

**A COMPARATIVE STUDY ON PERFORMANCE BETWEEN
VALUE AND GROWTH STOCKS AT THE NSE**

BY

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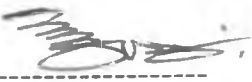
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DECLARATION

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

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This project has been submitted for examination with my approval as the university supervisor.

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DEDICATION

This research project is dedicated to my beloved wife Margaret and son Warren for endlessly enduring my many moments of absence

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LIST OF ABBREVIATIONS

AMEX	-	American Stock Exchange
ASE	-	Athens Stock Exchange
B/M	-	Book to Market Equity
CMA	-	Capital Markets Authority
CAPM	-	Capital Markets Pricing Model
C/P	-	Cash flow-to-Price Ratio
D/P	-	Dividend Yield
E/P	-	Earnings Yield
GS	-	Average Growth Rate of Sales
ISE	-	Istanbul Stock Exchange
NASDAQ	-	National Association of Security Dealers Automated Quotations
NSE	-	Nairobi Stock Exchange
NYSE	-	New York Stock Exchange
P/E	-	Price-to- Earnings Ratio
P/S	-	Price-to-Sales
SSE	-	Shanghai Stock Exchange
TSE	-	Tokyo Stock Exchange
UK	-	United Kingdom
US	-	United States of America

ABSTRACT

For many years, financial researchers and investment analysts have argued that value stocks outperform growth stocks over time. While a large body of empirical evidence supports this argument, previous studies on NSE find no significant return spread between value and growth stocks. Previous studies on NSE define value stocks as stocks with extremely high values of B/M or E/P ratios and growth stocks as stocks with extremely low values of the two ratios. However, according to empirical evidence, one variable alone may not precisely distinguish between value and growth stocks because of possible misclassification problems.

This study sought to extend the evidence of value-growth spread at the NSE by using a two-variable dimension that defines value and growth stocks based on a combination of B/M and E/P ratios. Out of 62 firms listed on the NSE between 1999 and 2007, 52 firms were sampled for the study. For each year of study, the sampled firms were ranked into three groups; top 30%, middle 40%, and bottom 30% on their B/M values. The firms were also ranked into similar groups on their E/P values. Intersections of the top 30% firms from the B/M and E/P rankings formed the value portfolio while intersections of the bottom 30% firms from the two rankings formed the growth portfolio. The two portfolios were rebalanced annually and their return differential compared over the study period. Secondary data from NSE was used to compute the B/M and E/P values; and also to compute portfolio returns.

Findings of the study show that, between 1999 and 2007, value portfolios consistently outperformed growth portfolios in eight (8) of the nine (9) the years. The value-growth spread averaged 49.9% annually over the period. This is much higher than documented value premiums even in developed markets. A statistical test of the return spread shows a significant difference in performance between value and growth stocks.

In summary, the study concludes that in the Kenyan stock market, value stocks are more profitable than growth stocks. Investors must however clearly distinguish between value and growth stocks by avoiding use of simple value-defining strategies.

CHAPTER ONE

1.0

INTRODUCTION

1.1

Background

The concept of value-growth performance differential dates back to the 1920s when financial scholars at Columbia Business School pioneered the idea of fundamental analysis in equity portfolio selection. Researchers and investment analysts have since developed a number of fundamental variables to define value and growth stocks. These variables include B/M, E/P, C/P, D/P, P/S ratio and GS. However, there is no consensus as to which variable best distinguishes between value and growth. Nevertheless, Sharpe *et al* (2004) and Michailidis *et al* (2007) observe that B/M and E/P have more consistent explanatory power on stock returns and hence are more popular both in academia and investment practice. According to researchers and investment analysts, value stocks (also known as income stocks) are stocks that have extremely high values of B/M or E/P while growth stocks (also known as glamour stocks) are stocks with extremely low values of B/M or E/P.

From the 1960s, studies have documented overwhelming evidence to show that value stocks outperform growth stocks. Nicholson (1960, 1968), McWilliams (1966), Breen (1968), Basu (1977), Cook *et al* (1984) and Jaffe *et al* (1989) all document evidence that high E/P stocks earn significantly better returns than low E/P in the US stock market. Fama *et al* (1992) also show that, high B/M stocks earned an

average monthly return of 1.63% compared to 1.23% earned by low B/M stocks in the US market between 1963 and 1990. Lakonishok *et al* (1994) re-examines the evidence of both E/P and B/M effects on returns of US stocks traded on the NYSE between 1968 and 1990. They find that value stocks, defined on either of the two variables outperform growth stocks for the entire period.

In the Japanese stock market, Chan *et al* (1991) find that high E/P and B/M stocks outperformed low E/P and B/M stocks by 0.4% and 1.1 % per month respectively between 1971 and 1988. Capaul *et al* (1993) also document value premiums of 6.04%, 6.41%, 1.54%, 3.71% and 2.74% for Japan, France, Germany, Switzerland and UK respectively. Fama *et al* (1998) and Arshanapalli *et al* (1998) provide further international evidence of value premium in several European, Australian and Asian markets.

Empirical evidence of value premium in emerging stock markets is however mixed and less consistent. Fama *et al* (1998) compare returns between value and growth stocks in 16 emerging markets (inclusive of Nigeria and Zimbabwe) for the period 1987 to 1995. They document evidence of value premium in at least 10 of the markets, but caution that volatility of stock returns evident in emerging markets undermines such evidence. Consistent with the findings of Fama *et al* (1998), Chen *et al* (1998) find no evidence of value premium in two high volatile markets of Taiwan and Thailand. In some emerging markets, growth stocks have empirically been found to outperform value stocks. Gonenc *et al* (2003), for example, find an annualized growth premium of 2.91% in Turkey between 1993 and 1997. Drew *et al* (2003) also shows that, growth

stocks registered superior performance over value stocks in China from 1993 to 2000.

Previous studies in Kenya find no significant performance differential between value and growth stocks at the NSE. Muhoro (2004) compares returns between value and growth stocks from 1998 to 2002. Results of the study show no significant difference in return. A subsequent study by Ngigi (2006) covering the period 2000 to 2004 also concludes that value strategies are not superior over growth strategies at the NSE. In both studies, value and growth stocks were defined on the basis of either their B/M or E/P values.

Lakonishok *et al* (1994), however, find that the value-growth spread is significantly higher if stocks are distinguished on combined values of B/M and E/P than when stocks are defined on either of the two variables alone. They attribute the findings to possible misclassification problem inherent in the one-variable definition and suggest a two-variable definition approach to address the problem. Fama *et al* (1996) supports the use of a bivariate dimension to more precisely distinguish value stocks from growth stocks. Muhoro (2004) shows evidence of misclassification at the NSE by observing that some stocks categorized as value stocks on their B/M values fell into the growth category when sorted on their E/P values. There is therefore need to compare the performance of value versus growth stocks at the NSE using a two-variable definition approach.

More recent empirical evidence on the value-growth performance shows a positive relationship between value premium and investment horizon.

Bird et al (2007) compare returns between value and growth stocks in 15 European countries for different portfolio-rebalancing periods; 3, 6, 12, 24, and 36 months. They find that, the value premium increases as the investment horizon is extended. There is need of re-examining the evidence of the value premium at the NSE, by analyzing a relatively longer investment horizon than the monthly portfolio-rebalancing periods assumed in previous studies.

1.2 Statement of the Problem

The superior performance of value stocks over growth stocks has been empirically confirmed by a succession of previous studies among them; Nicholson (1960, 1968), McWilliams (1966), Breen (1968), Basu (1977), Jaffe *et al* (1989), Chan *et al* (1991), Fama *et al* (1992), Lakonishok *et al* (1994), Fama *et al* (1998), Arshanapalli *et al* (1998) and Chen *et al* (1998). These studies provide evidence to show that value stocks can yield return premiums of between 1% and 17% annually.

Previous studies on NSE find no significant value-growth return differential. Muhoro (2004) analyses the value-growth spread at the NSE between 1998 and 2002, but finds no evidence of value premium. Ngigi (2006) compares returns between value and growth strategies at the NSE from 2000 to 2004 and concludes that value strategies are not significantly superior. Both studies used one variable to define value and growth stocks; Muhoro sorted stocks on either the B/M or E/P ratios while Ngigi used the B/M ratio.

However, according to Lakonishok *et al* (1994), a one-variable definition suffers from possible misclassification problems. Their findings show that, a two-variable definition provides a more precise distinction between value and growth stocks. Fama *et al* (1996) agree that using a two-variable dimension helps address possible misclassification problems. In the study on NSE, Muhoro (2004) indeed finds evidence of misclassification by observing that some stocks categorized as value stocks on their B/M values fell into the growth category when sorted on their E/P values. By using only B/M values to define value-growth, Ngigi (2006) does not address the misclassification problem on NSE stocks. The empirical evidence that, value stocks are not superior over growth stocks at the NSE cannot therefore be conclusive.

In contrast to the two previous studies on NSE, this study investigates whether value stocks outperform growth stocks at the NSE, using a two-variable definition strategy that combines both the B/M and E/P ratios. The study also samples a longer nine-year period between 1999 and 2007. This is more consistent with most studies in international markets which usually sample periods ranging from 10 to 20 years. In addition, the study analyses annual investment horizons in contrast to the monthly portfolio-rebalancing periods assumed in both Muhoro (2004) and Ngigi (2006). This is consistent with findings by Bird *et al* (2007) which show that, there is a positive relationship between value premium and the length of portfolio re-balancing period.

1.3 Objective of the Study

The objective of the study was to determine whether value stocks outperform growth stocks at the NSE.

1.4 Hypotheses

H₀: There is no significant difference in performance between value and growth stocks at the NSE.

H₁: Value stocks significantly outperform growth stocks at the NSE.

1.5 Importance of the Study

The study is of interest to the following:

i) Investors and Investment Practitioners

The study is of use by investors, fund managers, investment advisors and analysts in making investment decisions; and especially in selection of appropriate value-defining strategies.

ii) Academicians and Researchers

The study will help deepen knowledge on the Kenyan financial securities and particularly inform further research in the area of value versus growth equity investments.

CHAPTER TWO

2.0

LITERATURE REVIEW

2.1

Introduction

The concept of value and growth stocks dates back to the 1920s when financial scholars at Columbia Business School pioneered the idea of fundamental analysis in equity portfolio selection. Beforehand, investors relied entirely on qualitative factors such as the quality of a company's management to make investment decisions.

Since the emergence of the value-growth concept, many financial researchers and investment analysts have advanced the view that value stocks yield superior returns as compared to growth stocks. Previous studies in the US, Japan, Europe and other developed stock markets provide overwhelming empirical evidence supportive of this view. But there is another school of thought which support the view that growth stocks are superior. Indeed in some emerging stock markets like in China, growth stocks have been found to yield superior returns. Other previous studies including those done on NSE shows no significant difference in performance between the value and growth stocks.

The following literature reviews the evidence on value-growth performance that has been documented in several previous studies undertaken in different stock markets. Documented evidence on why value stocks tend to be superior in most markets i.e. the possible sources of the value premium is also reviewed. But firstly, and

important for this study, the literature discusses how to define or classify stocks into value and growth.

2.2 Classification of Stocks into Value and Growth

Value and growth stocks can be defined using various financial variables such as B/M, E/P, C/P, D/P, P/S or GS. According to Sharpe *et al* (2004), there is no consensus either in academia or in investment practice as to which of these variables best distinguishes between a value stock and a growth stock. They however observe that, B/M and E/P ratios tend to have a more consistent explanatory power on stock returns, and hence are mainly used by both financial researchers and investment analysts to classify stocks into value and growth. This view is supported by Michailidis *et al* (2007).

2.2.1 Book-to-Market (B/M) Ratio

According to Sharpe *et al* (2004), B/M is the ratio of the book value per share from the most recent balance sheet data to the most recent market price of a given share. Its computation is expressed as follows:

$$B/M = \frac{\text{Book Value per Share}}{\text{Market Price of a Share}}$$

A succession of studies Rosenberg *et al* (1985), Chan *et al* (1991), Fama *et al* (1992), Capaul *et al* (1993) and Daniel *et al* (1997)) have documented a significant positive relationship between B/M and stock returns. A relatively higher value of B/M characterizes a value stock

which means that a stock is under-priced relative to its underlying assets. A relatively low value of B/M characterizes a growth stock implying that certain growth factors have driven the price of a stock until it is relatively high compared to its book value per share.

Capaul et al (1993) however argues that, the book value of a firm ignores intangible assets such as brand, organizational competence or intellectual property and this can undermine the predictive power of B/M on stock returns. Lakonishok et al (1994) supports this view and argues that; because B/M may not directly reflect the economically interpretable characteristics of a firm, it understates a firm's full prospects for future growth.

2.2.2 Earning-to-Price (E/P) Ratio

Sharpe *et al* (2004) defines E/P as the ratio of the accounting value of a firm's earnings per share (earnings after taxes divided by the number of shares outstanding) to the market price of the share. Its computation is expressed as follows:

$$E/P = \frac{\text{Earning per Share}}{\text{Market Price of a Share}}$$

Nicholson (1960, 1968), McWilliams (1966) and Breen (1968) document some of the early evidence of a relationship between P/E (the reciprocal of the E/P ratio) and average stock returns. All these studies find that low P/E stocks consistently produce higher returns than high P/E stocks. Adjusting the effects of P/E on returns for market risk,

Basu (1977) still finds a significant negative relation between P/E ratios and average returns in excess of those predicted by CAPM.

However, the P/E may cause some statistical problems. For instance, when earnings of a firm approach zero, the P/E values approach infinity. Nicholson (1968) observes that, P/E values above 50 are likely to produce abnormal results in a study. Recent studies have therefore adopted E/P as the more statistically feasible variable to study. A relatively high value of E/P characterizes a value stock while a relatively low value characterizes a growth stock.

Nevertheless, use of earnings as a valuation measure (whether E/P or P/E) has some weaknesses. Among other weaknesses, different firms may use different accounting methods in calculating depreciation and amortization. Moreover, as observed by Macharia (2002), some firms can manipulate their accounts to add several percentage points in earnings.

2.2.3 Other Classification Variables

Several studies find that other financial variables explain stock returns better than either B/M or E/P ratios. Chan *et al* (1991), for example, document evidence that, C/P has a higher predictive power on returns of TSE stocks between 1971 to 1988 than E/P. They attribute the low predictive power of E/P to distortions in the earnings of Japanese firms arising from accelerated depreciation allowances. Comparing the predictive power between C/P and E/P on NYSE and AMEX stocks between 1968 and 1990, Lakonishok *et al* (1994) also find that C/P has

higher return effect than the E/P. The evidence that C/P provide more sizeable effect on returns than E/P is consistent with the view that; cash is harder to manipulate compared to earnings; and hence provides a more accurate measure of value. Lakonishok *et al* (1994) also provides evidence that classifying stocks on C/P produce bigger differences in value-growth returns than classifying on B/M. This is consistent with the view that B/M may understate a firm's full prospects for future.

Other researchers support use of sales as a measure of value arguing that; sales are more stable and like cash, are less subject to accounting manipulation; and hence offer a more reliable valuation approach. Bird *et al* (2007) provides evidence consistent with this view. In a study covering 15 European markets, they find that P/S provides the best basis for distinguishing value from growth stocks compared to B/M and E/P. This contrasted evidence by Lakonishok *et al* (1994) showing that GS, another sales measure, has a weaker explanatory power on returns compared to B/M.

However, markets characteristics may make it inappropriate to use other classification variables. For instance, Ngigi (2006) argues that, P/S or other sales measure like GS are inappropriate in markets like NSE where service companies, such as banks form major component of the market but do not have traditional sales. Likewise, D/P which has been used in some previous studies to sort stocks into value and growth may be inappropriate in studies on NSE or on other emerging markets because many listed firms are still in the growth stage and are not likely to pay dividend for several years until they mature.

Inaccessibility of relevant data may also make it difficult to use certain variables. NSE published Handbooks, for example, do not detail cash flow data for listed firms making it practically difficult to use C/P to distinguish value from growth for firms listed at the NSE. A study would have to rely on other sources of data to be able apply a C/P value-growth defining strategy.

Overall, Sharpe et al (2004) and Michailidis et al (2007) observe that; in good economic times when markets are stable and there is little pressure to engage in accounts manipulation or other moral hazards; B/M and E/P ratios provide a more consistent predictive power on stock returns compared to the other variables. Consistent with this view; and given the state of the NSE and the available data; this study uses defines value and growth stocks using the B/M and E/P ratios.

2.2.4 Two-Dimensional Classification

Lakonishok *et al* (1994) compare value-growth spread produced by one-variable classification with that produced by a two-variable classification. In the study covering NYSE and AMEX stocks from 1968 to 1990, they first analyse returns of value and growth portfolios formed on B/M, E/P, C/P or GS. They then analyze returns of the two portfolios formed on 5 pairs of variables; B/M and E/P; B/M and C/P; B/M and GS; E/P and GS; and C/P and GS. Findings of the study show that, in all the cases, a two-dimensional classification strategy produces higher value-growth spread than a strategy based on either of one of variables in a pair.

On the of B/M and E/P bivariate classification, Lakonishok and colleagues find that returns of low E/P stocks vary significantly according to their B/M values. They suggest that, stocks with temporary depressed earnings (which are essentially value stocks) may have been misclassified as growth stocks although they were not likely to experience the same degree of poor future performance as growth stocks because, they were less overpriced by the market. Consistent with these findings, Fama *et al* (1996) show that, sorting stocks on two variables more precisely distinguishes between strong and distressed stocks resulting in larger value-growth spreads.

Documented evidence on NSE value-growth is consistent with suggestion by Lakonishok *et al* (1994) and Fama *et al* (1996) that a one-variable classification does not precisely define what a value stock is and what a growth stock is because it suffers from possible misclassification problem. Muhoro (2004) compares performance between value and growth stocks at the NSE from 1998 to 2002 by classifying firms on either B/M or E/P ratios; and observes that some stocks categorized as value on B/M are also categorized as growth on E/P. In a subsequent study to compare returns between value and growth stocks at the NSE for the period 2001 to 2004, Ngigi (2006) used only B/M ratio to classify stocks and therefore failed to address the possible misclassification problem.

In contrast to Muhoro (2004) and Ngigi (2006), this study will classify stocks traded on NSE on a combination of B/M and E/P in a two-dimensional classification strategy as a way of reducing effect that of possible misclassification may have on the study results.

Nicholson (1960, 1968), McWilliams (1966) and Breen (1968) were among the first studies to document evidence that value stocks produce higher returns than growth stocks. They investigate the effect of E/P on absolute returns of NYSE stocks for different sample periods and find that, high E/P portfolios performed better compared to low E/P portfolios. Further evidence by Basu (1977) shows that when returns were adjusted for risk, high E/P portfolio of NYSE stocks yielded an average annual return of 16.3% compared to 9.34% for a low E/P portfolio between 1956 and 1971. However studies like Cook *et al* (1984) have attempted to show that, an E/P effect on stock returns could be just part of a size effect. Such views are rebutted by Jaffe *et al* (1989). They study the size and E/P effects using a sample of NYSE and AMEX stocks for the period 1951 to 1986 and find that the E/P (value) effect overrides the size effect.

Fama *et al* (1992) confirm the E/P effect and also provides evidence of a B/M effect on returns of NYSE, AMEX and NASDAQ stocks. Their study covered a 22-year sample period between 1963 and 1990. They find that, high B/M portfolios yielded an average monthly return of 1.63% compared to 1.23% produced by low B/M portfolios. Lakonishok *et al* (1994) provides further evidence of value premium in the US stock markets. They find value portfolios formed from NYSE and AMEX stocks on E/P, B/M, C/P or GS ratios outperformed growth portfolios over the period 1968 to 1990.

Several studies also document evidence of the value effect in other major stock markets outside the US. For example, Chan *et al* (1991) report that, high E/P and B/M portfolios of Japanese stocks traded on the TSE between 1971 and 1988 outperformed low E/P and B/M portfolios by 0.4% and 1.1 % per month respectively. Capaul *et al* (1993) also document that, value stocks outperformed growth stocks in Japan, France, Germany, Switzerland and UK during the period 1981 to 1992 by an annualized value-growth spread of 6.04%, 6.41%, 1.54%, 3.71% and 2.74% respectively. In Fama *et al* (1998), higher B/M, E/P and C/P stocks are reported to have outperformed low B/M, E/P and C/P stocks in 12 out of 13 studied markets across Europe, Australia and Asia between 1975 and 1995. Even by sorting stocks on D/P, Fama and colleagues still find evidence of value premium in 10 of the 13 markets. The overwhelming international evidence of value premium is further confirmed by Arshanapalli *et al* (1998). They report annualized value-growth spread of 12.94% in North America, 10.42% in Europe and 17.26% in Pacific-Rim during the period 1975 to 1995, the same period sampled in Fama *et al* (1998).

The evidence of value premium is mixed and less consistent in emerging stock markets. Fama *et al* (1998) investigate value-growth spread in 16 emerging markets which included two African countries namely Nigeria and Zimbabwe between period 1987 and 1995. They find evidence of value premium in 12 of the markets by classifying stocks on their B/M and in 10 of the 16 markets by classifying stocks on their E/P values. But they also find evidence of high volatility on return. Ten (10) of the markets had annual standard deviations above 50%. Comparatively, only 4 of the 13 developed markets, which they also studied, had

standard deviations above 30%. Fama and colleagues observe that because of such high volatility, evidence of value premium in emerging markets should be interpreted with caution. Evidence by Chen *et al* (1998) supports this view. Their study on returns in the US, Japan, Hong Kong, Malaysia, Taiwan and Thailand stocks shows that value effect is almost non-existent in the high volatile markets of Taiwan and Thailand. They also discover a negative relationship between value effect and market growth rate in all the six markets.

The evidence by Chen and colleagues suggest that growth stocks are likely to perform better than value stocks in fast growing markets. Gonenc *et al* (2003) indeed find evidence of growth premium. They report that growth stocks produced an excess annual average return of 2.91% over value stocks at ISE between 1993 and 1997. According to this study, the ISE which was established in 1986 grew so fast that, by 1997, it had become one of the fastest growing and most volatile markets. Drew *et al* (2003) also find that low B/M portfolio produced an average monthly return of 2.20% compared to 2.15% produced by high B/M portfolio for Chinese stocks traded on SSE between 1993 and 2000. Like for the ISE, Drew and colleagues observe that the SSE had grown from a handful of listed firms after re-opening in 1990 to over 1000 firms by 2001.

Other studies, among them, previous studies on NSE, find no significant difference in performance between value and growth stocks. Muhoro (2004) analyses value-growth spread at the NSE between 1998 and 2002. Muhoro reports that high E/P stocks earned an average monthly return of 1.48% compared with -0.08% earned by low E/P stocks.

However, a statistical test on the results found no significant difference in the return spread. The study reports that, by classifying stocks on their B/M values, growth stocks had higher returns than the value portfolio in 3 of the 5 years, but like with the E/P classification strategy; there was no significant statistical return differential between value and growth stocks. Ngigi (2006) investigates the return-differential between value and growth strategies at the NSE for the period 2000 to 2004. Ngigi find that high B/M stocks yielded an average annual return of 1.99% over the period while. Although this was 0.67% higher than the yield of 1.32% produced by the growth stocks, Ngigi concludes that value strategies are not significantly more profitable than growth stocks. Michailidis *et al* (2007) also provides evidence to show that like at the NSE, there was no significant difference in return between high B/M and E/P and B/M and E/P stocks traded on the ASE between 1997 and 2003.

Bird *et al* (2007) compare value premiums in 15 European countries over different portfolio-rebalancing periods of 3, 6, 12, 24, and 36 months. They find that, the value premium increases steadily as the investment horizon is extended. They suggest that many value stocks take long time to reach a turning point in their market performance, and hence a relatively longer holding period is required to extract the full benefits of a value-based strategy. Consistent with this recent evidence; and in contrast to the previous studies by Muhoro and Ngigi which analysed value-growth spread on monthly re-balanced portfolios, this study analyses performance of annually-rebalanced portfolios.

Evidence from several previous studies indicates that the existence of value premium or lack of it may largely be determined by the source(s) for such a premium. And so while the value premium may not be empirically evidenced in every stock market, many researchers have attempted to explain why value stocks may be superior. The main explanations advanced so far are reviewed in the next section.

2.4 The Source of the Value Premium

Fama *et al* (1992) find that, the value-growth spread evidenced at the NYSE and AMEX between 1963 and 1990 was a result of investors requiring a higher risk premium on firms with financial distress beyond what risk beta could explain. They observe that, in equilibrium, the value premium is priced in addition to the traditional CAPM-type market risk. Fama and colleagues therefore propose a three-factor equity-pricing model to help explain the difference between the returns of value and growth strategies. Evidence provided by Arshanapalli *et al* (1998) also supports the risk-based explanation. They report that, the three-factor model explains the value premium in 18 equity markets across North American, Europe and Pacific-Rim regions.

However, Lakonishok *et al* (1994) finds that, though value stocks outperformed growth stocks at the NYSE and AMEX between 1968 and 1990, value strategies were not fundamentally riskier than growth strategies. They suggest that value premium is a consequence of market inefficiency. According to Lakonishok and colleagues, investors irrationally gravitate towards growth stocks by extrapolating past growth rates of growth stocks even when such growth rates are highly

unlikely to persist in the future. Findings by Debondt *et al* (1985) support this explanation. They find that, between January 1926 and December 1982 portfolios of prior losers from NYSE stocks outperform prior winners by 25%. Over-reaction means that prices adjust by more than is justified by fundamentals. Unpopular value stocks that have done badly are oversold, become under-priced, and are corrected at some point in the future when a switch in investor sentiment raises the prices of these stocks.

Banz *et al* (1986) also contrasts the risk-based explanation. They show that, the superior performance of higher E/P stocks over low E/P stocks is due to data biases. They argue that, most studies which document evidence an E/P value use the Compustat Database which however suffers from two types of biases; namely, the look-ahead bias and the ex-post selection or survivorship bias. The look-ahead bias arises because annual earnings are reported, and therefore become known to investors, much after recorded year-end prices. Computing E/P values with year-end prices and earnings imply that investors have the ability to forecast future reported earnings without error.

The ex-post selection bias on the other hand arises because prevailing Compustat file contains only those firms that are viable entities in a given year and excludes firms which have merged, filed for bankruptcy or have otherwise ceased to exist. Further, new firms are added to the database with full history which introduces data not available at an earlier time. Backfilling of the historical data biases the database towards firms that survived through the years. Banz and colleague compare E/P effect of using the unbiased database (sequentially

collected Compustat file and most recently available 12-months data of earnings) and the prevailing Compustat file. They find the E/P effect is evident when prevailing Compustat file is used but the effect is not supported by the unbiased data. Kothari *et al* (1995) provides evidence to support the explanation of survivorship bias. They analyze the explanatory power of B/M on returns of NYSE and AMEX stocks between 1947 and 1987 using both Compustat data and unbiased data set. Their results show that the superior performance of high B/M stocks over low B/M stocks is due to the sample-selection bias in the Compustat data. They conclude that the value premium is no more than a vagary of chance, being neither reward-for-risk nor the basis for a profitable trading strategy.

However, Chan *et al* (1991), Capaul *et al* (1993) and Fama *et al* (1998) and Arshanapalli *et al* (1998) use different data sources to study markets outside the US and find evidence of positive value effect thus contrasting the sample-specific explanation. Even for the US market, (Davis, 1994 as reported in Davis *et al*, 2000) still provides evidence of the superior performance of high B/M stocks over low B/M stocks for the pre-Compustat period between 1940 and 1963.

Daniel *et al* (1997) challenges the risk-compensation hypothesis. They investigate whether there are really pervasive factors associated with B/M for NYSE, AMEX and NASDAQ stocks from 1973 to 1993; and if so, whether there are risk premia associated with such factors. They find that, high B/M stocks covaried strongly with other high B/M stocks. They however document that, the covariances could not be attributed to particular risks associated with distress, but rather reflected

the fact that high B/M firms tend to have similar properties; e.g., they might have related lines of business, in the same industries or from the same regions. According to Daniel and colleague therefore, a characteristic model explains the superior performance of high B/M stocks. They argue that the characteristic model could cover anything that produces a premium for the value characteristic relative to the growth characteristic and is not the result of risk. They observe that, the overreaction explanation advanced by Dechow *et al* (1985) and Lakonishok *et al* (1994) could be covered by this model.

Recent studies document more explanations to support the characteristic model. Chan *et al* (2004) suggest an agency theory that investment fund managers, though aware of the high expected returns associated with value stocks, prefer growth stocks. Since growth stocks are typically in exciting industries, they are easier to tout in terms of analysts' reports and media coverage and easier to justify to investors. Out of self-interest to generate trading commissions, investment fund managers therefore gravitate towards successful growth-oriented stocks resulting in overpricing of growth stocks and underpricing of value stocks relative to prevailing fundamentals.

(Hanson, 2004 as reported by Ngigi, 2006) suggests a labour-based theory, still another subset of the characteristic model. This theory supposes that, the human capital is not silent to market expectations and labour-compensation claims increase as market value of companies increase. Firms experiencing good times (growth stocks) are forced to share a larger portion of their earnings with their employees, whereas low labour-compensation claims in firms experiencing hard times (value

stocks) contribute to higher than expected earnings. Accordingly, even if growth firms are consistently showing higher earnings, they will fall below market expectation as a consequence of larger rents to human capital.

Davis *et al* (2000) find that the three-factor model of Fama *et al* (1992) explains the value premium better than the characteristic model of Daniel *et al* (1997). They investigate the return-explanatory powers of the two models over a longer period of 68 years (1929-1997) and find that covariances show more explanatory powers than characteristics. Davis and colleagues suggested that the evidence of Daniel *et al* (1997) in favour of characteristic model was special to their rather short sample period (1973-1993).

Black *et al* (2003) tests the validity of the various competing hypotheses on the source of value premium in US, UK and Japan. Their evidence lends support to the view that the value premium in the US is a reward for non-diversifiable risk associated with financial distress. For both the UK and Japanese markets, they find no conclusive explanation for the positive return of value strategies and argue that either the overreaction or risk-compensation hypothesis could apply. Their results indicate that value premium will display different characteristics in different markets. As yet therefore, and as Black and colleague acknowledge, the source of value premium remains a controversial scholarly debate which requires further research.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Population

The study covered a total of 62 firms that were listed on the NSE during the years 1999 to 2007 and included the ones listed or de-listed during the period. The 62 firms that made up the study population are listed shown on Appendix I.

3.2 Sample

The period 1999 to 2007 was sampled because it was the longest feasible for the study given that; the NSE-summarized data base on financial statements for listed firms dates back only from 1998, and financial data for 2008 had not yet been included in the NSE data base.

Sample firms were selected on two criteria; (i) firms whose beginning/end-year market share price and annual financial data were available at the NSE (annual returns for a firms listed, de-listed or suspended by the CMA mid year could not computed)); and (ii) firms which had positive book value of assets and earnings (negative B/M or E/P firms could not be defined as either value or growth). A total of 52 firms met the sample-selection criteria for at least one year during the study period. The 52 sampled firms are listed shown on Appendix II.

3.3 Data Collection

The study used secondary data from the NSE. The data comprised; (i) the 2002 and 2007 NSE Handbooks which summarize financial statements of listed firms from 1998 to 2007; (ii) NSE Daily Stock Pricelists; and (iii) NSE Corporate Actions records which summarize information on dividends, bonus stock issues and stock splits for listed firms. All the data was collected from NSE in electronic form.

3.4 Data Analysis

At the end of each December of year $t-1$, the B/M and E/P ratios of every sample firm were computed. B/M was computed as the book value of common equity for the fiscal year ending in (any month of) calendar year $t-1$ divided by the market equity at the end of December of $t-1$ while E/P was computed as the ratio of earnings per share for the fiscal year ending in calendar year $t-1$ to end-of-year $t-1$ market price per share. Although studied firms have different fiscal year-end dates, Fama *et al* (1992) show that using end of December market equity prices to compute the B/M and E/P values is not likely to distort the findings.

The firms were then ranked into three groups; top 30%, middle 40%, and bottom 30% on their B/M values. They were then similarly ranked into another three groups; top 30%, middle 40%, and bottom 30% on their E/P values.

Intersections of the top 30% firms from the B/M and E/P rankings formed the value portfolio while intersections of the bottom 30 % firms formed the growth portfolio for year t . A similar procedure was used by Lakonishok *et al* (1994) to form value and growth portfolios in a two-variable definition strategy.

Value and growth portfolios were rebalanced annually, from the second up to the ninth year of study. The choice of an annual investment horizon extended the monthly investment horizons assumed in previous studies on NSE; and was consistent with findings by Bird *et al* (2007) that, value-growth spread increases as the investment horizon is extended.

A six-month gap was allowed between the portfolio formation date and the start of value-growth performance analysis. This methodology was employed by Fama *et al* (1992) to control for look-ahead bias i.e. to ensure that published accounting data was available to investors before choosing portfolios. Annual portfolio returns were therefore computed from beginning of July of year t to end of June of year $t+1$.

Annual returns of the value and growth portfolios were computed as the weighted average of returns of stocks forming a portfolio. The return of an individual stock in a portfolio comprised both the capital gains/losses and dividends and was computed using the following formula:

$$R_{it} = \{(P_i - P_o) + D_t\} / P_o$$

Where; R_{it} = annual return of stock i at year t
 P_o = price of stock i at beginning of July of year t
 P_i = price of stock i at end of June of year $t + 1$
 D_t = dividends paid between start July of year t and end June year $t + 1$

P_o and P_i were adjusted for bonus share issues and stock splits.

Assuming an equal investment weighting of stocks forming a portfolio, annual return for a portfolio at year t was computed using the following formula:

$$R_{pt} = \frac{1}{n} \sum_{i=1}^n R_{it}$$

Where; R_{pt} = annual return of portfolio p at year t
 n = number of stocks forming portfolio p in year t

Average mean returns for the value and growth portfolios were then computed for the nine-year study period. Differences in annual returns and in average mean return, between the two portfolios were thereafter computed. Finally, the difference between mean returns between the two portfolios was statically tested for significance using a right tailed

Z-test. This test was chosen because; (i) the total number of stocks analyzed in either of the two portfolios was more than 30, and (ii) the alternative hypothesis that value stocks earn higher returns than the growth stocks, was directional.

The Z- statistic was computed using the formula below.

$$Z = \frac{(X_1 - X_2)}{\sqrt{\{S_1^2/n_1 + S_2^2/n_2\}}}$$

- Where;
- X_1 = the ten-year average annual return for the value portfolio
 - X_2 = the ten-year annual return for the growth portfolio
 - S_1 = the standard deviation of the value portfolio
 - S_2 = the standard deviation of the growth portfolio
 - n_1 = total number of stocks in the value portfolios
 - n_2 = total number of stocks in the growth portfolios

CHAPTER FOUR

4.0 RESEARCH FINDINGS AND INTERPRETATIONS

4.1 Portfolio Formation

Table I below shows the number of firms that formed both the value and growth portfolios during the nine-year study period. The value portfolios comprised an average of six (6) firms in a year compared with an average number of five (5) firms which formed the growth portfolios annually.

Table I
Number of Firms in Value and Growth Portfolios

YEAR t	VALUE PORTFOLIO	GROWTH PORTFOLIO
1999	4	3
2000	4	4
2001	2	7
2002	5	3
2003	8	6
2004	6	5
2005	7	7
2006	6	7
2007	8	7
TOTAL	50	49
AVERAGE	6	5

Appendices III and IV show the firms which formed value and growth portfolios in each of study. A firm in a value portfolio in one year would be in growth portfolio in another as the portfolios were rebalanced annually, depending on its B/M and E/P ratios. This implies that a firm will be defined as a value firm or a growth firm depending on its annual financial performance and on the market price of its equity.

4.2 Value-Growth Performance Spread

The year-by-year-performance differential between value and growth portfolios across the study period is presented on Table II. The mean return across the years and the standard deviation for both portfolios are also presented at the bottom of the table. The results show that value portfolios consistently outperformed the growth portfolios save for 2007 when the latter earned an excess return of 11.54%. On average, the value portfolios outperformed the growth portfolios by an annualized margin of 49.9% over the period. The extent of this value-growth spread at the NSE is much higher than what has been found even in developed markets where annualized value premiums average below 20%.

Findings of this study contrast previous evidence by Muhoro (2004) and Ngigi (2006) that, there is no difference in performance between value and growth stocks at the NSE. The findings are consistent with evidence provided by Lakonishok *et al* (1994) and Fama *et al* (1996) that a two-variable definition of value and growth provides a more precise

distinction. The misclassification problem inherent in a one-variable definition might have distorted previous findings on NSE.

Given that the previous studies on NSE analysed monthly rebalanced portfolios, the findings of this study suggests that the value premium increases as the investment horizon is extended. This is consistent with previous findings by Bird *et al* (2007).

Table II
Performance of value and Growth Portfolios

YEAR t	VALUE PORTFOLIO	GROWTH PORTFOLIO	VALUE – GROWTH
	RETURN (%)	RETURN (%)	SPREAD (%)
1999	-1.69	-46.94	42.25
2000	-21.48	-52.93	31.45
2001	16.97	2.91	16.06
2002	195.00	38.69	156.31
2003	108.29	32.58	75.71
2004	114.80	53.58	61.22
2005	35.55	22.50	13.05
2006	95.23	31.68	63.55
2007	-6.86	4.68	-11.54
Mean Return	59.54	9.64	49.9
Standard Dev	68.44	35.18	

The computed Z-value for the difference-between-mean return statistical was 4.576. For a right tailed Z-test, using the level of significance 0.05, the critical test value is 1.645. The value of Z is therefore greater than the critical value needed for rejection. This means that the difference in return between value and growth portfolios is not likely to be due to

statistical error. Accordingly the null hypothesis that there is no significant difference in performance between value stocks and growth stocks is rejected.

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary and Conclusions of Findings

The objective of this study was to determine empirically whether value stocks perform significantly better than growth stocks at the NSE. It sought to extend previous evidence which shows that value stocks are not superior over growth stocks in the Kenyan stock market. While the previous studies used a one-variable definition to distinguish between value and growth stocks, this study employed a more precise; two-variable definition based on a combination of B/M and E/P value rankings. This strategy was designed to address the misclassification problem that has been found to be inherent in the simple one-variable strategy.

Results of the study show strong evidence of value premium at the NSE. Over the period 1999 to 2007, value stocks produced average annual returns 49.9% higher than growth stocks. This margin is far much higher than what has been evidenced even in developed markets of US, Japan and several European countries. The study concludes that, if precisely defined, value stocks will outperform the growth stocks in the Kenyan market.

Results of this study imply that investors at the NSE are better off choosing value stocks instead of growth stocks. But investors will only

earn value premium if they employ two-variable value strategies rather than just using simple value strategies to define value stocks.

5.2 Limitations of the Study

The NSE data base on financial statements of listed firms does not detail the amount of deferred taxes which should be included as part of book value of assets in B/M computations.

The NSE data base on financial statements of listed firms dates back only to 1998 which limited the scope of the study since it was not feasible to analyse value-growth spread for different sub-periods. Findings for different market cycles could help determine whether the evidence of value premium at NSE is sample specific.

5.3 Suggestions for Further Research

In this study, portfolios were rebalanced annually while previous studies which assumed monthly rebalancing found no significant value-growth spread at the NSE. Results of this study appear to agree with Bird *et al* (2007) that longer portfolio rebalancing generates higher value premium. There is need to study the value-growth performance differential at the NSE for different investment horizons.

So far, studies on value versus growth strategies at the NSE have focused only on B/M and E/P effects. The effect on stock returns of other financial variables such as C/P, D/P P/S and GS also need to be investigated .

Internationally, research is increasingly shifting from merely testing the existence of value premium to investigating what really explains it. Several possible explanations such as risk-compensation, market inefficiency or investor behaviour have been advanced in other markets but they all seem to play differently in different markets. There is need for future research to investigate the source of the value premium at the NSE.

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Appendix I-Listed Firms (1999-2007)

Agriculture

Kakuzi
Rea Vipingo
Sasini
Unilever Tea

Commercial and Allied

African Lakes Corporation
Access Kenya
Car & Gen
CMC
Hutchings Biemer
Kenya Airways
Lonrho Motors (EA)
Marshalls
Nation Media Group
Pearl Dry Cleaners
Scangroup
Standard Group
Tourism Promotion Services
Uchumi Supermarkets

Financial and Investments

Barclays Bank
CFC Bank
Diamond Trust
Equity Bank
HFCK
Centum Investments
Jubilee
KCB
Kenya Re
National Bank
National Industrial Credit
Pan Africa Ins
Regent Undervalued Assets Africa
Standard Chartered Bank

Industrial and Allied

Athi River Mining
BOC
Bamburi
BAT
Carbacid
Crown Berger
E.A.Cables
E.A.Portland
E.A.Breweries
Eveready E. Africa
Kenya Oil
K.Pow.& L.
Kengen
Ken. Nat. Mills
E.A.Packaging
Mumias Sugar
Olympia Holding
Sameer Africa
Total
Unga

Alternative Inve Market Segment

A.Baumann
City Trust
Eaagads
Express
G.Williamson
Kapchorua
Kenya.Orchads
Limuru Tea
Theta
Ol Pejeta

NB. Some firms were listed/ de-listed during the period of study

Appendix II-Sampled Firms (1999-2007)

Agriculture

Kakuzi
Rea Vipingo
Sasini
Unilever Tea

Commercial and Allied

Access Kenya
Car & Gen
CMC
Kenya Airways
Marshalls
Nation Media Group
Scangroup
Standard Group
Tourism Promotion Services
Uchumi Supermarkets

Financial and Investments

Barclays Bank
CFC Bank
Diamond Trust
Equity Bank
HFCK
Centum Investments
Jubilee
KCB
National Bank
National Industrial Credit
Pan Africa Ins
Standard Chartered Bank

Industrial and Allied

Athi River Mining
BOC
Bamburi
BAT
Carbacid
Crown Berger
E.A.Cables
E.A.Portland
E.A.Breweries
Eveready E. Africa
Kenya Oil
K.Pow.& L.
Kengen
Mumias Sugar
Olympia Holding
Sameer Africa
Total
Unga

Alternative Inve Market Segment

A.Baumann
City Trust
Eaagads
Express
G.Williamson
Kapchorua
Kenya Orchads
Limuru Tea

Appendix III - Firms in a Value Portfolio at Year t

Year 1-1999

City Trust
CMC
Kenya Oil
Pan Africa Ins

Year 2-2000

A. Baumann
CMC
Crown Berger
Kenya Oil

Year 3-2001

CMC
Kenya Airways

Year 4-2002

CMC
G. Williamson
Jubilee
Kenya Airways
National Bank

Year 5-2003

CMC
Crown Berger
Jubilee
Kenya Airways
Kenya Oil Co.
Marshalls
National Bank
Rea Vipingo

Year 6-2004

Car & Gen
CMC
G. Williamson
Kapchorua
Kenya Airways
Marshalls

Year 7-2005

Car & Gen
E.A. Breweries
Jubilee
Kakuzi
Kenya Airways
Mumias Sugar
Sasini

Year 8-2006

Car & Gen
CMC
G. Williamson
Centum Invs
Jubilee
Marshalls

Year 9-2007

Car & Gen
Express
Centum Invs
Kakuzi
Marshalls
Rea Vipingo
Total
Unilever

Appendix IV- Firms in a Growth Portfolio at Year t

Year 1-1999

Nation Media
Olympia Holding
Standard Group

Year 2-2000

Diamond Trust
HFCK
Nation Media
Unilever

Year 3-2001

Bamburi
HFCK
Kapchorua
Limuru Tea
Nation Media
Sameer Africa
Total

Year 4-2002

Kapchorua
Unilever
Uchumi S/markets

Year 5-2003

Bamburi
HFCK
Limuru Tea
Mumias Sugar Co.
Nation Media
Uchumi S/markets

Year 6-2004

Bamburi
BAT
E.A.Breweries
E.A.Portland
Standard Group

Year 7-2005

Bamburi
BAT
Diamond Trust
K.Power.& L.
Limuru Tea
Standard Ch/ Bank
Standard Group

Year 8-2006

Athi River Mining
Bamburi
Barclays Bank
CFC Bank
E.A.Breweries
Nation Media
Standard Group

Year 9-2007

Athi River Mining
Bamburi
Barclays Bank
E.A.Cables
Eveready E. Africa
Limuru Tea
Nation Media