Strathmore UNIVERSITY

EMPIRICAL ANALYSIS OF THE VALUE AND GROWTH INVESTMENT STYLES IN AN AFRICAN FRONTIER MARKET.

081092

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the Research Proposal contains no material previously published or written by another person except where due reference is made in the Research Proposal itself.

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Contents

Abbreviations

P&L- Profit and loss

R&D- Research and development

P/E – Price to earnings ratio

P/B- Price to book ratio

FCF- Free Cash flow

NSE- Nairobi Securities Exchange

MSCI- Morgan Stanley Capital International

HPR- Holding period return

EPS-Earnings per share

Abstract

The choice of a stock is a headache for all equity investors worldwide ranging from well developed markets to developing markets. This study embarks on testing the Growth and Value investment styles in an African frontier market namely the Nairobi securities exchange and discovers is that the Value investment style does overall outperform the Growth investment style on the basis of portfolio return and Sharpe however there are instances when the Growth investment style does outperform the Growth investment style in the case of this study the results of 2007 are evidence.

Key words: Equity investment style, Growth investing, Value investments

CHAPTER ONE: INTRODUCTION

Background

Stock markets have become a good way to boost economic growth. Naik & Padhi (2015) found out that stock market development significantly contributes to economic growth as it allows for investors to use their excess incomes to earn returns from capital gains or dividends. This brings about a need for investors to know which stocks to invest in in order to gain returns.

In an attempt by investors to find stocks to invest in, equity investment styles have been developed in selecting stocks. The styles have been developed so as to provide a framework for investing in equity markets which in turn keeps investors from investing on a whim which is very susceptible to biases as Otuteye & Siddiquee (2015) explain "Investment decisions are subject to error due to cognitive biases of the decision makers. One method for preventing cognitive biases from influencing decisions is to specify the algorithm for the decision in advance and to apply it dispassionately." Two investment styles explored in this study are the value and growth equity investment styles

Value investing is the phenomenon in which securities that appear cheap, on average outperform securities that appear to be expensive. The value premium is the return achieved by buying (being long in an absolute sense or overweight relative to a benchmark) cheap assets and selling (shorting or underweighting) expensive ones (Asness et al, 2015).

Value investing is a method that has been empirically tested in the worldwide markets to prove the existence of the value phenomenon. Naik & Padhi (2015) state that the existence of the value premium is a well-established empirical fact. It is evident in 87 years of U.S. equity data, in more than 30 years of out of-sample evidence from original studies, in 40 other countries, in more than a dozen other asset classes Asness, Moskowitz, and Pedersen (2013), and even dating back to Victorian England.

Value investing as a style is usually recognized using key style indicators or factors that are discussed below. These style indicators are used to carry out the value investing strategy and they include; Price to earnings yield, price to book ratio and the dividend yield. According to Reilly & Brown (2012) value stocks are those that appear to be undervalued for reasons other than earnings growth potential. Value stocks are usually identified by analysts as having low price-earnings ratios.

Jensen (2014) explains that the P/B ratio enables investors to compare the amount that the company has raised from shareholders and reinvested on their behalf with the total market value of the firm's shares, thereby indicating investors' willingness to pay for the rights to the future growth and earnings of the company. Conversely, value investors search for companies that are undervalued relative to book value and they thus invest in companies with low P/B.

The dividend yield factor, is well aligned with the contrarian strategies of value investors. Jensen (2014), explains the rationale for intuitively, paying large dividends is a strong signal to investors that the firm is not planning on using its cash for immediate or future growth. Thus, companies with high dividend yield are considered value stocks. The reverse holds for little or non-dividend paying firms with high plowback ratios in order to reinvest earnings back into the business to finance further growth initiatives. Thus, the dividend yield factor can be seen as a proxy, along with the P/E and P/B and for the markets' expectations of future performance and growth.

Growth investing on the other hand as described by Reilly & Brown (2012), is an investment style and investment strategy that is focused on the growth of an investor's capital. The growth strategy is measured by the following factors: asset growth, growth in earnings per share (EPS growth), High price to earnings yield and a composite factor combining the three ratios. Growth investors as Jensen (2014) describes are investors who seek out stocks which they believe have the ability to outgrow the market. Contrary to value investing, which focus on observed facts, growth investors focus on the future prospects of a company by extrapolating past growth patterns into the future.

The growth strategy is measured by the following factors: net asset growth and growth in earnings per share (EPS growth), and High price to earnings ratio. This approach examines the stock performance based on prior growth results, and not expected growth, which is captured by the value factors presented above. As a result growth investors target stocks with high price to earnings yield.

The net asset growth factor captures the effect of a firm's total investment and financing activities, such as capital expenditure, acquisitions and divestitures and transactions with shareholders with growth investors targeting companies with high net asset growth, Thus, this study will be able to evaluate whether large increases in total assets is an attractive property for investors by looking at returns from a pure net asset growth strategy.

Frontier markets can be defined as markets in developing countries. "These markets represent developing countries with high rates of economic growth, but small and relatively illiquid stock markets"Knapp & Mansharamani (2013) define frontier markets as any country that has a stock exchange open to foreign investors and is weighted at less than 1% in the Morgan Stanley Capital International Emerging Markets Index. In aggregate, such countries represent 20% of the world's population, 10% of global GDP, and approximately 2% of the world's market capitalization. A good example is the Nairobi securities exchange which will be used as a proxy for other African frontier markets but by no means the standard due to the various differences in the various African Frontier markets ranging from legislations to Political structure.

Hargreaves (2017) points out that Frontier Market Asset Management's Larry Speidell and Andrea Clark use value investing in frontier markets and have come across companies that tick all the boxes for them in their Frontier Market Select Fund, a good example is Jordanian shisha tobacco supplier Al-Iqbal. The company's earnings per share was expected to grow by 15% to 20% going forward. The firm pays out around 90% in earnings to shareholders via dividends and shares traded at a Price to earnings of 18% and yield 6% which in turn led to gains as the stock price increased, showing that the value investing premium exists in frontier markets, this paper finds out the empirical extent using the Nairobi Securities exchange as a proxy

The choice of the NSE as a proxy is based on 2013 MSCI findings "The Nairobi Securities Exchange (NSE) closed the year as the top performing African market on the global MSCI Index, putting Kenya on the radar for international investors who have an appetite for risk exposure in frontier markets. "Also as per the 2017 MSCI Frontier markets index Safaricom Limited a constituent of the NSE was ranked as the top constituent in Africa. Therefore the NSE is an appropriate proxy for frontier markets in this study.

Problem Statement

Value investing has been compared to growth investing and has come up with better returns on average and less volatility compared to growth investing. Reilly & Brown (2012) explain that in the United States markets value based investing portfolios produce better returns on average. During this analysis, the spread ranged from almost 20 percent in favor of value investing an advantage over the growth style. However Jensen (2014) found that the asset growth factor which is a growth based investing factor is found to have larger predictive power than other value investing factors such as P/E, P/B which begs the question as to whether the value investing style consistently brings about better returns than the growth based investment style. Conversely, their study illustrates that the spread between value and growth return standard deviations, itself is volatile, and is consistently negative, meaning that the growth strategy is consistently riskier than the value approach. However Chan and Chen (1991) and Fama and French (1992) noted that certain value investing factors such as the low book value to market equity price could signal greater risk, In their view firms trading cheaply relative to their book value of equity are likely to suffer from financial distress as well as a higher cost of capital due to increased risk. Which brings about a controversy as to whether value investing is really less risky compared to growth based investing. Therefore there is still need to test the two styles of investing to establish their performance against each other in a Frontier market which this study does using the NSE as a proxy for frontier markets.

Research objectives

1) To determine the predictive power of the value and growth based investing factors.

2) To determine the performance of the value investment style against growth investment style in a frontier market in terms of returns and risks.

Research questions

1) How well do the value and growth based investing factors predict value?

2) Does the value investing strategy bring about higher returns and lesser risk than the growth investment style?

Significance of the study

The study to finds out how well the style indicators predict value and how value investing performs against growth based investing in a frontier market. It contributes by pointing out how value investing and growth based investing as investment styles perform in a frontier market (Nairobi Securities Exchange) and forms a basis for other frontier markets in Africa. This study also contributes to investor and academic education in countries that have frontier markets and are investigating the value and growth based investment style. It also benefits researchers in the field of equity portfolio management strategies and investors who are looking to invest in frontier markets using the value and growth investment styles.

CHAPTER TWO: LITERATURE REVIEW

Introduction

This section gives a summary of literature on the value investing and growth investing. It is divided into two sections: The first section contains findings on how well the various style indicators predict value and their benefits and weaknesses. The second section compares the performance of the value and growth investment styles.

Theoretical review

The price to earnings ratio is considered an essential tool in the valuation of stocks as Reilly and Brown explain that it is the best-known measure of relative value for common stock is the price/earnings ratio or the earnings multiplier because it is derived from the dividend growth model and has stood the test of time as a useful measure of relative value (Reilly & Brown, 2012).

Basu (1977) studied the existence of value premium in US market from 1957 to 1971 and found that on an average, both on absolute and risk-adjusted basis, the securities with low P/E ratios delivered significantly higher returns than high P/E securities. Jensen (2014), states that Earnings appear to be a strong indicator of the fundamental value of companies, and as such, investing in companies priced too low relative to their realized earnings has been a profitable strategy for investors. However the strategy of investing using the price to earnings ratio has been met with some criticisms.

Critics of the P/E approach claim that the ratio is easily affected by non-systemic factors such as variations in institutional depreciation and amortization rules, differences in accounting principles, large one off items on the Profit and Loss and temporarily depressed earnings. For example, pharmaceutical companies with large Research and Development spending can choose to book their research on the balance sheet, which increases share capital, or they can expense the R&D costs on the P&L, thereby affecting earnings.

Various researchers have embarked on testing whether the price to earnings ratio is a good predictor of value, Jensen (2014) conducted research on the value and Growth based style indicators in United States and European markets and his findings on the price to earnings ratio were that an examination of the premium within the underlying markets shows that the P/E factor premium is largely non-existent in the US market from 1990–2013. While this finding is supported by the findings of Fama and French (2011) it is a sharp contrast to previous academic results from Basu (1977) and Lakonishok, Shleifer and Vishny (1994) who show that the premium has been higher in the past. As such, the premium does not appear stable over time. Therefore its ability to predict value is still unclear and warrants testing especially in a frontier market

The price-to-book-value ratio (P/B) has gained prominence because of the studies by several authors, the rationale is that book value can be a reasonable measure of value for firms that have consistent accounting practice for example, firms in the same industry notably, and this measure can apply to firms with negative earnings or negative cash flows. (Reilly & Brown, 2012).Despite its prominence it has been faced with criticisms as explained below.

The price to book ratio is not effective when comparing firms with different levels of assets as Reilly & Brown (2012), explain "You should not attempt to use this ratio to compare firms with different levels of hard assets, for example, a heavy industrial firm to a service firm." Secondly, Chan and Chen (1991) and Fama and French (1992). In their view, firms trading cheaply relative to their book value of equity are likely to suffer from financial distress as well as a higher cost of capital due to increased risk.

Thirdly, Jensen mentions that investors should seek to accumulate sufficient knowledge about the company in order to eliminate the risk of investing in a potentially distressed company which shows that the use of the price to book ratio requires combination with other value factors when attempting to use it as a predictor of value. The inherent risk of the P/B factor can to some degree be mitigated by applying composite ratios however Jensen's study concluded that the data presented in for the developed markets do not indicate any significant benefits from following a naive low P/B strategy, and that the P/B premium in the sample is significantly lower than previously, suggesting that the premium is not stable over time. Which begs the question of whether there is a premium gained from investing using a price to book ratio approach in a frontier market.

Fourthly another criticism of the Price to book ratio is its reliance on monetary policy as discussed by Johnson, Jensen & Mercer (1997), Firm size and price-to-book-value ratio are prominent measures in explaining cross-sectional stock returns. Historically, average returns on shares of small-capitalization firms and low price-to-book firms have exceeded those on large-capitalization firms and high price-to-book firms. Recent evidence also shows that monetary policy developments significantly explain security returns. When we considered the influence on stock returns of the Federal Reserve's policy stance, we found that size and price-to-book effects depend largely on the monetary environment. Specifically, the small-firm and low price-to-book premiums are economically and statistically significant only in expansive monetary policy periods and are small, and in some instances negative, in restrictive policy periods. This evidence suggests that investors should consider the Fed's policy stance when using strategies that rely on size or price-to-book ratio

Value investors look for stocks with high dividend yield as a stock with high yield is relatively cheap especially when it also has a low price to earnings ratio as well. Reilly & Brown (2012) "Notice that value stocks are defined as those that are relatively cheap (e.g., low *P/B,* high yield)" Despite its intuitive appeal, the dividend yield factor has some inherent disadvantages. First, the flow of funds between a company and its shareholders is not limited to dividends and share capital increases, as firms also have the option of share repurchases, thereby paying an indirect dividend by decreasing the amount of outstanding shares with claims on the firm's earnings. While the two approaches are not completely similar, they both capture the effect. As such, one may wrongly classify a company as a growth firm despite large capital outflows from the company to its shareholders.

Regardless of the disadvantage the dividend yield is still a strong indicator for value investors as pointed out by a study from Jensen (2014), The excess return of the high dividend yield basket and the premium appear stable relative to their excess return. As such, the premium yields the second highest return risk ratio of all non-composite factors.

In other words, the dividend yield premium yields attractive returns to investors without increased total risk. But will this be the case for frontier markets.

From the findings it can be deduced that the value factors bring about minimal premiums in United States and European markets this paper will therefore find out if this is the same for a frontier market such as the Nairobi securities exchange.

The growth style indicators (asset growth and growth in earnings per share) performance is discussed. The asset growth factor is found to have larger predictive power than other variables such as P/E, P/B. The empirical data indicates however, a negative relationship between asset growth and investor returns.

For the EPS growth the results presented indicates a non-existent premium of 0.02% which is highly insignificant. Investors would do well to avoid both companies with high or low EPS growth. However, the differences between baskets appear volatile and no reliable conclusion can be reached at this point.

In conclusion the predictive power of the style indicators appear to be stronger in the tests done in 1957 to 1971 but however the tests of 1990 to 2013 almost tempt the conclusion that investors should not rely on these factors while investing in the USA and European markets however what will be the outcome in a frontier market. With the conclusions of the factors individually showing limited predictive power value various researchers have tested the ability of the factors to predict value when combined in their value and growth based investing styles.

With regard to the comparison of the growth and value investing most of the Academic community conclude that Value investing produces better return than Growth investing with international evidence supporting it as explained by Fama & French (1998), Value stocks have higher returns than growth stocks in markets around the world. For the period 1975 through 1995, the difference between the average returns on global portfolios of high and low book-to-market stocks is 7.68 percent per year, and value stocks outperform growth stocks in twelve of thirteen major markets.

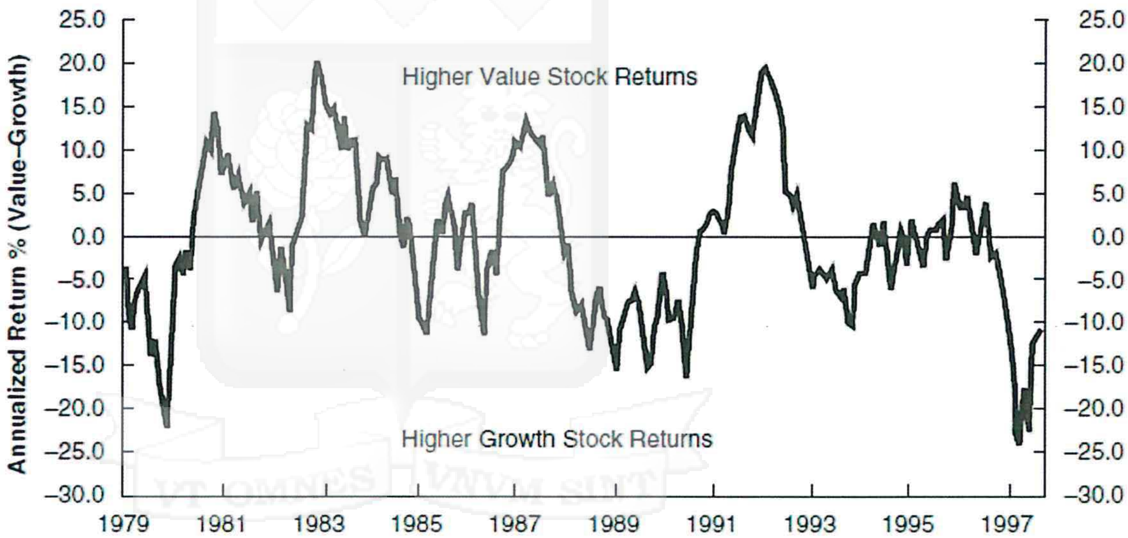
Sharpe, Rowley and Capaul (1998), further support Fama & French (1998) by stating value stocks outperformed growth stocks on average in each country during the period studied both absolutely and after adjustment of risk.Cross currently correlations of monthly value-growth spreads were small suggesting that any decision to tilt a portfolio toward a value stocks portfolio would have been more effective if done globally.

Louis K. C. Chan and Josef Lakonishok (2004) conclude that based on the accumulated weight of evidence on the book to market and related anomalies, the academic community has generally come to agree that value investment strategies, on average outperform growth investment strategies .

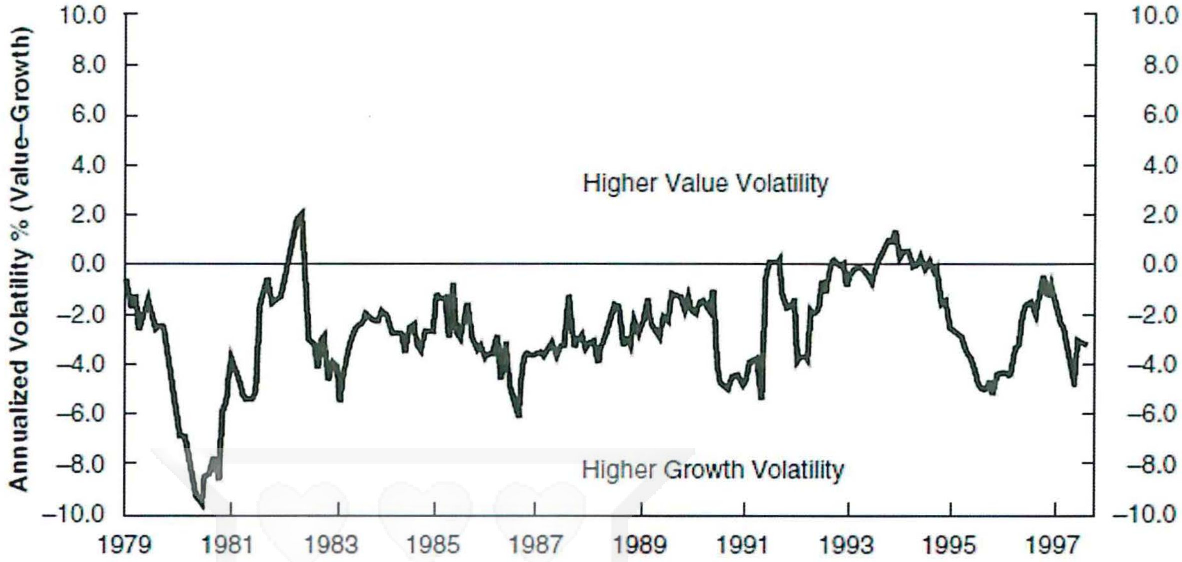
Reilly & Brown (2012) pit growth based investing and value based investing against each other and present findings from Fidelity Management in the Rotation charts below. They show a comparison of returns and volatilities of value and growth based portfolios

PERFORMANCE VALUE AND GROWTH PORTFOLIOS: 1979–1999

A. Rotation of Value and Growth Returns



B. Rotation of Value and Growth Standard Deviations

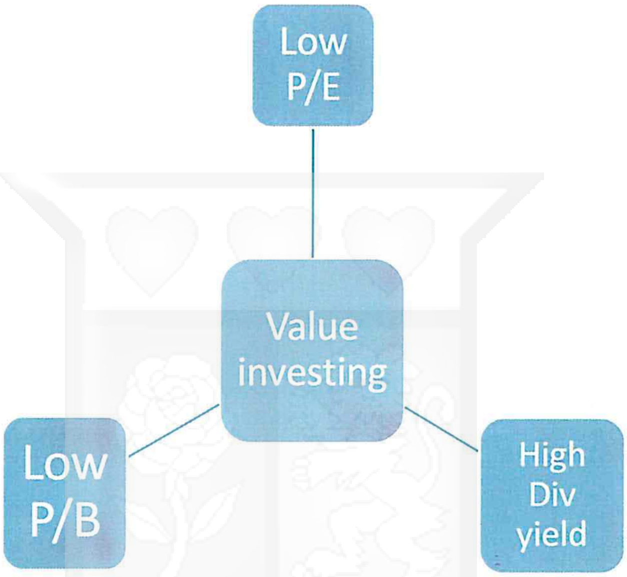


Source: Fidelity Management and Research. Data based on relative rolling 12-month returns to Russel 1000 Value and Growth indexes.

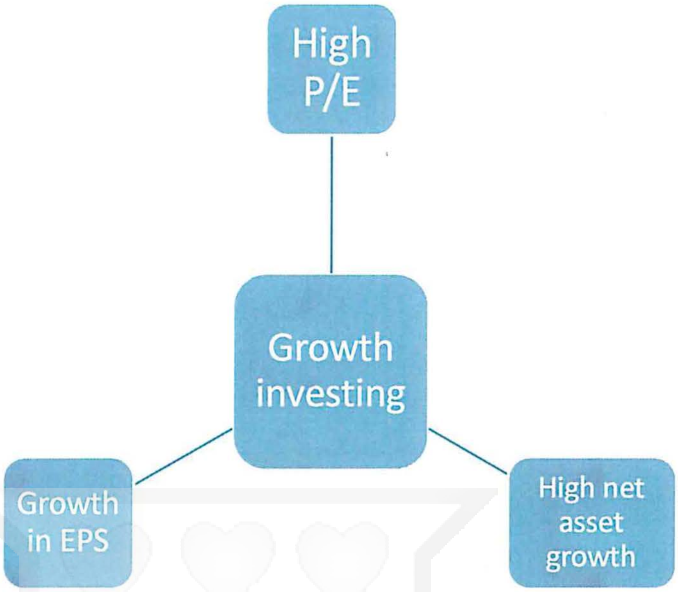
In the United States market value based investing portfolios produce better returns on average however this is not always consistent from one investment period to another as Reilly & Brown (2012) explain "It is tempting to conclude that value is unambiguously superior to growth as an investment style. However, it is important to note that, although value investing produces higher average returns than growth investing, this does not occur with much consistency from one investment period to another. In fact, Panel A of Exhibit 17.16 shows that there are significant differences in the value-growth return spread (based on the rolling annual performance of the Russell 1000 Value and Growth indexes) over time. During this analysis, the spread ranged from almost 20 percent in favor of value investing to almost 20 percent to the advantage of the growth style. Conversely, Panel B of the exhibit illustrates that the spread between value and growth return standard deviations, while itself volatile, and is consistently negative, meaning that the growth strategy is consistently riskier than the value approach."

Conceptual Framework

From theoretical review it can be determined that the value investing and growth investment styles have distinct factors that identify each style. A value investing style portfolio is composed of stocks with low price to earnings yield, low price to book ratio and high dividend yield.



Whereas a growth based investing portfolio is made up of high EPS and high net asset growth.



The following procedure is used in analysis, first to determine the predictive power of the style indicators is achieved by constructing portfolios based on the key style indicators of value and growth investing (Low P/E, Low P/B ratio, High dividend yield, High EPS growth, High P/E and High net asset growth) then measure the performance of these portfolios by calculating the return of the portfolios yearly from 2007 to the end of 2016. Ranks are awarded to portfolios based on the Sharpe ratios whereby the portfolio with the highest Sharpe ratio being considered as the best performer as it maximizes an investor's return with respect to the risk represented by the portfolio volatility.

To determine the performance of the value investment style against growth investment style in a frontier market. This is done by constructing portfolios based on value investing style indicators (Low P/E ratio, Low P/B ratio, High dividend yield and High free cash flow yield) combined then compared to portfolios formed through growth based investing indicators (High net asset growth, High EPS growth and High P/E ratio) combined. The growth based and value based portfolios are compared by comparing returns from 2007 to the end of 2016.The study also looks at the risk and return characteristics by calculating the Sharpe ratio.

Research Gap

The predictive power of the style indicators appear to be stronger in the tests done in 1957 to 1971 but however the tests of 1990 to 2013 almost tempt the conclusion that investors should not rely on these factors while investing in the USA and European markets however what will be the outcome in a frontier market. Louis K. C. Chan and Josef Lakonishok (2004) conclude that based on the accumulated weight of evidence on the book to market and related anomalies, the academic community has generally come to agree that value investment strategies, on average outperform growth investment strategies. However, it is important to note that, although value investing produces higher average returns than growth investing, this does not occur with much consistency from one investment period to another. Therefore with no definitive answer this study tests the performances in a frontier market as the conclusions concerning the growth and value investing styles are based on more developed markets therefore does not take into account that frontier markets have relatively illiquid markets.

CHAPTER THREE: RESEARCH METHODOLOGY

Introduction

This section presents the methodology used to attain the objectives of this study. It is organized as follows: The next section describes the research design. The third section shows the conceptual framework adopted in this study, then finally the last section highlights the data type and sources and the procedure carried out for data analysis

Research Design

This study is a descriptive study as it aims to describe the current state of the value and growth based investing styles in frontier markets by constructing portfolios using the key style indicators individually and combined, then measuring their performance.

Model specification

The return of individual stock is calculated using a buy and hold strategy until the next portfolio formation using the Holding period return formula calculated annually.

$$HPR = \frac{Dividend + (Ending\ price - Beginning\ price)}{Beginning\ price}$$

Where

HPR=Holding period return

Dividend=Dividend paid within the holding period

Ending price= Stock price at the end of the year

Beginning price=Stock price at the beginning of the year

To calculate the returns of the portfolio we will use the mean variance analysis of an n-asset portfolio

To determine the return of the portfolio

$$Rp = \sum_{i=1}^{n} Wi(Ri)$$

Where

Rp =expected return of the portfolio

Wi-Asset weight

Ri = Holding period Return of stock

n=number of stocks

And the volatility

$$\sigma(rp) = \sqrt{\sum_{i=1}^{n} wi2\sigma2(ri) + \sum_{i=1}^{n}\sum_{j=i+1}^{n} 2wiwjcov(ri,rj)}$$

Where

Wi and Wj =weights of the assets

Ri and Rj = returns of the assets

Cov =covariance

In order to rank the portfolios and the study will measure the Sharpe ratios calculated as follows

$$Sharpe\ ratio = \frac{Rp - Rf}{\sigma}$$

Where

Rp=Return of the portfolio

Rf =Risk free rate

σ = Volatility of the portfolio

Whereby the portfolio with the highest Sharpe ratio being the best performing as it maximizes return with respect to the risk of the portfolio.

Data Collection

Secondary time series data of stock prices ranging from the year 2007 to 2016 is used in this study from the NSE website also the study makes use of financial statement items from respective company websites to calculate the various style indicators.

Population

This study will examine 64 listed companies in the Nairobi securities exchange using their stock prices and financial statement items ranging from 2007 to 2016.

Sampling

The sampling method is random sampling with the constraint that three quarters of each sector is selected.

Data Analysis

One objective of this study is to determine the empirical relationship between common stocks and the style indicators. This study achieves this by constructing portfolios based on the key style indicators of value investing and growth investing (Low P/E ratio, Low P/B ratio, High dividend yield, High P/E ratio, High EPS growth and High net asset growth) then measuring the performance of these portfolios by calculating the holding period returns of the portfolios annually ranging from 2007 to the end of 2016.This shows which factors individually are good predictors of value.

The second objective of this study is to determine the performance of the value investment style against growth investment style in a frontier market. This is done by constructing portfolios based on a combination of all value investing style indicators (Low P/E ratio, Low P/B ratio and High dividend yield) then compared to portfolios formed through a combination of growth based investing indicators (High net asset growth, High EPS growth and High P/E ratio). The growth based and value based portfolios will be compared by comparing returns annually from 2007 to the end of 2016. In addition rankings are also awarded to the portfolios by calculating the Sharpe ratio whereby a higher Sharpe ratio means a better performance of the portfolio.

CHAPTER 4 DATA ANALYSIS

4.1 Introduction

This section is divided into two sections the first section presenting the effectiveness of the value and growth investment indicators in predicting higher returns (Value) which is judged by Holding period returns from 2007 to 2016.The second section presents the performance between the value and the growth investment styles which is be judged based on the portfolio returns and Sharpe ratios from 2007 to 2016

4.2 Effectiveness of Style indicators

This section shows the yearly and total Holding Period returns for an investor pursuing an investment strategy with the various style indicators.

The information is summarized in the table below.

Year	Low P/E	Low P/B	High Dividend Yield	High P/E	High net asset growth	High EPS growth
2007	--5.41	-5.9801	-2.39888	-3.05044	-0.55483	-3.69753
2008	-4.32	-4.2852	-4.58811	-5.82141	-1.12833	-0.59279
2009	3.79	8.82727	9.42	8.501238	2.323687	8.058866
2010	4.98	7.37289	2.64	7.063418	3.412149	10.16779
2011	-3.55	-5.744	0.79	-4.80762	-3.63107	-0.79804
2012	-2.13	10.6972	3.92	2.370964	14.10614	9.205135
2013	12.29	14.961	3.60	5.503137	8.728566	10.84501
2014	6.74859444	6.16999	1.99	2.205614	5.715279	7.157048
2015	-6.864753	-5.568	2.22	-2.04041	-0.99279	-1.52636
2016	198.328152	-31.383	42.92339	-310.854	-317.758	19.30812
Mean	21.46819934	-0.493195	6.05164	-30.0929509	-28.9779199	5.8127249
Volatility	62.42610468	13.37157665	13.48474167	98.77457866	101.6057616	7.255778725

The results show that a Low P/E yield strategy should overall produce the highest returns compared to the other style indicators. Supporting the works of Reilly & Brown (2012), who state that the price to earnings ratio is considered an essential tool in the valuation of stocks as it is the best-known measure of relative value for common stock because it is derived from the dividend growth model and has stood the test of time as a useful measure of relative value, However it must be mentioned that a high return in 2016 is the main cause for the large spread of returns hence a low P/E strategy does not really guarantee high returns hence this strategy should be applied with consideration of other factors both macro and specific to the company before selecting it as a part of the portfolio. The higher return is also at the cost of a high volatility compared to the High dividend yield style with relatively high return and lower volatility.

This study also is a contradiction of Jensen (2014), who found that the net asset growth factor which is a growth based investing factor is found to have larger predictive power than other value investing factors such as P/E, P/B

Conversely the largest losses are produced by a high price to earnings yield strategy and followed closely by the high net asset growth strategy and both have considerably high volatilities however once again the 2016 returns are the main cause for the drastic losses and high volatility hence really implying that when one is choosing a style of investment the investor should be cautious when constructing portfolios because applying these investment styles dispassionately could evidently sometimes not be rewarding for the investor.

4.3 Value Investing vs Growth Investing

The second objective of this study was to compare the performance of the Value investing strategy against the Growth investment style in the NSE.

The table below summarizes the portfolio returns of the Growth and value portfolios together with their respective volatilities and Sharpe ratios.

Performance Measure	**2007**	
	GROWTH	**VALUE**
Portfolio Return	0.385678	-0.65854
Sharpe ratio	836.0853	-0.8321
standard deviation	0.000379	0.873973
	2008	
Portfolio Return	-0.00285	-0.42422
Sharpe ratio	-1.08443	-1.63809
standard deviation	0.081837	0.31141
	2009	
Portfolio Return	0.333124	0.57709
Sharpe ratio	0.839354	1.018363
standard deviation	0.315628	0.499714
Performance Measure	**GROWTH**	**VALUE**
	2010	
Portfolio Return	0.245787	1.242465
Sharpe ratio	1.712931	1.332131
standard deviation	0.130179	0.868207
	2011	
Portfolio Return	N/A	-0.08417
Sharpe ratio		-1.00209
standard deviation		0.266616

	GROWTH	VALUE
Performance measure	**2012**	
Portfolio Return	0.537308	N/A
Sharpe ratio	1.339034	
standard deviation	0.339281	
	2013	
Portfolio Return	-0.20188	3.284756
Sharpe ratio	-0.61333	1.122353
standard deviation	0.484374	2.841847
	2014	
Portfolio Return	0.131905	N/A
Sharpe ratio	0.103606	
standard deviation	0.445003	
	2015	
Portfolio Return	-0.15147	1.787608
Sharpe ratio	-0.93444	1.256421
standard deviation	0.267077	1.344699
	2016	
Portfolio Return	N/A	5.780537
Sharpe ratio		1.071438
standard deviation		5.337627

From the results above there is the confirmation of what the Academics worldwide agree on, which is that the Value investment style does overall outperform the Growth investment style on the basis of portfolio return and Sharpe ratios however there are instances when the Growth investment style does outperform the Growth investment style in the case of this study the results of 2007 are evidence.

This echoes the works of Reilly & Brown (2012) who state that in the United States markets value based investing portfolios produce better returns on average.

The results of this study also a contradiction of the work of Reilly & Brown (2012), whose study illustrates that the spread between value and growth return standard deviations, itself is volatile, and is consistently negative, meaning that the growth strategy is consistently riskier than be4cause in this study the volatilities are higher for the value investment portfolio evidenced by the results above.

The actual portfolio constituents of each investment style including the weights allotted to each stock can be found in appendix 1.

The stocks that were chosen were on the basis of the company's style factors, for the growth portfolio, the stocks used to populate the portfolio had to satisfy the conditions of above average P/E ratio, above average EPS growth and above average Net asset growth. The Value portfolio had stocks that exhibited above average Dividend yield, below average P/E ratio and below average Price to Book ratios. The weights of the stocks of the portfolio were selected on the basis of minimizing variance using the Excel solver tool with the constraints of the stock weights being above or equal to zero due to the no short sales in the NSE and the second constraint was that the total weights should be equal to 1. The covariance of between stocks in each of the portfolios was calculated by the creation of a return matrix and "MMULT" and "TRANSPOSE" excel functions.

CHAPTER 5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter starts by giving a summary of the entire paper then goes ahead to give the conclusion and recommendations arrived at with regards to the objectives and finishes off with the limitations of the study.

5.2 Summary

The main aims of this study were to establish the effectiveness of the value and growth investment indicators in predicting value and compare the value and growth investment strategies against each other. Data from 2007 to 2016 is used. The investment style indicators' effectiveness is judged through the calculation of Holding Period returns from 2007 to 2016 and the performance between the value and growth investment styles is judged using portfolio returns based on the Markowitz portfolio theory and the calculation of Sharpe ratios.

5.3 Conclusion and Recommendations

The study concludes that when pursuing an investment style using style indicators the investor should consider a Low price to Earnings yield approach followed by the High dividend yield approach as they overall produce higher mean returns. While the High price to earnings yield and High net asset approach produce the lowest mean returns and to compound the poor performance they are marred with also high volatility of returns.

Regarding the performance of the Value investment style against the Growth investment style there is the confirmation of what the Academics worldwide agree on, which is that the Value investment style does overall outperform the Growth investment style on the basis of portfolio return and Sharpe however there are instances when the Growth investment style does outperform the Growth investment style in the case of this study the results of 2007 are evidence.

With that being said these conclusions should not be taken as Biblical truths for frontier markets a recommendation would be on top of these investments styles an investor should consider more factors when choosing stocks to invest in ranging from Political factors of the country to macro factors such as GDP.

5.4 Limitations if the Study

The main limitations of the study is that it does not capture the fees that an investor would have to pay in order to switch up his portfolio ,the broker's commission and capital gains tax due to the varied nature of these costs as they depend on the broker selected.

5.5 Recommendations for further study

A good sequel to this study would be the inclusion of other investment styles such as the passive investment styles that rely on a benchmark and momentum investing compared to the investment styles discussed in this study.

Also one should consider comparing the investment styles' performance with an investment strategy that applies macro factors such as GDP and inflation.

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Appendices

Appendix 1 Growth Portfolios

2007

Company	EPS growth	Net Asset Growth	P TO E	HPR	Weight
ARM CEMENT	54.3478261	28.91919342	21.62888	0.170693	0
DIAMOND TRUST BANK	39.6449704	76.14597171	12.71186	0.105509	0
EAAGADS	14.3617021	86.62391101	37.74247	0.385678	1
EA CABLES	32.1428571	36.93556602	16.63873	-0.1467	0
SCAN GROUP	23.1404959	28.18677363	12.87273	0.360489	0
					1

2008

EQUITY	55.2325581	31.25963666	13.83962	-0.00285	1
KENOL KOBIL	43.9929329	118.9989876	9.542647	-0.41435	0
KENYA COMMERCIAL BANK	32.2147651	59.6932598	11.79188	-0.17735	0
					1

2009

ARM CEMENT	28.3464567	94.07034311	14.35575	0.333124	1
					1

2010

EABL	4.21711332	102.2214568	19.66798	0.245788	0.99999
SCAN GROUP	16.5745856	92.20413428	16.02364	1.448129	0
STANDARD CHARTERED BANK	10.727056	46.08246486	12.89397	0.587962	0
					0.99999

2011

No stocks satisfy conditions

2012

KENYA POWER	9.25925926	65.42851033	5.675354	0.163624	0
DIAMOND TRUST BANK	28.4241532	60.66967806	7.191995	0.537308	1
STANDARD CHARTERED BANK	34.6835443	48.6041189	8.834586	0.70223	0
NIC BANK	8.84476534	47.12240946	6.643952	0.721981	0
KENYA COMMERCIAL BANK	10.483871	21.45090095	7.20438	0.865148	0
NATION MEDIA	4.72440945	19.61812361	13.69682	0.870357	0
EA CABLES	51.3043478	19.15590498	6.929851	0.341065	0
					1

2013

SCAN GROUP	22.1719457	68.4164583	18.68356	-0.20188	1
					1

2014

CENTUM	20.4244032	48.59797602	13.43612	-0.23607	0
DIAMOND TRUST BANK	1.43452106	35.87914811	10.11633	0.131905	1.00000
SAFARICOM	29.5454545	13.66826575	20.28509	0.35373	-8.2E-0
					1

2015

EAST AFRICA BREWERIES	37.7128954	29.66419698	28.77208	-0.15147	1
					1

Appendix 2 Value Portfolio

	2007				
Company	Div yield	P to E	P to B	HPR	Weights
WILLIAMSON TEA	3.640335	8.14	1.159404	-0.65854	1
KENOL KOBIL	2.121141	11.78	0.958599	-0.11525	0
					1
	2008				
Company	Div yield	P to E	P to B	HPR	Weights
JUBILEE HOLDINGS	12.85856	6.535361	0.909778	-0.02324	0
EXPRESS KENYA	6.488992	-9.39806	0.782159	-0.42422	0.999999
PAN AFRICA INSURANCE	2.214533	-15.5779	1.401741	-0.29066	0
					0.999999
	2009				
Company	Div yield	P to E	P to B	HPR	Weights
SASINI	3.866602	2.798736	0.681954	0.57709	0.999999
KENYA POWER	5.352364	0.435681	0.749772	0.393399	0
KENYA AIRWAYS	4.371585	-2.28409	0.708872	1.212568	0
					0.999999
	2010				
Company	Div yield	P to E	P to B	HPR	Weights
JUBILEE HOLDINGS	9.481883	5.188332	1.421093	1.242465	1
					1

	2011				
Company	Div yield	P to E	P to B	HPR	Weights
UNGA GROUP	7.020828	3.033278	0.755512	-0.08417	1
					1
	2012				
No stocks satisfy conditions					
	2013				
Company	Div yield	P to E	P to B	HPR	Weights
SAFARICOM	221.7255	7.052994	0.388714	3.284756	1
					1
	2014				
Company	Div yield	P to E	P to B	HPR	
No stocks satisfy conditions					
	2015				
Company	Div yield	P to E	P to B	HPR	Weights
SAFARICOM	172.0517	18.62813	0.35923	1.79	0.999998
WILLIAMSON TEA	13.45442	-25.0253	0.422174	-0.21212	0
					0.999998

	2016				
Company	Div yield	P to E	P to B	HPR	Weights
SAFARICOM	191.6694	5.931511	1.49716	5.78054	1
					1