

DECLARATION

**A TEST OF RELATIONSHIP BETWEEN STOCK MARKET PRICE VOLATILITY
AND UNIT TRUSTS RETURNS**

A Case of Kenyan Financial Markets

BY

ROWLAND KINYEKI

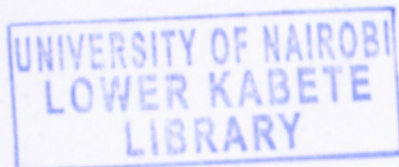
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SUPERVISOR: MR ODIPO

**A RESEARCH PROJECT PRESENTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION**

SCHOOL OF BUSINESS

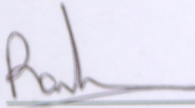
UNIVERSITY OF NAIROBI



NOVEMBER: 2011

DECLARATION

This research project is my original work and has not been presented for award of any degree in any University.

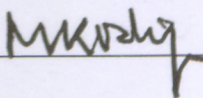
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This project has been submitted for examination with my approval as University of Nairobi supervisor.

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DEDICATION

To my mum and family for moral support, prayers and consistent prayers.

ACKNOWLEDGEMENT

I would like to thank the following people for their role in making this study possible: Mr. Odipo, my project supervisor for providing me with valuable guidance and advice. Secondly, I feel greatly indebted to my class mates for their valuable comments and suggestions. Their reassurances and encouragement at various times in the course of my study are very much appreciated.

I would also like to thank the policy and research department at the Capital Markets Authority for providing the information that I required for this project.

To each of the above, I extend my deepest appreciation.

ABBREVIATION

FI Financial Institution
FSA Financial Services Authority

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ABBREVIATION

		Page No.
FI	Financial Institution	
FSA	Financial Services Authority	
NSE	Nairobi Stock Exchange	
CMA	Capital Markets Authority	
APT	Arbitrage Pricing Model	
CAPM	Capital Asset Pricing Model	

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The recognition and increasing importance of unit trusts as an investment instrument has led to a growing relationship between stock market price volatility and unit trust returns. This study used risk adjusted returns of unit trusts using Sharpe's index which is based on total risk and Treynor's index which uses systematic risk. Companies participating in equity based unit trusts in the Kenya financial Markets between the period 2005 to 2010 were taken into consideration while the NSE 20 share index is used as the proxy index. This benchmark was chosen because it matches trading objectives of equity based mutual funds. By the end of year 2010, 12 companies were trading in unit trusts though there were fewer companies in this market before then. For the purpose of this research project, Net Asset Value information which represents buying prices of units was made available by the Planning, Policy and research department of the Capital Markets Authority.

The findings of this study conclude that the volatility of the stock market transcends to the unit trusts. However the unit trusts performance did not surpass that of the stock market. From year 2005 to 2010 the unit trusts portfolio underperformed the stock market. This is clearly demonstrated by the rankings of Sharpe's and Treynor's indices which show that the stock market had superior risk adjusted returns compared to the unit trusts portfolio.

ABSTRACT

The recognition and increasing importance of unit trusts as an investment instrument has spurred research on their performance. The objective of this research paper was to test the relationship between stock market price volatility and unit trust returns. This study used risk adjusted returns of unit trusts using Sharpe's index which is based on total risk and Treynor's index which uses systematic risk. Companies participating in equity based unit trusts in the Kenya financial Markets between the period 2005 to 2010 were taken into consideration while the NSE 20 share index is used as the proxy index. This benchmark was chosen because it matches trading objectives of equity based mutual funds. By the end of year 2010, 12 companies were trading in unit trusts though there were fewer companies in this market before then. For the purpose of this research project, Net Asset Value information which represents buying prices of units was made available by the Planning, Policy and research department of the Capital Markets Authority.

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CHAPTER ONE

INTRODUCTION

1.1 Background

Kenyan capital markets offer an array of investment products in the form of shares, bonds and unit trusts. The type of products chosen by investor to commit his capital depends largely on his financial goals, time frame and amount of capital available. Unit trusts have grown in acceptance and popularity in recent years; this is demonstrated by the growth in the number of approved unit trusts funds. They are the small investor answer to achieving wide investment diversification without the need of prohibitive sums of money (Capital Markets Authority, 2011).

Mutual funds will describe a pool of money contributed by investors and used to buy different type of investments, not just company bond or stock. This cash reserve may consist of funds from individual investors, corporations, foundations and even institutions. They are also called Collective Investment Schemes. Units would normally be bought from the companies at market price and can grow hence returns can be high if the market grows. Different types of funds are offered in the market, which includes Equity fund, Money market fund, and Balanced fund. Companies participating in this market are licensed by the Capital Markets Authority (Capital Markets Authority, 2011).

As markets become sophisticated and more volatile, unit trusts become safe havens for less sophisticated and less capitalized, conservative individuals in the market place. Units trusts offers an investor the ability to invest in a mix of the major asset classes; equity, bonds, listed property and short term money market instruments. When you invest in a unit trust, you are effectively lumping in your money with other investors and paying a fund manager to invest it wisely according to a specific mandate.

Unit trusts are suitable for a wide range of risk profiles and can be combined in different ways to suit differing investment needs. Unit trust investments offers investors a wide

range of investment risk; equity based unit trusts offer long term capital growth, asset allocation unit trusts offer a mixture of growth and income and fixed interest unit trusts offer income. Investors also have an option of rotating the sectors of their investments or opting for general equity or index funds. Unit trusts will also give an investor the option of spreading the risk of investing in stock exchange by investing a modest amount of money in a wide variety of shares (Business Times, 2011).

1.2 Stock market overview

A stock market is an institution that deals in exchange of securities issued by publicly quoted companies and the government. The stock market is part of the broader market referred to as financial market (Reilly,1997; Fabbozi,1995).

The existence of stock markets promotes higher standards of accounting, resource management and transparency in the management of businesses. This is because financial markets encourage the separation of owners' capital from managers of capital. This separation is important because people who have money may not have the best business ideas and people who have the best ideas may not have money to invest. The stock exchange thus becomes an important link.

Among the determinants of both stock market performance include, performance of the economy, monetary policies, fiscal policies, inflation, availability of substitute investments, change of investor preferences and market sentiments. Activities of government and general performance of the economy influence stock market activity and therefore the performance of stock markets. Monetary and fiscal measures enacted by various agencies of national governments influence the aggregate economies of those countries. The resulting economic conditions influence all industries and companies in an economy positively or negatively which in turn affect the performance of stock markets (Reilly, 1997).

Fiscal policy incentives such as tax cuts can encourage spending, where as additional taxes on income, petroleum products, cigarettes and alcoholic beverages discourage

spending. Increase or decrease in government spending also influence the general economic activity by triggering multiplier effect (Stiglitz, 1993).

Monetary policy has implications to the economy. A restrictive monetary policy reduces the supply of funds for working capital and expansion of business. Alternatively a restrictive monetary policy may lead to increased interests rates thus increasing the cost of capital which makes it more expensive for individuals to finance home mortgage and purchase of durable goods (Mendelson, 1976).

Inflation affects the performance of financial markets as it causes differences between real and nominal interest rates thus changing the spending and saving behavior of consumers and corporations. Unexpected changes in the rate of inflation make it difficult for firms to plan, which inhibits growth and innovations .Beyond the impact of the domestic economy, differential inflation and interest rate influence the trade balance between countries and exchange rate of currencies (Reilly, 1997). Events such as war, political upheavals within or outside a country or international monetary devaluation produces changes in the business environment that lead to uncertainties and earnings expectations of investors therefore increasing the risk premium of investors (Mendelson, 1976).

Changes in investor composition also affect financial market performance .As supply and demand for security change over time, different types of investors are attracted to the market. If the risk preferences of the investors are not as those of current investors the required rate of return tend to shift.

Market sentiment also referred to as the psychology of market participants affect stock market performance. Market sentiment is often subjective, biased ,and obstinate .The uncertain mass reaction of individuals to developments affecting the stock market is one of the factors that handicaps stock market forecasting .A mild stock market flurry caused by a spurt in business activity may generate a wave of buying enthusiasm that raises prices to blossom levels .As an indication to this tendency, from January 1967 through December 1968 the American Stock Exchange index more than doubled in the face of a business activity advance of about ten percent. The stay-eyed optimism of buyers who

believe that prices that increase indefinitely may produce substantial advances that are not justified by underlying financial considerations. On the other hand, pervasive investor gloom, generated by political or economic uncertainties could drive prices to levels that appear equally unjustified by standard financial tests (Mendelson, 1967).

1.3 Regulation of unit trusts in Kenya

Only unit trust schemes that are approved by the Capital Market Authority may be offered for sale to Kenyan Public. Such schemes trusts comply with Capital Market Act Cap 485 A (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.

It is ultimately investor's responsibility to evaluate the suitability, profitability and viability of an investment. An investor must read the prospectus to find out the type of fund being offered and whether it matches his investment objectives (Capital Markets Authority, 2011).

1.4 Statement of the problem

The economic growth of any country actively depends on volume of investments by both individuals and institutions. Due to low economic growth in the country over past years, there are still hopes that good governance framework and effect of the new constitution will attract both foreign and local investors. Through savings and borrowings, individual investors have an option of consuming all income received or consume only a portion of income and accumulate investments which will increase future consumption.

Effects of global financial crisis started one of the longest bear markets in the recent years, significantly reducing NSE share index. Many other factors behind the current bear market include inflation and low investor confidence which make share prices not to

reflect the fundamentals of underlying companies in the stock market (Zimole Asset Managers, 2011). Most Kenyans therefore have been faced with the problem of where to invest their money for better returns because of low cost associated with many investments in the economy due to governance issues, lack of incentives to invest and unfavorable political environment.

Shares at the NSE have been associated with overpricing and under-pricing thus investors may not be able to get the right value of shares. Stock market performance is also influenced by availability of other investment assets, change in investor composition; market sentiments among other factors. Generally, informed investors analyze state of the economy and its potential effects on investment returns. They will also assess industry groupings, since stock prices are influenced by industry conditions and companies providing good performance will be favored by investors (Mendelson, 1976). It is however impossible for retail investors to time the market but professional fund managers may capitalize on market volatility by bargain- hunting oversold stocks and divesting stocks that have become over-valued. By doing so, they take advantage of mispricing of assets during volatile times (Public Mutual, 2011).

Wild price movements could lead to heavy investor losses in an investor's portfolio and unit trusts are similarly not immune to this. The extent of fund market exposure to this is determined by fund market exposure to equity and fund managers will attempt to maximize shareholders utility by timing market exposure (Cao *et.al*, 2007). Fund managers will reduce market exposure in illiquid markets and increase market exposure in liquid markets. Bausse (1999) investigated mutual fund ability to time market volatility and documented that fund managers tend to reduce market exposure to market risk during periods of high volatility while increasing market exposure during periods of low volatility.

There has been no local study done to test the relationship between stock market price volatility and unit trust returns. Previous studies were done on the NSE and mutual funds separately and they included Kalui (2004) who studied the determinants of stock price volatility at the NSE, Mureithi (2005) who studied risk and return strategies employed by

equity mutual funds and Lydia (2006) who studied trading strategies employed by fund managers in Kenya.

LITERATURE REVIEW

Based on this evaluation, there is a gap in literature that motivates a research to be conducted to test the relationship between stock market price volatility and unit trust returns in Kenya.

1.5 Objective of the study

To test the relationship between stock market price volatility and unit trusts returns during the period under review.

1.6 Significance of the study

Based on the results of this study, investors; particularly retail investors who are less knowledgeable on investment will be able to evaluate and compare professionally managed portfolios with the Stock market. Unit holders will be able to assess the performance of their equity mutual funds with the stock market. It will assist the government, through its capital markets regulator in formulating policies that would facilitate further growth of the market. The study will contribute to the general body of knowledge for academicians and form a basis of further research and help them understand some of the challenges and specific factors that apply to business as compared to what theorists say of the two markets.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Traditionally, the finance literature has devoted scarce attention to the development of mutual funds industry and, in particular its relationships with the stock market. This chapter will review past studies in unit trusts and stocks performance and their relationships. Issues mentioned in the objectives will be featured, critically reviewed and discussed.

2.2 Theoretical Framework

2.2.1 Portfolio Theory

Portfolio theory of investment which tries to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. Although Portfolio Theory is widely used in practice in the financial industry and several of its creators won a Nobel Prize for the theory, in recent years the basic Portfolio Theory have been widely challenged by fields such as behavioral economics (Markowitz, 1952).

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 asset. 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 the 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).

More technically, portfolio theory models assets return as a normally distributed (or more generally as an elliptically distributed random variable), define risk as the standard

deviation of return, and model a portfolio as a weighted combination of assets so that the return of a portfolio is the weighted combination of the assets' returns. By combining different assets whose returns are not perfectly positively correlated, portfolio theory seeks to reduce the total variance of the portfolio return. Portfolio theory also assumes that investors are rational and markets are efficient (Sharpe, 1964).

Portfolio Theory was developed in the 1950s through the early 1970s and was considered an important advance in the mathematical modelling of finance. Since then, many theoretical and practical criticisms have been levelled against it. These include the fact that financial returns do not follow a Gaussian distribution or indeed any symmetric distribution, and the correlations between asset classes (Micheal, 1998).

2.2.2 Capital Asset Pricing Theory

Sharpe,(1964) published the capital asset pricing theory (CAPM). Parallel work was also performed by Treynor (1961) and Lintner (1965). CAPM extended Harry Markowitz's portfolio theory to introduce the notions of systematic and specific risk. For his work on CAPM, Sharpe shared the 1990 Nobel Prize in Economics with Harry Markowitz and Merton Miller.

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. CAPM decomposes a portfolio's risk into systematic and specific 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).

No matter how much we diversify our investments, 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 capital asset pricing model (CAPM) helps us to calculate investment risk and what

return on investment we should expect. Here we look at the formula behind the model, the evidence for and against the accuracy of CAPM, and what CAPM means to an average investor (Sharpe, 1964).

When the CAPM was first introduced, the investment community viewed the new model with suspicion, since it seemed to indicate that professional investment management was largely a waste of time. It was nearly a decade before investment professionals began to view the CAPM as an important tool in helping investors understand risk. The key element of the model is that it separates the risk affecting an asset's return into two categories. The first type is called unsystematic, or company-specific, risk. The long-term average returns for this kind of risk should be zero. The second kind of risk, called systematic risk, is due to general economic uncertainty. The CAPM states that the return on assets should, on average, equal the yield on a risk-free bond held over that time plus a premium proportional to the amount of systematic risk and the stock prices (Markowitz, 1952).

The treatment of risk in the CAPM refines the notions of systematic and unsystematic risk developed by Harry M. Markowitz in the (1950s). 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. For example, specific senior employees may make good or bad decisions or the same type of manufacturing equipment utilized may have different reliabilities at two different sites. 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 opposite fluctuations in another. For example, if one fast food company makes a bad policy decision, its lost customers will go to a different fast food establishment. The investor in both companies will find that the losses in the former investment are balanced by gains in the latter (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. Regardless of product quality or executive ability, a firm's profitability will be influenced by economic trends. In the capital asset pricing model, the risk associated with an asset is measured in relationship to the risk of the market as a whole (Sharpe, 1964).

2.2.3 Arbitrage Pricing Theory

The Arbitrage Pricing Theory (APT) was developed primarily by Ross (1976). It is a one-period model in which every investor believes that the stochastic properties of returns of capital assets are consistent with a factor structure. The Arbitrage Pricing Theory (APT) describes the price where a mispriced asset is expected to be. It is often viewed as an alternative to the capital asset pricing model (CAPM), since the APT has more flexible assumption requirements. Whereas the CAPM formula requires the market's 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 over-priced 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 arbitrage pricing theory 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 Capital Asset Pricing Model (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 arbitrage pricing theory is that CAPM has a single non-company factor and a single beta, whereas arbitrage pricing theory 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.

Arbitrage pricing theory does not rely on measuring the performance of the market. Instead, APT 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. Obvious factors include economic growth and interest rates. For companies in some sectors other factors are obviously relevant as well - such as consumer spending for retailers. The potentially large number of factors means more betas to be calculated. There is also no guarantee that all the relevant factors have been identified. This added complexity is the reason arbitrage pricing theory is far less widely used than CAPM (Sharpe, 1992).

2.2.4 Efficient Market Hypothesis

In finance the efficient market hypothesis asserts that financial markets are information efficient. One cannot therefore achieve returns in excess of average market returns on a risk -adjusted basis, given that information is publicly available at the time the investment is made (Fama, 1970).

There is a distinction between three forms of Efficient Market Hypothesis: the weak form, the semi strong form, and the strong form. The strong form suggests that security prices reflect all available information, even private information. Seyhum (1986) provides sufficient evidence that insiders profit from trading on information not already incorporated in prices. Hence the strong form does not hold in a world with an uneven playing field. The semi-strong form of Efficient Market Hypothesis asserts that security prices reflect all publicly available information, there are no undervalued or overvalued securities and thus trading rules are incapable of producing superior returns. When new information is released, it is fully incorporated into the price rather speedily. The weak form of the hypothesis suggests that past prices or returns reflect future prices or returns. However, Fama (1970) expanded the concept of the weak form to include predicting of future returns which provided an argument against the weak form.

The accumulating evidence suggests that stock prices can be predicted with a fair degree of reliability. Fama (1970) maintain that such predictability results from time- varying equilibrium expected returns generated by rational pricing in an efficient market that

compensates for the level of risk undertaken. However, critics argue that the predictability of stock returns results from characteristics of irrational investors in a speculative market (Vishny, 1997).

2.3 Investing in the unit trusts market

Investors have certain key considerations to make before investing in unit trusts. They should know what they want from the investment; current income, capital growth or combination of the two, risk tolerance by investor or how much price volatility one is comfortable with. They should also be interested in time horizon of investments because the longer the period of holding investments is, the more the volatility one should accept. Investors should then seek an advisor who is competent or a qualified professional whose services should be on going. Investors should also know the cost of investing and should know exactly what they are paying for. They should then choose a fund which is managed by a company with a good track record. The fund mandate should be aligned with investors' objective (Zimele Asset Managers, 2011).

To invest in a unit trust fund, investors buy units through the fund manager at the prevailing selling price which is calculated daily. These units can be bought any time as long as the fund has not reached its maximum approved size and they can also be sold back to the fund manager at the prevailing buying prices. In the case of funds where a substantial portion is invested in stocks and shares; the performance of the fund would be affected by the performance of the stock market. Hence unit holders selling price could either be higher or lower relative to the stock market performance when units were bought (Business Times, 2011).

A fund manager valuation of a fund account is computed in a similar manner as a direct investment in the NSE. Fund managers will consistently evaluate their portfolio so that they can take opportunities available both in bear and bull markets. They normally use a pattern of sector rotation to choose stocks, optimistic that the portfolio will perform better when the market recovers. In bear markets, investors in stock markets would question their decisions on why they invested in shares and whether the volatility is worth the effort.

Upon registration, unit trusts are required to state their objectives in their prospectuses. Most funds will use their objectives as part of their names so that investors are made aware of their objectives. However, performance of the funds may deviate from objectives (Sweeny, 1997). This is because fund managers cannot consistently identify securities of firms whose performance is congruent with their objectives. Furthermore, they may not be able to find a sufficient number of firms whose attributes meet the objectives of the fund. In this case, they may find their selection to be further limited by regulatory restrictions on the proportion of ownership they are allowed to hold in a single firm.

Unit holders have potential to earn money either by capital growth or dividend income. Each unit in the fund represents a slice or share of the fund's underlying portfolio of securities. If the value of the portfolio goes up, so does the value of each unit. This is called capital growth. If one sells the unit at a higher price than they bought a profit would be gained. The converse will mean a loss is incurred if the units are sold for less than the buying price. Individual investors with limited capital once constrained in achieving full diversification benefits can now create mutual funds portfolios similar to portfolios created by investors who purchase equity directly.

Whatever income is received by the fund from its investments may be passed on to unit holders as dividends. A fund that concentrates on achieving capital growth may have a policy of paying very little or no dividend at all. In such cases, you may need to sell your units if you need to redeem some cash. It is therefore important to read the prospectus and find out the type of fund being offered and unless it matches your investment objectives (Business Times, 2011).

2.4 Structure of unit trusts industry in Kenya

Unit trust industry is strictly regulated according to collective investment schemes regulations 2001. This ensures that investors are protected against misuse of funds and insolvency by providers and the management company. It will also ensure that they stick to their mandate and objectives (Capital Markets Authority, 2011).

The unit trust structure consists of three separate entities; the fund, trust, and the management company. The fund is made up of cash contributions of many individuals which is invested to earn returns. It belongs to the trust and not the management company so it is not affected by the financial position of the management company. The trust is legally obliged to appoint trustees who would act as custodians of cash and securities of the fund. All assets of the fund are held in trusts name who ensures that the fund is managed according to the mandate set out in the trust deed. The management company administers the fund and they are entitled to hold a certain percentage of total investments of units in each portfolio. The professional managers are specialized in their field and would undertake research and analysis work more efficiently including speculation about market trends of stock prices. The management company will charge unit holders administration fee, which would only be deducted from accrued income. Despite the financial performance of the company, the assets of the fund remain affected (Capital Markets Authority, 2011)

2.5 Measures of unit trusts performance

Performance of mutual funds is followed by both investors and fund managers alike. Returns of a fund itself would give little insight, but comparison to alternative investments is more meaningful (Kavita, 2009).

2.5.1 Sharpe's Ratio

It is a risk adjusted performance measure. It quantifies the excess returns received from the invested for the additional volatility of the riskier asset. The higher the ratio, the better is the funds risk-adjusted returns (Sharpe, 1966).

An asset with a high Sharpe's ratio will give more returns for the same risk.

2.5.2 M-Square

This is hypothetical return an investor would have earned in a time frame had the funds risk been adjusted to match that of a benchmark. It is the return the fund would have

received had it borne the same risk the market index had. This could be misleading however, if the fund changes its investment style (Kavita, 2010).

2.6 Different types of funds available to investors

Different funds will be offered to meet investment objectives and risk preferences of investors. The funds are structured as Unit Trust, which is a pooled fund that is used to purchase a portfolio of securities.

2.6.1 Money market fund

They offer low risk investment with high income yield and immediate liquidity. The portfolio objective is to outperform income yield available on the money market call accounts by investing in securities with short term maturity. Investors who wish to invest in high interest earning portfolios, especially during periods of high stock market volatility will be attracted to this (Business Times, 2011).

2.6.2 Equity fund

This is suitable for investors seeking medium to long term capital growth in their portfolio. This fund invests in listed companies in stock exchanges which show above average prospects for growth. This fund will take advantage of IPO's of companies currently owned or controlled by private investors or the government. In this fund, risk is reduced by holding a diversified portfolio of shares across most sectors (Business Times, 2011).

2.6.3 Balanced fund

This is suitable for Investors who seek to invest in a balanced portfolio offering exposure to all sectors of the market. This fund aims to achieve a reasonable level of current income and will offer investors long term capital growth. This fund also invests in listed shares and investors seeking a high risk –high return portfolio will find favour in this fund (Business Times, 2011).

2.6.4 Income fund

This fund is suitable for investors who seek regular income from their investment and those who intend to secure a safe haven for their investments in times of stock market volatility. It invests in interest bearing securities like treasury bills, treasury bonds, corporate bonds and other securities consistent with portfolio's investment policy. This portfolio may also have a direct connection to offshore investments. Individuals here will be particularly interested in regular income from their investments (Business Times, 2011).

2.7 Empirical Review

Market volatility is a risk, particularly for investors who need a regular income or need to realise capital at a short notice. Kalui (2004) carried an investigation of determinants of stock price volatility at the NSE. He studied 16 companies trading at the NSE and used daily stock prices and annual published reports for the period between 1998 -2002. His results indicated that stock price volatility is inversely related to payout ratio, earning volatility and growth in assets. He attributed this to the fact that NSE is an emerging market and these factors are not significant determinants as hypothesized in developed markets.

Lydia (2006) studied trading strategies employed by fund managers in Kenya. Her study data comprised of 15 fund managers in Kenya registered by the Capital markets Authority as at September 2005 and her research findings displayed that most fund managers rely on buy-and-hold strategy, contrarian and momentum strategies in that order of ranking. She noted that Kenya is an emerging market where majority of traders are risk-averse hence the high adoption of the buy-and-hold strategy. Muriithi (2005) carried a study on the risk and returns of equity mutual funds operating in Kenya between 1st January 2003 and 30th June 2005. His results showed a positive risk-return relationship an indication that unit holders in equity mutual funds are risk averse. In conclusion, he noted that it is the investment managers of equity funds, who in an effort to time the market choose to hold portfolios that are less than fully diversified and as such contains some diversifiable risk.

The extent of unit trusts performance and establishment in an economy often mirrors the degree of development of its financial sector. For investors with modest means to participate in the stock market and with relatively low risk tolerance, unit trusts represent a natural investment consideration (Chia, 1999). Empirical findings in his study of Unit trusts performance in Singapore highlighted that fund managers performed poorly in security analysis and market timing. They however performed relatively well in risk adjusted returns and generally maintained well-diversified portfolios. His analysis showed that fund managers can indeed make excess returns above the risk-free rate in the medium- to long term, and this could be an ideal investment for investors seeking diversification. In his analysis, only equity based unit trusts which traded in Singapore and the Asian region were considered. The number of funds available for evaluation was therefore restricted but this provided a well- focused comparison of unit trusts popular among investors.

Friend *et al*, (1962) compared international funds to various market indexes. Results indicated that international funds investing in US securities generally did not perform better than the US indices and likewise did not outperform world indices.

Droms (1994) compared risk adjusted performance of international funds against market indices such as Standard and Poors' 500 and Morgan Stanley world index. They applied Sharpe index and found that international funds generally underperformed the US stock market. Ippolito (1989) however documented significant positive performance of US mutual funds when compared to standard and Poor's 500 index (S& P 500). Additionally, their results indicated that portfolio turnover, expense ratio, asset size and fund size are unrelated to fund performance.

Chang *et al*, (1985) used a test procedure derived from arbitrage pricing theory and found that mutual funds portfolios did not outperform a buy-and-hold portfolio strategy. Cumby *et al*, (1990) tested if the performance of 15 US based international funds against a benchmark; Morgan Stanley Index in US. The funds did not outperform the international equity index; however there was an evidence of the funds outperforming the US Index. Eun *et al*, (1991) reported similar findings when they compared the international funds with the Standard and Poor's 500 Index. Ferson *et al*, (1996) explored the added value of

introducing time varying betas and alphas in existing models. This is because fund managers change their portfolios over time based on observable information variables.

RESEARCH METHODOLOGY

Investors would normally choose to purchase shares in various domestic funds or they can diversify by investing a portion of their portfolios in international and global funds (Herman *et al*, 2000). Success of an internationally diversified fund portfolio depends partly on the ability of the total portfolio to generate risk –adjusted returns equal to or greater than the domestic stock market. It would also be determined by the ability of the international funds within the portfolio to match or outperform market benchmarks and also the ability of these funds to generate returns better than those of domestic mutual funds. Otherwise, investors would not expend time and effort to select global funds.

Research design refers to the way the study is designed, that is the method used to carry out the research (Mogenda, 2003). The nature of this study was descriptive analysis, which requires in depth analysis in order to understand the performance of both stock and unit trust market for the period between 2005 and 2010. This period was chosen because it will provide an adequate comparison between the two markets, as there was little activity in unit trusts before then. Still, this method is appropriate since the study requires achieving variety of insights in this industry. After the enforcement of the capital markets (Collective Investment Schemes) Regulations 2001, unit trusts have grown in acceptance and popularity in recent years.

Descriptive design was also chosen because no research work had been done in this area.

3.1 Population

Population in this study consisted of 12 companies licensed by Capital Markets Authority to participate in unit trust market by the end of year 2010. This restriction limited the number of unit trusts available for comparison, but provided a well-focused analysis of funds that are popular among investors. Data relating to companies included in the NSI index was taken from its website.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research design and methodology that was used to carry out the research. Specifically, the following sub-sections are included; research design, population, data collection and data analysis.

3.2 Research design

Research design refers to the way the study is designed, that is the method used to carry out the research (Mugenda, 2003). The nature of this study was descriptive analysis, which requires in depth analysis in order to understand the performance of both stock and unit trust market for the period between 2005 and 2010. This period was chosen because it will provide an adequate comparison between the two markets; as there was little activity in unit trusts before then. Still, this method is appropriate since the study requires achieving variety of insights in this industry. After the enhancement of the capital markets (Collective Investment Schemes) Regulations 2001, unit trusts have grown in acceptance and popularity in recent years.

Descriptive design was also chosen because no research work had been done in this area.

3.3 Population

Population in this study consisted of 12 companies licensed by Capital markets Authority to participate in unit trusts market by the end of year 2010. This restriction limited the number of unit trusts available for comparison, but provided a well-focused analysis of funds that are popular among investors. Data relating to companies included in the NSE index was taken into account.

3.4 Data collection

The study used secondary data. Secondary data refers to the information obtained from financial statements, articles, books, newspapers, internet and magazines.

In this study, the main data variable was the NSE 20 share index and the unit trust returns obtained from NSE and from published weekly price observations from companies dealing in equity mutual funds. This was chosen because their performance can be benchmarked against the overall market as represented by the NSE 20 share index. Risk free rate of return was taken as the treasury bills rate which was published by the Central Bank of Kenya.

3.5 Data analysis

Risk adjusted returns of unit trusts during the study period was analyzed using Sharpe's index and Treynors' index. The Sharpe's Index was computed by applying the equation,

$$SI_p = (R_p - R_{rf}) / \sigma_p$$

where,

SI_p = Sharpe's Index for portfolio p,

R_p = return on portfolio p,

R_{rf} = return on risk-free asset,

σ_p = standard deviation of portfolio p,

The numerator is the excess return above the risk-free return on a portfolio, and σ_p is the measure of total risk of the portfolio. A portfolio has performed better than the benchmark (taken as the stock market index) if its' Sharpe's Index is greater than that of the benchmark. This index was ranked in descending order with a higher ranking a characteristic of superior risk adjusted returns.

The Treynors' index was computed using the equation: **AND FINDINGS**

$$TIp = (Rp - Rrf) / \hat{\alpha}p$$

Where,

TIp = Treynor Index for portfolio p,

Rp = return on portfolio p,

Rrf = return on risk-free asset,

$\hat{\alpha}p$ = beta for portfolio p,

If the Treynors' index is greater than that of the benchmark (taken as the stock market index), the portfolio has performed better than the benchmark. The Treynors' Index measures the ability of a portfolio to earn an excess return that has been adjusted for systematic risk. This index will be ranked in descending order with a higher ranking a characteristic of superior risk adjusted returns.

Trend analysis was used to illustrate movements of the NSE stock index. An increase in the index indicates that performance is on an upward trend while a declining price index shows the performance is on a downward trend. Patterns of increase or decrease in risk-adjusted returns of unit trusts will be analyzed to see if this is reflective of Stock Market price swings. Average returns analysis will be done both for the unit trusts and the NSE with the NSE being used as a benchmark. Risk-return relationship (risk is measured by standard deviation) was represented graphically both for the NSE and the unit trusts.

July	3982	4259	5340	4858	3273	4438
August	3939	4426	5372	4649	3102	4454
September	3833	4880	5146	4180	3005	4630
October	3939	5314	4971	3387	3083	4660
November	3974	5615	5235	3342	3189	4395
December	3978	5645	5445	3521	3247	4431
TOTAL	43843	55185	62488	54773	26326	50951
% Points	33	20	-6	-34	1	28

Source: Capital Markets Authority

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

4.1 Introduction

This study had one major objective of establishing the relationship between stock market price volatility and unit trusts returns. This section presents results, whose main data was the NSE 20 share index for the periods between 2005 and 2010 as well as the Unit Trust returns for the same period. The results had been obtained from an analysis of NSE index at the end of each month during the study periods. Further analysis utilizes trends of the movement of the performance of the NSE 20 share index and Unit Trust returns to describe their patterns.

4.2 Unit Trust Returns and NSE 20 Share Index

The following tables indicate the unit trust returns, NSE 20 share index as well as the 91 day Treasury bill rates for the period 2005-2010

Table 4.2.1 NSE 20 Share Index for 2005 to 2010

Month	2005	2006	2007	2008	2009	2010
January	3094	4172	5774	4713	3199	3565
February	3213	4057	5774	5072	2475	3629
March	3209	4102	5134	4843	2805	3933
April	3228	4025	5148	5336	2800	4233
May	3505	4350	5002	5176	2853	4242
June	3972	4260	5147	5186	3295	4339
July	3982	4259	5340	4868	3273	4438
August	3939	4486	5372	4649	3102	4454
September	3833	4880	5146	4180	3005	4630
October	3939	5314	4971	3387	3083	4660
November	3974	5615	5235	3342	3189	4395
December	3973	5646	5445	3521	3247	4433
TOTAL	43861	55166	63488	54273	36326	50951
% Return	22	26	-6	-34	1	20

Source: Capital Markets Authority

Table 4.2.2 Net Asset Values 2005 to 2010

Month	2005	2006	2007	2008	2009	2010
Jan	790,568,000.00	1,325,013,550.00	2,930,056,760.00	2,250,567,850.00	1,678,565,545.00	2,535,450,600.00
Feb	890,558,000.00	867,678,700.00	1,875,345,270.00	2,345,678,540.00	1,354,678,500.00	1,765,678,780.00
Mar	840,569,000.00	945,908,780.00	1,799,564,590.00	2,345,678,900.00	1,429,067,590.00	1,787,304,666.00
Apr	890,564,500.00	837,678,700.00	1,825,450,670.00	2,650,678,960.00	1,413,247,890.00	3,945,789,080.00
May	980,678,900.00	1,123,450,090.00	1,895,675,975.00	2,440,560,790.00	1,476,569,080.00	3,945,456,780.00
Jun	996,576,880.00	1,098,786,780.00	1,800,450,950.00	2,400,678,950.00	1,699,785,550.00	3,953,834,140.00
July	998,756,000.00	1,313,450,090.00	2,245,056,500.00	2,118,911,670.00	1,695,456,000.00	3,119,183,250.00
Aug	955,134,520.00	1,345,456,780.00	2,336,756,900.00	2,107,890,650.00	1,633,458,900.00	3,120,456,750.00
Sep	945,780,560.00	1,411,521,866.00	2,134,567,045.00	2,127,809,500.00	1,610,459,000.00	3,123,450,000.00
Oct	967,800,500.00	1,354,678,890.00	2,033,450,560.00	1,198,750,350.00	1,633,458,900.00	3,164,181,425.00
Nov	980,678,900.00	1,676,567,890.00	2,743,508,700.00	1,143,678,450.00	1,633,458,900.00	2,656,789,900.00
Dec	945,678,238.00	1,486,789,090.00	1,845,345,270.00	1,234,805,600.00	1,700,678,700.00	2,868,908,675.00
TOTAL	11,183,343,998.00	14,786,981,206.00	25,465,229,190.00	24,365,690,210.00	18,958,884,555.00	35,986,484,046.00
AVERAGE	931,945,333.17	1,232,248,433.83	2,122,102,432.50	2,030,474,184.17	1,579,907,046.25	2,998,873,670.50
% Return	16%	11%	-59%	-82%	1%	12%

Source: Capital Markets Authority

Table 4.2.3 91 day Treasury bill Rates 2005 to 2010

Year	2005	2006	2007	2008	2009	2010
Rate	8.437%	6.827%	7.704%	7.387%	7.387%	3.622%

4.3 Relationship between Stock Market Price Volatility and Unit Trusts Returns

Mutual fund performance was analyzed through performance measurement ratios which are used in portfolio analysis. In this paper, Treynor and Sharpe ratios were used to evaluate mutual funds and the NSE 20 share index and rank them accordingly. While Treynor measures only the systematic risk summarized by beta, Sharpe concentrates on total risk of the mutual fund. A larger T value means a better portfolio for all investors regardless of their individual risk preferences. Sharpe performance index compared portfolios to the capital market line (CML) rather than the security market line (SML). Sharpe index, therefore, evaluated funds performance based on both rate of return and diversification (Sharpe 1967). For a completely diversified portfolio Treynor and Sharpe indices would give identical rankings.

The Sharpe's Index was computed by applying the equation,

$$SIp = (Rp - Rrf) / \hat{\sigma}p$$

where,

SIp = Sharpe's Index for portfolio p,

Rp = return on portfolio p,

Rrf = return on risk-free asset,

$\hat{\sigma}p$ = standard deviation of portfolio p,

The Treynors' index was computed using the equation:

$$TIp = (Rp - Rrf) / \hat{\alpha}p$$

Where,

TIp = Treynor Index for portfolio p,

Rp = return on portfolio p,

Rrf = return on risk-free asset,

$\hat{\alpha}p$ = beta for portfolio p,

The beta was derived by regressing unit trust returns against market returns (NSE), in which the slope of the characteristic line represented $\hat{\alpha}p$. The regression results were as below.

Multiple R	0.883617231
R Square	0.78077941
Adjusted R Square	0.725974263
Standard Error	22.24223306
Observations	6

ANOVA	Df	SS	MS	F	Significance F
Regression	1	7047.965608	7047.965608	14.24646128	0.019529224
Residual	4	1978.867725	494.7169313		
Total	5	9026.833333			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-11.25974561	9.19963885	-1.223933438	0.288138768	-36.80203786	14.28254664	-36.80203786	14.28254664
X Variable	0.983574305	0.260587556	3.774448474	0.019529224	0.260067259	1.70708135	0.260067259	1.70708135

Computing the Sharpe and Treynor's indices, findings in tables 4.1, 4.2, 4.3 and 4.6 indicate that from 2005, 2006 and in 2010, unit trust returns failed to beat the market Sharpe ratio. Thus, the investors of these schemes were not rewarded well on their invested money. These schemes were also those which had been out-performed by the NSE 20 share index. However, in 2007, 2008 and 2009, Unit trusts were worst performers (negative values and/or less than market Sharpe ratio). Treynor ratio measures the excess return earned over risk-free return per unit of systematic risk *i.e.*, *beta*. Here, the major observations mirror the similar finding as in Sharpe ratio.

It is interesting to note that all funds evaluated during the 6-year period were outperformed by the corresponding stock market index. This negates most fund managers' claim that a unit trust is a medium- to long-term (5 to 10 years or more) investment product designed to earn more income than that of bank deposits. The results of the Sharpe Measure also suggest that portfolio managers, on average, are were not able to outperform the market and actively adjust their portfolios' risk exposure.

Table 4.3.1 Relationship between stock market price volatility and unit trusts returns in 2005

Portfolio	Sharpe's Index	Treynor's Index
NSE 20 Share Index	1.33 (1)	13.79 (1)
Mutual Funds (Unit Trust)	1.07 (2)	7.69 (2)

Table 4.3.2 Relationship between stock market price volatility and unit trusts returns in 2006

Portfolio	Sharpe's Index	Treynor's Index
NSE 20 Share Index	1.45 (1)	19.49 (1)
Mutual Funds (Unit Trust)	0.20 (2)	4.24 (2)

Table 4.3.3 relationship between stock market price volatility and unit trusts returns in 2007

Portfolio	Sharpe's Index	Treynor's Index
NSE 20 Share Index	-2.56 (1)	-13.04 (1)
Mutual Funds (Unit Trust)	-3.67 (2)	-66.93 (2)

From the table above, as indicated by the negative T value, the portfolio performance was very poor.

Table 4.3.4 Relationship between stock market price volatility and unit trusts returns in 2008

Portfolio	Sharpe's Index	Treynor's Index
NSE 20 Share Index	-2.57 (1)	-42.40 (1)
Mutual Funds (Unit Trust)	-3E+00 (2)	-91.20 (2)

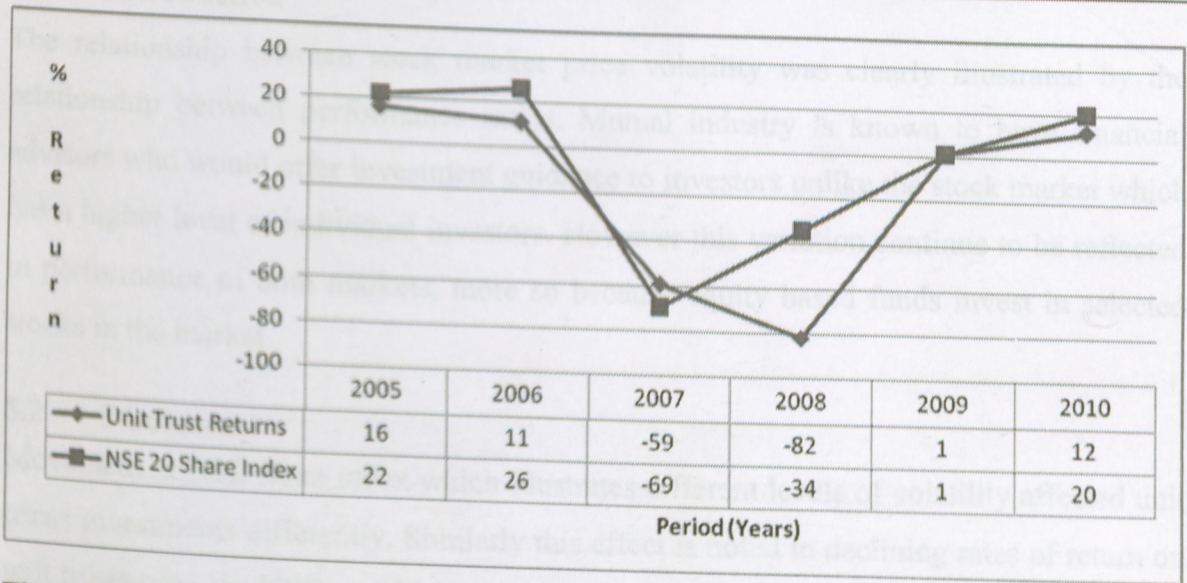
Table 4.3.5 Relationship between stock market price volatility and unit trusts returns in 2009

Portfolio	Sharpe's Index	Treynor's Index
NSE 20 Share Index	-0.78 (1)	-6.49
Mutual Funds (Unit Trust)	-8E-01 (2)	-6.49

Table 4.3.6 Relationship between stock market price volatility and unit trusts returns in 2010

Portfolio	Sharpe's Index	Treynor's Index
NSE 20 Share Index	1.94 (1)	16.65 (1)
Mutual Funds (Unit Trust)	3E-01 (2)	8.52 (2)

Graph 4.3.1 Relationship between stock market price volatility and Unit Trusts returns



The NSE index is used to measure the performance of the NSE from each trading day. As indicated in Figure 4.1, the increase in the NSE in 2005 indicated that the NSE performance was on an upward trend with share prices of most shares increasing. However, between December 2006 and December 2007, the market was bearish as the index moved downwards, pointing to sluggish economic activities in the 2007 election year.

4.4 Summary of Findings

In conclusion, the results of this analysis show that unit trusts performance did not outperform the market. Both the Sharpes index and Treynors index were lower relative to the market as illustrated by tables 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5 and table 4.3.6. When the returns of the stock market are compared to unit trust returns, they showed higher declines compared to the stock market as illustrated in graph 4.3.1.

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The relationship between stock market price volatility was clearly illustrated by the relationship between performance ratios. Mutual industry is known to have financial advisors who would offer investment guidance to investors unlike the stock market which has a higher level of individual investors. However this variation continue to be reflected in performance of both markets, more so because equity based funds invest in selected stocks in the market

5.2 Discussion

Movement in NSE share index which illustrates different levels of volatility affected unit trusts investments differently. Similarly this effect is noted in declining rates of return on unit trusts once the NSE was in decline. The study clearly shows that performance of the stock market indeed affects unit trusts performance. The main issue of concern to investors in mutual funds is to check portfolio selection, not solely to invest in funds which will adversely be affected by bearish markets.

5.3 Conclusion

The overall analysis finds mutual funds showing poor below-average performance when measured against NSE 20 share index. The small investors are well-advised to analyze the return and risk parameters of the mutual funds, over longer period of time, before their investment decisions. Although mutual funds are instruments of diversified investments, a prudent choice between the many available mutual fund schemes will go a long way in generating wealth for the investors. Further, in times of high stock market volatility, mutual funds are the best source of investments with assured and adequate returns provided the selection of the mutual funds is in the right direction.

In view of the phenomenal growth in the fund management industry, this study sought to obtain evidence of unit trust performance. Results show that the volatility of the stock market transcends to the unit trusts. However the unit trusts performance did not surpass that of the stock market. From year 2005 to 2010 the unit trusts portfolio underperformed

the stock market. This is clearly demonstrated by the rankings of Sharpe's and Treynor's indices which show that the stock market had superior risk adjusted returns compared to the unit trusts portfolio. However, they generally maintained well diversified portfolios. Thus, unit trusts could be an ideal investment for small investors seeking sufficient diversification.

5.4 Recommendations

Unit trusts are likely to play a dominant role as an investment option in the near future. Thus, in light of the performance-reward imbalances in the fund management industry, perhaps more funds should introduce performance fees as partial substitutes for the management fees they charge. This is especially relevant to funds that incorporate a Regular Savings Plan (RSP) for their investors. Under such a plan, an investor will continue his/her periodic contributions to the fund unless otherwise stated. With long term savings purpose in mind, investors' demand for the fund is unlikely to change due to poor performance of the fund manager for a particular year.

Limitations of the study

This study was limited to aggregate returns of equity based unit trusts. Effect of stock price volatility on individual companies would show individual companies' performance over the specified time. However, summarised information for individual companies is not available at the Capital Markets Authority registry

Suggestions for Further Research

Further researchers should do a study on other funds coming up in the unit trusts market. This study tested the relationship between stock market price volatility and unit trust returns. It will be better also to make an evaluation using the Nairobi All Share index since it's a weighted average from all the trading counters. This study also concentrated on the equity based unit trusts only, and there is need to study the relationship between stock market volatility on funds which are not equity based.

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APPEDICES

APPEDIX I: List of licensed unit trust companies in Kenya

The following are companies listed as Unit Trust Companies in Kenya.

Africa Alliance Kenya unit trust scheme:

- African alliance Kenya shilling fund
- African alliance fixed income fund
- African alliance Kenya managed fund
- African alliance Kenya equity fund

Old mutual trust scheme

- Old mutual equity fund
- Old mutual money market fund
- Old mutual balanced fund

British American unit trusts scheme

- British American money market fund
- British American balanced fund
- British American income fund
- British American management retirement fund
- British American equity fund

Stanbic unit trust scheme

- Stanbic money market fund

Stanbic flexible income fund

Stanbic management prudential fund

Commercial bank of Africa unit trust scheme

Commercial bank of Africa money market fund

Commercial bank of Africa equity fund

Zimele unit trust scheme

Zimele balanced fund

Zimele money market fund

Suntra unit trust scheme

Suntra balanced fund

Suntra money market fund

Suntra equity fund

ICEA unit trust scheme

ICEA equity fund

ICEA Money market fund

Dyer & Blair unit trusts scheme

Dyer & Blair Equity fund

Amana Capital

Amana Money market fund