AN EVALUATION OF THE PERFOMANCE OF ISLAMICALLY SCREENED PORTFOLIOS AT THE NAIROBI STOCK EXCHANGE

BY

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DECLARATION

This project is my original work and has not been submitted for a degree in any other University.

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To my beloved family - My parents, Mohamed Mwatuwano and Wahida Sketty, sisters Aisha and Hajra and brother, Kassim.

To the Almighty, for everything.

ABSTRACT

There has lately been great interest in Islamic Finance in Kenya. Concerns have however risen where investors fear that by investing Islamically, they risk getting lower returns from their investments. This study therefore seeks to form an Islamic portfolio from the NSE and to determine whether there exists any significant difference between the risk and returns of an Islamic portfolio and a conventional portfolio at the NSE.

The study made use of the descriptive research design. From a population of 47 companies from the NSE`s Main Market segment, the study formed an Islamic portfolio of 20 companies. All the 47 companies were put through Islamic screens, 22 companies did not meet at least one of the screens. 5 of the companies that met the screens were dropped in order to have the conventional portfolio and Islamic portfolio having an equal number of constituent companies. Weekly risk and returns were calculated for the two portfolios. Sharpe, Treynor and Jensen measures were also used to measure their performance. Z tests were then conducted to check whether there is significant difference between the risk and returns of the Islamic portfolio and the conventional portfolio.

Results showed that there was no significant difference between the risk and raw returns of the conventional portfolio and Islamic portfolio. The results for risk adjusted returns were mixed; the Sharpe measure was in favour of the Islamic portfolio while the Treynor ratio was in favour of the conventional portfolio, both with significant differences. The Jensen measure was however indifferent.

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LIST OF ABBREVIATIONS

AIMS   Alternative Investment Market Segment

CBK   Central Bank of Kenya

DJIM   Dow Jones Islamic Market

DJIMI   Dow Jones Islamic Market Index

DSI   Domini Social Index

FISMS   Fixed Income Securities Market Segment

FTSE   Financial Times Stock Exchange

GARCH   Generalized AutoRegressive Conditional Heteroskedasticity

GIIS   Global Islamic Index Series

IBF   Islamic Banking and Finance

IH   Information Hypothesis

MIMS   Main Investment Market Segment

MSCI   Morgan Stanley Capital International

NASI   NSE All Share Index

NSE   Nairobi Stock Exchange

PPH   Price Pressure Hypothesis

SAC   Shariah Advisory Council

SH   Substitution Hypothesis

SI   Shariah Index

SRI   Socially Responsible Investing

TIA   Takaful Insurance of Africa

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Business was for a long time separated from religion but with people aiming to live a wholesome life, these two aspects have slowly become integrated. A French lawyer, Alexis de Tocqueville (1945), observed almost two centuries ago that religion played a major role in America by shaping citizens who valued just and wholesome communities. He saw religion as essential to the fabric of the nation.

Harwood (1996) and Phillips et al. (2001) observed that notions of ethics and social responsibility were influencing the realm of personal investment. Being challenged were the long held beliefs that investment and ethics are mutually exclusive. Statman (2000) noted that some investors want to change the world. Socially responsible investors who fight to change the world can use investment actions or political actions in their battle. Investment actions are swords in the social responsibility battle when by themselves they force companies to change their activities.

Other investors want no more than portfolios that are consistent with their beliefs. Domini (1992) described a Quaker college that screened out stocks of armament manufacturers. The activities of slave traders and colonialists in the apartheid era also influenced the way investors selected their investments. However, Teoh, Welch and Wazzan (1999) found that the boycott of stocks of companies doing business in South Africa during the apartheid era had no detectable effect on their returns. The Quakers realised that their investments could put a lie to what they said they stood for. They could

not reconcile investing in slaves, for example, with their belief of equality of humankind before God (Kinder & Domini, 1997).

The Social Investment Forum (1998) reported that 84 percent of socially screened portfolios exclude tobacco, 72 percent exclude gambling, 69 percent exclude weapons, and 68 percent exclude alcohol. Statman (2000) also found that socially responsible investors want to do well, not merely do good; they want socially responsible mutual funds with returns that do not fall short of conventional funds. All in all investors now seek more than just a high return. New elements keep coming up that will affect the investment decisions of individuals and firms.

1.1.1   Islamic Screening

Dunfee (2003) defines Socially Responsible Investing (SRI) as any investment strategy based upon identifiable non-financial criteria incorporating a social or religious dimension. A social screen is the expression of an investor's social, ethical or religious concern in a form that permits an investment manager to apply it in the investment decision making process with other screens (Kinder & Domini, 1997).

This SRI phenomenon started when religious organisations solicited members not to invest in companies that promoted activities that were opposed to the organisation's principles (involved in sinful activities). At this time the focus was more on companies that financed pornography, alcohol, gambling and weapons. The sinful activities have evolved overtime to include: workplace, labour standards, environmental impact and gender equality, social and religious issues (Salazar, 2007).

Elfakhani, Hassan and Sidani (2005) noted that Islamic funds however, must set up screens in order to select those companies that meet the qualitative and quantitative criteria set by Sharia guidelines. Qualitative screens are used to filter out companies based on the nature of their business (for example firms producing or selling alcohol and biotechnology firms using aborted embryos and human cloning) or securities that contain use of Sharia prohibited elements such as involving in interest. The fund's focus is therefore on stocks that pay high dividends since dividends amounting under Islamic law to the sharing of profits from a joint business enterprise are a legitimate product of endeavor (Mueller, 1994).

Sadeghi (2008) added that in the quantitative parameters if the contribution from sinful activities exceeds a benchmark, the company will not be classified as Shariah-compliant. For instance, the threshold for total debt to total asset ratio is 33%, for the account receivable to total asset ratio is 45%, and for non-operating interest income to revenue is equal to 5%.

Two other features stand out: a special tax that is considered the basis of Islamic fiscal policy, and the prohibition of interest, viewed as the centerpiece of Islamic monetary policy. Virtually all Islamic economists consider this trio- the norms, tax and zero interest-the pillars of the Islamic system (Kuran, 1986).

Debt and assets are considered, as to which extent that assets are financed by debt. Thus, the debt/capital ratio should not exceed 33% in order for a firm to be included in the DJIMI. Companies are also excluded if the sum of cash and interest bearing securities exceeds 33% of market capitalization. Firms also cannot be included in the DJIMI if

accounts receivables are greater than 45% of total assets. Companies that pass these criteria are included in the DJIMI investable universe (Dow Jones, 2011).

Based on a permanent exchange between some of the reputable banking experts and renowned Islamic scholars, four basic concepts of prohibition have been defined throughout the past two decades: Islamic investors are not allowed to deal in interest-bearing, speculative, gambling-like transactions, or business branches that are considered to be immoral under Islam (Kuran, 1986)

1.1.2 Impact of Islamic Screening on performance

Hussein (2004) argued that excluding significant chunks of business from Islamic portfolio funds runs the risk of losing out in terms of overall performance since liquor companies in general have been able to withstand the recent global recession very well and were among the world best performers. In a study conducted in Malaysia, Abdullah et al (2007) concluded that Islamic funds performed better than the conventional funds during bearish economic trends while, conventional funds showed better performance than Islamic funds during bullish conditions.

On the other hand, in the recent global recession and on several occasions before the collapse of high-profile companies such as WorldCom and Enron, DJIMI was able to detect signs of corporate troubles and remove those stocks from the Islamic indices. Almost a year before WorldCom's collapse, the DJIMI removed WorldCom from its indices. WorldCom was taken out because its debt to market capitalization ratio exceeded the limit of 33 percent that DJIMI requires in order to include a company in the Islamic indices (Hussein, 2004).

Sauer (1997) noted major concerns in Islamic screening including the potential increase in volatility, lower returns, reduced diversification and monitoring costs that resulted from implementing ethical screening. In particular, Islamic screenings tend to eliminate larger firms from the investment universe and as a result, remaining firms tend to be smaller and have more volatile returns. Lower returns are also possible as Islamic screens eliminate stable blue chip and otherwise attractive investment opportunities from further consideration. Geczy et. al (2005), who examined the performance of SRI portfolios compare with portfolios from a broader fund universe, concluded that SRI portfolios, including socially responsible mutual funds, underperformed by as much as 3.6% per year.

1.1.3   The Nairobi Stock Exchange

The Nairobi Stock Exchange (NSE) was established in 1954 as a voluntary association of stockbrokers registered under the Societies Act (NSE, 1997). The number of companies listed on the NSE has since grown so has its turnover, capitalization and index levels. The NSE currently has two market indices; the NSE 20-Share Index which is price weighted and an all inclusive NSE All Share Index (NASI) which is market capitalization weighted (NSE, 2011).

 In line with best practice, the market indices are reviewed periodically to ensure that they reflect an accurate picture of market performance. Company shares are grouped into the following segments; Agricultural, Automobiles and Accessories, Banking, Commercial Services, Construction and allied, Energy and Petroleum, Insurance, Manufacturing and Allied and Telecommunication and Technology. The criteria used in reviewing the

indices involves weighting market performance measures for a twelve-month period as Market capitalization 40%, Shares traded 30%, Number of deals 20% and Turnover 10% (NSE, 2011).

1.2   Research Problem

Regardless of whether an investor is socially responsible or not, investors are interested in earning good returns from the investments they make. Although some investors may be more than willing to sacrifice returns for the sake of funding an especially good cause, the performance of ethical funds is of as much concern as that of any other fund, (Wilson, 1997). Rudd (1981) conjectured that a constrained portfolio such as one constructed through a socially responsible strategy will suffer poorer performance as a result. The rationale is that the socially responsible guidelines inherently introduce biases such as size that consequently impact on the co-variation in returns

There is increased interest in ethical investing in Kenya. However, since Islamic investments are relatively new in the Kenyan market very little information has been published on their performance especially with regards to Islamic investments in the NSE. The Central Bank of Kenya (CBK) has already licensed two Islamic banks under CAP 488 of the Banking Act of Kenya. Conventional banks are increasingly coming up with Shariah compliant products (CBK, 2010). There is continuous growth in Islamic products with the inception of Takaful insurance (TIA, 2011). However, since Islamic finance is relatively new in the Kenyan market very little information has been published on the performance of Islamic investments.

On portfolio performance, Kamanda (2001) evaluated the equity portfolios held by Kenya 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. 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.

Opponents of ethical investing argue that unscreened benchmarks may outperform ethical investment since using ethical investing criteria may cause additional screening and monitoring costs, availability of a smaller investment universe, and restricted potential for diversification (Temper, 1991). In particular, ethical screening tends to eliminate large firms from the investment universe and as a result remaining firms tend to be smaller and have more volatile returns.

Companies with some of the highest returns in the NSE include the East African Breweries Limited and commercial banks which would not be included in an Islamic portfolio (NSE, 2010). Investors would thus be worried about the performance of their portfolios where such companies are left out. Therefore; does the performance of an Islamic based portfolio differ significantly from that of a conventional portfolio? Does an Islamic based portfolio carry more risk than a conventional portfolio? It is envisaged that this study will answer these questions while focusing on the Kenyan investment market.

1.3   Research Objectives

The primary objective of this study is to determine whether applying Islamic screens to a portfolio will affect the portfolio`s performance. The specific objectives are:

(i) To create an Islamic portfolio from the NSE

(ii) To determine whether there is significant difference between the performance of an Islamically screened investment portfolio and a conventional portfolio

1.4   Value of the Study

With more investors seeking to participate in the growing field of Islamic investments, this study will provide important information to investors that can be used to provide an additional tool on which investors can base their investment decisions and design a portfolio that suits their respective objectives.

The study will analyse the risk and return of portfolios thus empowering portfolio managers with information which will guide clients given their investment objectives, risk and return preferences.

The area of Islamic investing is an increasingly growing field. As it continues to grow, many scholars and investors will seek to understand the principles in Islamic investing, providing an avenue to scholars who want to do further research in the area.

CHAPTER TWO: LITERATURE REVIEW

2.1　Introduction

In this section, the study identifies the various screens that are applicable under Islamic investing, empirical evidence from markets where these screens have been applied and various methods of measuring the performance of portfolios.

2.2　Theoretical framework

Sadeghi (2008) argued that there are several theoretical arguments that predict how the introduction of a Shariah Index (SI) impacts the value and the liquidity of shares included in a portfolio. Conventional finance theories, based on the Efficient Market Hypothesis (EMH), suggest that securities are perfect substitutes for each other and their demand curve is horizontal. This implies that change in demand by investors in response to SI introduction should have no impact on the shares' financial performance.

Scholes (1972) tested two competing hypothesis, the substitution hypothesis (SH), which is consistent with the horizontal demand curve assumption, and the price pressure hypothesis (PPH), which is based on the assumption that demand curve for securities is downward sloping. He also provided the information hypothesis (IH) as a resolution of some of the differences between SH and PPH. Under IH security prices change but fully adjust to the expected value of information with no inducement in the form of subsequent abnormal profit for share purchasers.

Sadeghi (2008) added that index additions and deletions were generally assumed to be information free events, since financial authorities were allowed to use public

information when including and deleting stock in the indices. This implied that an information free event should not be able to influence share prices in an efficient market. However in his study in Malaysia, he concluded that SI introduction was a new phenomenon in the Malaysian market and could not be considered a totally information free event. The accreditation of stocks by the Shariah Advisory Committee (SAC) for the first time conveyed certain information about the longevity and future prospects of the firms that weren't publicly available to the market before. In addition, since cross demand elasticity between Shariah complaint securities and shares of conventional firms were low, it was likely that the demand curve for these securities were downward sloping, implying that change in demand can affect share prices.

Generally speaking, PPH considers the price change to be a short run phenomenon, whereas reversing occurs in the long run. However, if the cross elasticity of demand between securities is low, price reversals are not expected to take place, with the new price reflecting a new equilibrium distribution of security holders. Finally, since constraints on Shariah-compliant companies in using debt would restrict their growth more on internally-generated equity funds, it has inflating effects on the firms' weighted average cost of capital (WACC). To sum up, if the inclusion of stocks in SI conveys a favourable signal to the market, financial theory predicts that share prices would increase under a downward sloping demand curve assumption (Sadeghi, 2008). He thus concluded that it was not possible to clearly predict how the financial performance and liquidity of shares included in SI change, as it largely depends on how the net effects of the influential factors are revealed through our empirical investigation.

Hussein (2004) argued that a company that adopts and implements an effective corporate responsibility policy is better positioned to avoid any environmental and social crises that could lead to reputation damage, higher production costs, lost production, higher security costs, and increased insurance premiums. Good corporate responsibility practice can offer companies range of opportunities to help them secure a competitive advantage.

Opponents of ethical investing highlight the adverse costs and effects that ethical screening may involve. They argue that the potential hidden costs associated with implementing ethical screens adversely affect investment performance and therefore should not be ignored (Sauer, 1997). Unscreened benchmarks may outperform ethical investment since using ethical investing criteria may cause additional screening and monitoring costs, availability of a smaller investment universe, and restricted potential for diversification (Temper, 1991).

In particular, ethical screening tends to eliminate large firms from the investment universe and as a result remaining firms tend to be smaller and have more volatile returns. Further, diversification may be hindered to the extent that ethical criteria eliminates or favors certain industries. Langbein and Posner (1980) argued that ethical investment may involve higher risk but should not yield significantly worse returns since ethical investors do not invest in clearly unprofitable stock.

2.3   Islamic Screens

Islamic investing has much in common with modern forms of investing such as ethical investing, faith investing and green investing. Each of these investment funds has much

of value to contribute and each has something in common with the teachings of Islam (DeLorenzo, 2001).

Robertson (1933) traced the origin of stocks to medieval Muslim traders. Common stock represents an ownership claim on a company and stockholders are owners of the business. As such they are entitled to share in the rewards of ownership and are entitled to the profits of the firm. Naughton and Tahir (1988) noted that stocks closely adhere to the profit and loss sharing principle that is a strong feature of modern Islamic banking theory. It is therefore difficult to fault common stock as an Islamic instrument.

It has been agreed that buying and selling corporate stocks does not violate Islamic norms because stocks and shares represent real assets. Dividends comply with Shariah, whereas payments or receipts of interest in transactions are not allowed. Therefore, unlike fixed income assets such as government bonds and term bank deposits, equities are more compatible with the Islamic doctrine of profit and risk sharing principles (Failaka, 2001).

Usmani (1999) found that the basic tenet of Islamic investing is that a Muslim should invest his/her assets to reflect the Islamic principles that govern his/her daily life. For example, just as drinking alcohol and eating pork products are prohibited in Islam, so too is investing in wine or pork processing companies. Islamic investing also prohibits stock positions in companies whose primary business involves banking, alcohol, gaming, pornography, tobacco and weaponry industries.

Islamic shariah principles exclude stocks whose core activities are related to any of the following: banking or any other interest related activity, alcohol, tobacco, gambling, arms

manufacturing, life insurance, pork production, packaging and processing any activity related to pork, and companies whose gross interest bearing debt to total assets exceeds 33 % (Hussein, 2004).

Fadeel (2002) also noted another basic element of Islamic finance related to the prohibition of risk and uncertainty; any sort of ambiguity in contracting is prohibited. Any uncertainty as to the quantity, quality, deliverability or existence of the asset to be traded will thus be prohibited. Figlewski (1979) argued that one of the most difficult aspects of designing Islamic stocks is the issue of gambling. This concept covers speculation in the stock market, that is, trading in securities purely for short-term gains resulting from uncertainty in the market. Speculators keep the market more watchful of what is happening and their trading improves liquidity.

Another unacceptable practice related to speculation is the creation of excessive uncertainty. Entering into a contract, in this case a purchase or sale of stocks, with another party when there is excessive risk associated with the transaction, is not acceptable. This may apply in a very volatile market. Both the buyer and the seller should not transact business when the outcome of the deal is highly uncertain (Kazmi, 1994). However, stocks are risky and market participants are attracted to them to earn high returns. Stock market regulators in an Islamic market would have to consider whether it is acceptable to permit trading to continue in a period of high price volatility (Naughton and Naughton, 2000).

Elgari (2002) added that the total outstanding debt held by a company must not exceed one-third of the capital and the same rule applies to cash and interest-bearing securities of

the assets. The threshold of 33% derives directly from the words of the Prophet, who stated that "judgment is based on majority, not on minority", and "the dividing line between a majority and minority is one third, and the third as a portion is considered to be much". So, from the interpretation of these two maxims, the scholars derive that income from non-permissible sources should account for less than 33%.

With regard to preferred stock, Mohsin (1983) argued that, in an Islamic context, the surrender of voting rights and management participation is not a valid reason for receiving a fixed return from finance invested in a company. Hence traditional Western style preferred stocks are not acceptable. Mohsin considers that the restructuring of preferred stocks to give them more equity like features is likely to be acceptable, provided the return to investors is not a fixed return on the original amount invested.

2.4 Relationship between returns on screened investments and conventional funds

Most socially responsible investors aim to screen out portfolios with low returns. A Yankelovich survey reported that 80 percent of investors would not consider investing in socially responsible mutual funds unless their returns were at least equal to those of conventional mutual funds (Krumsiek, 1997).

Hassan (2002) examined the issues of market efficiency and the time-varying risk return relationship for the DJIMI over the 1996-2000. Several statistical tests, such as serial correlation; variance ratio; and Dickey-Fuller tests, were employed. The results documented that DJIMI returns were normally distributed and the DJIMI has remarkable

market efficiency. Utilizing a GARCH econometric framework, Hassan also tested the volatility of the DJIMI returns. His results showed that there was still operational inefficiency at DJIMI that needed to be corrected to make the risk behaviour of DJIMI stable overtime.

Using cointegration and causality analysis, Hakim and Rashidian (2004) examined the relationship between DJIMI, Wilshire 5000 index, and the risk-free rate- proxied by the three month treasury bill over the time period 1999-2002. They found that the DJIMI is correlated with neither Wilshire 5000 index nor the three month treasury bill. The results also showed that the changes in the DJIMI were not caused by the Wilshire 5000 or the three month treasury bill. They concluded that the filtering criteria adopted to eliminate non-compliant firms leads to an Islamic index with a unique risk-return characteristics that are not affected by the broad equity market.

Hussein (2004) examined the hypothesis that the performance of the FTSE Global Islamic index is significantly different from those of the FTSE All-World Index during the sample period 1996-2003. A comparison of the raw and risk adjusted performance showed that the Islamic index performed as well as the FTSE All-World index over the entire period. There was evidence that the Islamic index yields statistically significant positive abnormal returns in the bull market period, though it underperforms the FTSE All-World index in the bear market period. In general, the results showed that the application of ethical screens does not have an adverse impact on the FTSE Global Islamic index performance.

Mallin et al. (1995) argued that ethical funds have their own characteristics that may make the comparison with benchmarks, such as FTSE, somewhat misleading. They examined the performance of 29 ethical funds by comparing each ethical fund to a non-ethical one having the same formation date and fund size. They found that beta is lower for the ethical funds. This implies that the non-ethical trusts are riskier than the ethical trusts. On a risk-adjusted basis, they found weak superior performance of ethical funds in the sample. Then Gregory, Matatko and Luther (1997) argued that matching based on fund size does not control for a small cap bias in the ethical portfolios. Based on the two-factor Jensen approach, firstly they confirmed their prior observation of the small cap bias. Secondly, no significant difference between the financial performance of ethical and non-ethical mutual fund was found.

Nyariji (2001) did a study to evaluate the risk reduction benefits of portfolio diversification at the NSE. His analysis (using mean variance model) indicates that there is significant risk reduction at the NSE as a portfolio grows in size. This continues until a portfolio size of 13 securities is held, beyond this size, the reduction becomes insignificant. He concluded by saying that, the current size of the NSE does not fully diversify specific risk and therefore the need to widen the market to enhance further diversification.

2.5   Portfolio Evaluation Methods

Portfolio theory deals with the selection of optimal portfolio by risk averse investors (Weston and Copeland, 1998). An optimal portfolio is one that provides the highest

possible return for any specified degree of risk or the lowest possible risk for any specified degree of return.

An optimal portfolio is a well diversified portfolio. Diversification reduces risk through combining assets with different covariance. Investors are assumed to be risk averse; hence diversification pleases investors by offering expected return at a lower risk than individual securities. The assumption is that combining different types of assets in different proportion can generate an efficient portfolio that provides the maximum return for a given level of risk (Markowitz, 1952).

Total annual returns of each share will be determined by the sum of capital gains/losses (difference between closing and opening annual share prices) and dividends (interim and final) of the shares. The annual returns of individual securities in the portfolios will then be aggregated using mean approach to give annual returns of the portfolio (Brigham and Houston, 2009). This is shown in the formula below:

$$R \quad = \quad \frac{P_1 - P_0 + D_1}{P_0}$$

Where; R is the return on stock

P_1 is the share price at the end of the period

P_0 is the share price at the beginning of the period

D_1 is the annual dividend per share for the period

There are various portfolio evaluation methods including the Treynor and Sharpe measures. These are discussed below:

2.5.1 Treynor Model

Treynor (1965) developed the T ratio which indicates the risk premium return per unit of systematic risk. This is a composite measure of portfolio risk. Treynor indicates that the risk component includes risk produced by the general market fluctuations and risk resulting from unique fluctuations in the portfolio securities. To identify risk due to market fluctuation, he introduced the characteristic line, which defines the relationship between the rate of return for a portfolio over time and the rate 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 return for the aggregate market. Deviation from the characteristic line indicates unique return for the portfolio relative to the market. The Treynor measure is written as;

$$T = \frac{R_p - R_{rf}}{\beta_p}$$

Where;

T is the Treynor`s index

R_P is the average return for portfolio p during a specified time period

R_{rf} is the average rate of return on a risk free investment in the same time period

β_p is the slope of the fund characteristic line (portfolio relative volatility)

The larger the T value the better the portfolio to all the investors regardless of their preference. The numerator $\left[R_p - R_{rf}\right]$ is the risk premium while the denominator is a measure of systematic risk. All risk averse investors would like maximize this value. The beta value measures systematic risk and implicitly assumes a completely diversified

portfolio. Comparing a portfolio`s T value to a similar measure for the market portfolio indicates whether the portfolio would plot above the SML. If a portfolio plots above the SML, then, it has a superior risk adjusted performance.

2.5.2   Sharpe Model

The Sharpe (1966) developed a measure which deals with return and risk in terms of the Capital Market Line (CML). It measures the return of a portfolio, in excess of the risk-free rate, relative to its total risk, as shown below;

$$S_t = \frac{R_p - R_{rf}}{\sigma_p}$$

Where:

S_t is the Sharpe Index

R_p is the average return on portfolio p

R_{rf} is the risk free rate of return

σ_p is the standard deviation of the return of portfolio p

The index, S_t measures the slope of the line emanating from the risk free rate outward to the portfolio in question. The Sharp index summarizes the risk and return characteristics of a portfolio through a single index and a risk adjusted basis. The larger the S_t the better the portfolio has performed.

2.5.3   Jensen Model

Jensen (1968) came up with a model that requires the regression of the monthly differences between portfolio returns and the treasury bill rate for the particular portfolio.

This gives the return earned on the portfolio in excess of the risk free rate. The equation is thus,

$$\left(r_t - r_f\right) = \alpha_t + \beta_i \left(r_m - r_f\right)$$

The alpha coefficient represents a measure of the bonus performance owing to superior portfolio management

$$R_p = R_f + \beta_p (R_m - R_f)$$

This is the expected return from the portfolio, given the risk free rate, the portfolio beta, and the return on the market portfolio. To get the total returns, the alpha value is added to this return.

2.6   Summary

Portfolio measures have been identified to measure the impact of the Islamic screens on a conventional portfolio, however, in spite of the different techniques used by different authors, research on the performance of Islamic portfolios compared to those of conventional portfolios has shown mixed results. More studies thus need to be done in this area.

Clearly the Islamic finance is a growing feature in the finance world not just in portfolio theory but in behavioural finance and capital structure. Islamic finance in general aims at promoting specified sectors/industries that provide added value to the real economy. On the other hand, Muslim investors expect their financial portfolio to provide stable earnings and capital growth opportunities in accepted investments. Companies will thus need to come up with ways to ensure they can be part of Islamic portfolios and till give investors their expected returns.

CHAPTER 3: RESEARCH METHODOLOGY

3.1   Introduction

This section identifies the research design for the study, the sample size, data collected and the data analysis techniques that were used.

3.2   Research Design

The study was based on descriptive research. Descriptive research determines and reports the way things are or answers questions concerning the current status of subjects in a study (Mugenda and Mugenda, 2003). The study sought to evaluate the performance of an Islamically screened portfolio at the NSE. The study describes the basic features of the data and provides summaries about the risk and returns of the Islamic portfolio and conventional portfolio. The study also made use of descriptive statistics such as standard deviation.

3.3   Population of the Study

The population of the study was all the 47 companies listed on the Main Market segment of the NSE as at 31st December 2010.

3.4   Sample

The study used the companies in the Main Market segment of the NSE which were 47 as at 31st December 2010. These companies were Islamically screened (See Table 4.1) in order to come up with an Islamic portfolio. The screens used were those that the indices in Appendix B all have in common. Any company that did not meet a given screen was

left out of the portfolio. 22 companies were left out of the Islamic portfolio leaving 25 companies to form the Islamic portfolio. Five companies were dropped from the Islamic portfolio inorder to have the conventional and Islamic portfolios carry the same number of companies. The five included KenolKobil which was left out as the company had a stocks split during the period. Four other companies having the lowest return were also left out. The NSE 20 Share Index acted as a benchmark for the Islamic portfolio. The list of companies in the NSE 20 Share Index is given in Appendix A.

3.5   Data Collection

The study made use of secondary data from the NSE. Data that was collected for screening purposes includes; the nature of operations for each company, the total long term debt and total assets of each company to calculate the long term debt to total assets ratio. The data that was collected to measure performance of the portfolio includes; the share prices at the beginning of every week (P_o), the share prices at the end of every week (P_1) and the amount of dividend issued (D_1). The data entry form is shown in Appendix C. The study made use of data from 1st January 2010 to 31st December 2010. This data was collected from the NSE.

3.6   Data Analysis

The returns on the Islamic portfolio were calculated every week for the whole year by getting the sum of capital gains and dividends received in the various periods given their proportions. The outstanding shares at the beginning of the year were multiplied by the prices of the individual stocks so as to arrive at the total market value of each type of equity held. The total of each stock was divided by the overall total market value of all

the stocks in the portfolio to arrive at the relative market weight per company stock held. The relative weight per stock is multiplied with the total yield for the given stock each week. The aggregate per week will give us the portfolio return for the week. Risk will be measured using standard deviation and beta. Beta will be derived by regressing the Islamic portfolio returns against the returns from the market portfolio over the period of study.

The performance of the Islamic screened portfolio and the NSE Index was assessed using the Sharpe, Treynor and Jensen portfolio performance measures (as discussed in Chapter 2). These are relative measures hence are particularly useful in comparing portfolios that have different risk-return characteristics.

The data was then analysed using z tests to test whether there is significant difference between the risk and returns of the conventional portfolio (NSE 20 share index) and that of the Islamic portfolio. MS Excel 2007 was used in data analysis

CHAPTER 4: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1   Introduction

The study set out to construct a Shariah compliant portfolio. Companies listed on the NSE Main Market Segment were put through exclusionary screens in order to come up with the portfolio. The study further set out to determine and evaluate the performance of the Islamic portfolio to that of a conventional portfolio. This chapter explains how the data was analysed, analysis techniques used and discussions of the results.

4.2   Findings

4.2.1   Portfolio construction

In the construction of the Shariah compliant portfolio, seven screens were used; No alcohol, no pork, no tobacco, no adult entertainment, no conventional financial services, no preference shares and a long term debt to asset ratio of not more than 33%. Any company that did not meet a given screen was left out of the portfolio. Table 4.1 shows the portfolio screening criteria where N stands for Not Qualified, Q for Qualified and S for Suspended.

Table 4.1   Portfolio Screening Criteria

COMPANY	No alcohol	No pork	No conventional financial services	No tobacco	Long term to debt total assets (%)	No adult entertainment	No preference Shares	Qualifies or Not qualifies
1. Kakuzi	√	√	√	√	-	√	√	**Q**
2. Rea Vipingo	√	√	√	√	1.99	√	√	**Q**
3. Sasini Ltd.	√	√	√	√	4.64	√	√	**Q**
4. AccessKenya Group Ltd	√	√	√	√	20.9	√	√	**Q**
5. Car & General Ltd.	√	√	√	√	6.3	√	√	**Q**
6. CMC Holdings Ltd	√	√	√	√	0.97	√	√	**Q**
7. Hutchings Biemer	√	√	√	√	S	√	√	**N**
8. Kenya Airways	√	√	√	√	32.3	√	√	**Q**
9. Marshalls E. A.	√	√	√	√	5.9	√	√	**Q**
10. Nation Media Group	√	√	√	√	-	√	√	**Q**
11. Safaricom	√	√	√	√	10.63	√	√	**Q**
12. Scangroup	√	√	√	√	2.3	√	√	**Q**
13. Standard Group	√	√	√	√	13.7	√	√	**Q**
14. TPS Eastern Africa	√	√	√	√	7	√	√	**Q**
15. Uchumi	√	√	√	√	S	√	√	**N**
16. Athi River Mining	√	√	√	√	40.84	√	√	**N**
17. B.O. C. Kenya	√	√	√	√	4.3	√	√	**Q**
18. Bamburi Cement	√	√	√	√	3.2	√	√	**Q**
19. British American Tobacco	√	√	√	X				**N**
20. Carbacid Investments	√	√	√	√	11.7	√	√	**Q**
21. Crown Berger	√	√	√	√	3.7	√	√	**Q**
22. E. A. Cables	√	√	√	√	8.9	√	√	**Q**
23. E. A. Portland Cement	√	√	√	√	25.26	√	√	**Q**
24. East African Breweries	X							**N**
25. Eveready East Africa	√	√	√	√	6	√	√	**Q**
26. KenGen	√	√	√	√	43.65	√	√	**N**
27. KenolKobil	√	√	√	√	0.17	√	√	**Q**
28. Kenya Power and Lighting Co.	√	√	√	√		√	X	**N**
29. Mumias Sugar	√	√	√	√	12.68	√	√	**Q**
30. Sameer Africa	√	√	√	√	4.3	√	√	**Q**
31. Total Kenya	√	√	√	√	10.75	√	√	**Q**
32. Unga Group	√	√	√	√	-	√	√	**Q**

Source: Computations from NSE data

The companies in the Finance and Investment sector (15 companies) were all left out as none is a fully fledged Islamic finance provider. These include commercial banks and insurance companies. Uchumi supermarkets and Hutchings Biemer were also left out of the Islamic portfolio as they had been suspended in the study period. KenGen and Athi River Mining had a long term debt to total assets ratio greater than 33% and were left out of the Islamic portfolio.

The NSE index comprises 20 companies thus from the Islamic portfolio, 5 companies were dropped in order to match the 20 from the NSE Index. Table 4.2 shows the 20 companies in the Islamic portfolio.

Table 4.2   The Islamic portfolio

1.   Kakuzi
2.   Rea Vipingo Plantations Ltd
3.   Sasini Ltd
4.   AccessKenya
5.   CMC Holdings
6.   Kenya Airways Ltd
7.   Nation Media Group
8.   Safaricom
9.   Scangroup Ltd
10. TPS Eastern Africa (Serena) Ltd
11. B.O.C Kenya Ltd
12. Bamburi Cement Ltd
13. Carbacid Investments
14. Crown Berger Ltd
15. E.A.Cables Ltd
16. E.A.Portland Cement
17. Eveready East Africa
18. Mumias Sugar Co. Ltd
19. Sameer Africa Ltd
20. Total Kenya Ltd.

Source: Islamic screening from NSE data

KenolKobil was dropped as it had a share split in the study period. Car & General, Marshall East Africa, Standard Group and Unga Group had the lowest returns and were dropped from the final Islamic portfolio.

4.2.2   Risk and Returns

Weekly returns and risk for the year 2010 were calculated. Table 4.3 shows the weekly risk and returns for the conventional portfolio.

Table 4.3- Weekly risk and returns for the conventional portfolio

WEEK	WEEKLY RETURNS (%)	STANDARD DEVIATION	WEEK	WEEKLY RETURNS (%)	STANDARD DEVIATION
1	1.514937	0.57	27	-0.35848	0.0168
2	4.227085	0.465	28	1.145966	0.291
3	2.336836	0.358	29	-0.06001	0.143
4	-1.16897	0.345	30	2.602167	0.142
5	0.562405	0.298	31	3.994189	0.471
6	0.325195	0.102	32	-3.66646	0.278
7	-1.29094	0.294	33	1.425495	0.168
8	1.879033	0.163	34	-1.72274	0.144
9	2.36838	0.089	35	-0.86011	0.334
10	7.267219	0.388	36	1.321433	0.161
11	-2.62761	0.075	37	1.021568	0.171
12	1.627479	0.123	38	-0.02815	0.165
13	0.751911	0.146	39	1.009841	0.131
14	0.134911	0.271	40	-0.07786	0.173
15	0.91973	0.22	41	0.316392	0.122
16	3.185645	0.155	42	1.055028	0.051
17	-1.05345	0.223	43	-0.14251	0.102
18	1.433422	0.185	44	-0.49367	0.141
19	1.215146	0.147	45	-1.55784	0.127
20	0.68345	0.321	46	0.132261	0.119
21	-2.28143	0.207	47	-2.31038	0.381
22	0.006837	0.179	48	-1.13809	0.248
23	0.547837	0.148	49	0.150568	0.161
24	0.316364	0.233	50	-1.32634	0.21
25	0.279838	0.223	51	-0.07378	2.479
26	0.134991	0.101	52	1.677031	0.291

Source: Computations from NSE data

The table shows mixed results in that the returns and risk change every other week. There were positive returns in 63.5% (33 out of 52) of the weeks. Week 10 showed the highest return. The weekly returns range from a low of -3.67% to a high of 7.28%. The lowest risk was recorded in week 5 with a standard deviation of 0.298. Table 4.4 shows the weekly risk and return for the Islamic portfolio.

**Table 4.4 Weekly risk and returns for the Islamic portfolio**

WEEK	WEEKLY RETURNS (%)	STANDARD DEVIATION	WEEK	WEEKLY RETURNS (%)	STANDARD DEVIATION
1	5.963	1.207	27	0.885	0.12
2	7.029	1.203	28	1.067	0.213
3	-4.151	1.137	29	-1.771	0.427
4	-3.357	0.659	30	3.163	0.542
5	5.36	1.054	31	0.53	0.151
6	-1.662	0.342	32	-3.189	0.623
7	-0.108	0.111	33	-1.95	0.553
8	1.373	0.13	34	-3.565	0.828
9	1.219	0.176	35	-1.745	0.384
10	3.14	0.218	36	2.463	0.549
11	1.871	0.243	37	4.303	1.082
12	1.987	0.348	38	-1.982	0.535
13	0.557	0.099	39	2.584	0.426
14	0.829	0.213	40	3.504	0.814
15	0.916	0.528	41	0.732	0.166
16	2.252	0.341	42	-0.349	0.091
17	0.528	0.119	43	-1.374	0.243
18	1.376	0.232	44	-1.431	0.253
19	0.186	0.23	45	0.542	0.281
20	-0.415	0.137	46	-4.042	0.644
21	-1.011	0.118	47	0.126	0.103
22	0.322	0.128	48	-0.618	0.082
23	-0.145	0.065	49	2.463	0.549
24	1.585	0.453	50	-0.754	0.082
25	0.848	0.222	51	1.983	0.529
26	0.747	0.114	52	1.181	0.142

Source: Computations from NSE data

There were positive returns 63.5% (33 out of 52 weeks) of the year. The highest return was 7.029% in week 2. That was also the period with the second highest risk in the year of 1.203. Both the risk and return were fluctuating throughout the period showing that

each week had its own different risk characteristics from another week. The figure below is generated from the data presented in table 4.3 and 4.4

Figure 4.1   Weekly Returns for the Islamic portfolio and Conventional portfolio
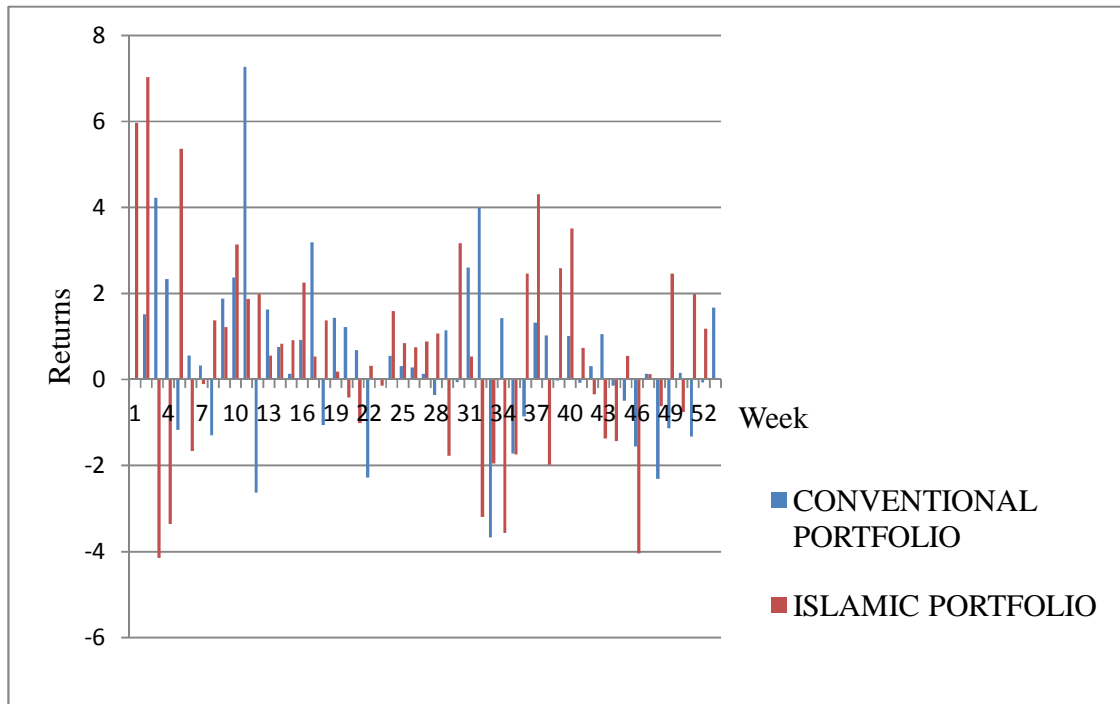
The figure shows that somewhat the returns for the two portfolios move in the same direction though in different magnitudes. However there are mixed results where in certain weeks the Islamic portfolio has a higher return compared to the conventional portfolio and the conventional having a higher return in other weeks. The conventional portfolio recorded the highest return of 7.27% and the Islamic portfolio reported the lowest return of -4.151%.

Figure 4.2   Weekly Risk for the Islamic portfolio and Conventional portfolio
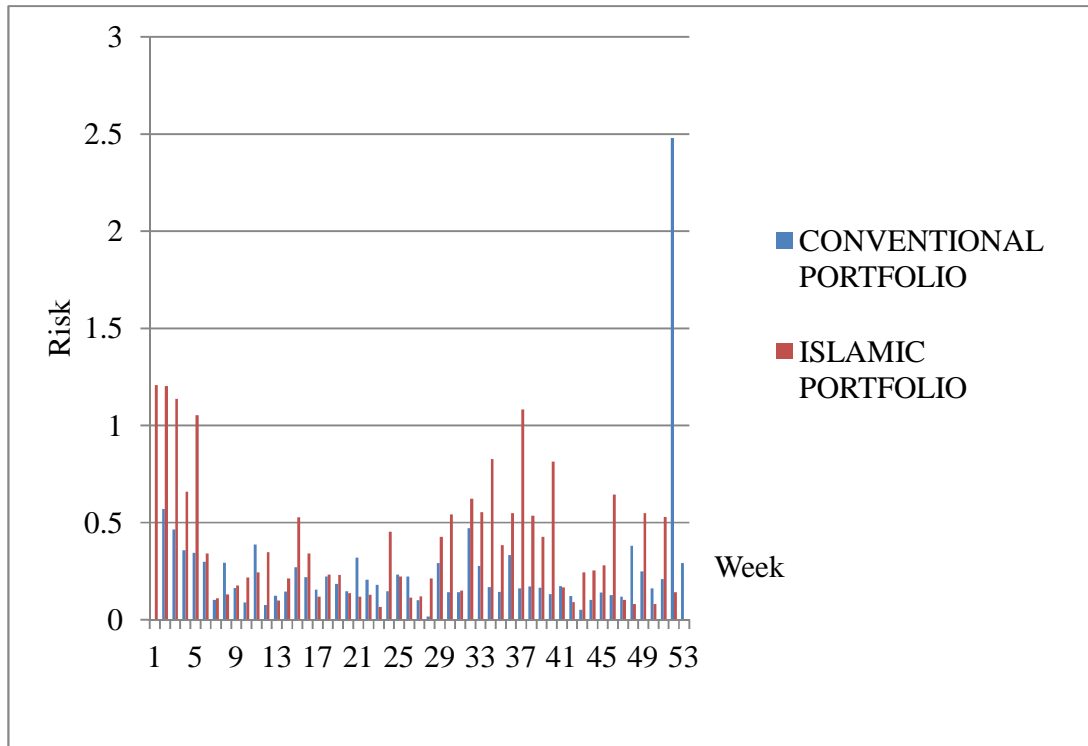
From the figure it is clear that the Islamic portfolio carries more risk compared to the conventional portfolio. However in the second last week of the year, the risk of the conventional portfolio shot up being way higher than that of the Islamic portfolio. The Islamic portfolio is riskier than the conventional portfolio 65.38% of the time while 34.62% of the time the conventional portfolio was riskier than the Islamic portfolio. The Islamic portfolio had lower risk in certain times of the year. This could signify certain activities that the conventional portfolio is rather vulnerable to were taking place in those periods specifically between weeks 8 to 14, 19 to 25 and at the end of the year weeks 47 to week 52. The Islamic portfolio also shows greater variations in its risk compared to the conventional portfolio. The standard deviation for the conventional portfolio ranged

between 0.0168 and 0.57 while that of the Islamic portfolio ranged between 0.065 and

1.207.

Using regression, the beta of the Islamic portfolio is 0.587 while that of the market is 1.

Table 4.5 shows the risk measures for the portfolio in the year.

Table 4.5   Risk measures

RISK MEASURE	CONVENTIONAL PORTFOLIO	ISLAMIC PORTFOLIO
Standard Deviation	1.841544	2.379195
Beta	1	0.587

Source: Computations from NSE data

The standard deviation of the Islamic portfolio is higher thus the portfolio carries more

risk compared to the conventional portfolio. The Islamic portfolio has a beta less than one

meaning that the portfolio is less volatile than the market.

4.2.3   Portfolio performance measures

Portfolio performance measures were employed; specifically the Sharpe, Treynor and

Jensen indices. Table 4.6 shows the results of the above measures for the conventional

portfolio.

Table 4.6   Portfolio Performance measures for the Conventional Portfolio

WEEK	SHARPE RATIO	TREYNOR RATIO	WEEK	SHARPE RATIO	TREYNOR RATIO
1	-8.94222	-6.042	27	-124.493	-1.7162
2	-5.12885	-6.147	28	-2.0173	-1.442
3	-11.6345	-6.144	29	-10.6434	-1.319
4	-22.2347	-6.157	30	8.029345	-1.32
5	-19.0054	-5.928	31	5.376197	-0.991
6	-12.1648	-1.464	32	-18.4477	-1.184
7	-25.476	-5.905	33	-2.53872	-1.684
8	-26.5029	-6.036	34	-24.8246	-1.708
9	-42.3665	-6.05	35	-9.16799	-1.868
10	2.907781	-5.751	36	-5.46936	-2.041
11	-115.728	-5.977	37	-5.99668	-1.876
12	-35.9717	-5.929	38	-12.5767	-1.882
13	-34.165	-5.594	39	-7.7264	-1.891
14	-20.683	-5.469	40	-12.1379	-1.849
15	-20.5921	-5.23	41	-13.9804	-1.9
16	-14.6087	-5.295	42	-20.9798	-2.074
17	-26.6209	-4.66	43	-22.1423	-2.014
18	-18.6464	-4.698	44	-18.5083	-1.975
19	-22.033	-4.307	45	-29.4318	-2.053
20	-11.7463	-4.133	46	-17.2079	-2.061
21	-30.205	-3.764	47	-11.9485	-1.861
22	-22.1462	-3.792	48	-13.6294	-1.994
23	-23.1295	-3.823	49	-12.9716	-2.078
24	-8.25166	-2.006	50	-16.9778	-2.029
25	-10.494	-2.397	51	-0.9628	0.166
26	-24.604	-2.519	52	-2.18546	-2.022

Source: Computations from NSE data

There were positive Sharpe ratios only in weeks 10, 30 and 31 while the positive Treynor ratios were reported on week 51 only. The Treynor ratios were relatively stable ranging between -6.157 and 0.166. The Sharpe ratios were however very widely varied throughout the period. Table 4.7 shows the performance measures for the Islamic portfolio.

Table 4.7   Portfolio Performance measures for the Conventional Portfolio

| WEEK	SHARPE RATIO	TREYNOR RATIO	WEEK	SHARPE RATIO	TREYNOR RATIO
1	-0.5377	-1.10562	27	-7.06667	-1.44463
2	0.346633	0.710392	28	-3.12676	-1.13458
3	-9.36939	-18.1482	29	-7.57143	-5.50767
4	-14.9605	-16.7956	30	3.138376	2.897785
5	-0.82163	-1.4753	31	-6.17219	-1.58773
6	-9.4386	-5.49915	32	-7.46549	-7.92334
7	-56.8198	-10.7445	33	-6.87523	-6.477
8	-37.1231	-8.22147	34	-6.54227	-9.22828
9	-27.9545	-8.3816	35	-10.2786	-6.72402
10	-13.7569	-5.10903	36	0.47541	0.444634
11	-17.2058	-7.12266	37	2.085028	3.843271
12	-11.681	-6.92504	38	-7.53084	-6.86371
13	-52.3535	-8.82964	39	1.319249	0.957411
14	-23.0563	-8.36627	40	1.820639	2.524702
15	-8.58712	-7.72402	41	-7.77108	-2.19761
16	-9.3783	-5.44804	42	-27.1868	-4.21465
17	-36.5966	-7.41908	43	-14.3621	-5.94549
18	-15.1164	-5.97445	44	-14.0198	-6.04259
19	-18.5565	-7.27087	45	-5.82918	-2.79046
20	-35.5401	-8.29472	46	-9.66149	-10.5997
21	-42.2203	-8.48722	47	-20.5437	-3.60477
22	-28.5078	-6.21635	48	-34.878	-4.87223
23	-63.3231	-7.01193	49	0.408015	0.381601
24	-1.44371	-1.11414	50	-36.5	-5.09881
25	-7.98198	-3.01874	51	-0.62382	-0.56218
26	-16.4298	-3.1908	52	-7.97183	-1.92845

Source: Computations from NSE data

The Islamic portfolio had positive Sharpe ratios on weeks 2, 30, 36, 37, 39, 40 and 49 with positive Treynor ratios reported in weeks 2, 30, 36, 37, 39, 40 and 49 in the year. The Treynor ratios were widely varied compared to those of the Conventional portfolio.

They ranged between-18.148 and 3.843. The Sharpe ratios were also widely varied from week to week. Figure 4.3 shows the Sharpe ratios for the two portfolios.

**Figure 4.3   Sharpe ratios for the Islamic portfolio and Conventional portfolio**
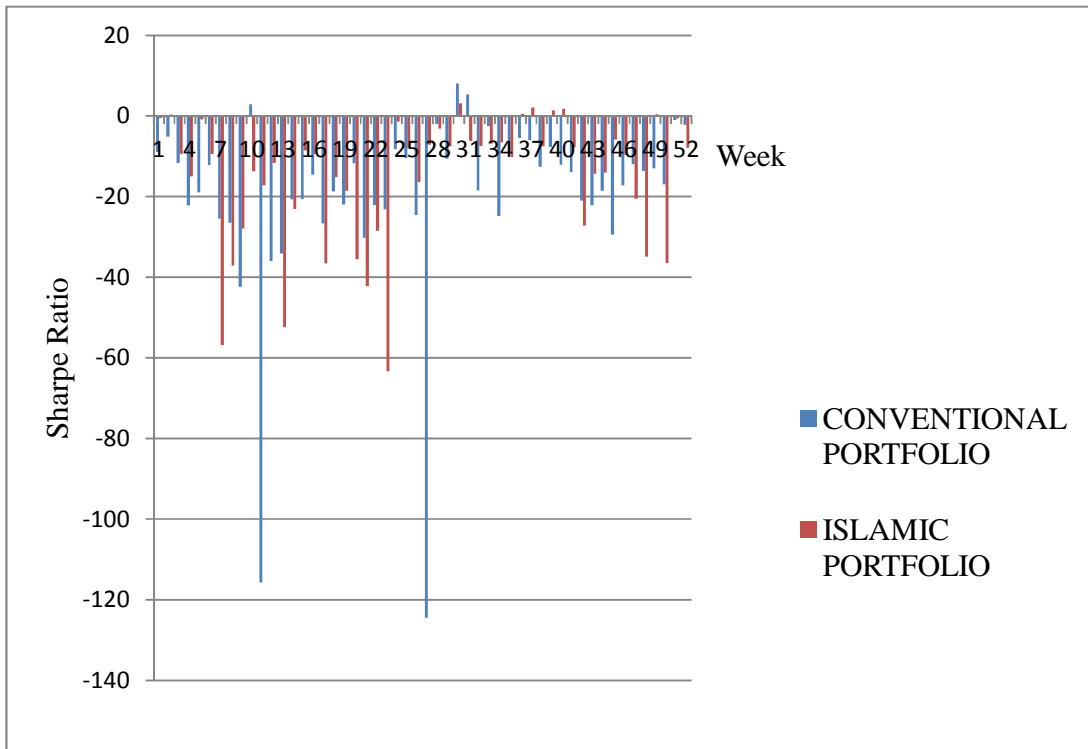
Mixed results are visible. There are periods where the conventional portfolio has outperfomed the Islamic portfolio and others where the Islamic portfolio outperfomed the conventional portfolio. The conventional portfolio recorded the worst perfomance in the period in week 27. The conventional portfolio also had the best perfomance in the period in week 30. There are however great variations in the perfomance of the two portfolios in different weeks.

A higher Sharpe ratio implies better risk adjusted performance. However, negative Sharpe ratios indicate that a risk-less asset would perform better than the security being

analyzed. In average the conventional portfolio has a lower Sharpe ratio than the Islamic portfolio meaning it has a lower reward to volatility trade off. The Islamic portfolio indicates a superior risk adjusted perfomance than the conventional portfolio. Figure 4.4 shows the Treynor ratios for the two portfolios

Figure 4.4   Treynor ratios for the Islamic portfolio and Conventional portfolio
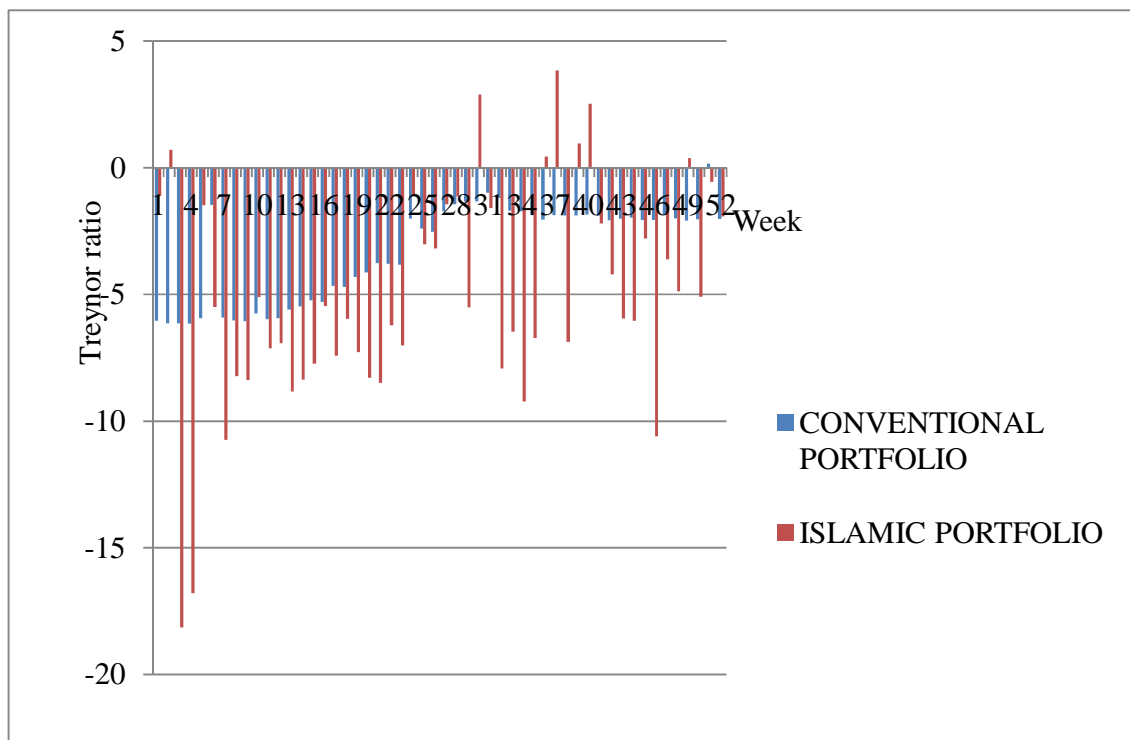
Using the Treynor ratios the Islamic portfolios reported the worst perfomance in the period early in the year but however also had the best perfomance slightly past the mid year. The Islamic portfolio also had larger variations in its perfomance comparded to the conventional portfolio.

The Treynor ratio represents the portfolio`s excess return per unit of systematic risk (beta), and the higher it is the better is the performance. The weeks that had positive Treynor ratios thus had portfolio returns higher than the returns on a risk free asset. The weeks having negative returns had their returns lower than those of a risk free asset. In average, the conventional portfolio had a higher Treynor ratio thus outperforming the Islamic portfolio.

The results for the Jensen`s alpha were zero throughout the study period in both the Islamic portfolio and the conventional portfolio. This indicates that there were no abnormal returns in both the Islamic portfolio and conventional portfolio during the study period.

4.2.4 Determining whether there is significant difference between the risk and return of an Islamic portfolio and a conventional portfolio

Z tests were carried out to determine whether there are significant difference between the risk and returns of the conventional portfolio and that of the Islamic portfolio.

Given our H_0: There is no difference between the risk and returns of the two portfolios

H_1: There is a difference between the risk and returns of the two portfolios.

For weekly returns, at 5% significance level, the result was a z value of 0.168299. The computed value lies within the confidence interval of $-1.96 > z > 1.96$. There is thus no significant difference between the returns of the Islamic portfolio and the returns of the conventional portfolio.

For weekly risk, at 5% significance level, the result was a z value of -1.655925. This lies between the confidence interval of -1.96 > z > 1.96. There is thus no significant difference between the risks of the two portfolios.

However for the risk adjusted returns, there was significant difference between the returns for the conventional and Islamic portfolios. These were mixed results as the Sharpe measure had the Islamic portfolio performing better than the conventional portfolio. While the Treynor measure showed that the conventional portfolio had outperformed the Islamic portfolio.

4.4   Summary

The creation of an Islamic portfolio at the stock exchange was possible; the NSE having 25 companies in its Main Market segment that met the relevant criteria to be included in the Islamic portfolio. Both portfolios had a mix of positive and negative returns over the study period. The returns for the two portfolios move in the same direction showing that there may be a correlation between the two portfolios. The Islamic portfolio has also been seen to be riskier than the conventional portfolio.

There are mixed results in the portfolio performance. The Islamic portfolio outperformed the conventional portfolio in relation to total risk but in relation to systematic risk the conventional portfolio outperformed the Islamic portfolio.

CHAPTER 5:   SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1   Introduction

Objectives were set and data analysed. This chapter, based on the results from the data analysis conducted gives the conclusion, recommendations, limitations the study had and ideas on more studies to be done relating to this particular paper.

5.2   Summary

Companies listed at the NSE were put through Islamic screens to form an Islamic portfolio. 25 companies met all the screens. However, to match the 20 companies comprising the NSE 20 Share Index, 5 companies were dropped from the Islamic portfolio.

Weekly risk and returns were calculated. The standard deviation and beta were the chosen risk measures. In terms of weekly raw returns, the Islamic portfolio was seen to outperform the conventional portfolio. The Islamic portfolio has a higher standard deviation than the conventional portfolio showing that the Islamic portfolio is riskier than the conventional portfolio. However the beta value of the Islamic portfolio was lower than that of the conventional portfolio signifying that the Islamic portfolio is less volatile than the market.

Treynor, Sharpe and Jensen portfolio performance measures were calculated. The Islamic portfolio had a higher average Sharpe ratio than the conventional portfolio hence it

outperformed the conventional portfolio when compared in terms of returns and total risk. The conventional portfolio however had a higher average Treynor ratio compared to the Islamic portfolio thus outperforming the Islamic portfolio when it comes to the returns and systematic risk measure. The Jensen values were zero for both the conventional portfolio and Islamic portfolio meaning that neither portfolio made abnormal returns during the study period.

Z tests were used to determine whether there was significant difference between the risk and returns of the two portfolios. There was seen to be no significant difference between the risk and raw returns of the two portfolios. However there were significant differences between the Sharpe and Treynor measures of the two portfolios meaning that there was significant difference when it came to risk adjusted returns. The Jensen measure stood to be indifferent.

5.3   Conclusion

The study aimed at constructing a Shariah compliant portfolio. A further aim was to establish whether there is significant difference between the performance of an Islamic portfolio and that of a conventional portfolio. Companies listed at the NSE were screened using Shariah based screens to come up with an Islamic compliant portfolio. The returns of the Islamic portfolio were compared to those of a conventional portfolio to check whether there is significant difference between the two portfolios.

The study has shown that there are listed companies that meet Shariah principles and thus the creation of a Shariah compliant portfolio is very much possible at the NSE. The study

has also shown that there is no significant difference between the risk and raw returns of an Islamic portfolio and that of a conventional portfolio. These results are consistent with Statman (2000) who found that the raw return of the DSI were slightly higher than that of the S & P 500. However, he did not analyse significant difference between the two portfolios. It is also consistent with Mallin et. Al (1995) examined the performance of 29 ethical funds comparing each ethical fund to a non-ethical one having the same formation date and fund size. They found that the beta is lower for ethical funds.

In terms of risk adjusted returns, there were mixed results where using the Sharpe ratio that makes use of total risk, the Islamic portfolio outperformed the conventional portfolio. Using the Treynor ratio which makes use of systematic risk, the conventional portfolio outperformed the Islamic portfolio. These results could indicate that the conventional portfolio is not adequately diversified hence its underperformance when it comes to total risk and its outperforming the Islamic portfolio under systematic risk.

5.4   Recommendations

There are distinct variations in the performance both in terms of risk and returns which symbolize that the portfolios react differently to certain scenarios. Further analysis should be done to investigate the causes and reasons for the variations and whether the two portfolios are correlated and by how much.

Creation of a new conventional portfolio to compare with the Islamic portfolio would give a better indication of the differences in the risk adjusted results. This is because the conventional portfolio used seems to be inadequately diversified. Both new Islamic portfolios and conventional portfolios should be well diversified and compared for better

results. During the period the market was also still recovering from the effects of the global economic crisis. This may have played a part in arriving at the mixed results.

For Islamic portfolios, there is a need for frequent periodic analysis of the companies in the market. This is to ensure that those companies whose stocks form part of the Islamic portfolio still meet the Islamic screens. Those that do not meet at least one of the screens should be removed from the portfolio and new companies meeting the screens incorporated into the portfolios.

The formation of an Islamic Index at the NSE would ensure constant results on the performance of the portfolios are available to fund managers and investors thus making the analysis of portfolio performance easier. Rules enforced by the Capital Markets Authority would also ensure that the guidelines for Islamic investing are strictly adhered to by the market players.

Investors can get returns as good as those earned by the conventional portfolios. However, investors need to carefully pick which stocks will be pat of their portfolios. The stocks comprising the portfolios should be those earning high returns in the market. Thus investors taking part in Islamic investing can do well and still do good at the same time.

5.5   Limitations of the Study

The study focused on the weekly returns for a period of one year. Longer durations of over three years would be ideal.

The portfolio betas have been calculated using the average weekly returns over a period of one year. Normally, betas are constantly changing and it is usually considered appropriate to generate betas over a period of five years.

There were certain factors for example recovery from the post election violence and the global economic crisis which may have influenced the return and risk at certain time in the year. These possible influences were not taken into consideration.

5.6 Suggestions for Further Studies

A study should be carried out on how to come up with an efficient Shariah compliant portfolio and the returns of this portfolio compared to the market portfolio. This will give a better measure without having the returns of the portfolio being weighed down by poor performing stocks.

A study should be done on the long run performance of Shariah compliant portfolios. This study should cover a period of at least 3 years. This will give a better measure of the performance of the portfolios.

 A similar study should be conducted on Shariah compliant portfolios. This should involve other investments other than stocks for example mutual funds.

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APPENDIX A

The Following are the 20 companies that constitute the NSE 20 Share Index (1st January 2010 – 31st December 2010)

1. Rea Vipingo
2. Sasini
3. CMC Holdings
4. Kenya Airways
5. Safaricom
6. Nation Media Group
7. Barclays Bank of Kenya
8. Equity Bank
9. Kenya Commercial Bank
10. Standard Chartered Bank
11. Co-operative Bank of Kenya
12. Bamburi Cement
13. British American Tobacco
14. KenGen
15. East African Breweries
16. East African Cables
17. Kenya Power and Lighting Company
18. Athi River Mining
19. Mumias Sugar
20. Express Kenya

APPENDIX B

List of Islamic screens used by various Markets

1. Dow Jones Islamic Indices	
(i)	No alcohol
(ii)	No pork-related products
(iii)	No conventional financial services
(iv)	No entertainment
(v)	No tobacco
(vi)	No weapons and defense
(vii)	No highly indebted companies
(viii)	No companies with high interest-based returns
2. FTSE Shariah Global Index series	
(i)	No alcohol
(ii)	No tobacco
(iii)	No gaming and gambling
(iv)	No weapons and defense
(v)	No pork
(vi)	No conventional banking and insurance
(vii)	No pornography
(viii)	No highly indebted companies
(ix)	No companies involved in interest-bearing investments
(x)	No FX transactions and derivatives
3. Standard & Poor's Shariah Indices	
(i)	No pork
(ii)	No alcohol
(iii)	No gambling
(iv)	No financials

(v)	No advertising and media(newspaper allowed)
(vi)	No pornography
(vii)	No tobacco
(viii)	No gold and silver trading
(ix)	No highly indebted companies
4. MSCI Global Islamic Indices	
(i)	No alcohol
(ii)	No tobacco
(iii)	No pork related products
(iv)	No financial services
(v)	No gambling
(vi)	No music
(vii)	No hotels
(viii)	No cinema
(ix)	No adult entertainment
(x)	No highly indebted companies

Source: Dow Jones, FTSE, Standard & Poor's, MSCI, Credit Suisse

APPENDIX C

Data Entry Form

Company 1

Week	P_o	P_1	D_1
1			
2			
3			
.			
.			
.			
.			
52			

Company 2

Week	P_o	P_1	D_1
1			
2			
3			
.			
.			
.			
.			
52			