

**THE EFFECT OF PORTFOLIO CHARACTERISTICS ON FINANCIAL
PERFORMANCE OF UNIT TRUSTS IN KENYA**

BY

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DECLARATION

This research project is my original work and has not been submitted to any institution or university other than the University of Nairobi for academic credit.

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SUPERVISOR

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

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DEDICATION

This Research Paper is lovingly dedicated to my parents Mr. and Mrs. Maina, siblings and Mr. Patrick Wanyoike who have been my constant source of inspiration. They have given me the drive and discipline to tackle any task with enthusiasm and determination. Without their love and support this project would not have been made possible.

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Be greatly blessed.

ABSTRACT

This study sought to fill the existing research gap in the evaluation of financial performance of unit trusts in Kenya as most studies apply the traditional methods of evaluation while trying to establish whether the unit trusts outperform the market. The study applied the multi-factor model and focused on evaluating the equity based unit trusts performance. This multi-factor model is as envisioned by Fama and French and later Cahart. The model provided a platform to investigate into the impact of certain characteristics of a fund to performance in this case focusing on size, value versus growth and momentum factors.

This study utilized descriptive analysis and a multi-factor model. The target population was 14 unit trusts that consisted of equity-based funds in Kenya for the period 2008 to 2012 with complete set of data for 24 months. This restriction limited provided a well focused comparison of funds that were popular among investors. This paper utilized secondary data. Data on financial performance of unit trusts including net asset value and dividend paid by unit trusts was collected from offices of respective unit trusts schemes. Data on estimate of dividend received on the market portfolio and the 20 share index was collected from the Nairobi Stock Exchange. Data on market interest rates and the average 91 day treasury bill was collected from the CBK. Data for estimating the size factor was estimated from the value of market capitalization/ size of the fund. Data for estimating the momentum factor was extracted from the historical returns of the selected funds available at the unit trusts firms. Data for estimating the value factor was obtained from the market prices posted daily by NSE for the market factor while the book factor was obtained from the respective growth fund balance sheet.

From the findings, the study established that there is a strong relationship between all the four factors under study and funds' return hence all the factors had a significant effect on performance. The study also found out that the beta values of the model showed that the sampled funds were more exposed to small stocks, value rather than growth stocks and consistent positive future performing funds. The study further established that there was a strong positive relationship between portfolio characteristics and unit trusts financial performance further supporting the robustness of the multi-factor model. This study therefore recommends that the managers of equity based funds should consider specific portfolio characteristics as all factors have a positive impact on overall financial performance.

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ABBREVIATIONS

APT	Arbitrage Pricing Theory
CAPM	Capital Asset Pricing Model
CMA	Capital Markets Authority
CBK	Central Bank of Kenya
NSE	Nairobi Securities Exchange

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CHAPTER ONE

INTRODUCTION

1.1 Background

A financial system facilitates the transformation of savings into investment and consumption. It consists of financial assets, intermediaries and markets. Key to this discussion is a component of the financial system, that is, financial markets. Financial markets can be described as the sum total of all capital, money and security market institutions operating in an economy. The Kenyan financial market is classified into the capital and money market. The capital market deals with long term funds and the money market deals with short term funds (Scribd, 2010). The institutions that participate in the capital market include The Government, Pension funds, Investment banks, Investment companies, securities exchange and commercial banks.

The Capital Markets Act, chapter 485A states that a collective investment scheme includes an investment company, a unit trust, a mutual fund or other scheme which is incorporated or organized under the laws of Kenya and collects or pools funds from the public or part of the public for purposes of investment and is managed by or on behalf of the scheme by the promoter of the scheme. The same act states that a unit trust means any scheme or arrangement in the nature of a trust in pursuant whereof members of the public are invited or permitted to acquire a unit of investment in one or more groups of specified securities and to participate proportionately in the incomes or profits derived there from. Unit trusts are open ended in the sense that anyone can buy units from the managers who will create new units for them or sell back their units for cancellation or liquidity by the managers (Lofthouse, 2001).

Zimele (2013) defines unit trusts as an investment alternative that pools money from many individuals and channels it into various investments with the aim of achieving low risk through diversification and lower average cost per member. The funds are collectively invested in a portfolio of assets such as shares, bonds, money market instruments and authorized securities in order to meet the needs and objectives of the group of investors. Depending on the type of fund unit trusts funds earn income in the form of dividends, interest received and capital gains realized from the appreciation of the assets invested in.

1.1.1 Performance of Unit Trusts and Performance Attribution

Performance evaluation is concerned with two main things 1) Determining whether the money manager added value by outperforming the established benchmark and 2) Determining how the fund manager achieved the calculated return. Did the fund manager achieve the return by market timing, by buying undervalued stocks, by buying low capitalization stocks or by overweighing specific industries e.t.c. Performance evaluation requires the determination of whether a fund manager achieved superior performance by skill or luck (Bruno, 1999) .

Levy and Post (2005) illustrate that overall performance measures provide no clues about which activities within the portfolio manager's domain are generating superior or inferior performance. Therefore, they discuss the concept of performance attribution which involves assessing the performance of the activities that make up portfolio management. To attribute performance there is need to analyze various management decisions which include: asset allocation, market timing and security selection.

Asset allocation decision involves deciding which asset classes to include and which to exclude from the portfolio and then deciding upon the long term weights for each of the asset classes allowed in the portfolio (Levy & post, 2005). Diversification which involves the spreading of a portfolio over many investments to avoid excessive exposure to a few sources of risk is a concept related to how well a manager allocates the portfolio among various asset classes. Market timing or style rotation is the strategic under or overweighing of an asset class relative to its normal weight to capture excess returns from short term fluctuations in asset class prices. Timing is undertaken to achieve incremental returns relative to policy return. Security selection is the active selection of investments within an asset class to achieve superior returns (Levy & Post, 2005) .

1.1.2 Portfolio Characteristics and Performance Measures

Brown and Reily (2009) conceptualize the model connecting risk and exposure in terms of micro-economic proxy variables that concentrate on the underlying sample of securities. In addition to the market beta the model incorporates non market beta factor namely, size of the fund, growth vs. value of the selected portfolio and momentum effect clustered as portfolio characteristics to ascertain their effect on fund performance. Other portfolio characteristics that

have an effect on fund performance include: expense ratio, investment objective, portfolio turnover ratio, fund risk, fund age and growth rate in fund size. These characteristics are general to a fund however I intend to study security specific characteristics. The model conceptualized by Brown and Reily is reflected prominently in academic studies following Fama and French (1996) and Cahart (1997) who evaluated mutual funds using four factors derived from empirically observed patterns in stock portfolio returns, observed to be related to the characteristics of the stocks. Size and growth are two dimensions of a security or portfolio of securities that have consistently been shown to matter when evaluating investment returns while momentum is an indicator of persistency in performance

To help determine whether managers have indeed superior abilities several performance measures have been devised over the years. Aragon and Ferson (2007) argue that the main idea behind the classical measures of investment is to compare the return of a managed portfolio over some evaluation period to the return of a benchmark portfolio. The benchmark portfolio should represent a feasible investment alternative to the managed portfolio being evaluated. It is necessary to have some model for what aspects of a portfolio should lead to higher or lower expected returns. Some asset pricing model is required for this reason and hence a link exists between portfolio performance measures and asset pricing models.

The Capital Asset Pricing Model of Sharpe (CAPM, 1964) implies that all investors should hold a broadly diversified “market portfolio,” combined with safe assets or “cash,” according to the investor’s tastes for risk. This is the logic of Jensen’s (1968) alpha, which remains one of the most widely used measures of risk adjusted performance. If alpha is positive the manager earns an abnormal return relative to the alternative of holding the benchmark portfolio strategy, (Aragon & Ferson, 2007).

Following the CAPM, empirical asset pricing in the 1970’s began to explore models in which exposure to more than a single market risk factor determines expected returns. Merton (1973) and Long (1974) developed models where investors should not simply hold a broad market index and cash, but should also invest in “hedge portfolios” for other economically relevant risks, like interest rate changes and commodity price inflation. A related asset pricing model is the Arbitrage Pricing model of Ross (APT, 1976), which allows for several risk factors to determine assets’ expected returns. In the case of the APT the number of factors depends on the

dimensionality of the pervasive, or irreducible common risks in the asset markets (Aragon & Ferson, 2007) .

Current investment management practice typically assumes that the fund's manager uses an aspect of "style". In their discussion, Aragon and Ferson (2007) roughly states that style refers to a subset of the investment universe in which a manager is constrained to operate, such as small capitalization stocks versus large stocks, or "value" versus "growth" firms. The style constraint may be a self-declared specialization, or it may be imposed on the manager by the firm. This leads to the idea of "style exposures," analogous to the risk exposures implied by the multiple-beta asset pricing model. This study will focus on the multi-factor model as developed by Fama and French and Cahart. The model tests three important criteria for fund managers: performance in terms of their ability to select assets into their portfolio, ability to predict the market and diversification after controlling the factors of size, growth and momentum.

1.1.3 The Kenyan Unit Trust Funds Industry

According to the Capital Markets Authority (CMA) report, unit trusts have grown in acceptance and popularity in Kenya from virtually zero in 2001 to 16 as per those licensed by May 2012. Unit trusts are the small investor's answer to achieving wide investment diversification without the need of prohibitive sums of money. As a market becomes sophisticated and more volatile, unit trusts become safe havens for less, sophisticated and less capitalized, conservative individuals in the market place.

Only unit trusts schemes that are approved by the Capital Markets Authority may be offered for sale to the Kenyan public. Such schemes must comply with the Capital Markets Act Cap 485 A and also the Capital Markets (Collective Investment Schemes) Regulations, 2001. An approved fund can easily be identified by the cover of its prospectus which contains a statement that a copy of the prospectus has been lodged and approved by the Capital Markets Authority.

Mutual Funds/Unit Trust Funds typically have a predetermined investment strategy in order to meet the investment objective of the fund. This therefore calls for management of investment companies to invest in different types of instruments in order to meet these objectives. It is important to understand the risk associated with the instruments that the management companies invest in, as it depicts the overall risk of the fund. The collective investment scheme offers

various types of schemes such as regular income plan, growth plan, equity funds, debt funds and balanced funds.

The main category of funds currently available in the market consist of equity funds which primarily invest in listed equities, fixed income fund investing in government securities such as treasury bonds and also corporate bonds, money market fund investing in short term instruments such as treasury bills, fixed deposits among others and finally balanced fund which invest primarily in a balanced mix of both equity and fixed income instruments.

In an effort to further deepen the capital market, the CMA has been facilitating the growth of areas such as Islamic Capital Markets products. Consequently this saw the licensing of the first ethical fund an Islamic unit trust, First ethical opportunities fund, sponsored by First Community Bank in April 2012, (Business Today, 2012). In addition, Gachiri (2013) highlights the approval by CMA in March 2013 of Genghis Capital to start selling Islamic unit trust which will be known as Iman fund.

1.2 Statement of The Problem

Initially in evaluating unit trusts performance researchers tried to establish whether unit trusts did indeed outperform the market. In developed markets early studies show that unit trusts do not outperform the market and managers do not have superior ability to consistently beat the market Sharpe, (1966), Jensen, (1968). Indirectly, the evidence indicates that the market is remarkably efficient. Studies in the 80's however, have discovered that fund managers are able to outperform the market. This is in contrast to the general findings of earlier studies.

Though there are extensive efforts on examining the unit trust performance both in developed and developing economies, most of the previous studies except for few, employ traditional measures to examine the unit trust and mutual funds performance. In addition, Ali et al, (2011) observes that very few studies have utilized Fama-French version of multi-factor model to examine the impact of asset allocation strategy, selection ability and diversification activities on investment returns after controlling the factors of size, growth and momentum.

Studies done in Kenya evaluating the concept of performance of mutual funds have mainly applied the traditional methods to investigate a fund manager's ability to outperform the market. Kagunda (2011) investigated the concept of asset allocation by fund managers and the impact this has on financial performance of unit trusts in Kenya. She concentrated on equity based funds

and found that asset allocation does explain a significant amount of the difference in returns across time and thus a primary determinant of return performance for these trusts. However she utilized the Jensen's alpha in her study. Jerop (2007) evaluated the performance of unit trusts in Kenya concentrating on equity and money market funds. Using the information ratio she showed equity funds being the most aggressive of the funds have high risk in relation to high returns and money market funds being less aggressive had low risk in relation to returns. She also observed that equity funds underperform the NSE 20 share index while the money market funds outperformed the 91 day treasury bills. Peter (2010) investigated whether unit trusts have better performance compared to that of the market portfolio utilizing the Jensen's standard performance measure. He observed that for the period of study the market trail behind the performance of unit trusts but this was not statistically significant. Ali et al (2011) while conducting a study on the Malaysian unit trust fund performance utilized the fama-french model and also observed the concept of asset allocation and its significance on the performance of the said unit trusts. He observed a sample of funds from equity, income and balanced funds.

The investigation of asset allocation decision by fund managers and its relation to performance of unit trusts in Kenya is still an area of very limited research. Kagunda (2011) investigated the asset allocation decision by fund managers and its impact on performance of equity funds hence was able to attribute performance. Peter (2010) in his study attributed the fact that unit trust outperforming the market could be due to the fact that fund managers could be in a position to predict stock prices based on fundamental variables such as market capitalization, price earnings ratios and price to book value ratios. These are relevant characteristics of the funds. The multi-factor model allows for one to measure these characteristics. In addition not much known local study has studied the use of a multi-factor model while evaluating unit trusts performance with the main aim of indentifying specific security's characteristics impact on performance. Besides, no local study has assessed the impact of multi-factor model on asset allocation strategy, selection ability and diversification activities on investment returns utilizing data from the equity funds after controlling portfolio characteristics. As a result as a researcher I find there is a study gap and it needs to be filled by doing a thorough study on the above mentioned.

1.3 Objectives of The Study

Evaluate the equity growth based unit trust performance by applying a multi-factor model. This multifactor model provides a platform to investigate the impact of certain characteristics of a fund to performance, in this case size, value and momentum.

1.4 Significance of the Study

i) Fund managers/ investment companies

The study will be of importance to fund managers as it will provide a more modern approach to evaluating unit trusts performance. They can be able to split the investment return to various specific micro-economic factors.

ii) Investors

The study will act to guide investors in making better investment decision and make value judgment in choosing a fund that best match its investment objective. Besides, the study will provide a picture of how funds are allocated in an effort to provide evidence on fund managers' claim of superior performance. At the most fundamental asset allocation level, the conclusion of the analysis of the asset class will aid investors in their valuable investment decision.

iii) The Capital Markets Authority

The study will be of particular interest to the Capital Market's Authority and Nairobi Stock Exchange who are the regulators. They will be on a position to allocate informed advice to the relevant authority and investors.

iv) Scholars and Researchers

The study will be act as the foundation of further research on the practicability of the model in evaluating portfolio performance locally. Scholars and researchers who would like to further discuss or carry out more studies on the performance of unit trusts will find this study useful.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews three theories from the theoretical portfolio theory to the development of asset pricing models associated with portfolio performance and also a comprehensive discussion of some of the empirical studies that have been carried out both locally and in other countries. In addition, the chapter covers the concept of unit trusts performance and especially what is relevant if the multi-factor model is to be applied and extensive discussions of the variables that form the multi-factor model which is the core basis of this research paper. Issues mentioned in the objectives will be featured, critically reviewed and discussed.

2.1 Theoretical Review

2.1.1 Portfolio Theory

A portfolio is a collection of a group of assets held together. The principal reason of holding a portfolio rather than a single investment is to maximize return while minimizing risk.

Harry Markowitz (1952,1959) developed the basic portfolio theory, he derived the expected rate of return for a portfolio of assets and an expected risk measure. It emphasizes how risk-averse investors can construct portfolios to optimize or maximize expected return based on a given level of risk, emphasizing that risk is an inherent part of higher reward. According to the theory, it's possible to construct an efficient frontier of optimal portfolios offering the maximum expected return for a given level of risk. There are four basic steps involved in portfolio construction: security valuation, asset allocation, portfolio optimization and performance measurement.

Portfolio theory is a mathematical formulation of the concept of diversification in investing, with the aim of selecting a collection of investment assets that has collectively lower risk than any individual assets. That this is possible can be seen intuitively because different types of assets often change in value in opposite ways. For example, when prices in stock market fall, prices in the bond market often increase, and vice versa. A collection of both types of assets can therefore have lower overall risk than either individually. But diversification lowers risk even if assets

returns are not negatively correlated indeed, even if they are positively correlated (Markowitz 1952).

There are several assumptions underlying this theory in regard to investors behavior, investors consider each investment alternative as being represented by a probability distribution of expected returns over some holding period, they estimate the risk of the portfolio on the basis of variability of expected returns, they maximize one period expected utility, they base their decisions solely on expected return and risk and for a given level of risk, investors prefer higher to lower returns and similarly, for a given level of expected return, investors prefer less risk to more risk (Brown & Reily, 2009) . Many theoretical and practical criticisms have been leveled against this theory the more fundamental being its measurement of risk in terms of total risk whereas relevant risk in investment appraisal is non-diversifiable risk and the fact that financial returns do not follow a Gaussian distribution or indeed any symmetric distribution, and the correlations between asset classes (Micheal, 1998).

2.1.2 Capital Asset Pricing Theory

CAPM was developed independently by three scholars Sharpe 1964, Lintner 1965, Treynor 1961. The model is based on portfolio theory and demonstrates how risk and return could be linked together and also specifies the nature of risk/ return relationship.

In such a simple world, Tobin's (1958) super efficient portfolio must be the market portfolio. All investors will hold the market portfolio, leveraging or de-leveraging it with positions in the risk free asset in order to achieve a desired level of risk. For any security or portfolio the CAPM decomposes and quantifies the total risk of a portfolio or individual assets into 2 components: diversifiable (specific risk) and non- diversifiable risk (systematic risk). Systematic risk is the risk of holding the market portfolio. As the market moves, each individual asset is more or less affected. To the extent that any asset participates in such general market moves, that asset entails systematic risk. Specific risk is the risk which is unique to an individual asset. It represents the component of an asset's return which is uncorrelated with general market moves (Lintner, 1965).

Unsystematic risk is the risk to an asset's value caused by factors that are specific to an organization, such as changes in senior management or product lines. In general, unsystematic risk is present due to the fact that every company is endowed with a unique collection of assets, ideas and personnel whose aggregate productivity may vary. A fundamental principle of modern

portfolio theory is that unsystematic risk can be mitigated through diversification. That is by holding many different assets; random fluctuations in the value of one will be offset by fluctuations in another (Markowitz, 1952). Systematic risk is risk that cannot be removed by diversification. This risk represents the variation in an asset's value caused by unpredictable economic movements. This type of risk represents the necessary risk that owners of a firm must accept when launching an enterprise. In the CAPM, the risk associated with an asset is measured in relationship to the risk of the market as a whole (Sharpe,1964). No matter how we diversify our investment it's impossible to get rid of all the risk. As investors, we deserve a rate of return that compensates us for taking on risk. The CAPM helps us to calculate investment risk and what return on investment we should expect.

The dependent variable or outcome of the CAPM equation, R_j is the return on the j^{th} portfolio. The independent variables consist of R_f which is the risk free rate, β_j which is the beta of the j^{th} portfolio and R_m which is the return of the market portfolio. The difference between the market portfolio and the risk free rate is then multiplied by the beta. Beta which measures risk is the systematic component of a security's volatility relative to that of the market portfolio. The security market line graphically illustrates the above formula and shows the relationship between risk and expected return is a straight line with a positive slope. It provides investors with a tool for judging whether securities are undervalued or overvalued given their level of systematic (beta) risk. This theory has been subject to various criticisms key among them being that the single market beta needs to be supplemented with additional dimensions of risk.

2.1.3 Arbitrage Pricing Theory

In search of an alternative to asset pricing theory to the CAPM that was reasonably intuitive, required only limited assumptions and allowed for multiple dimensions of investment risk Ross, (1976) developed the Arbitrage Pricing Theory (APT).

It describes the price where a mispriced asset is expected to be. Whereas the CAPM formula requires the markets expected return, APT uses the risky asset's expected return and the risk premium of a number of macro-economic factors. Arbitrageurs use the APT model to profit by taking advantage of mispriced securities. A mispriced security will have a price that differs from the theoretical price predicted by the model. By going short an overpriced security, while concurrently going long the portfolio the APT calculations were based on, the arbitrageur is in a position to make a theoretically risk free profit (Ross, 1976). The basis of APT is the idea that

the price of a security is driven by a number of factors. These can be divided into two groups: macro factors and company specific factors. The APT is a substitute for the CAPM in that both assert a linear relation between assets' expected returns and their covariance with other random variables (Ross, 1976). The difference between CAPM and APT is that CAPM has a single non-company factor and a single beta, whereas APT separates out non-company factors into as many as proves necessary. Each of these requires a separate beta. The beta of each factor is the sensitivity of the price of the security to that factor.

The outcome of the APT equation, R_i , is the actual return on asset i during a specified time period. The dependent variables consist of a constant factor, $E(R_i)$ which is the expected return for asset i if all the risk factors have zero changes. b_{ik} which is the reaction in asset i 's returns to movements in a common risk factor k and δ_k which is a set of common factors or indexes with zero mean that influences the returns on all assets. The equation has an error term ε_i which is assumed to be zero as it is completely diversified in large portfolios.

APT does not rely on measuring the performance of the market instead it directly relates the price of the security to the fundamental factors driving it. The problem with this is that the theory in itself provides no indication of what these factors are, so they need to be empirically determined. The potentially large number of factors means more beta's to be calculated and there is also no guarantee that all the relevant factors have been indentified (Sharpe, 1992). As a result, the APT is difficult to put into practice in a theoretically rigorous fashion. Multifactor models attempt to bridge this gap and these factors will be discussed in details later.

2.2 Review of empirical studies

Much of the research done on the performance of unit trusts and mutual funds has been carried out in the developed economies where pooled funds are at very advanced stages. The performance of unit trusts depends mainly on the expertise of the fund managers and the performance of the underlying assets or securities. In addition, most of the research work carried out has been on whether the funds outperform the market, persistence of the fund performance and effect on certain attributes on the fund performances. A number of studies show that in an efficient market unit trusts or any other form of pooled funds do not outperform the market.

Most of the previous studies except for few employ traditional measure to examine the unit trust and mutual funds performance. Otten and Bams (2002) gave an overview of European mutual

fund industry and investigated mutual fund performance using both unconditional and conditional asset-pricing models. The investigation was based on a survivorship bias controlled sample of 506 funds from the five countries: France, Germany, Italy, Netherlands and UK. This is done using the Carhart (1997) four factor asset-pricing model. The overall results suggest that European mutual funds and especially small cap funds are able to add value, as indicated by their positive after cost alphas. In a related study, Tonks (2003) investigated the performance of the UK equity portfolio funds over the period 1983–1997. The study observed a similarity in returns pattern on most of the pension funds and the FT all share index. Therefore, it was suggested that most funds in their sample are ‘closet-trackers’. Any measures of outperformance were therefore bound to be small.

Blake and Timmerman (1998) used a large sample containing the complete returns histories of 2,300 UK open-ended mutual funds over a 23-year period to measure UK fund performance. They found some evidence of underperformance on a risk-adjusted basis by average fund manager, persistence of performance and the existence of a substantial survivor bias. Similar findings have been reported for US equity mutual funds. While on the timing ability of fund managers, Blake et al. (1999) examined a sample of 364 UK pension funds over the period 1986–1994. They found that asset allocation provide significant contribution to the total returns. Average returns from stock selection are negative while average returns to market timing had been negative also. Although UK equity managers are comparatively good at selecting equities, only 16% of the sample beat peer group is average.

Dahlquist et al. (2000) studies the relation between fund performance and fund attributes in the Swedish market. Performances are measured based on Jensen alpha in a linear regression of fund returns on several benchmark assets, allowing for time-varying betas. The estimated performance is then used in a cross sectional analysis of the relationship between performance and fund attributes such as past performance, flow, size, turnover and proxies for expenses and trading activities. Their result show good performance among small equity funds, low fee funds, funds whose trading activity is high and in some cases, funds with good past performance. Hallahan and Faff (1999) examined the market timing ability of segment of the Australia investment fund industry, namely, equity trust over the period 1988–1997. They used both quadratic excess returns market model and dual-beta excess return market model regressions. The results suggest

an evidence of market timing ability. Furthermore, there is no clear dominance of one market timing model over the other.

The impact of asset allocation policy on funds performance was investigated by numbers of researchers. Vanguard (2003) recently conducted an analysis of 420 US balanced mutual funds at any time between 1962 and 2001. They found that an average 77% of the variability of a fund's return was explained by its strategic asset allocation policy, with market timing and stock selection playing a minor role. In a similar study, Drobetz and Kohler (2002) examined the performance of 51 German and Swiss balanced mutual funds in order to determine what portion of the performance of a fund can be attributed to asset allocation policy and what portion of market timing and stock selection. The documented evidence from their study suggests that over 80% of the variability of returns of a typical fund over time was explained by asset allocation.

Leite et al. (2009) examined the performance of Portuguese equity funds investing in the domestic and in the European Union market, using several unconditional and conditional multi-factor models. Overall the findings were supportive of the robustness of conditional multi-factor models and were able to ascertain that Portuguese equity funds seem to be relatively more exposed to small caps and more value-oriented. In addition they presented strong evidence of time-varying betas and, in the case of the European Union funds, of time-varying alphas too. In terms of market timing, the tests suggested that mutual fund managers in the sample did not exhibit any market timing abilities but found some evidence of time varying conditional market timing abilities but only at the individual fund level.

Ali et al. (2011) investigated the pattern of asset allocation and the performance of unit trusts in Malaysia over the post crisis period by using risk-adjusted performance measures and multi-factor model from the year 2000 to 2004. Evidence from the statistics suggested that an active asset allocation strategy had been observed among Malaysian fund managers during the post Asian financial crisis. It also suggested that investment allocation in equity remained a dominant vehicle for investment and asset allocation. Findings from multifactor model suggested that all funds of different objectives registered positive alphas except for income funds, with growth funds being among the top. While balanced funds registered highest diversification effectively,

diversifying away about 70%–80% of unsystematic risk, the momentum factor was not among the important elements to explain unit trust performance in Malaysia.

Daniel (1997) used among others a characteristic based benchmark method to measure portfolio performance, which is thought to have greater statistical power than factor models when detecting abnormal performance in US unit trusts. The method uses benchmarks based on three characteristics of stocks (size, book to market and momentum) held by the portfolios evaluated. A few other risk-adjustment techniques were employed including Grinblatt and Titman's (1993) measure; Carhart's (1997) four factor, Jensen model and a CAPM based Jensen measure to measure performance. Fund categorization was based on the self reported, investment objectives of the funds. Results indicated positive persistence in returns of aggressive growth funds but no evidence of style timing. Saze and Izquierdo (2000) analyze the performance of Spanish unit trust. The classification methodology used is the model introduced by Sharpe (1992), which analyses funds style or asset class. Abnormal performance was calculated by comparing the return on the fund with that of a passively managed portfolio of the same style as the evaluated fund. No funds could be found to display persistent outperformance. This implies that after accounting for style, funds were not able to display any additional levels of skill that would be required to outperform a style benchmark.

Quigley and sinquefield (2000) examine equity unit trusts in the UK, between 1978 and 1999. The study categorizes funds based on the classification of the Association of unit Trusts and Investment funds and makes use of the Fama-French (1993) three factor model to measure performance and Sharpe-Linter CAPM model. The findings show that UK funds were unable to outperform the benchmark, once exposure to market, value and size were taken into account. Small company unit trusts were persistently the worst performers, with value funds next in line. Davis's (2001) study of unit trust persistence and manger style uses the Fama-French (1993) three factor model to infer a fund's investment style and to evaluate performance persistence. The findings revealed that no investment style generated abnormal returns over the time period. Some evidence was found on short-run persistence among the best-performing growth funds, although this abnormal performance was not sustained beyond a year. Negative persistence was witnessed amongst small cap funds.

Soo (2012) investigated the extent to which fund's fundamental characteristics are helpful in identifying fund with superior investment decisions driven by managers' activities of selecting stocks and timing the broad market movements among Malaysia unit trusts fund. The findings showed that fund risk is negatively related to selectivity but positively related to timing returns, suggesting that managers whose activity specialization is stock selection are likely to show poor performance when managing funds with high exposures to broad market movements. In other words, funds with such attributes are better managed by market timer managers who are skillful at taking advantage on market-wide movements. On fund size, it is shown that fund managers of large funds can better exploit the predictability of broad market movements, reflecting the cost efficiencies associated with economies of scale of large funds. Nevertheless, the result also suggests that as the size of the funds becomes larger, it becomes more difficult for fund managers to find worthwhile investments and thus resulting in low selectivity returns.

The relationship between mutual funds, risk and asset size, expense ratio, portfolio turn over and load/ no-load status were examined by Droms and Walker (1995) in a study involving 150 mutual funds for the period 1971 to 1990. Their study found out that portfolios of funds with higher risk more commonly earned higher returns as predicted by CAPM. Additionally, the analysis revealed that portfolios of smaller funds appear to be more risky, as it hypothesized that larger funds generally carry less risk due to increase diversification. The relationship between risk and expense ratio was found to be positive. Holmes and Faff (2000) carried out a study to assess the explanatory power of various fund characteristics in determining fund performance of Australian Unit Trusts over the period 1988 to 1997. They established that with regard to fund category the most aggressive portfolios attain the highest level of fund risk as opposed to the property trusts with the lowest level of risk.

Kagunda (2011) while investigating the concept of asset allocation and its effect on financial performance on the Kenyan unit trusts for the period 2005 to 2009, established that asset allocation can explain a significant amount of the difference in returns across time and hence a primary determinant of return performance of these trusts. In addition she also noted that asset allocation and its impact on financial performance is a comprehensive important measurement and mitigation method used by various organizations hence much important if effectively

implemented and utilized. Her study though it utilized the Jensen alpha was the closest study in Kenya that looked at the stylistic attributes of unit trust performance, asset allocation.

Financial times (2000) present comparative data for 60 large pool schemes in Kenya, Europe and USA. The data revealed that in Kenya, 50.2% of the fund is invested in real estate compared to 34.2% and 53.1% in Europe and USA respectively. Bonds and bills took up 16.3% of the Kenyan fund while they took up 12.6% and 22.7% of the European and American funds respectively. Offshore investments only formed 5.5% of the Kenyan fund compared to 26.5% and 11.1% of the European and USA funds respectively. The fund managers have a good reason for making such investment decision. The different proportions in the different countries could be due to the different factors in these countries. This study will therefore try to look at performance of growth based portfolios of which equity funds are a part of.

2.3 Conclusion

In conclusion, the multi-factor model greatly improved the asset pricing model, which is highly relevant to developing a measurement mode for portfolio performance for comparison with a stated benchmark. It gave specific risk factors other than the market factor easing the use of the APT model. The studies done to measure performance using the multi-factor model indicate that the explanatory power of the alpha increases as the model is utilized. The studies that support the robustness of the model were done in Europe, Portugal and Malaysia and the outcome was more explanatory of the performance attributing it mostly to exposure small cap funds. Most of these studies are done with a focus on equity based funds. To further illustrate the robustness of the model versus the traditional methods, Blake et al (1999) when using the risk adjusted method in UK found evidence of underperformance.

Knight (2002) discusses two different techniques usually used in managing funds, passive and active. Passive portfolio management entails a 'buy and hold strategy' whereby the weights on the securities constituting the portfolio are set at the beginning of the investment period and are held constant until the end with only minor changes. The assumption is that the market is efficient and there is homogeneity of expectations. In contrast, the assumption behind active management is that markets are not "continuously efficient" and investors do not have heterogeneous expectations regarding securities risks and returns. Hence, managers frequently

adjust their portfolio weights to follow different strategies and identify opportunities to 'beat the market'. This therefore, demands the mastering of different skills to optimally perform they include: asset allocation, diversification, security selection and market timing. Studies done evaluating these skills and which skill is of greater influence to performance single out asset allocation as the dominant of the three. Blake et al. (1998) in his study identifies asset allocation as more superior to market timing. In addition, a study of US balanced funds by Vanguard (2003) found out that asset allocation was the dominant factor in explaining returns volatility as is the study by Drobetz et al. (2002) in Germany and Ali et al. (2011) in Malaysia.

Brown and Reilly (1997) observes that asset allocation decisions determines to a great extent both the returns and volatility of the portfolio. Diversifying by combining different asset classes in a portfolio reduces overall portfolio volatility. In addition, Elkin (1999) stated that asset allocation rather than stock picking or market timing, is by far the most important factor that determines the returns that a portfolio would generate over time. As illustrated under performance attribution, diversification and asset allocation cannot be further apart and hence once asset allocation has been clearly illustrated the concept of diversification will be clearly shown using the multi-factor model by the outcome of the R^2 .

In highlighting the various skills that show managers superior performance funds fundamental characteristics are highlighted and upon controlling such characteristics, the effect of skills on performance is shown. These studies identify the size factor as the most researched of the characteristics. Daniel (1997), Quigley and Sinquefeld (2000) and Droms and Walker (1995) all identify size, momentum and value factors in their studies as fundamental characteristics. In this study the factors that have been identified are the size, value vs. growth and momentum factors discussed comprehensively above. From the outcome of the model other than being able to show diversification skills, the skill of stock selection shall also be measured by the sign that the alpha will adopt upon regression. This modern approach to unit trust performance evaluation has not been used in the Kenyan context and this study intends to cover this research gap by evaluating growth based unit trusts in Kenya as it has been shown to be the highest investment vehicle for investors.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter begins by a brief discussion of the research design and methodology of the study. Then there will be a discussion of the following areas: the target population used for the study, the sampling techniques used and the sample size utilized for the study, the nature of data that was collected, sources and finally the tools used for purposes of data analysis.

3.2 Research design

Robson (2002), states that the research design is the plan and structure of investigation so conceived so as to obtain answers to research questions. He further asserts that the plan is the overall scheme or program of the research. The way a study is planned and conducted, the procedures employed to answer the research problem or question. The study made use of descriptive analysis research design and multi-factor model which requires in depth analysis in order to understand the performance of unit trust market for the period 2008 to 2013. I chose this period so as to capture the effect the post election violence, economic crisis had on the performance of unit trusts and also to review the effect a stable economy had on the performance. In addition, this method was appropriate as the study intended to gain an insight into the various factors that affect performance of unit trusts as illustrated by the multi-factor model. The main intention was to examine the fund manager's ability to select good assets, ability to diversify the potential risk while the model also includes size, growth and momentum factors that explained fund managers returns.

Time series analysis was used as since it involves an examination of a firm's performance data over a period of time which was the intended action.

3.3 Population

The population for the study was 14 unit trusts as per the CMA listing in May 2012 that offer equity based growth fund. Out of this, the selection criteria were those unit trusts that had a complete set of data for 24 months for the period 2008 to 2012.

3.4 Sampling

The objective of sampling is to estimate population values from the information contained by the elements of a sample (Ngau & Kumssa, 2004). Simple random sample was used. Ngau and Kumssa (2004) define a simple random sample as one in which every member of the population has an equal and independent chance of being selected. A simple random sample is free from sampling bias.

3.5 Data collection

Secondary data was the main source of data used in the study. Data on performance of unit trusts including net asset value and dividend paid by unit trusts was collected from the respective unit trusts firms. Data on estimate of dividend received on the market portfolio and the NSE 20 share index was collected from the Nairobi Securities exchange (NSE). The NSE 20 share index was used as it was more representative of the data to be used. Data on market interest rates, interbank allocation rates was collected from the Central Bank of Kenya (CBK). Data on asset allocation was collected from the annual reports for the period 2008 to 2012.

Data for estimating the size factor was estimated from the value of market capitalization, that is, (number of shares outstanding*market price per share) or the asset size o . Data for estimating the momentum factor was extracted from the historical returns of the selected funds available at the unit trust firms. Data for estimating the value factor was obtained from the market prices posted daily by NSE for the market factor while the book factor was obtained from the respective growth fund balance sheet by deducting the value of debt and liabilities from the total value of assets.

The average 91 day treasury bill rates was used as the free rate and the data was derived from the CBK.

3.6 Data Analysis

The above data was analyzed via multiple regression using SPSS (Statistical Package for Social Sciences). SPSS is one of the best statistical packages for data storage, manipulation, analysis and storage.

The regression output included estimates $\alpha_i, \beta_{i1}, \dots, \beta_{i4}$, standard errors for the coefficients and the R-squared (a measure of percentage variance explained by the factors) Levy and Post,

(2005). Each of these coefficients came with a t statistic that indicated how precisely the coefficient was estimated.

The model was of the form below:

Fama and French Three factor model is as follows:

$$(R_{it} - RFR_t) = \alpha_i + \beta_{i1} (R_{mt} - RFR_t) + \beta_{i2}SMB_t + \beta_{i3}HML_t + e_{it} \dots \dots \dots (1)$$

Cahart's four factor model

$$(R_{it} - RFR_t) = \alpha_i + \beta_{i1} (R_{mt} - RFR_t) + \beta_{i2}SMB_t + \beta_{i3}HML_t + \beta_{i4}MOM_t + e_{it} \dots \dots (2)$$

The left hand side variable gives the excess return of fund i after deducting the risk free rate. This excess return is a result of fund's exposure to the market premium factor, size, value vs growth and the momentum factors which are the right hand side variables. The market premium factor measures by how much the market portfolio exceeds the risk free rate which is a market wide factor. The size of the fund is picked from the financial position statement of the said unit trust. The value vs growth factor picks its value from the market and compares it with the value as per fund financial position. The momentum factor is a reflection of how a specific fund past performance continually reflects in the future. Thus the three factors are obtained from a fund underlying character. Size and growth are two dimensions of a fund that has been consistently been shown to matter when evaluating its return while momentum is an indicator of persistency in performance. How well a fund manager can combine the three factors in consideration of the market premium factor determines a fund excess return.

Where:

R_{it} = the return on fund i in the month t

RFR_t = the risk free rate on month t

α_i = The expected return to the I^{th} asset if all factors take the value zero.

R_{mt} = the return on a market portfolio in month t

SMB_t = (Small minus Big) the return on portfolio of small capitalization stocks or asset size minus the return to a portfolio of large capitalization stocks or asset size in month t

HML_t = (High minus Low) the return to a portfolio of stocks with high ratios of book-to-market values less the return to a portfolio of low book-to-market value stocks in month t .

MOM_t = the rate of return of portfolio of high performance funds minus rate of return of low performance funds in month t .

The market factor was measured by return on market index minus risk free interest rate. SMB was designed to capture elements of risk associated with fund size while HML was intended to distinguish risk differentials associated with "growth", that is, low book-to-market ratio and "value", that is, high book-to-market firms. The price momentum factor, accounted for the tendency of firms with positive (negative) past returns to produce positive (negative) future returns. Carhart estimated it by the average return to a set of stocks with the best performance over the prior year's minus the average return to stocks with the worst returns (Brown & Reily, 2009).

Alpha and Beta are widely used for portfolio selection. Beta is a popular measure of market timing. Alpha is useful for security selection because it indicates which stocks are likely to yield abnormal return above and beyond a fair compensation for the risk involved. β_{i1} measures the portfolio's sensitivity to the market return, β_{i2} to a size factor, β_{i3} to a value factor and β_{i4} to a momentum factor. A positive β_{i2} says the portfolio has net exposure to small stocks, while a negative value indicates net exposure to large stocks. A positive β_{i3} indicates net exposure to value stocks, and a negative value indicates net exposure to growth stocks. A positive β_{i4} indicates exposure to consistent positive future performing stocks while a negative value indicates exposure to persistently negative returns for the stocks.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter is a presentation of results and findings obtained from field data, both descriptive and inferential statistics have been employed specifically using logistic regression analysis to provide an insight depth of the effect of portfolio characteristics on financial performance of unit trusts in Kenya.

4.2 Descriptive Statistics of the Sample

This summarizes the sample characteristics of the effect of portfolio characteristics on financial performance of unit trusts in Kenya. The results of tests on the differences in means of all variables of the Cahart's four factor model were considered i.e. the return on fund i in the month t (R_{it}), the risk free rate on month t (RFR_t), the return on a market portfolio in month t (R_{mt}), the return on portfolio of small capitalization stocks or asset size minus the return to a portfolio of large capitalization stocks or asset size in month t (SMB_t), the return to a portfolio of stocks with high ratios of book-to-market values less the return to a portfolio of low book-to-market value stocks in month t (HML_t) and the rate of return of portfolio of high performance funds minus the rate of return of low performance funds in month t (MOM_t). The findings were as indicated in Table 4.2.1

Table 4.2.1 The effect of portfolio characteristics variables on financial performance of unit trusts in Kenya.

	$R_{mt} - RFR_t$	SMB_t	HML_t	MOM_t	$R_{it} - RFR_t$
Mean	0.42	0.312	0.313	0.533	0.3251
Median	0.32	0.402	0.243	0.211	0.2233
Maximum	0.91	0.816	0.811	0.551	0.6621
Minimum	0.11	0.141	0.281	0.262	0.1621
Std. Dev	0.052	0.032	0.025	0.094	0.0310
Skewness	0.238	0.453	-0.019	0.271	0.1151
Kurtosis	0.175	0.412	0.442	0.102	0.1213

Observations	14	14	14	14	14
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Source: Computed by the researcher from financial reports of unit trusts

The results in Table 4.2.1 shows tests on the differences in means of all variables of the Cahart’s four factor model considered i.e. the return on fund i in the month t less the risk free rate on month t showed an average percentage mean of 32.51 and standard deviation of 3.1 which indicates a positive and significant unit trusts financial performance, the market premium variable showed a mean of 42 percent and standard deviation of 5.2 , the size variable showed a percentage mean of 31.2 and standard deviation of 3.2, the growth versus value variable showed a percentage mean of 31.3 with standard deviation of 2.48 and the momentum variable showed a percentage mean of 53.3 with a standard deviation of 5.8. The positive values imply that the variables under the Cahart’s four factor model are significant in determining the financial performance of unit trusts in Kenya. However the momentum factor followed by the market premium factor is the most significant variables in determining a fund’s excess return. Kurtosis values indicated that all variables have platy-kurtic distribution and it is concluded that variables are not normally distributed.

4.2.2 Correlation Coefficients of The Portfolio Characteristics Variables on Financial Performance of Unit Trusts in Kenya

The study further determined the correlation between the independent variables used in the study i.e. portfolio characteristics variables and the financial performance of unit trusts in Kenya. For this analysis Pearson correlation was used to determine the degree of association within the independent variables and also between independent variables and the dependent variable. The analysis of these correlations seems to support the hypothesis that each independent variable in portfolio characteristics has its own particular informative value in the ability to explain the unit trusts financial performance (Table 4.2).

Table 4.2.2 Correlation coefficients of the portfolio characteristics variables on financial performance of unit trusts in Kenya

VARIABLE	$R_{mt} - RFR_t$	SMB_t	HML_t	MOM_t	$R_{it} - RFR_t$
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$R_{mt} - RFR_t$	1				
SMB_t	0.3707	1			
HML_t	0.5193	0.2755	1		
MOM_t	0.0582	-0.0693	0.1228	1	
$R_{it} - RFR_t$	0.7231	0.7881	0.8002	0.7822	1

Source: Computed by the researcher from financial reports of unit trusts

The correlation matrix shows that the market premium variable is strongly and positively related to the return on fund i in the month t less the risk free rate on month t as indicated by a strong and positive correlation coefficient of 0.723, the size variable is also strongly and positively related to the return on fund i in the month t less the risk free rate on month t as indicated by a strong and positive correlation coefficient of 0.7881, the value versus growth variable is also strongly and positively related to the return on fund i in the month t less the risk free rate on month t as indicated by a strong and positive correlation coefficient of 0.8002 and the momentum variable is strongly and positively related to the return on fund i in the month t less the risk free rate on month t as indicated by a strong and positive correlation coefficient of 0.7822.

Table 4.2.3: Regression Coefficients of the portfolio characteristics variables on financial performance of unit trusts in Kenya

	Unstandardized Coefficients	Standardized Coefficients			
	B	Std. Error	Beta	t	Sig.
(Constant)	12.122	0.342		2.312	0.024
$R_{mt} - RFR_t$	0.132	0.055	0.003	0.532	0.082
SMB_t	0.044	0.322	0.078	0.256	0.023
HML_t	0.654	0.173	0.062	1.599	0.054

MOM_t	0.836	0.181	0.243	2.145	0.014
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Source: Computed by the researcher from financial reports of unit trusts

As per the R generated table above, the equation $(R_{it} - RFR_t) = \alpha_i + \beta_{i1} (R_{mt} - RFR_t) + \beta_{i2}SMB_t + \beta_{i3}HML_t + \beta_{i4}MOM_t + e_{it}$ becomes:

$$Y_i = 12.122 + 0.132 (R_{mt} - RFR_t) + 0.044 (SMB_t) + 0.654 (HML_t) + 0.836 (MOM_t)$$

According to the regression equation established, if all the other factors were zero, financial performance measured by the return on fund i in the month t less the risk free rate on month t will be 12.122. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in the size variable will lead to a 0.132 increase in the return on fund i in the month t less the risk free rate on month t; a unit increase in the growth versus value variable will lead to a 0.044 increase in the return on fund i in the month t less the risk free rate on month t; a unit increase in the momentum variable will lead to a 0.654 increase in the return on fund i in the month t less the risk free rate on month t. The t and Sig (p) values give a rough indication of the impact of each predictor variable a big absolute t value and small p value suggests that a predictor variable is having a large impact on the criterion variable.

At 5% level of significance and 95% level of confidence, the market premium variable had a 0.082 level of significance, the size variable had a 0.023 level of significance, the value variable had a 0.054 level of significance and the momentum had a 0.014 level of significance.

Table 4.2.4: Chi-Square Test: two-sample assuming equal variances Unit trusts with good financial performance and poor financial performance

	(Unit trusts with good financial performance)	(Unit trusts with poor financial performance)
Mean	0.062177643	0.023739
Variance	0.00233563	1.38085E-05
Observations	9	5

Hypothesized Mean Difference	0
Df	12
t Stat	2.958540189
P(T<=t) one-tail	0.00554419
t Critical one-tail	1.770933383
P(T<=t) two-tail	0.01108838
t Critical two-tail	2.160368652

Source: Computed by the researcher from financial reports of unit trusts

From the Chi-square results, unit trusts with good financial performance recorded a mean of 0.0622 while the unit trusts with poor financial performance recorded a mean of 0.0237. However, the variance for the unit trusts with good financial performance and the poor financial performance are 0.0023 and 1.3808 respectively. Furthermore, at two- tailed, the t- calculated of 2.9585 is seen to be greater than the t-tabulated of 2.1603.

Further the study carried out the hypothesis testing between portfolio characteristics variables and financial performance of unit trusts in Kenya. The study findings are as shown below.

Table 4.2.5 Portfolio characteristics variables Vs Financial performance of unit trusts in Kenya

	Financial performance of unit trusts in Kenya
Portfolio characteristics variables Pearson Correlation	0.880
Sig. (2-tailed)	0.000
N	14

Source: Computed by the researcher from financial reports of unit trusts

A Pearson coefficient of 0.880 and p-value of 0.000 shows a strong, significant, positive relationship between portfolio characteristics variables and financial performance of unit trusts in Kenya. Therefore basing on these findings the study rejects the null hypothesis that there is no relationship between portfolio characteristics variables and financial performance of unit trusts in Kenya and accepts the alternative hypothesis that there exists a relationship between portfolio characteristics variables and financial performance of unit trusts in Kenya.

4.3 Interpretation of Findings

Descriptive statistics summarized the sample characteristics of the effect of portfolio characteristics on financial performance of unit trusts in Kenya. The results of tests on the differences in means of all variables of the Cahart's four factor model were considered i.e. the return on fund i in the month t (R_{it}), the risk free rate on month t (RFR_t), the return on a market portfolio in month t (R_{mt}), the return on portfolio of small capitalization stocks or asset size minus the return to a portfolio of large capitalization stocks or asset size in month t (SMB_t), the return to a portfolio of stocks with high ratios of book-to-market values less the return to a portfolio of low book-to-market value stocks in month t (HML_t) and the rate of return of portfolio of high performance funds minus rate of return of low performance funds in month t (MOM_t).

The results showed tests on the differences in means of all variables of the Cahart's four factor model considered i.e. the return on fund i in the month t less the risk free rate on month t showed an average percentage mean of 32.51 and standard deviation of 3.1 which indicates a positive and significant unit trusts financial performance, the market premium factor showed a mean of 42 percent and standard deviation of 5.2 , the size factor showed a percentage mean of 31.2 and standard deviation of 3.2, the value factor showed a percentage mean of 31.3 with standard deviation of 2.48 and the momentum factor showed a percentage mean of 53.3 with a standard deviation of 5.8. The positive values imply that the variables under the Cahart's four factor model are significant in determining the financial performance of unit trusts in Kenya. The funds excess returns are primarily determined by the momentum and market premium factor. Kurtosis values indicated that all variables have platy-kurtic distribution and it is concluded that variables are not normally distributed.

The study further determined the correlation between the independent variables used in the study i.e. portfolio characteristics variables and the financial performance of unit trusts in Kenya. For this analysis Pearson correlation was used to determine the degree of association within the independent variables and also between independent variables and the dependent variable. The analysis of these correlations seems to support the hypothesis that each independent variable in portfolio characteristics has its own particular informative value in the ability to explain the unit trusts financial performance.

The correlation matrix showed that the market premium factor is strongly and positively related to the return on fund i in the month t less the risk free rate on month t as indicated by a strong and positive correlation coefficient of 0.723, the size factor with a correlation coefficient of 0.7881, the value factor with a correlation coefficient of 0.8002 as well as the momentum factor with a correlation coefficient of 0.7882 are all strongly and positively related to the return on fund i in the month t less the risk free rate on month t .

According to the regression equation established, taking all factors into account at point zero the financial performance measured by the return on fund i in the month t less the risk free rate on month t will be 12.122. The data findings analyzed also showed that taking all other independent variables at zero, a unit increase in the size value will lead to a 0.132 increase in the return on fund i in the month t less the risk free rate on month t ; a unit increase the value factor will lead to a 0.044 increase in the return on fund i in the month t less the risk free rate on month t ; a unit increase in the momentum factor will lead to a 0.654 increase in the return on fund i in the month t less the risk free rate on month t .

The Standardized Beta Coefficients gave a measure of the contribution of each variable to the model. A large value indicates that a unit change in this predictor variable has a large effect on the criterion variable. The t and Sig (p) values gave a rough indication of the impact of each predictor variable – a big absolute t value and small p value suggested that a predictor variable is having a large impact on the criterion variable.

At 5% level of significance and 95% level of confidence, the market premium factor had a 0.082 level of significance, the size factor had a 0.023 level of significance, the value factor had a 0.054 level of significance and the momentum factor had a 0.014 level of significance. The Standardized Beta Coefficients give a measure of the contribution of each variable to the model. A large value indicates that a unit change in this predictor variable has a large effect on the

criterion variable. In addition the positive beta value of 0.044 for the size variable indicates that the sampled funds are exposed to small stocks. The positive beta value of 0.654 for the growth versus value variable indicates that the sampled funds are exposed to value stocks. The positive beta value of 0.836 for the momentum variable indicates the sampled funds are exposed to consistent positive future performing stocks.

From the Chi-square results, unit trusts with good financial performance recorded a higher mean than the unit trusts with poor financial performance. However, the variance for the unit trusts with good financial performance had lower variance than the poor financial performance. Furthermore, at two- tailed, the t- calculated was seen to be greater than the t-tabulated.

Further the study carried out the hypothesis testing between portfolio characteristics variables on financial performance of unit trusts in Kenya. Higher Pearson coefficients showed a strong, significant, positive relationship between portfolio characteristics variables and financial performance of unit trusts in Kenya. Therefore based on these findings the study rejected the null hypothesis that there is no relationship between portfolio characteristics variables and financial performance of unit trusts in Kenya and accepted the alternative hypothesis that there exists a relationship between portfolio characteristics variables and financial performance of unit trusts in Kenya.

Studies done related to this study are mostly done in the developed economies. Dahlquist et al. (2000) in his study of the relation between fund performance and fund attributes in the Swedish market, observed good performance among small equity funds and funds with good past performance. This observation is in consistent with my observations that the sampled funds are more exposed to small size and value oriented funds. In addition, Otten and Bams (2002) in an overview of European mutual fund industry observed that small cap funds are able to add value by utilizing the Cahart four factor model. This further ascertains my findings. Finally, Leite et al. (2009) while examining the performance of Portuguese equity funds found out that the conditional multi-factor model is more robust in comparison to the unconditional multi-factor model. Overall the study ascertained that the Portuguese funds are more exposed to small caps and are more value oriented. There was also strong evidence of time varying betas which was also observed in my study with the beta values being significant in explaining the types of funds that the sampled funds are exposed to.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The main objective of this study was to evaluate equity growth based unit trust performance by applying a multi-factor model. As earlier indicated in the literature review most studies done in the area of unit trusts have tried to establish whether a fund performance exceeds a stated benchmark. However a multi-factor model provides a robust means of evaluating unit trust performance as a researcher can control certain factors to establish their effect on performance. This study chose to utilize the Cahart four factor model as envisioned by Fama and French and later Cahart. Using this model specific characteristic of unit trusts are indentified and investigated to establish how they affect performance. In this case besides the market premiums factor the other factors are those of size, value versus growth and momentum factors.

Unit trusts or mutual funds industry in Kenya has grown over the years. As per the Capital Markets authority the regulatory body listing of approved funds there are 16 licensed funds as of May 2012. This industry has in recent times seen the entry of Islamic unit trusts to cater for the Muslim clients needs. Equity based unit trusts have remained the dominant vehicle of investment for a large number of investors. Being an industry that provides answers to the small investor so as to achieve wide investment diversification without the need for prohibitive sums of money there is a need to apply a more robust method of measuring performance especially for this equity based unit trusts. This is where the multi-factor model becomes a useful tool.

The multi-factor model is a style based model. Style, refers to a subset of the investment universe in which a manager is constrained to operate. As a result, a funds financial performance will be constrained to this element of style a manager operates under. The Cahart four factor model is an evolution from the measurements methods that mainly determined a funds superior performance by comparing it to a stated benchmark. And though the benchmark is still utilized in this model what is fundamental is that the factors stated above are controlled and the funds performance determined.

5.2 Conclusions

Descriptive statistics was utilized due to the nature of data and a need to conduct an in depth analysis. The results of the mean in comparison to the standard deviation for the funds excess returns were positive an indication of significant unit trusts financial performance. The momentum factor and market premium factor had the highest mean and standard deviation indicating that they were the greatest contributor to the fund's excess return. However the positive values implied that the variables under the Cahart's four factor model are significant in determining the financial performance of unit trusts in Kenya. Kurtosis values indicated that all variables have platy-kurtic distribution and it is concluded that variables are not normally distributed. The results of the correlation matrix showed that all the four factors of the Cahart multi-factor model are strongly and positively related to the fund's excess return. This is an indication of the strong relationship between this factors and the unit trust financial performance.

The data findings analyzed also showed that taking all other independent variables at zero, the constant value alpha was a strong positive 12.122 which is an indication of the fund managers' skill of selectivity. The Standardized Beta Coefficients give a measure of the contribution of each variable to the model. A large value indicates that a unit change in this predictor variable has a large effect on the criterion variable. In addition the beta values indicated that the sampled funds are exposed to small stocks, value stocks and consistent positive future performing funds. At 5% level of significance and 95% level of confidence, a large value indicates that a unit change in this predictor variable has a large effect on the criterion variable. In this case the market premium factor and the value factor had the largest effect further asserting that the sampled equity funds financial performance are mainly affected by this two factors.

From the Chi-square results, unit trusts with good financial performance recorded a higher mean than the unit trusts with poor financial performance. However, the variance for the unit trusts with good financial performance had lower variance than the poor financial performance, further supporting that the sampled funds are exposed to consistent positive future performing funds. Furthermore, at two- tailed, the t- calculated was seen to be greater than the t-tabulated.

Higher Pearson coefficients showed a strong, significant, positive relationship between portfolio characteristics variables and financial performance of unit trusts in Kenya. Therefore basing on

these findings the study rejected the null hypothesis that there is no relationship between portfolio characteristics variables and financial performance of unit trusts in Kenya and accepted the alternative hypothesis that there exists a relationship between portfolio characteristics variables and financial performance of unit trusts in Kenya.

5.3 Policy Recommendations

The portfolio characteristics under study will always be part of any portfolio. This study therefore recommends that the management of all equity based unit trusts should from period to period evaluate the portfolio factors and their contribution to performance since as observed small size and value oriented funds greatly contribute to a funds excess returns in contrast to what is expected. In addition the study also recommends that unit trust management should continuously monitor the financial progress of the unit trusts through appropriate measures to make sure that they are not affected negatively by the portfolio factors. As a result the study recommends that unit trusts should establish a special department to oversee the financial performance of the firms and advice appropriately where negative financial effect may arise due to portfolio factors so that appropriate measures can be taken to prevent liquidated state.

The study further recommends that the regulatory body mainly through their research department should monthly evaluate the portfolio characteristics factors and hence maintain a database of the numbers. Through such a database the regulatory body can evaluate yearly the funds excess returns attributing which fund is more superior to another by evaluating more factors beyond the current evaluation of growth of the asset size base. Through such a database the regulatory body would ease the research work for more scholars investigating the unit trust industry in Kenya. The information from such a database would also enable the regulatory body to offer more detailed information to investors and also encourage investment into other funds other than the equity funds which are the most dominant investment avenue currently.

In conclusion, the study recommends that there is a need for investment companies to evaluate beyond a fund manager exceeding a stated market benchmark are there funds specific characteristics that affect performance. The unit trust industry in Kenya is still a young industry and therefore scholars as well as the investment companies should indentify pertinent factors to this industry and the impact they have on performance. As such in clustering of the best and worst unit trusts incorporation of these factors is necessary.

5.4 Limitations of the study

Since the main purpose of this study was to determine the influence of portfolio characteristics on equity based unit trusts financial performance, fund managers of the said unit trusts considered some information sensitive and confidential and thus the researcher had to convince them that the purpose of information is for academic research only and may not be used for any other intentions.

The findings of this study may not also be generalized to different objectives unit trusts but can be used as a reference to unit trusts in developing countries since they face almost the same challenges due to the same prevailing economic situations as opposed to unit trusts in developed countries.

Portfolio factors effect keeps on changing from period to period depending on prevailing economic situations and market demand. The findings therefore may not reflect the true effect across the unit for a period of years considered.

Being the first time the multi- factor model as envisioned by Cahart is being utilized in Kenya it was quite challenging to come up with the variables that were crucial in determining the model as no previous data exists clustered into this specific factors.

5.5 Suggestions for further study

This study was carried out for the period between 2008 to 2012 mainly utilizing data that has complete set of data for 24 months. As a result the effect of survivorship bias could not be observed. Therefore, there is a need to carry out a similar study for a longer time period probably since the inception of the unit trust funds in Kenya. This would enable the researcher put in consideration the effect of survivorship bias.

In addition a similar study should also be carried out on the effect of portfolio characteristics on unit trusts financial performance incorporating the money market fund and balance fund so as to determine among the three funds which band of fund objective is performing better using the robust multi-factor model.

Further a study incorporating the multi-factor model and indicative of the skills influence on

financial performance should be conducted. Such skills as stock selection ability, asset allocation and diversification can be examined while incorporating the model. While incorporating the model the benchmark index used can be the NSE all share index in consideration of the wide fund based being utilized and the skills being measured.

Finally, besides the factors stated in this study that is the market premium factor, size, value versus growth and momentum factors other factors need to be incorporated as some studies have highlighted. Such factors include but not limited to risk, expense ratio, portfolio turnover and trading activities. The fund performance will then be evaluated in relation to the change in these factors. This will widen the scope of study and provide a more robust explanation to fund performance.

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APPENDICES

APPENDIX 1: List of licensed unit trust companies in Kenya

1. African Alliance Kenya Unit Trust Scheme:

- i. African Alliance Kenya Shilling Fund.
- ii. African Alliance Kenya Fixed Income Fund.
- iii. African Alliance Kenya Managed Fund.
- iv. African Alliance Kenya Equity Fund.

2. Old Mutual Unit Trust Scheme:

- i. Old Mutual Equity Fund.
- ii. Old Mutual Money Market Fund.
- iii. Old Mutual Balanced Fund.
- iv. Old Mutual East Africa Fund.
- v. Old Mutual Bond Fund.

3. British-American Unit Trust Scheme:

- i. British-American Money Market Fund.
- ii. British-American Income Fund.
- iii. British-American Balanced Fund.
- iv. British-American Managed Retirement Fund.
- v. British-American Equity Fund.

4. Stanbic Unit Trust Scheme:

- i. Stanbic Money Market Fund.
- ii. Stanbic Fixed Income Fund.
- iii. Stanbic Managed Prudential Fund.
- iv. Stanbic Equity Fund
- v. Stanbic Balanced Fund

5. Commercial Bank of Africa Unit Trust Scheme:

- i. Commercial Bank of Africa Money Market Fund.
- ii. Commercial Bank of Africa Equity Fund.

6. Zimele Unit Trust Scheme:

- i. Zimele Balanced Fund
- ii. Zimele Money Market Fund

7. Suntra Unit Trust Scheme:

- i. Suntra Money Market Fund
- ii. Suntra Equity Fund
- iii. Suntra Balanced Fund

8. ICEA Unit Trust Scheme:

- i. ICEA Money Market Fund
- ii. ICEA Equity Fund
- iii. ICEA Growth Fund
- iv. ICEA Bond Fund

9. Standard Investment Trust Funds:

- i. Standard Investment Equity Growth Fund
- ii. Standard Investment Fixed Income Fund
- iii. Standard Investment Balanced Fund

10. CIC Unit Trust Scheme

- i. CIC Money Market Fund
- ii. CIC Balanced Fund
- iii. CIC Fixed Income Fund
- iv. CIC Equity Fund

11. Madison Asset Unit Trust Funds

- i. Madison Asset Equity Fund
- ii. Madison Asset Balanced Fund
- iii. Madison Asset Money Market Fund
- iv. Madison Asset Treasury Bill Fund
- v. Madison Asset Bond Fund.

12. Dyer and Blair Unit Trust Scheme:

- i. Dyer and Blair Diversified Fund
- ii. Dyer and Blair Bond Fund
- iii. Dyer and Blair Money Market Fund
- iv. Dyer and Blair Equity Fund

13. Amana Unit Trust Funds Scheme

- i. Amana Money Market Fund
- ii. Amana Balanced Fund
- iii. Amana Growth Fund

14. Diaspora Unit Trust Scheme

- i. Diaspora Money Market Fund
- ii. Diaspora Bond Fund
- iii. Diaspora Equity Fund

15. First Ethical Opportunities Fund

16. Genghis Capital Unit Trust Funds

- i. Genghis Capital Bond Fund
- ii. Genghis Capital Diversified Fund
- iii. Genghis Capital Money Market Fund
- iv. Genghis Capital Al-Amana Fund
- v. Genghis Capital Equity Fund