

AN EVALUATION OF THE RISK AND RETURNS OF EQUITY MUTUAL FUNDS IN KENYA

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

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DEDICATION

DECLARATION

This research project is dedicated to my dear wife and friend Dr. Ningala, my

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nights behind the closed study door. To my parents and siblings who

inspired me to start my Master's programme.

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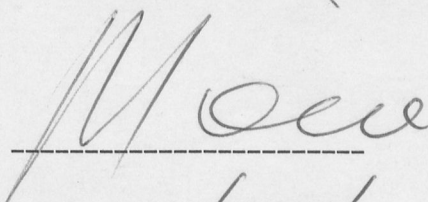
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DEDICATION

This research project is dedicated to my dear wife and friend Dr. Ningala, my sons Chris and Murage who had to endure my moments of absence and nights behind the closed study door. To my parents and siblings who inspired me to start my Master's programme.

To my supervisor, Mr. Mina Mwangi, I extend my sincere thanks for his guidance, suggestions, comments, criticisms, and his constant encouragement throughout the period of this research project.

To Peter Mharu, who was a pillar of support during the period of this research project.

To the fund managers of the Old Mutual Equity Fund and the African Alliance Balanced Fund and to the Central Bank of Kenya (CBK) National Debt Office for availing the data required for the successful completion of this project.

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To my supervisor, Mr. Mirie Mwangi, I extend my sincere thanks for his guidance, suggestions, comments, criticisms, and his constant encouragement throughout the period of this research project.

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ABBREVIATIONS

CAPM	-	Capital Asset Pricing Model
CBK	-	Central Bank of Kenya
CMA	-	Capital Markets Authority
CV	-	Coefficient of Variation
NAV	-	Net Asset Value
NSE	-	Nairobi Stock Exchange

In order to achieve these objectives, secondary data was used to generate each mutual fund's returns and risk. Regression analysis was used to derive the beta. The coefficient of variation, Sharpe model, Treynor model and the Jensen model were used to determine the relative performance of the sample mutual funds.

The results of the study indicated that there exists a positive risk-return relationship which is consistent with the capital market theory and is an indication that the unit-holders in the equity mutual funds are risk averse.

The risk adjusted performance measures, showed that the Balanced Fund had the worst performance when compared to the Equity Fund and the market. However, both the coefficient of variation and the Sharpe index indicated that the Equity Fund performed worse than the market portfolio. While the Treynor index and the Jensen alpha ranked the Equity Fund as having performed better than the market portfolio as represented by the NSE 20 Index. The findings indicate that the investment manager of the Equity Fund, in an effort to select undervalued securities or to time the market, holds a

ABSTRACT

The study set out to evaluate the relationship between risk (as measured by both the standard deviation of total return and coefficient of variation) and net returns of equity mutual funds in Kenya. In addition, the study also sought to compare the performance of Kenyan equity mutual funds with the stock market as a whole using the NSE 20 share index as the benchmark. The research study was done over the period 30th May 2003 to 1st July 2005.

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portfolio that is less than fully diversified, and as such contains some diversifiable risk.

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CHAPTER 1.0 – INTRODUCTION

CHAPTER 5.0 CONCLUSION AND RECOMMENDATIONS

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CHAPTER 1.0 – INTRODUCTION

1.1 BACKGROUND

A mutual fund is a collective investment vehicle organized as a company whose assets are managed by the company's directors on behalf of members. The ownership of the members is represented by shares in the body corporate (Capital Markets Authority Amendment Act, 2000).

A mutual fund is a type of financial services organisation that receives money from its shareholders and then invests those funds on their behalf in a diversified portfolio of securities. Thus, when investors buy shares in a mutual fund, they become part owners of a diversified portfolio of securities (Gitman and Joehnk, 2002).

Like any other company, mutual funds are created by selling shares of their stock to investors. However, mutual funds use two methods to sell their shares to the public after the first initial public offering thus creating the distinction between open-end and closed-end funds (Sears and Trennophl, 1993).

In an open-end mutual fund, investors buy their shares from and sell them back to the mutual fund itself and as such there is no brokerage fees involved in these transactions. However, many open-end funds levy a transaction fee / commission called a "load charge" when an investor purchases shares of the fund (Gitman and Joehnk, 2002).

A front-end load fund is one that charges a commission when shares are bought. For a load fund, the offer price will represent the price for each share including the load charge and the fund's Net Asset Value (NAV) per share will be less than the offer price by the amount of the load charge. A no-load fund is one that does not charge a commission when shares are bought. A low-load fund is one that charges a small commission (2% to 3%) when shares are bought. A back-end load fund is one that charges a commission when shares are sold. The stated purpose of back-end loads is to enhance fund stability by discouraging investors from trading in and out of the funds over short investment horizons. Research studies conducted have not found a positive relationship between fund performance and the load fee, and therefore it makes sense to invest in funds that do not charge these loads (Sears and Trennophl, 1993). 2002).

When an investor buys shares in an open-end fund, the fund issues new shares of stock and fills the purchase order with those new shares. There is no limit, other than investor demand to the number of shares the fund can issue. Though occasionally they temporarily close themselves to new investors, that is, they will not open new accounts in an attempt to maintain fund growth. All open-end mutual funds buy back their shares when investors decide to sell, thus there is never any trading between individuals (Gitman and Joehnk, 2002).

In both open-end and closed-end mutual funds, the buy and sell transactions are carried out at prices based on the NAV. The NAV is computed daily and represents the underlying value of a share of

stock in a particular mutual fund. NAV is found by taking the total market value of all assets held by the fund, less any liabilities and dividing this amount by the number of fund shares outstanding at the end of the trading day (Lofthouse, 2001).

Closed-end mutual funds operate with a fixed number of shares outstanding. That is, once the initial public offering shares are sold, the offering is closed with no further regular issuance of new shares. Thereafter, shares in closed-end mutual funds are actively traded in the secondary market but unlike open-end funds, all trading is carried out between investors in the open market. The fund itself plays no role in either buy or sells transactions; therefore the investor must deal with a broker and pay a brokerage commission just as in any other listed stock (Gitman and Joehnk, 2002).

Since for closed-end mutual funds all trading is carried out between investors in the open market, the shares prices are determined not only by their NAV but also by the general supply and demand conditions in the stock market. As a result, depending on the market outlook and investor expectations, closed-end mutual fund shares can trade at a discount to NAV, at NAV or at a premium to NAV. Gitman and Joehnk (2002) observed that they almost never trade at NAV and the share price discounts and premiums can at times amount to as much as 25% to 30% of NAV. And while these funds can trade at either premiums or discounts, price discounts are, far more common.

Pratt (1996) concluded that closed-end mutual fund shares sell at a discount because of several reasons; firstly the investor's attitude concerning the abilities of the fund's management, secondly the transaction costs and management fees may make investors unwilling to pay the NAV for the shares, thirdly the riskiness of the fund itself or the riskiness associated with the lack of marketability of the fund's shares because of a thin float (that is, a small number of shares outstanding).

Both open-end and closed-end mutual funds levy annual management fees to cover operating expenses like commissions paid when the fund buys and sells securities when constructing its portfolio, advertising costs and compensation to the professional managers who administer the fund's portfolio. These fees are paid regardless of the fund's performance and are derived as a percentage of the average net assets under management. Research studies conducted have not found a positive relationship between fund performance and the management fee, and therefore investors should opt to invest in funds that charge a low management fee (Sears and Trennophl, 1993).

From an investor's point of view, it is tempting to think of a mutual fund as a single large entity. However, that view is not accurate since various functions like investing, record keeping, safekeeping and others are split among two or more companies. To begin with, there is the fund itself, which is organised as a separate company and is owned by the shareholders. There is the investment company that created the fund and runs its daily operations. The fund manager is

responsible for building and managing the portfolio by buying and selling stocks or bonds. The fund trustees are responsible for the preparation of financial statements for each financial period and safeguarding the securities and other assets of the fund, without taking a role in the investment decisions. The fund custodians are responsible for holding the assets of the fund including title deeds, securities and income accrued thereof. They also facilitate the transfer, exchange or delivery of assets in accordance with the instructions received from the fund managers and thus maintains the shareholder records (Lofthouse, 2001).

This segregation of duties is designed to protect the mutual funds investor/ shareholder. Gitman and Joehnk (2002) observed that in the period 1932 to 2002 there has never been a major crisis such as a mutual fund collapse or scandal by losing money through fraud in the mutual fund industry.

In addition to the above segregation of duties, the Capital Markets Authority Amendment Act (2000), Section 79 (2) outlines the limits of the various classes of investments that can be undertaken by a mutual fund registered or operating in Kenya as follows:

- a) Securities listed on a securities exchange in Kenya – 80%;
- (b) Securities issued by the Government of Kenya – 80%;
- (c) Immovable property – 25%
- (d) Other collective investment schemes including umbrella schemes – 25%;

- (e) Any other security not listed on a securities exchange in Kenya - 25%;
- (f) Off-shore investments - 10%

This diversification is aimed at protecting the investing public. However, the Capital Markets Authority (CMA) leaves the task of constructing the portfolio to the fund managers. Therefore, the performance of mutual funds is determined by the astuteness of the fund managers in building their segregated portfolios from the various asset classes while fulfilling the investment objectives of the mutual fund and adhering to laid legislation.

The evaluation of mutual fund performance has elicited a lot of interest especially after the "Wharton Report" completed for the Securities and Exchange Commission of the United States of America (USA) in 1962 (Droms and Walker, 1995). In emerging markets, however, mutual funds are a recent phenomenon and no significant research has been conducted with regard to their performance despite the fact that their growth has been robust (Ramasamy and Yeung, 2003).

The amount of funds that are under the purview of professional management is large and increasing. Ramasamy and Yeung (2003) observed that Malaysian mutual funds have been growing at an average annual rate of 14.4% since 1989, higher than the growth in equities and bank deposits. Cesari and Panetta (2002) observed that since the introduction of mutual funds into the Italian financial system

in 1984, the number of operating funds and the size of assets under management have grown very rapidly and at the end of 1994 there existed 354 mutual funds with total NAV equal to 130 billion Lira, approximately 7% of Gross Domestic Product (GDP). Ochieng (2005) observed that Old Mutual Asset Management Kenya was established in 1997 and started operations in April 1998. As at April 2005, the total assets under management were over Kshs 49 billion and of this, the Equity fund that started operations on 1st April 2003 had an approximate net asset value of Kshs 2.0 billion.

This phenomenal growth in the mutual fund industry in these emerging markets has resulted in an increase in the number of investment companies offering a range of funds. Wagacha (2001) outlined that with the passage of the Capital Markets Authority Amendment Act (2000), which recognises specific investment vehicles and especially mutual funds and unit trusts, then more opportunities for diversification by both institutional and retail investors would emerge in Kenya.

Markowitz (1952) came up with the mean-variance framework which states that investors will seek either to maximize expected returns for a given level of risk or to minimize risk for a given level of expected return. The objective of portfolio management is to attain risk and returns that satisfy investors wealth maximization. The assumption is that investors are risk averse and as such they expect to be adequately compensated for the risk they assume.

If the expected relationship of increasing returns along with increasing risks does in fact hold, then investors may logically rely on making their mutual fund choices based on their individual risk tolerances, where risk is measured by the standard deviation of total return and coefficient of variation (Weston and Copeland, 1998).

1.2 STATEMENT OF THE RESEARCH PROBLEM

The increase in the number and types of mutual funds that are available to individual investors makes this a matter of practical as well as theoretical significance (Elton, Gruber, and Blake, 1996). However, since mutual funds are relatively new in the Kenyan market very little information has been published on their performance. Within the Kenyan mutual fund market we have equity and money market mutual funds. This research focused on the equity mutual funds because their performance can be benchmarked against the overall market as represented by the Nairobi Stock Exchange (NSE) 20 share index. This index is not greatly influenced by government domestic borrowing as would the case with the 91 day Treasury bill that would be the benchmark for the money market funds. Furthermore, the Central Bank of Kenya (CBK) is yet to establish a yield curve accepted across the banking industry that can be used to access the rates of return for the various maturity period bonds in the market.

A lot of literature has been written on the relationship between risk and returns from such scholars as Sharpe (1965), Firth (1977), Milonas (1995), Ramasamy (2003) among others. The main thrust in much of this literature is that there is a positive relationship between risk and

return. The risk–return trade off concept therefore means that investors get rewarded via a risk premium for taking on some additional risk. Gitari (1990) found that Kenyan publicly quoted companies do exhibit a positive relationship between systematic risk and returns. He also observed a negative relationship between unsystematic risk and returns. Since unsystematic risk can be diversified away by investors his findings confirmed that there is no premium paid to investors for taking on unsystematic risk. Exceptions have however been noted to this general conclusion. Bowman (1980) discovered that within most industries, risk and return were negatively correlated. Fiegenbaum and Thomas (1988) also observed a negative relationship between risk and return. The basic problem for this study is therefore an attempt to enquire into the existence or otherwise of a risk–return structure among Kenyan equity mutual funds. The study seeks to establish whether Kenyan equity mutual funds do exhibit a positive risk–return relationship or not.

There has also been conflicting evidence as to whether mutual funds (after expenses) under–perform a combination of passive portfolios of similar risk. Jensen (1968) concluded that the performance of mutual funds (after expenses) was actually inferior to the performance of randomly selected portfolios with equivalent risk over the period 1945 to 1964. Ippolito (1989) covering the period 1965 to 1984 however found that returns before loads, but net of other expenses, actually are slightly above the Capital Asset Pricing Model (CAPM) market line. Milonas (1995) examined the performance of 36 mutual funds operating in the Greek financial market over the period 1990–1993.

1.3 He concluded that the equity mutual funds achieved returns higher than those of the General Index of the Athens Stock Exchange (GIASE), while they undertook lower risk. Malkiel (1995) examined the performance of mutual fund returns during the 1971 to 1991 period and utilized a data set that included the returns from all mutual funds in existence in each year of the period thus considering the survivorship bias. Most data sets of other scholars include all mutual funds currently in existence and thus exclude funds that have terminated operations. He concluded that mutual funds have tended to under-perform the market, not only after management expenses have been deducted, but also gross of all reported expenses except load fees. Kamanda (2001) evaluated the equity portfolios held by Kenyan insurance companies over the period January 1998 to December 1999 and observed that majority of the insurance companies' maintained poorly diversified portfolios and the market portfolio outperformed the insurance industry portfolio. This controversy therefore raises the question; do Kenyan equity mutual funds perform better than the stock market? Kamanda (2001) also observed that the market rate of return for the Nairobi Stock Exchange (NSE) was less than the risk free rate during the study period. These findings raise concerns of how efficient it is to invest in the NSE since under normal circumstances risk-averse investors would prefer to invest in the money market at the risk free rate. This study also sought to confirm the presence of this abnormally over the research period.

1.3 OBJECTIVES OF THE STUDY REVIEW

2.1 THE MUTUAL FUND INDUSTRY IN KENYA
This study evaluated the relationship between risk (as measured by both the standard deviation of total return and coefficient of variation, CV) and net returns of equity mutual funds in Kenya

The study also compared the performance of Kenyan equity mutual funds with the stock market as a whole using the NSE 20 share index as the benchmark.

1.4 IMPORTANCE OF THE STUDY

The study will assist individual investors in their mutual fund choices based on their individual risk tolerances. Assist unit holders to assess the performance of their equity mutual funds vis-à-vis the stock market. Assist the regulatory authorities in assessing the suitability of the current investment regulations for mutual funds. Act as a basis for further research on the performance of mutual funds in Kenya as the sector continues to mature.

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CHAPTER 2.0 – LITERATURE REVIEW

2.1 THE MUTUAL FUND INDUSTRY IN KENYA

The mutual fund industry in Kenya is very young having started with the passage of the Capital Markets Amendment Act (2000), which recognises specific investment vehicles and especially mutual funds.

Despite the enactment of the Act, the mutual fund industry did not take off until December 2002 when African Alliance Kenya was licensed by the Capital Markets Authority (CMA) to set up the very first regulated mutual fund. It currently offers three different investment alternatives to both institutional and individual investors namely the Managed Fund (this is a Balanced Fund and will be referred to as such in this report), Shilling Fund and Fixed Income Fund. The trustee and custodian of the funds is Stanbic Bank Kenya Limited, auditors are KPMG Kenya, and the Fund Administrators are African Alliance Kenya Management Company Limited. This was later followed by Old Mutual Asset Managers (OMAM) Kenya Limited that launched both the Old Mutual Equity Fund and the Old Mutual Money Market Fund that started operations on 1st April 2003. The trustee and custodian of the funds is Kenya Commercial Bank Limited, auditors are PricewaterhouseCoopers Kenya, and the Fund Manager is Old Mutual Investment Services Kenya Limited. The latest entrant to the mutual fund industry is the British American Investment Group which in July 2005 launched an investment advisory and asset management company known as British American Asset Managers that will offer a comprehensive range of domestic investment products. These include an Equity Fund, Balanced Fund, Money Market Fund and an Income

Fund. The trustee and custodian of the funds is Kenya Commercial Bank Limited, auditors are PricewaterhouseCoopers Kenya, and the Fund Manager is AIG East Africa Limited.

2.2 TYPES OF MUTUAL FUNDS

Ochieng (2005) observed that Old Mutual Asset Management Kenya was established in 1997 and started operations in April 1998. As at April 2005, the total assets under management were over Kshs 49 billion and of this, the Equity fund that started operations on 1st April 2003 had an approximate net asset value of Kshs 2.0 billion.

Gitman and Joehnk (2002) observed that one of the critical costs of mutual funds is the tax paid on transaction of securities. To avoid double taxation, most mutual funds world over operate as regulated investment companies. This means that all (or nearly all) of the dividend and interest income is passed on to the investor, as are any capital gains realised when securities are sold. The mutual fund therefore passes the tax liability on to its shareholders.

The Chairman of the Old Mutual Equity in the Report to the Unit Holders for the period 31 December 2004 attributes the fund growth to favourable legislative and fiscal policies undertaken by the Government of Kenya. Firstly, the mutual fund is registered under the Income Tax Act (Collective Investment Scheme Rules 2002) and is exempt from income tax except for the payment of withholding tax on interest income (15%) and dividends (5%) as a resident person as specified in the third schedule, to the extent that its unit holders are

not exempt person under the schedule. Secondly, the capital gains tax on the capital distributions to unit holders is currently suspended.

2.2 TYPES OF MUTUAL FUNDS

Both open-ended and closed-ended mutual funds can be categorised based on their specific investment objectives. The main classifications as outlined by Sears and Trennophl (1993) are:

Growth funds – these invest in the shares of well established companies. Their primary aim is to produce an increase in the value of their investments through capital gains rather than a flow of dividends. Investors who invest in a growth fund are more interested in seeing the fund's share price rise than in receiving income from dividends. The Old Mutual Equity Fund is a good example of a Kenyan growth fund.

Aggressive growth funds – these seek maximum capital gains and current income is not a significant objective. Some may invest in stocks of businesses that are somewhat out of the mainstream such as fledgling companies, new industries, companies fallen on hard times, or industries temporarily out of favour. Some may also use specialised investment techniques such as option writing or short term trading.

Balanced funds – these generally have a three part investment objective: (1) to conserve the investors' initial principal, (2) to pay current income, and (3) to promote long term growth of both the principal and income. Balanced funds therefore generally hold a

2.3 portfolio mix of bonds, preferred stocks and common stock with the hope of achieving capital gains, dividend income and interest income, while at the same time conserving the principal. The African Alliance Managed Fund is a good example of a balanced fund in Kenya

Income funds – these concentrate on high interest and high dividend yielding securities. Therefore, they invest mainly in the common stock of companies that have had increasing share value but also a solid record of paying dividends. These funds combine long term capital growth with a steady income stream.

Sector funds – these invest in portfolios of selected industries and such a fund appeals to investors who are extremely optimistic about the prospects of these few industries and are willing to assume the risks associated with such a concentration of their investment.

Money market funds – these invest in the short term securities sold in the money market. These are generally the safest, most stable securities available, including treasury bills, treasury bonds, and certificates of deposit of large banks and commercial paper of reputable companies. The African Alliance Shilling Fund and Fixed Income Fund and the Old Mutual Money Market Fund are good examples of money market funds in Kenya.

International funds – these invest at least two-thirds of its portfolio in equity securities of companies located outside the country.

2.3 BENEFITS OF MUTUAL FUNDS

Diversification

According to Fisher and Jordan (2002), it is impossible for many investors to assemble a large diversified portfolio of the kind that seems to do better than or as well as the managed portfolios because of capital limitations and higher commissions. Mutual funds provide not only diversification within a portfolio but also diversification among portfolios. For instance, the same Kshs 50,000 that was insufficient to purchase even one bond could, in many instances, purchase both a diversified stock mutual fund and a diversified bond mutual fund. Markowitz (1959) concludes that indeed mutual funds may represent the only opportunity many investors have for investing in an intelligent, diversified fashion in the securities of US Corporations.

Professional Management

Mutual funds enlist the professional services of a fund manager whose role entails selecting and supervising the fund holdings in accordance with the fund's basic investment objectives and policies. These individuals work full time on studying the markets, market trends and individual stocks. This is a great benefit since very few individual investors have the time or expertise to manage their personal investments every day, to efficiently reinvest interest or dividend income or to investigate the thousands of securities available in the financial markets (Sears and Trennophl, 1993).

Amongst the key roles of the fund manager is that of asset allocation whose emphasis is on the preservation of capital. According to Gitman and Joehnk (2002), asset allocation although similar to diversification in its objective, is a bit different in that its focus is on investment in various asset classes, while diversification focuses on security selection that is, selecting the specific shares to be held within an asset class. They go on to state that studies conducted have shown that as much as 90% or more of a portfolio's return comes from asset allocation and that less than 10% can be attributed to the actual security selection.

Lofthouse, 2001 outlines three basic approaches to asset allocation. Firstly there is the fixed weightings approach which allocates a fixed percentage of the portfolio to each of the asset categories which do not change greatly over time. When market values shift, the portfolio may have to be adjusted annually or after major market moves to maintain the desired fixed percentage allocation. Secondly, the fixed weighting approach involves periodic adjustment of the weights for each asset category on the basis of market values. The third approach, tactical asset allocation is a form of market timing that uses stock-index futures and bond futures to change a portfolio's assets allocation. When stocks are forecast to be less attractive than bonds, this strategy involves selling stock-index futures and buying bond futures.

2.4 Liquidity TURN: THEORETICAL BACKGROUND

Gitman and Joehnk (2002), state that shares in a mutual fund can be bought and sold any business day, so investors have easy access to their money. While many individual securities can also be bought and sold readily, others are not widely traded. In those situations, it could take several days or even longer to build or sell one's equity holdings.

Transaction Costs

Due to the size of the trades of a mutual fund, the investment company achieves savings on transaction costs such as brokerage commissions over those that the individual investor would have to pay. According to Elton and Gruber (1995), for an investor with limited capital, very large transaction costs are required to obtain the same degree of diversification. Thus for small investors, mutual funds (even with some underperformance) still provide a reasonable alternative to direct purchase.

Convenience

Elton and Gruber (1995) observed that other reasons for owning mutual funds stem from conveniences provided to the investor. These include such items as cheque-writing privileges, the ability to switch types of investments at no cost (transfer money between different types of funds in the same family of funds), automatic reinvestment of income and good investment reporting.

2.4 RISK-RETURN: THEORETICAL BACKGROUND also received

The relationship between risk and return is important in investment selection since these two parameters are considered the main objects of choice. The theoretical risk-return relationship is based on the mean-variance framework of portfolio selection advanced by Markowitz (1952); that is based on the assumption of risk aversion. Theoretical expectations are that there should be a positive risk-return relationship since investors expect to be compensated with a risk premium if they undertake additional risk. Kamanda (2001) evaluated the equity portfolios held by Kenyan insurance companies over the period January 1998 to December 1999 and observed a positive and linear relationship between risk and return.

2.5 RETURN

Exceptions have however been noted to this general conclusion. Bowman (1980) discovered that within most industries, risk and return were negatively correlated. Fiegenbaum and Thomas (1988) also discovered a negative relationship between risk and return. Various explanations have been advanced to explain this apparent contradiction. Some scholars have questioned the premise of risk aversion arguing that it is not universally applicable, Markowitz (1952) and Swalm (1966). Laughbunm, et al, (1980) established that individuals are not uniformly risk averse, but adopt a mixture of risk seeking and risk-averse behaviours. They further established that target levels or prospects are important in determining this behaviour. Thus when returns have been below target, most investors will portray a risk seeking behaviour, and when returns have been above target, most investors will be risk averters. These "prospect theory"

explanations for negative risk–return relationships have also received support in a corporate context from Fiegenbaum and Thomas (1988) and Bowman (1980) who established that troubled firms or firms whose returns are below prospect returns are more risk seeking than healthy firms.

It is therefore clear that the non–universality of risk aversion is the most important explanation for any negative risk–return relationship. In the Kenyan context, no study has been undertaken for the Equity Mutual Funds to determine what relationship exists between risk and return.

2.5 RETURN

The total return for an investment comprises of the realised return and the capital gains returns. The realised return is the portion of current income received by the investor during the period and the capital gains returns is the difference between the ending investment value and the beginning investment value (Sears and Trennophl, 1993).

The return of each mutual fund will be calculated using the holding period return methodology. The holding period return (HPR) is the total return earned from holding an investment for a specified period of time, the holding period (Gitman and Joehnk, 2002). The HPR was used because it is easy to use and understand in making investment decisions. Also, since it considers both realised income and capital gains relative to the beginning investment value, it tends to overcome

any problems that might be associated with comparing investments of different size (Gitman and Joehnk, 2002). This method has also been used by other scholars like Gaumnitz (1970), Gitari (1990), Milonas (1995), Artikis (2002), amongst others. The limitation of the HPR is that it fails to consider the time value of money and as such it is inappropriate for holding periods longer than one year (Gitman and Joehnk, 2002). This was overcome by the use of weekly holding periods for the computation of returns.

2.6 RISK

Risk considerations lie at the very heart of most investment decisions. For both individuals and companies the incorporation of risk variables in the decision process is of utmost importance, Gitari (1990). Different perspectives on risk give rise to different schools of thought. The variability school, March and Shapira (1987) perceive risk as the variation in the distribution of possible outcomes, their likelihoods and their subjective values. This perception of risk also compares well with Robichek (1969) perception of risk being the possibility that the actual returns from an investment may differ from the expected returns. That is, the risk of a security is the variability in its expected future returns. High risk securities have high dispersion around the mean while low risk securities will have a low dispersion around the mean. Risk as measured as the variability of returns has received widespread acknowledgement in decision theory. Thus, risk viewed as the variability of returns is quantified in terms of variability measures which include range, mean absolute deviation, variance, standard deviation, and coefficients of variation (Spiegel, 1988).

2.6.2 Coefficient of Variation (CV)

The volatility school of thought perceives risk in terms of the volatility of returns in relation to the market returns. Thus a stock whose returns are highly correlated with the market returns is said to have low volatility, whereas a stock whose returns have little correlation with the market returns is said to be highly volatile. A measure of risk based on the volatility concept quantifies only that portion of the total variation which is associated with the market variation (systematic risk) and ignores any unsystematic variation (Bower and Wipperfurth, 1969).

2.6.1 The standard deviation

The total risk of each mutual fund under consideration will be measured statistically using the standard deviation. According to Budnick (1993) the standard deviation is the most common single indicator of an asset's risk because it is easy to calculate and understand. It also uses all data values and accurately reflects the actual magnitude of variation in the data set. In addition, academic studies have shown that many financial assets, particularly common stock have return distributions that are normal, or approximately normal (Sears and Trennepohl, 1993). As such, their return characteristics can be adequately described via the mean and variance of the distribution. Standard deviation is an absolute measure of risk that measures the dispersion of actual returns from the expected returns Budnick (1993). According to Modigliani and Pogue (1974), the greater the standard deviation, the greater the dispersion, hence greater the risk.

2.6.2 Coefficient of Variation (CV)

According to Droms and Walker (1995), the coefficient of variation (CV) provides the most appropriate and commonly used return adjusted measure of variation. The CV is a relative measure, or ratio of dispersion that measures the risk per unit of return and it is useful when comparing investments that have different expected returns, (Gitman and Joehnk, 2002). The lower the CV, the lower the risks per unit return of an asset. This means that when comparing different mutual funds, the mutual fund with the highest CV will indicate the worst risk–return trade–off, while the mutual fund with the lowest CV will indicate a higher return for very low risk.

2.6.3 Systematic Risk

A portfolio's total risk is comprised of both systematic (market/un-diversifiable) risk and unsystematic (diversifiable) risk. Modigliani and Pogue (1974), observed that portfolio unsystematic risk can be reduced through diversification by combining assets that have a negative (or a low – positive) correlation. The risk that cannot be reduced by diversification is referred to as the market risk or systematic risk.

The systematic risk of an asset can be measured using the beta. Beta indicates how the price of an asset responds to market forces. The more responsive the price of an asset is to changes in the market, the higher that assets beta. Beta is derived by relating the historical returns for an asset to the market return (Gitman and Joehnk, 2002). Sharpe (1963) indicates that relationship between securities occurs

only through their individual relationships with an index of business activity such as Dow Jones Industrial (DJIA) and Standard and Poor 500 stock index. This simplifies the security analysis process since the number of covariance's required in calculating portfolio risk is greatly reduced.

2.7 PORTFOLIO RISK & RETURN

Elton et al. (1996) concluded that employing modern portfolio theory to form optimal portfolios based on past information leads to the selection of portfolios of mutual funds that have a positive and both economically and statistically significant return compared to a portfolio that places an equal amount in each fund that is considered.

A portfolio's return is the weighted average of the individual assets making up the portfolio (Modigliani and Pogue, 1974). For a portfolio with n ($i = 1, 2, 3 \dots n$) securities, the portfolio return can be expressed as follows:

$$r_n = \sum_{i=1}^n W_i r_i$$

Where,

r_n = Return of the portfolio

i = Number of assets within the portfolio

W_i = The proportion of the i^{th} asset

r_i = Return of the i^{th} asset.

Portfolio risk is influenced by both the individual security variances and by the interrelationships between the component security returns

(Sears and Trennepohl, 1993). This will depend on the weights together with the covariance existing between the different combinations of assets held. Portfolio risk is also dependent on the correlation between the assets that form the portfolio. The degree of correlation, which can either be positive or negative, is measured by the correlation coefficient. The coefficient ranges from +1 for perfectly positive correlated series to -1 for perfectly negatively correlated series (Weston and Copeland, 1998). The essence of diversification is the construction of portfolios of securities whose returns are less than perfectly correlated. The lower the level of correlation among the securities in the portfolio, the greater is the potential risk-reducing benefits from diversification (Sears and Trennepohl, 1993).

For a portfolio with n ($i = 1, 2, 3 \dots n$) securities, the portfolio risk can be expressed as follows:

$$\sigma_n = \left[\sum_{i=1}^n W_i^2 \sigma_i^2 + \sum_{i=1}^n \sum_{j=1}^n W_i W_j \sigma_{ij} \right]^{1/2}$$

Where,

σ_n = risk of the portfolio

σ_i^2 = variance of individual security i

σ_{ij} = covariance between security i and j

W_i = the proportion invested in security i

W_j = the proportion invested in security j

Gaumnitz (1970) concluded that portfolio managers will generally have the greatest success in maximizing the portfolio's market price of risk if they attempt to maximize that portfolios returns rather than

try to minimize its variability. This he said because the returns on portfolios varied considerably more than their portfolio standard deviations and, consequently, the return measures dominated the risk measures in the calculation of the market price of risk.

2.8 PORTFOLIO EVALUATION

Gaumnitz (1970) stated that investment portfolios should be appraised based on their market price of risk, which combines risk and return into one measure, rather than on risk or return alone. This study shall seek to rank the performance of the mutual funds under consideration using the Treynor Index, Sharpe Index and the Jensen Index. Since the three risk-adjusted performance measures are derived from the CAPM and Capital Market Line (CML), they are consistent with the capital market theory as developed in a mean-variance context (Sears and Trennepohl, 1993). Studies undertaken by some scholars indicate that the performance ranking as a result of using the three indexes is not consistent.

Treynor and Jensen measures may differ in their ranking of portfolios because of the manner in which they incorporate risk. The Jensen measure is not well suited to ranking portfolios of different risk because it measures only deviations from the CAPM in the return dimension; thus portfolios that differ widely in risk may conflict in their Jensen and Treynor measures. Low risk portfolios tend to have positive Jensen index and higher risk portfolios have negative Jensen index (Sears and Trennepohl, 1993).

Disparities have been noted between the Sharpe measure and either the Jensen or Treynor measure because of the portfolios diversifiable risk. Both the Jensen and Treynor models assume a fully diversified portfolio and thus only consider the systematic/market risk. Therefore, if the portfolio is well diversified so that it contains little diversifiable risk, the Sharpe, Treynor and Jensen measures will give consistent rankings compared to the market. However, if the investment manager, in an effort to select undervalued securities or to time the market, holds a portfolio that is less than fully diversified, it will contain diversifiable risk (Sears and Trennepohl, 1993).

2.8.1 Treynor performance index

Treynor (1965) developed a technique for performance evaluation, the Treynor Index (TI) that indicates the risk premium return earned per unit of systematic risk, which is measured by the portfolio beta. He indicates that risk components include risk produced by the general market fluctuation and risk resulting from unique fluctuations in the portfolio securities. To identify risk due to market fluctuations he introduced the characteristic line which defines the relationship between the rates of return for a portfolio over time and the rates of return for an appropriate market portfolio. The slope of the characteristic line is the beta. The characteristic line measures the relative volatility of the portfolio returns in relation to returns for the aggregate market. Deviations from the characteristic line indicate unique returns for the portfolio relative to the market.

The larger the Treynor index, the better the portfolio to all the investors regardless of their risk preference as it denotes a superior risk adjusted performance.

2.8.2 Sharpe performance index

Sharpe (1966) introduced an alternative technique for performance evaluation and illustrated the technique in evaluating the performance of a large number of mutual funds. The Sharpe Index (SI) indicates the risk premium return earned per unit of total risk, which is measured by the portfolio standard deviation.

The Sharpe Index summarises the risk and return characteristics of a portfolio through a single index on a risk-adjusted basis. The larger the Sharpe Index the better the portfolio has performed.

2.8.3 Jensen model

Jensen (1968) developed the Jensen model that is the intercept in a regression of the time series of excess returns (the difference between the portfolio returns and the Treasury bill rate) of the evaluated portfolio against the time series of excess returns of the benchmark portfolio. This gives us the return earned on the portfolio in excess of the risk free rate.

Jensen argued that an indication of a portfolio's performance is the alpha coefficient α_i which represents the risk adjusted excess return.

If $\alpha > 0$ and is significantly different from 0 in a statistical test, then the portfolio has superior performance. If $\alpha < 0$ and is statistically

significant, then the portfolio has demonstrated poor performance. Finally, if α is not statistically different from 0, indicates that the portfolio did not provide a risk-adjusted excess return.

Jensen's alpha is the additional return (or loss) earned by the portfolio after adjusting for systematic risk.

2.9 RELATED RESEARCH

Sharpe (1966) examined the return of 34 mutual funds in the period 1945–1963 and concluded that the differences in returns are due to the mutual funds expenses. Also, using his index, he found out that the majority of the sample mutual funds failed to outperform the Dow Jones Index.

Jensen (1968) examined the return of 115 mutual funds in the period 1955–1964. Using his index, he concluded that the mutual funds failed to forecast the stock prices accurately; therefore they could not take advantage of the buy and hold strategy. Besides, he concluded that there is little evidence that an individual mutual fund can achieve returns higher than a portfolio consisted of randomly selected shares.

Mc Donald (1974) analysed 123 mutual funds in the period 1960–1969 on the basis of monthly returns using both the Sharpe and Treynor indexes. He found out that 67 mutual funds showed values for Treynor's index higher than the stock market average, while only 39 mutual funds showed values for Sharpe's index higher than the stock market average.

Firth (1977) analysed 72 British open-end investment trusts over the period 1965 to 1975 and found that on average, managers of unit trusts in the United Kingdom were not able to forecast share prices accurately enough to outperform a simple buy and hold policy. Additionally, there was no statistically significant evidence of any individual unit trust having superior performance; there was, however evidence of statistically significant inferior performance even when management expenses are added back.

Guy (1978) examined 47 British closed-end investment trusts over the period 1960 to 1970 and found that no trust during the interval studied significantly outperformed the London Stock Exchange.

Cumby and Glen (1990) examined 15 international mutual funds operating in the USA financial market in the period 1982-1988. Using the Jensen index, they presented evidence that the sample mutual funds outperformed an international stock index. Furthermore, they presented some evidence that the sample mutual funds achieved returns higher than a domestic portfolio consisted exclusively of USA stocks. This excess return was attributed to the benefits of international diversification.

Milonas (1995) examined the performance of 36 mutual funds operating in the Greek financial market over the period 1990-1993. He concluded that the equity mutual funds achieved returns higher than those of the General Index of the Athens Stock Exchange (GIASE), while they undertook lower risk.

CHAPTER 3.0 - RESEARCH METHODOLOGY

3.1 RESEARCH DESIGN

Artikis P.G. (2002) examined the performance of 17 equity mutual funds operating in the Greek financial market over the period 1995–1998. He concluded that all 17 mutual funds undertook total risk lower than the General Index of the Athens Stock Exchange (GIASE) and only 4 mutual funds achieved returns higher than the GIASE.

Cesari and Panetta (2002) analysed 354 equity mutual funds in Italy over the period 1984 to 1995 and observed that with net returns the risk adjusted performance of the funds were not significantly different from zero, though with gross returns the performance was always positive.

3.2 DATA COLLECTION

The data collection form in Appendix 1.0 was used to obtain the weekly buying price that represents the Net Asset Values of the equity mutual funds, the weekly NSE 20 share index and the weekly 91 day Treasury bill rates. This secondary data was collected from the fund managers of the various mutual funds who are also required under Section 17 (2) of The Collective Investment Scheme Regulation 2001 to publish the Net Asset Values in the daily newspapers. The weekly 91 day Treasury bill rates (the risk-free rates) were obtained from the Central Bank of Kenya, National Debt Office.

CHAPTER 3.0 – RESEARCH METHODOLOGY

3.1 RESEARCH DESIGN

The study entailed a census of all the mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. These were the **Balanced Fund** under African Alliance Kenya and the **Equity Fund** under Old Mutual Asset Management (OMAM) Kenya. The study covered the period 1st January 2003 to 30th June 2005 which captured the full duration that the above mutual funds have been in operation. This study excluded the equity mutual fund managed by the British American Asset Managers Limited that came into operation on 1st July 2005 due to the limited data available. This study sought to evaluate weekly data and for the purpose of this study Friday was chosen because this is the day when the weekly Treasury bill auction is done. Where the Friday data was not available due to a public holiday, the preceding Thursday data was used as a substitute.

3.2 DATA COLLECTION

The data collection form in Appendix 1.0 was used to obtain the weekly **buying price** that represents the Net Asset Values of the equity mutual funds, the weekly NSE 20 share index and the weekly 91 day Treasury bill rates. This secondary data was collected from the fund managers of the various mutual funds who are also required under Section 17 (2) of The Collective Investment Scheme Regulation 2001 to publish the Net Asset Values in the daily newspapers. The weekly 91 day Treasury bill rates (the risk-free rates) were obtained from the Central Bank of Kenya, National Debt Office.

3.3 DATA ANALYSIS

Based on the data collected, the mutual funds were evaluated to show their weekly returns and weekly standard deviation which were compared to that of the market. The data analysis is summarised in Appendix 2.0. In order to eliminate possible cyclical, seasonal and irregular variations a moving average of order 5 was used.

The systematic risk of each mutual fund was derived by computing the beta coefficient based on the weekly returns. The beta coefficient was derived through the regression of the weekly returns of each mutual fund to the weekly market returns. By so doing, the characteristic line was derived and the slope of each line represented the beta coefficient of each mutual fund.

The risk-adjusted performance ranking of the various mutual funds was derived by using the coefficient of variation, the Treynor index, Sharpe index and the Jensen index. These models were chosen because they are composite measures of comparison since they utilize indexes based on the risk and return of the portfolio. In addition, these are relative measures, or ratios, of dispersion; hence, they are particularly useful in comparing portfolios that have different risk-return characteristics.

The above analysis was presented in tabular form and illustrated in graphical form for easier comparative analysis. In particular, graphs were used to compare the risk and return for the mutual funds and establish if there was a positive relationship as expected in theory.

3.4 DATA SPECIFICATION

3.4.1 Mutual fund return

The weekly return of each mutual fund was calculated as the change in the net asset value during the week expressed as a ratio of the beginning net asset value. This is expressed as follows:

$$r_i = \left[\frac{NAV_t - NAV_{t-1}}{NAV_{t-1}} \right]$$

Where:

r_i = Return of mutual fund i for period t

NAV_t = Net asset value per unit of the mutual fund in period t

NAV_{t-1} = Net asset value per unit of the mutual fund in the period

t-1

3.4.2 Market return

The weekly market return was calculated as the change in the NSE 20 share index during the week expressed as a ratio of the beginning NSE 20 share index. This is expressed as follows:

$$r_m = \left[\frac{M_t - M_{t-1}}{M_{t-1}} \right]$$

Where:

r_m = Return of the market for period t

M_t = NSE 20 share index at period t

M_{t-1} = NSE 20 share index at period t-1

3.4.3 Mutual fund total risk

The total risk of the mutual funds under consideration was measured by the standard deviation of their weekly returns using the following formula:

$$\sigma_i = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (r_i - \bar{r}_i)^2}$$

Where,

σ_i = Standard deviation (total risk) of mutual fund i

n = Number of weekly returns

r_i = Weekly returns of mutual fund i

\bar{r}_i = Mean / average return of mutual fund i

3.4.4 Mutual fund systematic risk

The systematic risk of each equity mutual fund was measured by the beta coefficient β_i based on the weekly annualised returns using the Capital Asset Pricing Model (CAPM) developed by Markowitz and Sharpe in 1974. It is expressed as follows:

$$r_i = \alpha_i + \beta_i r_m + e_i$$

Where,

r_i = Return of mutual fund i

α_i = Return of the mutual fund i that is independent of market performance

β_i = Systematic risk of the mutual fund i

r_m = Return of the market

e_i = Impact of non systematic factors that are independent from the market fluctuations.

Where,

3.5 RANKING OF THE MUTUAL FUNDS

3.5.1 The coefficient of variation

The coefficient of variation (CV) expresses the total risk undertaken by the mutual funds under consideration per unit of return achieved using weekly returns as given by:

$$CV = \frac{\sigma_i}{\bar{r}_i}$$

Where:

σ_i = Standard deviation of total risk of mutual fund i

\bar{r}_i = Mean / average return of mutual fund i

3.5.3 Sharpe performance index (Sharpe 1966)

The lower the CV, the lower the risk, hence, the mutual funds CV were ranked in ascending order which means that the mutual fund with the least CV was considered the best.

3.5.2 Treynor performance index (Treynor 1965)

The Treynor Index for the respective mutual funds under review is derived by dividing the market premium by the systematic risk of each mutual fund. The Treynor Index is defined as:

Where:

$$T = \left[\frac{\bar{r}_i - \bar{r}_f}{\beta_i} \right]$$

Where,

T = Treynor Index

\bar{r}_i = the average return for portfolio i during a specified time period

\bar{r}_f = the average risk free rate of return during the same time period

β_i = the slope of the funds characteristic line (the portfolio's relative volatility)

These indexes were ranked in descending order such that a higher ranking characterizes a mutual fund with superior risk adjusted performance, that is, higher risk premium return per unit of systematic risk.

3.5.3 Sharpe performance index (Sharpe 1966)

Market premium is divided by the total risk to arrive at the Sharpe index for the respective mutual funds under review. The Sharpe Index indicates the risk premium return earned per unit of total risk, as measured by the portfolio standard deviation. The Sharpe Index is defined as:

$$S = \left[\frac{\bar{r}_i - \bar{r}_f}{\sigma_i} \right]$$

Where:

S = Sharpe index

\bar{r}_i = the average return for portfolio i during a specified time period

\bar{r}_f = the average risk free rate of return during the same time period

σ_i = standard deviation of the returns of portfolio i

CHAPTER 4.0 – RESEARCH FINDINGS AND DISCUSSIONS

These indexes were ranked in descending order such that a higher ranking characterizes a mutual fund with superior performance and hence greater diversification.

3.5.4 Jensen alpha coefficient (Jensen 1968)

The alpha value is computed as the difference between the actual return minus the expected return to give the excess return. The equation is thus;

$$(r_i - r_f) = \alpha_i + \beta_i (r_m - r_f) + e_i$$

Where,

r_i = Return of the mutual fund i

r_f = Risk free return

α_i = Risk adjusted excess return of the mutual fund i

β_i = Systematic risk of the mutual fund i

r_m = Return of the market portfolio (NSE 20 share index)

e_i = Impact of non systematic factors that are independent from the market fluctuations

These were then ranked in descending order so as to determine the mutual fund with the largest excess return which is considered to be the most attractive since it offers greater growth prospects due to its current diversification.

CHAPTER 4.0 – RESEARCH FINDINGS AND DISCUSSIONS

4.1 INTRODUCTION

The study set out to evaluate the relationship between risk (as measured by both the standard deviation of total return and coefficient of variation) and net returns of equity mutual funds in Kenya. In addition, the study also sought to compare the performance of Kenyan equity mutual funds with the stock market as a whole using the NSE 20 share index as the benchmark.

The study was designed to cover the period 1st January 2003 to 30th June 2005. However the **Balanced Fund** under African Alliance Kenya began operations on 22nd May 2003 and the **Equity Fund** under Old Mutual Asset Management (OMAM) Kenya began operations on 1st April 2003. Therefore, in order to enable comparison of returns the period was adjusted to Friday 30th May 2003 to Friday 1st July 2005. This period was considered adequate since the number of weekly observations were greater than 30 and would enable meaningful research conclusions about the performance of the equity mutual funds.

4.2 RISK & RETURN

Having collected the weekly buying price that represents the Net Asset Values of the equity mutual funds, the weekly NSE 20 share index and the weekly 91 day Treasury bill rates, the weekly annualised returns and standard deviation were computed and analysed in Appendix 2.0.

The averages for the weekly results over the study period were summarised in Table 1.0, Table 2.0 and Table 3.0. in Table 2.0 below.

Table 1.0 Average Total Returns Analysis

	Average Total Return	Ranking
NSE 20 Index	0.3175	1
Old Mutual – EQUITY FUND	0.2746	2
African Alliance – BALANCED FUND	0.0632	3
91 Day Treasury Bill	0.0384	4

The ranking of the sample mutual funds in decreasing order of average total return over the evaluation period Friday 30th May 2003 to Friday 1st July 2005 is as shown in Table 1.0 above.

All the mutual funds had a combination of both positive and negative returns over the study period and all registered average returns higher than that of the 91 day Treasury bill. This contradicts Kamanda (2001) who observed that the market rate of return for the NSE was less than the risk free 91 day Treasury bill rate during the period January 1998 to December 1999.

Another major observation from Table 1.0 is that, all the equity mutual funds returns (after expenses) under-performed against a passively managed portfolio as represented by the NSE 20 index. However the fact that the NSE 20 index had higher total risk is in agreement with capital market theory where investors expect to be

compensated with a risk premium if they undertake additional risk.

The total risk analysis of this study is as indicated in Table 2.0 below.

Table 2.0 Total Risk Analysis

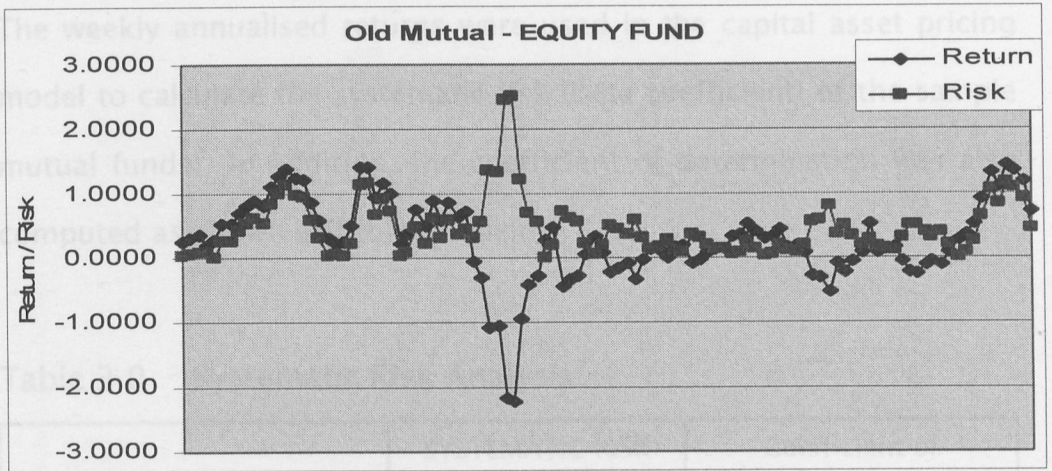
	TOTAL RISK (Standard deviation)	Ranking
NSE 20 Index	0.6645	1
Old Mutual - EQUITY FUND	0.6373	2
African Alliance - BALANCED FUND	0.3682	3

Risk-Return Relationship

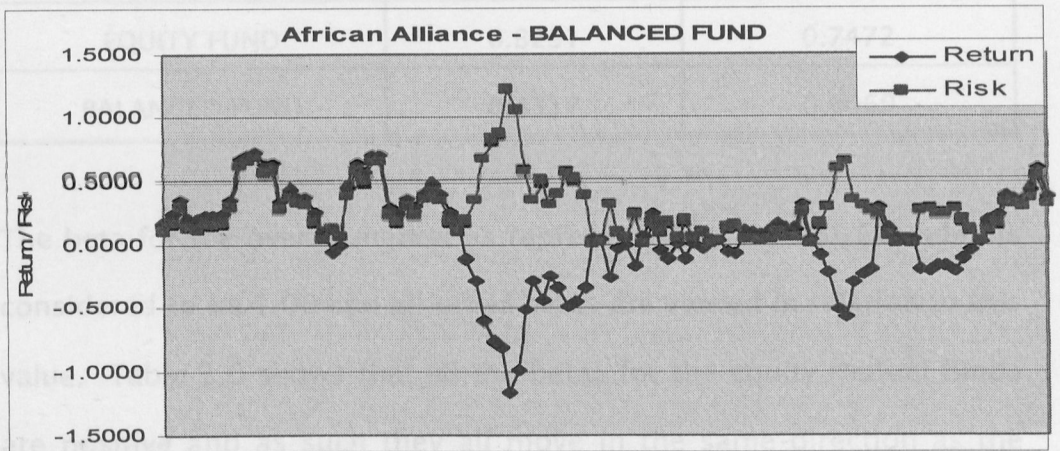
The total risk and returns of each mutual fund were plotted to establish the existence of a positive risk-return relationship. Graphs 1.0, 2.0 and 3.0 below do portray a positive relationship between risk and return during the study period. That is, the higher the return the higher the risk and vice versa. This is an indication that the unit-holders in the equity mutual funds are risk averse.

However, an unusual inverse relationship can be observed over the period Friday 27th February 2004 to 2nd April 2004 for both mutual funds and the market index. This distortion was caused by the bonus issue of 1:10 declared on 26th February 2004 and paid on 30th March 2004 by Standard Chartered Bank which is one of the "blue-chip" stocks that constitutes the NSE 20 share index. Due to the weak form nature of the NSE, bonus issues have been observed to greatly influence the market price of shares.

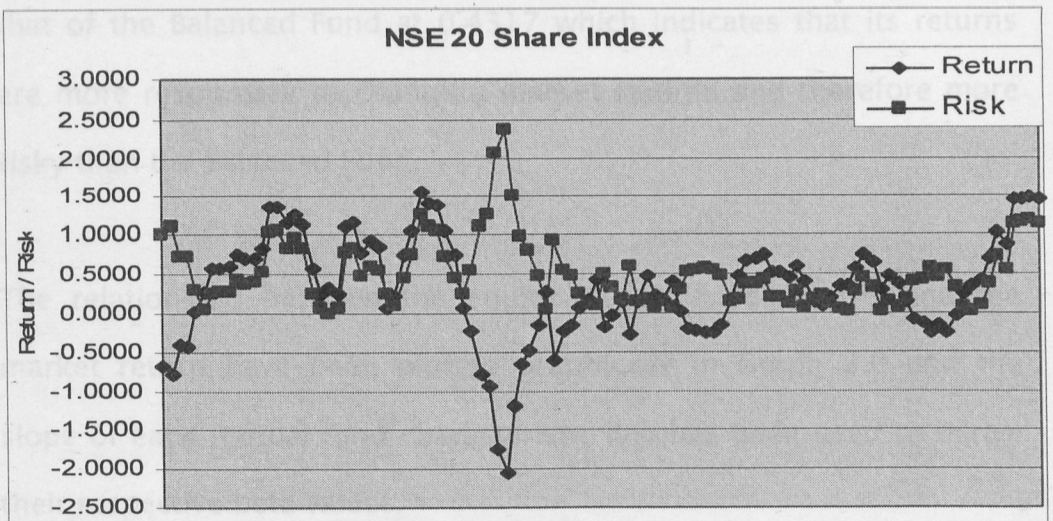
Graph 1.0 Equity Fund Risk-Return Relationships



Graph 2.0 Balanced Fund Risk-Return Relationships



Graph 3.0 NSE 20 Share Index Risk-Return Relationships



Systematic Risk Analysis

The weekly annualised returns were used in the capital asset pricing model to calculate the systematic risk (beta coefficient) of the sample mutual funds. In addition, the coefficient of determination was also computed as shown in Table 3.0 below.

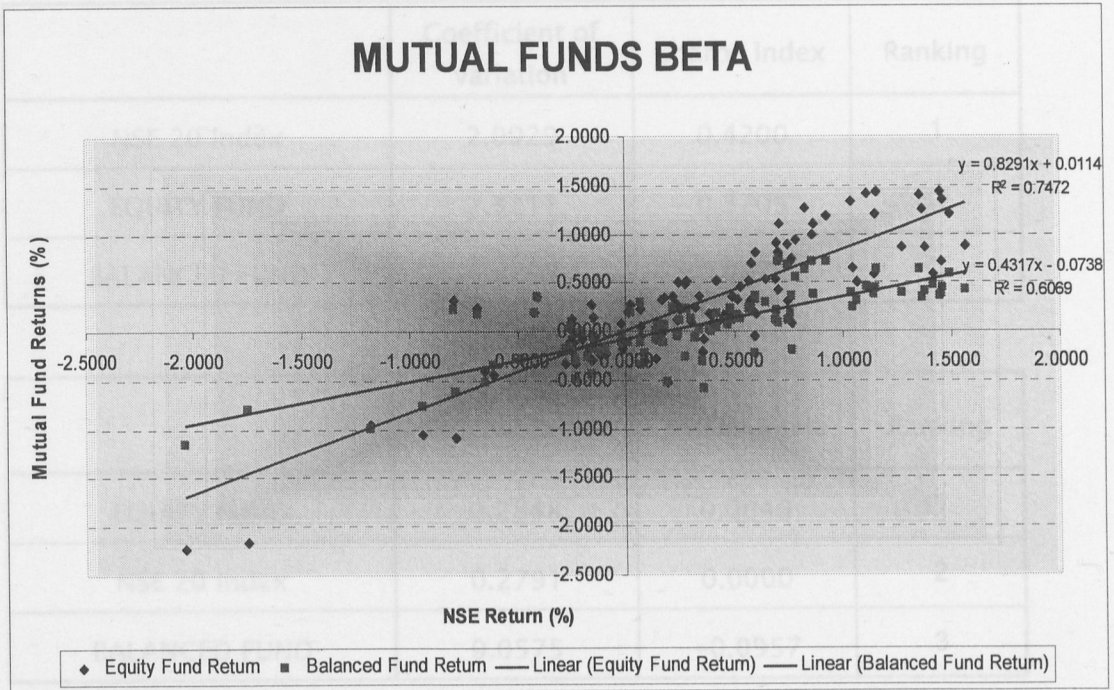
Table 3.0 Systematic Risk Analysis

	SYSTEMATIC RISK (beta)	Coefficient of Determination (R^2)
NSE 20 Index	1.0000	1.0000
EQUITY FUND	0.8291	0.7472
BALANCED FUND	0.4317	0.6069

The beta for the overall market as represented by the NSE 20 Index is considered to be 1.00 and all other betas are viewed in relation to this value. Table 3.0 shows that all the betas for the equity mutual funds are positive and as such they all move in the same direction as the market. The Equity Fund had a higher beta of 0.8291 compared to that of the Balanced Fund at 0.4317 which indicates that its returns are more responsive to changing market returns and therefore more risky than the Balanced Fund.

The ranking of the sample mutual funds in descending order of risk. The relationship between the equity mutual fund returns and the market return have been plotted graphically in Graph 3.0 and the slope of each mutual fund characteristic line has been used to derive their respective beta values.

Graph 3.0 Mutual Funds Graphical Beta



It can also be observed that the Equity Fund has a higher coefficient of determination at 0.7472 compared to the Balanced Fund at 0.6069. This indicates that 74.72% of the variance of returns (risk) of the Equity Fund can be explained by changes in the market returns and it is the market (systematic) risk and therefore un-diversifiable. The balance of 25.28% is the firm specific risk that is diversifiable.

4.3 MUTUAL FUND PERFORMANCE EVALUATION

The ranking of the sample mutual funds in descending order of risk adjusted return by using the coefficient of variation, Sharpe index, Treynor Index and the Jensen alpha based on the weekly annualised returns over the evaluation period Friday 30th May 2003 to Friday 1st July 2005 is as shown in Table 4.0 below.

Table 4.0 Risk-Adjusted Performance Evaluations tent rankings

	Coefficient of variation	Sharpe Index	Ranking
NSE 20 Index	2.0929	0.4200	1
EQUITY FUND	2.3211	0.3705	2
BALANCED FUND	5.8238	0.0674	3

	Treynor Index	Jensen alpha	Ranking
EQUITY FUND	0.2848	0.0048	1
NSE 20 Index	0.2791	0.0000	2
BALANCED FUND	0.0575	-0.0957	3

Table 4.0 shows that the coefficient of variation and the Sharpe Index result in the same ranking, with the market portfolio as represented by the NSE 20 Index having the best risk-adjusted returns.

However, the Treynor index and the Jensen alpha give rise to a different ranking with the Equity Fund having the best risk-adjusted returns, though all ranking measures show that the Balanced Fund has the worst risk-adjusted returns.

As noted by Sears and Trennepohl (1993), disparities have been observed between the Sharpe index and either the Jensen alpha or Treynor index because of the portfolios diversifiable risk. Both the Jensen and Treynor models assume a fully diversified portfolio and thus only consider the systematic/market risk. Therefore, if the portfolio is well diversified so that it contains little diversifiable risk,

the Sharpe, Treynor and Jensen measures will give consistent rankings compared to the market.

5.1 CONCLUSION

The study set out to evaluate the relationship between risk (as measured by both the standard deviation of total return and coefficient of variation) and net returns of equity mutual funds in Kenya. In addition, the study also sought to evaluate the performance of Kenyan equity mutual funds with the stock market as a whole using the NSE 20 share index as the benchmark.

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The study found that both the Old Mutual Equity Fund and the African Alliance Balanced Fund did exhibit a positive risk-return relationship which is an indication that the unit holders are risk averse and expect to be compensated with higher returns for any additional risk undertaken.

The study also observed that on a non-risk adjusted basis, neither the Old Mutual Equity Fund nor the African Alliance Balanced Fund registered average returns higher than the market as represented by the NSE 20 share index. This is possibly due to the fact that the passive market portfolio as represented by the NSE 20 share index does not include the load charges and management fees incurred by both mutual funds. However, the Old Mutual Equity Fund registered higher returns than the African Alliance Balanced Fund.

The study observed that the market portfolio as represented by the NSE 20 share index had the highest total risk with a standard deviation of 0.6645, followed by the Old Mutual Equity fund with a

CHAPTER 5.0 – CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

The study set out to evaluate the relationship between risk (as measured by both the standard deviation of total return and coefficient of variation) and net returns of equity mutual funds in Kenya. In addition, the study also sought to compare the performance of Kenyan equity mutual funds with the stock market as a whole using the NSE 20 share index as the benchmark.

The study found that both the Old Mutual Equity Fund and the African Alliance Balanced Fund did exhibit a positive risk–return relationship which is an indication that the unit holders are risk averse and expect to be compensated with higher returns for any additional risk undertaken.

The study also observed that on a non–risk adjusted basis, neither the Old Mutual Equity Fund nor the African Alliance Balanced Fund registered average returns higher than the market as represented by the NSE 20 share index. This is possibly due to the fact that the passive market portfolio as represented by the NSE 20 share index does not include the load charges and management fees incurred by both mutual funds. However, the Old Mutual Equity Fund registered higher returns than the African Alliance Balanced Fund.

The study observed that the market portfolio as represented by the NSE 20 share index had the highest total risk with a standard deviation of 0.6645, followed by the Old Mutual Equity Fund with a

standard deviation of 0.6373 and the African Alliance Balanced Fund had the least total risk with a standard deviation of 0.3682. The reason why the Equity fund had higher risk than the Balanced Fund is due to a higher proportion of quoted equity shares in its portfolio. Based on the annual reports as at 31st December 2003 and 2004, the Old Mutual Equity Fund had quoted equity shares forming 80% to 82% of the total portfolio while the African Alliance Balanced Fund had quoted equity shares forming 60% to 65% of the total portfolio. This is an indication that these mutual funds employ flexible weighting approach to asset allocation.

The study found that both the Old Mutual Equity Fund and the African Alliance Balanced Fund had positive betas and as such they all move in the same direction as the market. The Equity Fund had a higher beta of 0.8291 compared to that of the Balanced Fund at 0.4317 which indicates that its returns are more responsive to changing market returns and therefore more risky than the Balanced Fund.

Having employed the risk adjusted performance measures, the study observed that the Balanced Fund had the worst performance when compared to the Equity Fund and the market. However, both the coefficient of variation and the Sharpe Index indicated that the Equity Fund performed worse than the market portfolio. While the Treynor index and the Jensen alpha ranked the Equity Fund as having performed better than the market portfolio as represented by the NSE 20 Index. Our findings indicate that the investment manager of the Equity Fund, in an effort to select undervalued securities or to time the

market, holds a portfolio that is less than fully diversified, and as such contains some diversifiable risk.

5.2 RECOMMENDATIONS

The study observed that none of the mutual funds registered average returns higher than the market. This is an indication that both mutual funds tailor their portfolios based on shares quoted on the Nairobi Stock Exchange with very minimal if any international diversification. This is despite the fact that the Capital Markets Authority Amendment Act (2000), Section 79 (2) allows the fund managers to invest a maximum of 25% of their total portfolio in securities not listed in the NSE. Though this study did not consider the issue of portfolio diversification and other offshore investments studies conducted by Cumby and Glen (1990) observed that international mutual funds operating in the USA in the period 1982 –1998 did out-perform both an international stock index and a domestic portfolio consisting exclusively of USA stocks. Therefore, in order to improve their returns it is recommended that the fund managers of both the Old Mutual Equity Fund and the African Alliance Balanced Fund consider international diversification of their portfolios.

Other studies conducted on the NSE indicate that it is a weak form market and as such the resultant inefficiencies are opportunities for the fund managers to identify shares whose prices diverge from their intrinsic values. This “hot-hands” or market timing notion can yield superior portfolio performance.

Alternatively, in order to register higher returns, and hopefully beat the market, both funds should eliminate their load charges and become no-load funds and further reduce their annual management fees.

Failing the above, investors should be wary of mutual funds that advertise superior investment performance since this research found no statistically significant evidence that Kenyan equity mutual funds outperformed the market portfolio after expenses. The CMA should therefore exercise more stringent controls on the advertising policies of these mutual funds as clearly many of their claims are optimistic and not based on risk-adjusted performance measures.

5.3 LIMITATIONS OF THE STUDY

The study set out to evaluate the performance of all the equity mutual funds in Kenya however they have only been in operation for a period of less than 3 years. This period is not considered adequate enough to assess the performance of an equity portfolio that is normally recommended for periods greater than 5 years.

The sample size for the study of only two equity mutual funds is not adequate enough to draw concrete conclusions on the entire mutual fund market in Kenya. It is worth to note that this study excluded both the Equity Mutual Fund managed British American Asset Managers Limited and the Balanced Fund introduced by the Old Mutual Asset Management Kenya Limited that came into operation after 30th June 2005.

The moving average of order 5 used in the data analysis to eliminate cyclical, seasonal and irregular variations has several statistical disadvantages. According to Spiegel (1988), the first disadvantage is that we lose two weeks data at both the beginning and end of the data series. The second disadvantage is that moving averages may generate cycles or other variations that are not present in the original data series. The third disadvantage is that moving averages are strongly affected by extreme values.

Due to data limitations it was not possible to determine how regularly the equity mutual funds change the composition of their portfolios or how they select and compose their portfolios.

Other studies conducted on the NSE indicate that it is a weak form market and as such the resultant inefficiencies make the evaluation of equity portfolios difficult. It has also been observed during certain periods that the risk free rate 91 day Treasury bill rate exceeds that of the equity market. These distortions affect long term investment decisions for the risk-averse investors.

5.4 SUGGESTIONS FOR FURTHER RESEARCH

This research was based on a study period of less than 3 years which can be extended to cover a period of say 5 years to eliminate any new government investment furore and to give a clearer picture as to the performance of the mutual fund industry.

CHAPTER 6.0 - REFERENCES

This research was based on a sample of two equity mutual funds which can be extended to cover the omitted British American Equity Fund and the Old Mutual Balanced Fund.

It would be of interest to determine the factors that influence the performance of the mutual funds in Kenya. Studies in other countries have considered factors like the mutual fund size, transaction cost expense ratio, portfolio management styles, qualifications & experience of the fund managers and the number of funds managed by the investment company.

The research also recommends that further studies be undertaken on other investment risks. The study focused on the return variability risk, it would be of interest to study other investment risks such as interest rates risk, currency depreciation risk and liquidity risk.

CHAPTER 6.0 – REFERENCES

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APPENDIX: 1.0 DATA COLLECTION FORM

FUND Administrator:			
FUND Type:		Buying Price Kshs	91 Day T-Bill Rate
		NSE 20 Share Index	
Weekly date	Buying Price Kshs	91 Day T-Bill Rate	NSE 20 Share Index
Fri, 30/05/2003			
Fri, 06/06/2003			
Fri, 13/06/2003			
Fri, 20/06/2003			
Fri, 27/06/2003			
Fri, 04/07/2003			
Fri, 11/07/2003			
Fri, 18/07/2003			
Fri, 25/07/2003			
Fri, 01/08/2003			
Fri, 08/08/2003			
Fri, 15/08/2003			
Fri, 22/08/2003			
Fri, 29/08/2003			
Fri, 05/09/2003			
Fri, 12/09/2003			
Fri, 19/09/2003			
Fri, 26/09/2003			
Fri, 03/10/2003			
Thu, 09/10/2003			
Fri, 17/10/2003			
Fri, 24/10/2003			
Fri, 31/10/2003			
Fri, 07/11/2003			
Fri, 14/11/2003			
Fri, 21/11/2003			
Fri, 28/11/2003			
Fri, 05/12/2003			
Thu, 11/12/2003			
Fri, 19/12/2003			
Wed, 24/12/2003			
Fri, 02/01/2004			
Fri, 09/01/2004			
Fri, 16/01/2004			
Fri, 23/01/2004			
Fri, 30/01/2004			

FUND Administrator:	
FUND Type:	

Weekly date	Buying Price Kshs	91 Day T-Bill Rate	NSE 20 Share Index
Fri, 06/02/2004			
Fri, 13/02/2004			
Fri, 20/02/2004			
Fri, 27/02/2004			
Fri, 05/03/2004			
Fri, 12/03/2004			
Fri, 19/03/2004			
Fri, 26/03/2004			
Fri, 02/04/2004			
Thu, 08/04/2004			
Fri, 16/04/2004			
Fri, 23/04/2004			
Fri, 30/04/2004			
Fri, 07/05/2004			
Fri, 14/05/2004			
Fri, 21/05/2004			
Fri, 28/05/2004			
Fri, 04/06/2004			
Fri, 11/06/2004			
Fri, 18/06/2004			
Fri, 25/06/2004			
Fri, 02/07/2004			
Fri, 09/07/2004			
Fri, 16/07/2004			
Fri, 23/07/2004			
Fri, 30/07/2004			
Fri, 06/08/2004			
Fri, 13/08/2004			
Fri, 20/08/2004			
Fri, 27/08/2004			
Fri, 03/09/2004			
Fri, 10/09/2004			
Fri, 17/09/2004			
Fri, 24/09/2004			
Fri, 01/10/2004			
Fri, 08/10/2004			
Fri, 15/10/2004			
Fri, 22/10/2004			

FUND Administrator:	
FUND Type:	

Weekly date	Buying Price Kshs	91 Day T-Bill Rate	NSE 20 Share Index
Fri, 29/10/2004			
Fri, 05/11/2004			
Fri, 12/11/2004			
Fri, 19/11/2004			
Fri, 26/11/2004			
Fri, 03/12/2004			
Fri, 10/12/2004			
Fri, 17/12/2004			
Fri, 24/12/2004			
Fri, 31/12/2004			
Fri, 07/01/2005			
Fri, 14/01/2005			
Fri, 21/01/2005			
Fri, 28/01/2005			
Fri, 04/02/2005			
Fri, 11/02/2005			
Fri, 18/02/2005			
Fri, 25/02/2005			
Fri, 04/03/2005			
Fri, 11/03/2005			
Fri, 18/03/2005			
Thu, 24/03/2005			
Fri, 01/04/2005			
Fri, 08/04/2005			
Fri, 15/04/2005			
Fri, 22/04/2005			
Fri, 29/04/2005			
Fri, 06/05/2005			
Fri, 13/05/2005			
Fri, 20/05/2005			
Fri, 27/05/2005			
Fri, 03/06/2005			
Fri, 10/06/2005			
Fri, 17/06/2005			
Fri, 24/06/2005			
Fri, 01/07/2005			

APPENDIX: 2.0 RISK & RETURN ANALYSIS

Weekly date	91 day T/Bill	EQUITY FUND	BALANCED FUND	NSE 20	EQUITY FUND	BALANCED FUND	NSE 20
	Annualised Return	Annualised Return	Annualised Return	Annualised Return	Annualised Std Dev.	Annualised Std Dev.	Annualised Std Dev.
Fri, 30/05/2003							
Fri, 06/06/2003							
Fri, 13/06/2003	0.0300	0.2395	0.1732	-0.6856	0.0351	0.1100	1.0031
Fri, 20/06/2003	0.0234	0.3189	0.2364	-0.7935	0.0443	0.1732	1.1110
Fri, 27/06/2003	0.0188	0.3642	0.3570	-0.4079	0.0897	0.2938	0.7254
Fri, 04/07/2003	0.0168	0.2045	0.1990	-0.4227	0.0701	0.1358	0.7402
Fri, 11/07/2003	0.0158	0.2733	0.1960	0.0220	0.0012	0.1327	0.2954
Fri, 18/07/2003	0.0153	0.5193	0.2265	0.2798	0.2447	0.1633	0.0377
Fri, 25/07/2003	0.0149	0.5187	0.2212	0.5684	0.2441	0.1580	0.2509
Fri, 01/08/2003	0.0139	0.6991	0.2312	0.5817	0.4245	0.1679	0.2642
Fri, 08/08/2003	0.0125	0.8065	0.3526	0.5981	0.5319	0.2894	0.2806
Fri, 15/08/2003	0.0111	0.8940	0.6818	0.7450	0.6195	0.6186	0.4275
Fri, 22/08/2003	0.0099	0.8088	0.7168	0.7041	0.5342	0.6535	0.3867
Fri, 29/08/2003	0.0088	1.1076	0.7511	0.7093	0.8331	0.6879	0.3919
Fri, 05/09/2003	0.0083	1.2720	0.6277	0.8345	0.9974	0.5645	0.5170
Fri, 12/09/2003	0.0083	1.4018	0.6391	1.3566	1.1272	0.5759	1.0391
Fri, 19/09/2003	0.0086	1.2573	0.3433	1.3661	0.9827	0.2801	1.0486
Fri, 26/09/2003	0.0087	1.2087	0.4441	1.1468	0.9341	0.3809	0.8293
Fri, 03/10/2003	0.0092	0.8591	0.3863	1.2697	0.5845	0.3230	0.9522
Thu, 09/10/2003	0.0097	0.5791	0.3798	1.1429	0.3046	0.3166	0.8255
Fri, 17/10/2003	0.0103	0.3070	0.2486	0.5704	0.0324	0.1854	0.2529
Fri, 24/10/2003	0.0108	0.2273	0.1095	0.2492	0.0473	0.0463	0.0683
Fri, 31/10/2003	0.0117	0.2529	-0.0579	0.3212	0.0216	0.1211	0.0037

Weekly date	91 day T/Bill	EQUITY FUND	BALANCED FUND	NSE 20	EQUITY FUND	BALANCED FUND	NSE 20
	Annualised Return	Annualised Return	Annualised Return	Annualised Return	Annualised Std Dev.	Annualised Std Dev.	Annualised Std Dev.
Fri, 07/11/2003	0.0124	0.5070	-0.0090	0.2445	0.2325	0.0723	0.0730
Fri, 14/11/2003	0.0132	1.4115	0.4583	1.1093	1.1369	0.3951	0.7918
Fri, 21/11/2003	0.0140	1.4290	0.6369	1.1528	1.1545	0.5737	0.8353
Fri, 28/11/2003	0.0143	0.9436	0.5580	0.7858	0.6690	0.4947	0.4683
Fri, 05/12/2003	0.0145	1.1796	0.7191	0.9284	0.9050	0.6559	0.6109
Thu, 11/12/2003	0.0146	0.9903	0.7188	0.8606	0.7157	0.6555	0.5431
Fri, 19/12/2003	0.0146	0.2342	0.2939	0.0723	0.0403	0.2307	0.2451
Wed, 24/12/2003	0.0148	0.3633	0.2416	0.2201	0.0888	0.1783	0.0974
Fri, 02/01/2004	0.0151	0.7427	0.3651	0.7649	0.4681	0.3019	0.4475
Fri, 09/01/2004	0.0155	0.5044	0.3046	1.0611	0.2299	0.2414	0.7436
Fri, 16/01/2004	0.0159	0.8841	0.4284	1.5679	0.6095	0.3652	1.2504
Fri, 23/01/2004	0.0160	0.5834	0.4805	1.4160	0.3088	0.4173	1.0985
Fri, 30/01/2004	0.0159	0.8587	0.4130	1.3804	0.5841	0.3498	1.0629
Fri, 06/02/2004	0.0158	0.6448	0.2429	1.0458	0.3703	0.1797	0.7283
Fri, 13/02/2004	0.0157	0.7097	0.1807	0.7608	0.4352	0.1174	0.4433
Fri, 20/02/2004	0.0157	-0.0421	-0.1119	0.0672	0.3167	0.1751	0.2503
Fri, 27/02/2004	0.0157	-0.2948	-0.2927	-0.2331	0.5694	0.3559	0.5506
Fri, 05/03/2004	0.0157	-1.0853	-0.6154	-0.7882	1.3599	0.6786	1.1056
Fri, 12/03/2004	0.0159	-1.0567	-0.7630	-0.9413	1.3313	0.8262	1.2587
Fri, 19/03/2004	0.0162	-2.1653	-0.8005	-1.7482	2.4399	0.8638	2.0657
Fri, 26/03/2004	0.0169	-2.2179	-1.1587	-2.0423	2.4925	1.2219	2.3598
Fri, 02/04/2004	0.0181	-0.9492	-0.9907	-1.1848	1.2238	1.0539	1.5023
Thu, 08/04/2004	0.0201	-0.4119	-0.5152	-0.6535	0.6865	0.5784	0.9709
Fri, 16/04/2004	0.0226	-0.2821	-0.2888	-0.4870	0.5567	0.3520	0.8045

Weekly date	91 day T/Bill	EQUITY FUND	BALANCED FUND	NSE 20	EQUITY FUND	BALANCED FUND	NSE 20
	Annualised Return	Annualised Return	Annualised Return	Annualised Return	Annualised Std Dev.	Annualised Std Dev.	Annualised Std Dev.
Fri, 23/04/2004	0.0251	0.2712	-0.4337	-0.1587	0.0033	0.4969	0.4761
Fri, 30/04/2004	0.0272	0.4817	-0.2500	0.2746	0.2071	0.3132	0.0428
Fri, 07/05/2004	0.0287	-0.4411	-0.3426	-0.6179	0.7157	0.4059	0.9353
Fri, 14/05/2004	0.0295	-0.3229	-0.4914	-0.2354	0.5975	0.5547	0.5529
Fri, 21/05/2004	0.0284	-0.2874	-0.4449	-0.1551	0.5620	0.5081	0.4726
Fri, 28/05/2004	0.0266	0.0513	-0.3365	0.0693	0.2232	0.3997	0.2481
Fri, 04/06/2004	0.0245	0.3383	0.0625	0.1812	0.0637	0.0007	0.1363
Fri, 11/06/2004	0.0221	0.0876	0.0466	0.4161	0.1870	0.0166	0.0986
Fri, 18/06/2004	0.0194	-0.2173	-0.2591	-0.1770	0.4919	0.3223	0.4944
Fri, 25/06/2004	0.0180	-0.1718	-0.0320	-0.0150	0.4464	0.0952	0.3324
Fri, 02/07/2004	0.0173	-0.0760	-0.0039	0.1393	0.3505	0.0671	0.1782
Fri, 09/07/2004	0.0171	-0.3200	-0.1745	-0.2783	0.5946	0.2377	0.5958
Fri, 16/07/2004	0.0177	-0.0344	0.0727	0.1602	0.3090	0.0095	0.1573
Fri, 23/07/2004	0.0188	0.1495	0.2360	0.4844	0.1250	0.1728	0.1669
Fri, 30/07/2004	0.0200	0.1095	-0.0408	0.2351	0.1651	0.1040	0.0824
Fri, 06/08/2004	0.0215	0.0009	-0.1108	0.1736	0.2737	0.1740	0.1439
Fri, 13/08/2004	0.0227	0.1595	0.0050	0.3916	0.1150	0.0582	0.0741
Fri, 20/08/2004	0.0239	0.1903	-0.1173	0.0133	0.0842	0.1805	0.3042
Fri, 27/08/2004	0.0249	-0.0874	0.0027	-0.2011	0.3620	0.0605	0.5186
Fri, 03/09/2004	0.0260	-0.0361	-0.0328	-0.2410	0.3107	0.0960	0.5585
Fri, 10/09/2004	0.0270	0.0922	0.0517	-0.2548	0.1823	0.0116	0.5723
Fri, 17/09/2004	0.0285	0.1316	0.0346	-0.2469	0.1429	0.0287	0.5644
Fri, 24/09/2004	0.0307	0.1456	-0.0645	-0.1499	0.1290	0.1278	0.4674
Fri, 01/10/2004	0.0340	0.3337	-0.0761	0.1653	0.0592	0.1394	0.1521
Fri, 08/10/2004	0.0374	0.3661	0.1156	0.4864	0.0915	0.0524	0.1689

Weekly date	91 day T/Bill	EQUITY FUND	BALANCED FUND	NSE 20	EQUITY FUND	BALANCED FUND	NSE 20
	Annualised Return	Annualised Return	Annualised Return	Annualised Return	Annualised Std Dev.	Annualised Std Dev.	Annualised Std Dev.
Fri, 15/10/2004	0.0406	0.5369	0.1075	0.6882	0.2623	0.0442	0.3707
Fri, 22/10/2004	0.0434	0.4261	0.0907	0.7038	0.1516	0.0275	0.3863
Fri, 29/10/2004	0.0454	0.3079	0.1107	0.7470	0.0334	0.0475	0.4295
Fri, 05/11/2004	0.0471	0.3233	0.1582	0.5183	0.0488	0.0950	0.2008
Fri, 12/11/2004	0.0506	0.4573	0.1238	0.5264	0.1828	0.0606	0.2089
Fri, 19/11/2004	0.0560	0.1624	0.1211	0.4501	0.1122	0.0579	0.1326
Fri, 26/11/2004	0.0641	0.1822	0.3188	0.6003	0.0924	0.2556	0.2829
Fri, 03/12/2004	0.0715	0.0810	0.0517	0.3975	0.1936	0.0115	0.0800
Fri, 10/12/2004	0.0777	-0.2788	-0.0875	0.1433	0.5534	0.1508	0.1742
Fri, 17/12/2004	0.0817	-0.3011	-0.2217	0.0895	0.5756	0.2849	0.2280
Fri, 24/12/2004	0.0838	-0.5251	-0.5221	0.1937	0.7996	0.5853	0.1238
Fri, 31/12/2004	0.0831	-0.0849	-0.5865	0.3595	0.3595	0.6497	0.0420
Fri, 07/01/2005	0.0826	-0.2119	-0.2991	0.3524	0.4864	0.3623	0.0349
Fri, 14/01/2005	0.0826	-0.0484	-0.2336	0.5903	0.3230	0.2968	0.2728
Fri, 21/01/2005	0.0830	0.0800	-0.1949	0.7671	0.1946	0.2581	0.4496
Fri, 28/01/2005	0.0837	0.5411	0.2945	0.6463	0.2666	0.2312	0.3288
Fri, 04/02/2005	0.0844	0.0965	0.1319	0.3001	0.1781	0.0687	0.0174
Fri, 11/02/2005	0.0853	0.1386	0.0671	0.4679	0.1360	0.0039	0.1504
Fri, 18/02/2005	0.0860	0.1762	0.0197	0.3884	0.0984	0.0435	0.0709
Fri, 25/02/2005	0.0864	-0.0417	0.0508	0.1472	0.3163	0.0124	0.1703
Fri, 04/03/2005	0.0863	-0.2233	-0.2009	-0.0894	0.4979	0.2641	0.4069
Fri, 11/03/2005	0.0864	-0.2376	-0.2082	-0.1190	0.5122	0.2714	0.4365
Fri, 18/03/2005	0.0864	-0.1059	-0.1681	-0.2599	0.3804	0.2313	0.5774
Thu, 24/03/2005	0.0865	-0.0438	-0.1748	-0.1445	0.3184	0.2380	0.4619
Fri, 01/04/2005	0.0866	-0.1167	-0.2123	-0.2421	0.3913	0.2755	0.5596

Weekly date	91 day T/Bill	EQUITY FUND	BALANCED FUND	NSE 20	EQUITY FUND	BALANCED FUND	NSE 20
	Annualised Return	Annualised Return	Annualised Return	Annualised Return	Annualised Std Dev.	Annualised Std Dev.	Annualised Std Dev.
Fri, 08/04/2005	0.0867	0.0761	-0.1133	-0.0181	0.1985	0.1765	0.3356
Fri, 15/04/2005	0.0868	0.2797	-0.0460	0.2397	0.0052	0.1092	0.0778
Fri, 22/04/2005	0.0868	0.3584	0.0240	0.3400	0.0838	0.0392	0.0226
Fri, 29/04/2005	0.0867	0.5277	0.1823	0.4190	0.2531	0.1191	0.1016
Fri, 06/05/2005	0.0866	0.9105	0.2202	0.6957	0.6359	0.1570	0.3782
Fri, 13/05/2005	0.0866	1.3302	0.3947	1.0402	1.0556	0.3315	0.7228
Fri, 20/05/2005	0.0864	1.1114	0.3767	0.8725	0.8368	0.3134	0.5550
Fri, 27/05/2005	0.0861	1.4331	0.3565	1.4486	1.1585	0.2932	1.1311
Fri, 03/06/2005	0.0857	1.3530	0.4377	1.4655	1.0784	0.3745	1.1481
Fri, 10/06/2005	0.0853	1.1961	0.5787	1.4958	0.9215	0.5155	1.1783
Fri, 17/06/2005	0.0850	0.7220	0.3778	1.4563	0.4475	0.3145	1.1388
Fri, 24/06/2005							
Fri, 01/07/2005							

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