American Tobacco Kenya Ltd
45	Carbacid Investments Ltd
46	East African Breweries Ltd
47	Mumias Sugar Co. Ltd
48	Unga Group Ltd
49	Eveready East Africa Ltd
50	Kenya Orchards Ltd
	MANUFACTURING AND ALLIED
51	A.Baumann CO Ltd
	CONSTRUCTION AND ALLIED
52	Athi River Mining
53	Bamburi Cement Ltd
54	Crown Berger Ltd
55	E.A.Cables Ltd
56	E.A.Portland Cement Ltd
	ENERGY AND PETROLEUM
57	KenolKobil Ltd
58	Total Kenya Ltd
59	KenGen Ltd
60	Kenya Power & Lighting Co Ltd
	GROWTH ENTERPRISE MARKET SEGMENT
61	Home Afrika Ltd

Appendix 2: DATA COLLECTION QUESTIONNAIRE

LISTED COMPANY IN THE NSE	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Dividend Per Share										
Share Price on 31 st December										
NSE 20 SHARE INDEX	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
NSE 20 Share Index on 31 st December										
Average dividend for the NSE All Share Index										
10 Year Kenya Government Treasury Bond Yield Rate										

Appendix 3: LETTER OF INTRODUCTION

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31st July 2013

Managing Director

Nairobi Securities Exchange

P.O. Box 43633

Nairobi

Dear Sir,

I am a graduate student at University of Nairobi pursuing a Masters of Business Administration (MBA) degree in the School of Business. In partial fulfillment of the requirements for the award of the degree, I am carrying out a research project titled **“The relationship between intrinsic and market values of companies listed in the Nairobi Securities Exchange”**.

To help me conduct this study successfully, I would be very grateful if you could kindly allow me to access the financial historical data for all the companies listed in the NSE for the period 2003 to 2012.

The information obtained will be used solely for academic purposes.

Thank you in advance.

Yours faithfully,

Paul Wanjohi Kiranga

Appendix 4: SPSS Input Data

Listed NSE companies.	Intrinsic price	Market Price at 2012	Shares issued	Market Value	Intrinsic value
Eaagads Ltd	1.54	25.00	32,157,000	803925000	49409036.68
Kapchorua Tea Co. Ltd	15.45	118.00	3,912,000	461616000	60428376.56
Kakuzi	4.50	72.00	19,599,999	1411199928	88129469.35
Limuru Tea Co. Ltd	3.19	430.00	1,200,000	516000000	3830760.258
Rea Vipingo Plantations Ltd	3.39	19.00	60,000,000	1140000000	203227713.2
Sasini Ltd	(7.58)	11.70	228,055,500	2668249350	-1728927165
Williamson Tea Kenya Ltd	6.00	200.00	8,756,320	1751264000	52535753.12
Express Ltd	6.11	3.50	35,403,790	123913265	216296404.5
Kenya Airways Ltd	6.20	11.40	1,496,469,035	17059746999	9277965602
Nation Media Group	8.27	222.00	157,118,572	34880322984	1300090197
Standard Group Ltd	0.80	21.75	81,481,478	1772222147	65546317.24
TPS Eastern Africa (Serena) Ltd	1.27	40.00	148,210,640	5928425600	188050948.5
Scangroup Ltd	9.09	68.5	284,789,128	19508055268	2589130801
Uchumi Supermarket Ltd	0.03	19.10	265,426,614	5069648327	7096657.956
AccessKenya Group Ltd	(1.54)	4.40	208,084,296	915570902.4	-319457474.3
Safaricom Ltd	2.53	5.05	40,000,000,000	2.02E+11	1.01201E+11
Car and General (K) Ltd	10.55	24.00	33,419,424	802066176	352456015.6
CMC Holdings Ltd	0.70	13.50	582,709,440	7866577440	410092655.4
Sameer Africa Ltd	0.49	4.15	278,342,393	1155120931	137737978.8
Marshalls (E.A.) Ltd	2.64	14.20	14,393,106	204382105.2	38003673.46
Barclays Bank Ltd	72.90	15.75	5,431,536,000	85546692000	3.9597E+11
CFC Stanbic Holdings Ltd	4.26	42.00	395,321,638	16603508796	1682487078
Diamond Trust Bank Kenya Ltd	6.22	115.00	220,100,096	25311511040	1369691912
Housing Finance Co Ltd	3.84	15.45	235,750,000	3642337500	905670386.5
Kenya Commercial Bank Ltd	2.33	29.75	2,970,249,681	88364928010	6909266122
National Bank of Kenya Ltd	4.46	17.25	280,000,000	4830000000	1248207463
NIC Bank Ltd	11.94	38.25	542,984,148	20769143661	6483332339
Standard Chartered Bank Ltd	0.45	235.00	309,159,514	72652485790	139442897.1
Equity Bank Ltd	0.75	23.75	3,702,777,020	87940954225	2791461564
The Co-operative Bank of Kenya	0.81	12.6	4,190,845,080	52804648008	3402579207
Jubilee Holdings Ltd	4.44	173.00	59,895,000	10361835000	265847252.3
Pan Africa Insurance Holdings Ltd	3.35	40.25	96,000,000	3864000000	321828495.9
Olympia Capital Holdings Ltd	1.88	3.40	40,000,000	136000000	75367578.29
Kenya Re-Insurance Corporation	(0.09)	10.7	700,000,000	7490000000	-60200065.83
Centum Investment Co Ltd	19.41	12.35	665,441,775	8218205921	12915396740
B.O.C Kenya Ltd	2.26	99.50	19,525,446	1942781877	44136505.21
British American Tobacco Kenya	6.88	493.00	100,000,000	49300000000	688322462.5

Appendix 4: SPSS Input Data					
Listed NSE companies.	Intrinsic price	Market Price at 2012	Shares issued	Market Value	Intrinsic value
East African Breweries Ltd	5.38	265.00	790,774,356	2.09555E+11	4257904342
Mumias Sugar Co. Ltd	6.06	4.85	1,530,000,000	7420500000	9272309438
Unga Group Ltd	1.99	13.05	75,708,873	988000792.7	150615705.7
Eveready East Africa Ltd	(1.90)	2.05	210,000,000	430500000	-398454328.4
Athi River Mining	8.96	44.50	495,275,000	22039737500	4437125480
Bamburi Cement Ltd	2.73	185.00	362,959,275	67147465875	990189840.2
Crown Berger Ltd	5.03	42.50	23,727,000	1008397500	119448889.2
E.A.Cables Ltd Ord	21.28	11.70	253,125,000	2961562500	5387171549
E.A.Portland Cement Ltd	3.76	39.00	90,000,000	3510000000	338161925.8
KenolKobil Ltd	(3.27)	13.55	1,471,761,200	19942364260	-4818094214
Total Kenya Ltd	0.87	13.85	175,028,706	2424147578	152841598
KenGen Ltd	(1.56)	8.80	2,198,361,456	19345580813	-3434252118
Kenya Power & Lighting Co Ltd	16.40	17.10	1,951,467,045	33370086470	31996046051