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INVESTMENT CHARACTERISTICS OF ISLAMIC INVESTMENT PORTFOLIOS: EVIDENCE FROM SAUDI MUTUAL FUNDS AND GLOBAL INDICES

Saeed Salem Binmahfouz

Durham Business School

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Abstract

The study critically reviews the application of the *Sharia* investment screening process, from both *Sharia* and practical perspectives. In practice, there appears to be inconsistencies in the *Sharia* investment screening criteria among Islamic investment institutions, especially in terms of the tolerance level, as well as the changing of the *Sharia* rules. This certainly affects the confidence in the *Sharia* screening criteria standards, which might adversely affect the Islamic mutual funds industry. The non-income generating aspects, such as social and environmental concerns, are not incorporated in the contemporary Islamic investment screening process. This seems to be rather paradoxical, since it contradicts the *Sharia*-embedded ethical values of fairness, justice and equity. The thesis contends that external audits regarding the implementation of *Sharia* rules should be adopted to ensure the compliance of the investment with *Sharia* guidelines. Furthermore, it is desirable for *Sharia* boards to adopt corporate governance practice and take proactive roles, especially in Muslim countries, in order to influence companies to adopt *Sharia*-compliant investment practices. The tolerance levels of conventional finance activities of companies in Muslim countries should be re-evaluated and lowered in the Islamic investment screening criteria. This is partly due to the popularity and wide availability of Islamic banking and alternative *Sharia* instruments to interest-based finance, coupled with the fact that Muslim shareholders form the majority and hence, can vote to influence companies to adopt *Sharia*-compliant financing modes.

In addition, the study provides empirical evidence that the *Sharia* screening process does not seem to have an adverse impact on either the absolute or the risk-adjusted performance of Islamic equity mutual funds in Saudi Arabia, compared to their conventional counterpart equity mutual funds and also compared to their market benchmarks. This is regardless of the geographical investment focus subgroup examined and the market benchmark used (whether Islamic or conventional). Furthermore, the systematic risk analysis shows that in most cases Islamic equity mutual funds in Saudi Arabia tend to be significantly less exposed to market risk compared to their conventional counterpart equity mutual funds, and compared to their conventional market benchmarks. Thus, the assumption that *Sharia* investment constraints lead to inferior performance and riskier investment portfolios because of the relatively limited investment universe seems to be rejected. This implies that Muslim investors in Saudi Arabia can choose Islamic investments that are consistent with their beliefs without being forced to either sacrifice performance or expose themselves to higher risk. The investment style analysis also shows that the *Sharia* screening process does not seem to influence Islamic equity mutual funds in Saudi Arabia towards small or growth companies compared to their conventional counterparts of similar geographical investment focus.

Moreover, the study provides empirical evidence that the performance difference between Islamic and conventional socially responsible indices is insignificant despite applying different sets of screening criteria. However, Islamic indices tend to be associated with relatively lower systematic risk compared to their conventional socially responsible counterparts. Therefore, Islamic investment portfolios can be marketed to socially responsible investors who share similar beliefs in terms of excluding certain industries such as tobacco, alcohol, pornography, defense, etc., in spite of no financial filters being used by conventional socially responsible investors. This finding is especially appealing in Muslim countries where there are usually no

mutual funds categorized as socially responsible, but rather Islamic. Moreover, the study also provides empirical evidence that incorporating conventional sustainability criteria into the traditional *Sharia* screening process does not lead to inferior performance or higher exposure to systematic risk.

The results indicate that regardless of the restriction used - whether Islamic, socially responsible or Islamic socially responsible - restricted investment portfolios do not seem to be associated with inferior performance or higher exposure to risk. This finding opens the door for *Sharia* scholars and Muslim investors to reconsider broader social and environmental aspects as part of the *Sharia* investment screening process. With regards to investment style, Islamic and Islamic socially responsible indices seem to be skewed towards growth cap as compared to their conventional and conventional socially responsible indices, while Islamic socially responsible also leans towards a large cap. This implies that despite the performance similarity between, Islamic, conventional and conventional socially responsible indices, the returns driver of each type of investment tends to be different.

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Chapter 1

Introduction

1.1 Research Overview and Background

The last decade witnessed a tremendous growth in socially responsible investment (SRI), where investors combine their financial objectives with their concerns about social, environmental, ethical and/or corporate governance issues in their portfolio selection.[1] In 2010, the total SRI accounted for €7,594 billion globally, led mainly by the European and US markets with €4,986 billion and $3,069 billion respectively (EUROSIF, 2010 and USSIF, 2010). Despite the origin of SRI being rooted in religious groups, the current practice of SRI is largely dominated by mainstream institutional investors, controlling around 92% and 75% of the total SRI in Europe and US respectively (EUROSIF, 2010 and USSIF, 2010).

The United Nations (UN) introduced the Principles for Responsible Investment (PRI) mandate in 2006 to promote awareness of environmental, social and corporate governance (ESG) issues and ensure that they are considered in the investment process. This SRI mandate provides the framework for global SRI practice and is gaining acceptance by institutional investors around the world. In 2010, the principles were used by over 808 leading global institutional investors with over $22 trillion in total assets under management (EUROSIF, 2010). This shows that SRI is no longer considered as a niche market for religious groups only. Consequently, internationally recognized mainstream indices' providers, such as FTSE and Dow Jones, introduced SRI indices to their indices' family to meet the growing demand for such a type of investments.

Although the SRI practice started with applying only traditional exclusion screening to avoid investing in sinful industries, the current practice of SRI has been further developed and broadened by the entrance of proactive mainstream institutional investors. This is done by adopting inclusion criteria to invest in profitable companies

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[1] See US, UK, EUROPE Social Investment Forum (SIF) Official websites (access in December, 2010).

with a commitment to SRI business practices, in order to support the environment, social community, and/or corporate governance practice (Saur, 1997, Hamilton et al., 1993; Statman, 2005). Selecting best-in-class companies is another SRI approach to invest in companies that are leaders in their sectors in terms of financial and SRI practice, without excluding certain sectors.[2] Shareholders' advocacy or engagement is also another proactive SRI approach, where socially responsible investors engage in dialogue with senior management, or shareholder advocacy is used through voting proxy, to influence the companies to adopt environmentally, socially responsible and/or corporate governance practice (UKSIF, 2007).

Islamic investment is considered under the broad umbrella of SRI, since it applies ethical screening criteria that exclude certain industries.[3] According to Ernst and Young's 2011 report (E&Y, 2011), the estimated global Islamic finance assets are $1,033 billion at the end of 2010, and this figure is expected to grow. Furthermore, the Islamic mutual funds industry is the largest growing segment in Islamic finance with average annual growth of between 15% and 20% (Hakim and Rashidian, 2004). The global assets, under management of the Islamic mutual fund industry, count for $58 billion with around 800 managed mutual funds in 2010 representing only 5.6% of the total Islamic finance assets (E&Y, 2011). The Saudi market is the world's largest home market for the aforementioned Islamic mutual funds industry in terms of both total assets under management and number of funds, controlling $20.1 billion, with 225 managed mutual funds as per the end of Q1 2011 (E&Y, 2011). This shows that the Saudi market alone represents 35% of the total global Islamic mutual funds' assets under management.

To meet a growing demand, conventional banks are also offering Islamic products and services, including international banks such as HSBC, Lloyds TSB, Barclays, Citibank and Deutsche Bank, as well as investment banks such as Merrill Lynch and Morgan Stanley (Hussein and Omran, 2005; Wilson, 2007). Also, several Islamic market indices' benchmarks were introduced by globally reliable mainstream indices'

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[2] Dow Jones Sustainability Indexes Official Website, (access December 2010).
[3] The Ethical Investment Research Service (EIRIS) defines a green or ethical SRI fund as a fund where the choice of investments is influenced by one or more social, environmental or other ethical criterion (access in August, 2010). This issue is discussed in Chapter 3.

providers including FTSE, Dow Jones (DJ), Morgan Stanley Capital International (MSCI) and Standard and Poor's (S&P), to track the performance of Islamic investment. According to Ghoul and Karam (2007), there are about 60 DJ Islamic indexes that vary by size, industry, and region with 95 Islamic mutual funds tracking the Dow Jones Islamic Market Index (DJIMI).

There are some similarities between SRI and Islamic investment in terms of excluding certain industries/companies that are believed to be unethical, such as those involved in alcohol, tobacco, arms defence, pornography, etc., from their investment universe (Ghoul and Karam, 2007). In other words, both types of investment portfolio impose non-financial screening criteria for their investment selection to screen out companies that violate their belief and value systems. This implies that, unlike unrestricted conventional investment portfolios, SRI and Islamic investment portfolios tend to be more restricted and have a relatively smaller investment universe. For example, 50% of the conventional S&P 500 index[4] constituents were removed from the Domini Social Index (DSI)[5] for their SRI criteria violation (Statment, 2006). Hakim and Rashidian (2002) state that 75% of the companies which are included in the Wilshire 5000 index[6] failed to pass the US DJIM *Sharia* screening criteria. Also, around 60% of the Morgan Stanley Capital International (MSCI) and Dow Jones (DJ) conventional indices' constituents had to be removed from their Islamic subset indices due to their lack of *Sharia* compliance.[7] This indicates that applying SRI/*Sharia* screening process significantly reduces the investment universe for socially responsible and Muslim investors, as compared to conventional investors.

Unlike SRI however, Islamic investment portfolios also exclude conventional financial sectors and impose additional financial screening ratios (Ghoul and Karam, 2007). This is to ensure that the level of conventional debt and interest-bearing securities does not exceed the threshold tolerated by *Sharia,* because interest-based

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[4] The S&P 500 index represents the largest 500 US listed companies.
[5] The DSI is a socially responsible index that includes 250 companies that are included in the S&P 500 index, 100 non S&P 500 companies selected to provide industry representation and 50 non S&P 500 companies with particularly strong social characteristics (Statman, 2006).
[6] Thes Wilshire 5000 index represents all stocks actively traded in the US.
[7] Calculated based on the documents available in the Dow Jones and MSCI Official Website (access September 2010).

activities are not *Sharia*-compliant. In contrast, SRI emphasize the importance of issues such as environmental risk, corporate governance and the ethical practice of the corporation with its stakeholders, such as employees, investors, customers and the whole society.

In other words, unlike SRI screening, the Islamic screening process focuses on whether the output of the business is *Sharia*-permissible or not, as well as the level of the exposure to interest-based activities. However, non-income generating aspects such as social and environmental concerns are not incorporated in the traditional *Sharia* screening process (Wilson, 2004; Dar Al Istithmar, 2009). This is despite the embedded social and ethical concerns in the Islamic principles. This implies that *Sharia* screening criteria adopt only exclusion criteria to avoid investing in *Sharia*-impermissible companies, while they lack positive and engagement SRI approaches.

However, there has been a recent development in the *Sharia* screening process, when Dow Jones introduced the first Islamic Sustainability index in 2006, which combines both *Sharia* and sustainability screening criteria.[8] This is to create *Sharia*-compliant investments to target Muslim investors who are also socially and environmentally concerned. Unlike conventional sustainability investment, incorporating the sustainability criteria into the traditional *Sharia* screening criteria is still in its infancy.

There are other distinctive features associated with Islamic mutual funds, as compared to both conventional and SRI ones, which further restrict the investment. Islamic mutual funds are not allowed to invest in fixed-income instruments such as government bills, government bonds, corporate bonds, etc. (Elfakhani et al., 2005).[9] Furthermore, Islamic mutual funds are not allowed to use derivatives contracts, such as futures, forwards, options and swaps, since they are not *Sharia*-complaint (Obidullah, 2005; Usmani, 2009). Purification processes, whereby *Sharia*-compliant investors are required to donate the *Sharia*-impermissible portion of their income, might also lead to further returns reduction. Thus, although by definition, Islamic

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[8] Dow Jones Official Website (access September 2010).
[9] Although *sukuks* are *Sharia* alternative instruments to fixed income, the *sukuks* market is still in its infancy. For example, *sukuks* have not been issued by developed governments and global large corporation listed in developed markets. Also, due to the newness of *sukuks* market there is lack of the availability and liquidity of such instruments compared to conventional bonds.

investment portfolios can be viewed under the broad umbrella of SRI portfolios since they apply ethical screening criteria, the practice of the two groups varies significantly.

There are two opposing views regarding the economic viability of restricted SRI and Islamic investments. Opponents argue that imposing additional non-financial screening criteria in the investment selection contradicts the underlying assumptions of the modern portfolio theory, that rational investors only consider risk and return elements in their investment selection. That is, investors seek to achieve the highest expected utility by maximizing their return and minimizing the risk through investing in mean variance efficient portfolios (Reyes and Grieb, 1998; Schroder, 2007). Thus, the theory assumes that there are no considerations of non-financial socially responsible, ethics, and beliefs screening criteria that influence the investment decision and hence, no investment restrictions. Therefore, *Sharia*/SRI screening criteria are likely to have an adverse impact on the performance and risk of the investment portfolios. This is because restricting the menu of assets available is more likely lead to less diversified, and hence less efficient investment portfolios, which in turn lowers the returns and increases the risk (Luther et al., 1992; Sauer, 1997).

In other words, excluding certain industries/companies for their *Sharia*/SRI violation might lead to less competitive and less flexible investment portfolios, as compared to unrestricted portfolios (Rudd, 1981). Also, excluding certain sectors/companies for their non-compliance with *Sharia/*SRI principles might eliminate attractive opportunities. Thus, as suggested by the cost-of-discipleship hypothesis, there is an opportunity cost incurred when investment is made based on certain (ethical) standards (Mueller, 1991 and 1994). Furthermore, the additional cost associated with implementing *Sharia/*SRI screening such as searching, monitoring and management costs might adversely affect the performance (Luther et al., 1992; Sauer, 1997).

However, advocates argue that the *Sharia/*SRI screening process is more likely to have a positive impact on the investment portfolio, by selecting financially stronger and more stable and profitable companies. Also, the conservative nature of the management of Islamic/SRI investment portfolios might lead to less risky and more profitable investment portfolios. In addition, *Sharia* screening criteria exclude highly

leveraged companies and also prohibit *gharar* and gambling activities which also seems to minimize the overall risk and lead to more solid investment opportunities (Hussein and Omran, 2005; Abdullah et al., 2007; Ghoul and Karam, 2007). For example, the DJIM index removed high-profile firms such as WorldCom, Enron and Tyco from its composition before their collapse occurred, due to their high leverage (Hussein and Omran, 2005).

1.2 Research Aims and Objectives

The primary aim of the study is to provide empirical evidence on the impact of *Sharia* and *Sharia* sustainability screening criteria on the investment characteristics of the Islamic and Islamic sustainability investment portfolios. This is done by comparing the Islamic investment portfolios to their conventional and conventional socially responsible counterparts, respectively. In particular, the investment characteristics investigated are performance, risk and investment style, based on actively managed mutual funds' and passive indices' portfolios. This is done to improve the robustness of the results, as well as to provide a comprehensive analysis about the investment characteristics of Islamic investment portfolios. The aim of the present study can be broken down into four main objectives:

Objective 1: To critically review the *Sharia* investment screening process.

Objective 2: To investigate the impact of applying *Sharia* screening criteria on the investment characteristics of Islamic equity mutual funds in Saudi Arabia in terms of performance, risk and investment style, as compared to their conventional counterparts.

Objective 3: To compare the investment characteristics of the Islamic investment market indices to their socially responsible counterparts, in terms of performance, risk and investment style.

Objective 4: To examine the impact of incorporating conventional sustainability/socially responsible screening criteria to the traditional *Sharia* screening process on the investment characteristics. The performance, risk and investment style

of the Islamic socially responsible investment portfolios are compared to their conventional, conventional socially responsible and Islamic portfolios.

In order to fulfil the research aims and objectives, several research questions were formulated and each has its relevant testable hypotheses that are investigated and discussed in Section 1.4.

1.3 Research Questions and Testable Hypotheses

To achieve the aims and objectives of the study, several research questions and hypotheses must be examined to provide empirical evidence on the performance, risk and investment style of Islamic and Islamic socially responsible investment portfolios, all compared to their conventional and conventional socially responsible equivalents. This is based on a sample of market indices' passive portfolios and actively managed equity mutual funds. The *Sharia* screening process will also be critically reviewed. This section presents the research questions and testable hypotheses, which are based on the previous academic findings, discussed in Section 1.3.

Research Question 1: What are the critical issues related to the *Sharia* screening process for stocks? This is to examine research objective 1, and is addressed in Chapter 4.

Research Question 2: Does the application of a *Sharia* screening process have an adverse impact on the investment characteristics of Islamic equity mutual funds in Saudi Arabia, as compared to their conventional counterparts? This is to examine research objective 2, and is attended to in Chapter 7, by testing the following hypotheses:

Hypothesis 1: The performance of Islamic equity mutual funds in Saudi Arabia does not differ significantly from that of their conventional counterpart equity mutual funds and their conventional market benchmarks.

Hypothesis 2: Islamic equity mutual funds in Saudi Arabia are less exposed to systematic risk, as compared to their conventional counterpart equity mutual funds and their conventional market benchmarks.

Hypothesis 3: The investment style of Islamic equity mutual funds in Saudi Arabia is more skewed towards small and growth companies, compared to their conventional counterparts.

Research Question 3: Do the applications of Islamic and SRI screening processes respectively provide similar investment characteristics? This is to examine research objective 3 and is addressed in Chapter 8, testing the following hypotheses:

Hypothesis 4: The performance of the Islamic index does not differ significantly from the conventional socially responsible index.

Hypothesis 5: The Islamic investment index is less exposed to systematic risk compared to conventional socially responsible indices.

Hypothesis 6: There is no statistically significant investment style difference between the Islamic and conventional socially responsible indices.

Research Question 4: Does incorporating conventional sustainability/socially responsible criteria into the *Sharia* screening process have an adverse impact on the investment characteristics of Islamic investment portfolios? This aims to examine research objective 4 and is addressed in Chapter 8. The following hypotheses are tested to address this research question:

Hypothesis 7: The performance of the Islamic socially responsible index does not differ significantly from the Islamic index and the conventional socially responsible index.

Hypothesis 8: The systematic risk of Islamic socially responsible index is comparable to that of the Islamic index and the conventional socially responsible index.

Hypothesis 9: There is no statistically significant investment style difference between Islamic socially responsible index and the Islamic or conventional socially responsible index.

1.4 Significance of the Research

Despite the growing interest in Islamic finance in general, and Islamic mutual funds in particular, there are a few empirical studies that examine the impact of *Sharia* screening criteria on the investment characteristics of Islamic investment portfolios. In particular, the investment characteristics of Islamic equity mutual funds in Saudi Arabia have not yet been rigorously investigated. This is in spite of the importance of the Saudi market for the Islamic mutual funds industry, as being the world's largest home market for the industry. Thus, the study offers new empirical evidence, deciding whether or not the application of *Sharia* screening processes adversely affects the investment characteristics of Islamic equity mutual funds in Saudi Arabia, compared to their conventional counterparts.

In addition, investigating the investment characteristics' differences between *Sharia,* and conventional socially responsible investment portfolios, provides empirical evidence as to whether applying different sets of SRI screening criteria influences performance differently. This also provides evidence as to whether Islamic investment portfolios can be marketed to socially responsible investors, who share similar beliefs - excluding certain industries - but have no objection to the level of conventional debt, or to investing in the conventional financial sector.

Furthermore, as pointed out previously, the current practice of the *Sharia* screening process focuses on *Sharia*-impermissible, interest-based activities without incorporating environmental, social and corporate governance into the screening criteria. This is despite the overwhelming incorporation of such issues into the investment selection process, in the current practice of SRI. However, as indicated earlier, there has been a new trend in the *Sharia* screening process - led by Dow Jones, the globally leading indices provider, when they introduced the first Islamic Sustainability Index in 2006. Under this new index, both *Sharia* and sustainability

screening criteria are incorporated in the selection process. The implication of this practical development in terms of the impact of applying such a screening process on the investment characteristics has not yet been tested empirically. Therefore, the study gives new empirical evidence on the impact of incorporating sustainability/socially responsible criteria in the *Sharia* screening process, compared to traditional *Sharia* screening, and conventional socially responsible screening separately.

Moreover, another important dimension of the present study as compared to others is that the investment characteristics of Islamic investment portfolios are examined based on passive indices' portfolios and actively managed mutual funds' portfolios. Using a sample of passive indices' portfolios gives the advantage of purely examining the effect of SRI 'Islamic' screening criteria on the investment's performance, risk and investment style. This is because it isolates the confounding effect of transaction cost, management fees, management skills and differences in investment policy and investment objectives traditionally associated with SRI 'Islamic' mutual fund managers (Sauer, 1997).

By contrast, the advantage of investigating the investment characteristics based on actively managed mutual fund portfolios is to examine whether there are additional costs associated with implementing SRI 'Islamic' screening criteria, which might adversely affect the behaviour of the investment portfolios (Sauer, 1997). Another advantage is to investigate whether the investment characteristics of Islamic portfolios can be influenced by certain management skills, management strategy and/or management practice. Furthermore, the study uses a matched sample approach which improves its robustness, since it allows for direct comparison between different groups of investment portfolios.

Thus, by fulfilling the research aims and objectives, the thesis fills the gap and extends the literature on the Islamic investment portfolios, and thereby to contribute to the body of knowledge and development of Islamic finance.

1.5 Research Methodology and Empirical Models

The present study follows the deductive approach, where the theory and its deduced hypotheses come first and lead the process of data gathering and analysis, in order to either confirm or reject the hypotheses (Bryman and Bell, 2003 and Saunders et al., 2007). The choice of such a research approach is dictated by the nature of the topic, since there is existing literature in the field. Furthermore, a combination of different research designs which provide a framework for the collection and analysis of data are used to strengthen the findings (Bryman, 2001). In particular, the case study research design and the comparative research design have been adopted.

The case study design is employed where the focus is on Islamic equity mutual funds in the Saudi market, and investigating such a market is an object of interest which fulfils the requirement of the case study research design. This is to obtain greater insight and understanding of the investment characteristics of Islamic equity mutual funds in Saudi Arabia - the world's largest home market for Islamic mutual funds industry - which has not so far been investigated rigorously. Also, the comparative research design has been executed by comparing the investment characteristics of Islamic and Islamic socially responsible investment portfolios to conventional and conventional socially responsible investment portfolios. This is to further enhance the validity of the analysis.

The nature of the study requires quantitative methods for data collection and analysis. Historical secondary data on mutual funds' NAV and indices' prices as well as other related economic data were collected from reliable sources. In particular, the study uses a sample of 95 diversified equity mutual funds, both Islamic and conventional, which are managed by different fund managers in Saudi Arabia, and cover various geographical investment focuses. With regards to the market indices, the Global Dow Jones and FTSE Indices family are used with different investment groups, mainly conventional, conventional socially responsible, Islamic and Islamic socially responsible. In addition, the study employs the widely used empirical models in similar studies that have proven their validity. This includes traditional risk-adjusted ratio measures, such as Sharp and Treynor. Also, a single CAPM index model and

Fama and French's multi-index model are used to control for investment style bias, such as size factor and book-to-market factor, as well as the market factor.

1.6 Research Structure

There are nine chapters in the present thesis. The overview of chapter 2 to chapter 9 is as follows:

Chapter 2 briefly touches upon the theoretical background of modern portfolio theory, with particular reference to Markowitz's efficient frontier, Tobin's separation theorem and capital market line. Then, asset pricing models including the capital asset pricing model and its variant models, such as arbitrage pricing theory and multi-index Fama and French model and Carhart model, are illustrated. The mutual funds industry is also discussed including its costs, advantages and disadvantages, different types of mutual funds available, and the managerial skills of mutual funds' managers. The global market trends of mutual fund industry, both conventional and Islamic, as well as in the local Saudi market are presented.

Chapter 3 discusses the background and gives a brief history of SRI and Islamic investments. In this chapter, the fundamentals, screening criteria and approaches employed by socially responsible and Islamic investors are also discussed. The trends, market shares and the drivers for the growth of SRI investment are also illustrated.

Chapter 4 critically reviews the current practice of *Sharia* screening criteria. This includes the credibility; inconsistency; the financial ratios' screening and associated divisor; the earning purification process; the tolerance threshold; social responsibility and *Sharia* supervision. The chapter also gives some recommendations for improving the *Sharia* screening process.

Chapter 5 reviews the literature on the investment characteristics of socially responsible and Islamic investment portfolios in terms of performance, risk, investment style and managerial investment skills. The investment characteristics of both types of restricted investment portfolios, both socially responsible and Islamic,

are presented, based on passive market indices' portfolios and actively managed mutual fund portfolios.

Chapter 6 outlines the research methodology, which includes the research approach, design and strategy, and research methods used for data collection and analysis. In addition, the empirical models used to investigate the investment characteristics in terms of performance, risk and investment style are also discussed at different levels to improve the robustness of the results. The chapter elaborates on the subject of the absolute return model and the risk-adjusted return models, which comprise both the traditional Sharpe and Treynor ratios, as well as both single index and Fama and French multi-index equilibrium models. The rationale and the theoretical background of using such models are also illustrated.

Chapter 7 presents the empirical results of the investment characteristics of Islamic equity mutual funds in Saudi Arabia compared to their conventional counterparts in terms of performance, risk and investment style. This covers a sample of 95 equity mutual funds that invest in different geographical markets, between July 2005 and July 2010 with 61 monthly observations. This is to achieve the primary aim of the chapter by providing empirical evidence on the impact of a *Sharia* screening process on the investment characteristics of Islamic equity mutual funds in Saudi Arabia compared to their conventional counterparts.

Chapter 8 presents the empirical results of the investment characteristics of Islamic investment portfolios compared to their conventional socially responsible counterparts. Furthermore, the empirical findings regarding the investment characteristics of Islamic socially responsible investment portfolios compared to conventional, Islamic and conventional socially responsible investment portfolios are also illustrated. This is based on the Global Dow Jones and FTSE indices family over the period of July 2005 to July 2010, again with 61 monthly observations. This is to fulfil the primary aim of the chapter by comparing the investment characteristics of Islamic and conventional socially responsible investment portfolio, and also to provide empirical evidence on the impact of incorporating the sustainability criteria into the traditional *Sharia* screening process on the investment characteristics.

Chapter 9 provides a summary of the major findings, and also discusses and conceptualizes the findings with the theory and findings of the previous studies. The chapter also provides recommendations and practical implications of the findings. The research limitations and suggestions for areas of further investigation are also highlighted.

Chapter 2

Modern Portfolio Theory, Asset Pricing Models and Mutual Funds Industry: Overview and Theoretical Background

2.1 Introduction

This chapter aims to provide an overview of the theoretical background to modern portfolio theory, asset pricing models and the mutual funds industry. In particular, the chapter discusses the benefits of diversification and shows how efficient portfolios can be constructed. The Markowitz efficient frontier and Tobin's separation theorem are also discussed, as well as illustrating the Capital Market Line and systematic risk. The chapter also touches upon the Capital Asset Pricing Model and its underlying assumptions, as well as criticisms of such a model. The Arbitrage Pricing Theory and Multi-Index Models are also discussed. Furthermore, the chapter illustrates how the mutual funds work, the legislation governing them, and different types of mutual funds available. Also, it illustrates the costs associated with mutual funds, as well as their advantages and disadvantages. The performance and the managerial skills of mutual fund managers are also outlined. The chapter also presents the trends of mutual funds in the global market and also in the local Saudi market. There are four sections to this chapter: section 2.2 explains the modern portfolio theory and asset pricing models, section 2.3 discusses the mutual funds industry and section 2.4 concludes the chapter.

2.2 Modern Portfolio Theory and Asset Pricing Models

This section discusses briefly the modern portfolio theory and asset pricing models respectively.

2.2.1 Modern Portfolio Theory

Markowitz (1952) provides the foundation for modern portfolio theory (MPT). He points out the benefits of diversifying the portfolio among different securities and shows how a well-diversified portfolio can be constructed. He indicates that, while the return of the portfolio simply comes from the average return on its individual assets, the risk of the portfolio does not come from the average variance of the individual

assets in the portfolio. In fact, the co-variances among the assets play a crucial role in determining the risk of the portfolio, irrespective of the variance of the individual assets. Thus, an important element to be considered in the security selection is the co-movement among the chosen securities in the portfolio, in addition to their expected returns. This is because constructing a portfolio with assets that do not move together, or perhaps move in the opposite direction, reduces the volatility of the portfolio and hence, makes the portfolio more resilient to unstable economic conditions.

The MPT shows that diversification leads to risk reduction, as long as the correlation coefficient between the combined assets is less than unity; the lower the correlation, the more the risk reduction. This implies that diversifying the portfolio across companies in the same sector will not have a great risk reduction, as compared to diversification across different sectors, or perhaps even across different asset classes and countries. The ideal diversification can be achieved by constructing a portfolio that consists of assets which are perfectly negatively correlated. This would generate a riskless return, since the included securities would move exactly in the opposite direction. On the other hand, diversifying the portfolio across different securities which have a perfect positive correlation will not add any risk reduction benefit.

In addition, Markowitz (1952) also champions the concept of the mean variance efficient portfolio, defined as one which has the smallest risk for any given level of expected return, or the largest expected return for a given level of risk. Rational investors always seek to invest in mean variance efficient portfolios, because they cannot be dominated by other portfolios on a risk and return basis.

Figure 2.1 illustrates the Markowitz efficient frontier for risky assets. The investment opportunity set that is attainable by investors is represented by the points on the efficient portfolio curve, and points to the right of the curve. All portfolios along the efficient frontier have the maximum return for a given level of risk, or the least amount of risk for a given level of return. Therefore, portfolios that lie on the efficient frontier are superior to portfolios located inside the frontier, because they offer the highest expected return with the same (or lower) risk than all other attainable portfolios. It is worth noting that, although portfolios above the efficient frontier provide superior risk-return tradeoff compared to the portfolios in the efficient

frontier, such portfolios are not feasible since they are beyond the investment opportunity set. Furthermore, as can be seen from Figure 2.1, the slope of the efficient frontier declines as risk increases, in turn implying that the reward for taking a higher risk declines, as risk rises. In other words, at some point, taking on additional risk is rewarded with declining units of additional return.

Figure 2.1 Markowitz Efficient Frontier
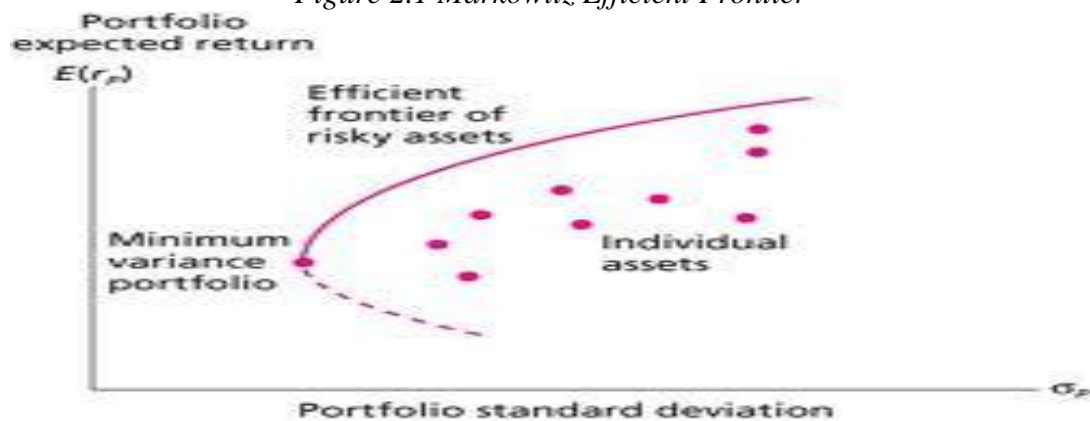
In short, the modern portfolio theory shows how to diversify the portfolio in an efficient way to maximize the expected return for a given level of risk. This is instead of investing in a single asset only, or following a naïve diversification strategy, by simply diversifying the portfolios across different securities in equal proportion.

Furthermore, Tobin (1958) extended the work of Markowitz (1952) by introducing the separation theorem, which shows the influence of considering risk-free assets in the formation of a portfolio. He indicates that all investors will hold a combination of two portfolios, a risk-free asset, and an optimal portfolio of risky assets. The investment opportunity set is expanded by the introduction of the risk-free asset in the investment selection, which also affects the Markowitz efficient frontier of risky assets. This is because, by combining a risk-free asset with a risky portfolio on the efficient frontier, investors can construct portfolios whose risk/return profiles are superior to those of any portfolios on the efficient frontier. It is worth indicating that any combination of risk-free and risky assets will result in a straight line. This is because the standard deviation of a portfolio consisting of both risky assets and a risk-free asset is equal to the linear proportion of the standard deviation of the risky asset portfolio, since, by definition, any risk-free asset has zero risk.

Figure 2.2 shows the Capital Market Line (CML), which starts at a risk-free rate. R_f passes through the market portfolio, which is at the tangent of CML and the efficient frontier of risky assets, and continues onward, defining the new efficient frontier by combining both risk-free and risky assets. As can be seen from Figure 2.2, CML dominates all other attainable assets or portfolios, in terms of risk and return tradeoffs, including those on the efficient frontier curve, which consists only of risky assts. Also, it dominates any other combination between risk-free assets and any other risky asset on the efficient frontier, since portfolios on CML can get a higher return for the same level of risk. Thus, the CML is the optimal capital allocation line, and market portfolio is the optimal risky portfolio that should be held by all investors. Thus, with the addition of a risk-free rate, investors can narrow their selection of risky assets to a single optimal risky portfolio. This concept plays a crucial role in Capital Asset Pricing Models, which will be discussed in the next section.

Figure 2.2 Capital Market Line

CML represents all possible combinations between risk-free assets and the market's optimal, risky portfolio. The proportion of the risk-free asset and risky asset will vary from one investor to another, depending on the risk attitudes of investors. That is, investors who are willing to take higher-than-market risk can earn even higher returns through borrowing at the risk-free rate, whereas the least risk-averse investors would just earn the risk-free rate, by investing solely in risk-free assets. Thus, one can construct several possible combinations of the risk-free asset and the market portfolio (the optimal risky portfolio) depending on the risk tolerance of the investor. The investor could: i) invest entirely in the risk-free asset (at the origin of the line, R_f); ii) invest in both the risk-free asset and in market portfolio proportionally (on the line and somewhere to the left of market portfolio); iii) invest entirely in market portfolio

(on the line and at market portfolio); iv) borrow at the risk-free rate and invest the borrowed money plus the investor's initial wealth in market portfolio (on the line somewhere to the right of market portfolio).

In addition, as an evolving to MPT and CML, Sharpe (1964) indicates that since the unique risk to individual assets - which is part of total risk, can be avoided through diversification, the total risk of an asset is not a relevant influence on its price. In fact, the systematic risk is the particular risk component that should be compensated for, since it cannot be diversified away. Hence, this part of risk should be the only risk that affects the asset's price. Systematic risk is the type of risk that affects the entire market, regardless of the sector or the individual companies involved, and this is why it is also called market risk - or undiversifiable risk. Examples of such types of risk are macro-economic factors, political factors, natural disasters, wars and conflicts, etc. Figure 2.3 illustrates how the total risk in a portfolio decreases towards its systematic risk as the number of assets in the portfolio increases.

Figure 2.3: Risk and Diversification
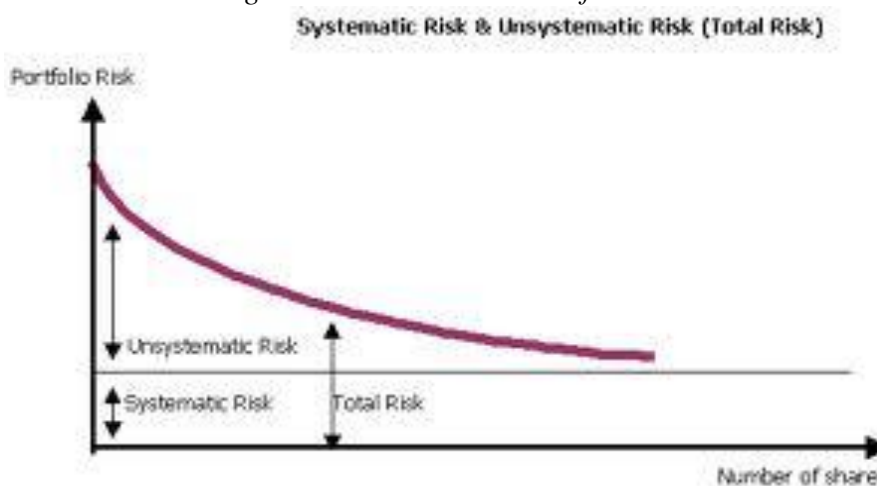
Systematic risk/*beta* is expressed as follows:

$$\beta_{i} = \text{Cov} (R_i, R_m) / \sigma^2_m \tag{2.1}$$

Where β_i is the systematic risk of security i, *Cov* (R_i, R_m) is the covariance between return on the security i, and return on the market portfolio, and σ^2_m is the variance of the market portfolio returns. A completely diversified portfolio will eliminate all unsystematic risk, thus leaving only systematic risk, which is the risk of the market portfolio.

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A portfolio with a *beta* equal to 1 indicates that the volatility of the portfolio generally follows the volatility of the market. In other words, the portfolio's returns generally follow the market's returns. In addition, a *beta* value higher than 1 indicates higher volatility than the market's volatility itself, while a *beta* less than 1 indicates less volatility than the market. A positive *beta* indicates a positive correlation with the market movement, whereas a negative *beta* indicates an inverse relationship with the market movement. For example, utilities stocks tend to be defensive stocks since they have *beta* less than 1, whereas high-tech stocks typically tend to be aggressive stocks and have higher *beta*.

On the other hand, a zero *beta* implies that the volatility of the portfolio is not affected by the market volatility at all and hence, the portfolio's returns change independently of changes in the market's returns. An example of such a type of asset is t-bills risk-free asset. Unlike correlation analysis which shows only the direction of the relationship between two variables, *beta* takes into account both direction and magnitude. For instance, *beta* 1.5 means that if the market goes up by 1%, the portfolio will generally go up by 1.5% and vice versa when the market goes down. Conversely, *beta* -1.5 means that if the market goes up by 1% the portfolio will generally go down by 1.5% and vice versa when the market is down. Thus, the higher the *beta* the more volatile and risky the portfolio and hence, the higher the return should be and vice versa with lower *beta*.

2.2.2 Asset Pricing Models

The Capital Asset Pricing Model (CAPM) is one of the most significant innovations in finance theory that has long shaped the way academics and practitioners think about average returns and risk (Fama and French, 1992). The model was developed independently by Sharpe (1964), Lintner (1965) and Black (1972) and builds on the work of Markowitz on Modern Portfolio Theory (MPT) and the separation theorem of Tobin. Furthermore, the introduction of CAPM allows for the formulating of explicit measures of a portfolio's performance, on the basis of risk and expected return dimensions (Jensen, 1968). As illustrated in Jensen (1968) the equilibrium CAPM is based on the assumption that: (1) all investors are averse to risk, and are single period expected utility of terminal wealth maximizes; (2) all investors have identical decision horizons and homogeneous expectations regarding investment opportunities; (3) all

investors are able to choose among portfolios solely on the basis of expected returns and variance of returns; (4) all transactions' costs and taxes are zero, and (5) all assets are infinitely divisible. The model is constructed as follows:

$$E(R_i) = E(R_f) + \beta_i E(R_m - R_f) \qquad (2.2)$$

Where R_i is the expected return on security i, R_m is the expected return on the market portfolio, R_f is the risk-free interest rate and β_i is the measure of the systematic risk (the slope in the regression of a security's return on the market premium's return). Thus, the Capital Asset Pricing Model (CAPM) implies that: (i) the expected return on any security is a positive linear function of its systematic/market risk; (ii) market β alone is capable of describing the cross-section of expected returns. Thus, the model reduces all forms of risk associated with an asset into just a single factor, beta (β), which measures non-diversifiable risks. Therefore, such type of risk should be compensated for, in that the higher the beta the higher the required rate of return.

The CAPM has been subject to many theoretical and practical criticisms, due to the range of limitations associated with it. Black (1972), Fama and MacBeth (1973), Blume and Friend (1973), Merton (1973) and Dybvig and Ross (1985) highlight the theoretical limitations of the model and its underlying assumptions to represent the real word situation, whereas Ross (1976), Roll (1977) and Roll and Ross (1980) criticize the structure of the model itself and its parameters (market portfolio and *beta*), and they raise doubts in the ability to implement and test such a model. The Arbitrage Pricing Theory (APT) was proposed by Ross (1976) as an alternative asset pricing model to CAPM. Similar to CAPM, APT proposes a linear relationship between expected return and risk. Unlike CAPM, however, APT allows as many risk factors as are relevant to a particular asset. Thus, APT is a multi factor '*beta*' model that is an extension to CAPM (single model). This more complex model is constructed as follows:

$$E(R_i) = E(R_f) + \beta_{i1}\delta_1 + ... + \beta_{iK}\delta_K + \varepsilon_i \qquad i = 1, ..., N \qquad (2.3)$$

Where R_i is the expected return on security i, R_f is the risk-free rate, δ_K are the common risk factors, β_{ik} is the sensitivity of the portfolio (systematic risk) to the common factor δ_K and K is the number of risk factors. Despite the theoretical merits of the APT, the model does not identify any of the risk factors that should be considered by the model. Some studies examined the influence of the macro-

economic factors such as inflation, interest rate, yield curve shifts, oil price, and industrial production level (see, for example, Chen, Roll and Ross, 1986 and Clare and Thomas, 1994). In contrast, other studies investigate factors at the micro-level, such as size effect, leverage, book-to-market equity, earnings-price ratios and short-term return persistence (see, for example, Banz, 1981, Basu, 1983 Bhandari, 1988, Fama and French, 1992 and Jegadeesh and Titman, 1993).

There is empirical evidence that, contrary to the CAPM - which assumes that the *betas* of stock are adequate for explaining the cross-sectional variation in their expected returns - there are factors that also show reliable power to explain the cross-section of average returns of stocks. These documented return pattern anomalies in average returns cannot be explained by the standard CAPM. Banz (1981) finds the size effect (a stock's price multiplied by shares outstanding) that the average return is negatively related to firm size. Basu (1983) meanwhile shows a positive relationship between average return and earnings-price ratios (E/P).

Rosenberg et al. (1985) indicate that the average return is positively related to book-to-market equity ratio (the ratio of a firm's book value of common equity to its market value). Bhandari (1988) shows a positive relationship between average return and leverage. DeBondt and Thaler (1985) document a reversal pattern in long-term returns, whereby stocks with low long-term past returns tend to have higher future returns, but contrastingly, Jegadeesh and Titman (1993) find a continuation pattern of short-term returns, in that stocks with higher returns in the previous twelve months tend to have higher future returns.

Fama and French (1992) investigate the joint roles of market *beta*, and the documented return anomalies such as size, earning/price, leverage, and book-to-market equity in the cross-section of average returns on US stock markets. They find that, contrary to the CAPM, *beta* does not seem to help in explaining the cross-section of average stock returns. Confirming previous studies, they show that size, book-to-market equity, leverage and E/P appear to have a significant role in explaining the cross-sectional average return. Furthermore, they find that the combination of size and book-to-market equity seems to absorb the roles of leverage and E/P in average stock returns. Thus, they conclude that size and book-to-market equity play a significant

role to explain the cross section of stocks' average return. They argue that size and book-to-market equity indeed proxy for sensitivity to common risk factors in stock returns.

Extending their earlier study, Fama and French (1993) indicate that, while size and book-to-market equity explain the differences in average returns across stocks, the difference between the average returns on stocks and one-month bills, 'risk-free rate' is captured by the market factor (market *beta* in CAPM). They show that the three-factor model that includes market, size and book-to-market equity factors seems to capture most of the cross-section of average stock returns. They conclude that their model is a multifactor asset pricing model, superior to the standard CAPM. The model is as follows:

$$E\ (R_i) = E\ (R_f) + \beta_{1i}\ (R_m - R_f) + \beta_{2i}\ SMB + \beta_{3i}\ HML \qquad\qquad (2.4)$$

Where $(R_m - R_f)$ is the market risk premium over risk-free rate, β_i is the *beta* of the portfolio i which measures the market/systematic risk exposure of portfolio i, *SMB* is the difference in return between a small cap portfolio and a large cap portfolio, *HML* is the difference in return between a value stocks portfolio (high book-to-market stocks) and a growth stocks portfolio (low book-to-market stocks). Thus, as illustrated in Fama and French (1996), the model implies that the expected return on a portfolio in excess of the risk-free rate is explained by the sensitivity of its return to three factors: (i) the excess return on a broad market portfolio; (ii) the difference between the return on a portfolio of small stocks and the return on a portfolio of large stocks; and (iii) the difference between the return on a portfolio of high-book-to-market stocks and the return on a portfolio of low-book-to-market stocks.

Fama and French (1996) indicate that, although the three-factor model captures most of the return anomalies documented by earlier studies, it does not explain the continuation pattern of the short-term returns anomaly found by Jegadeesh and Titman (1993). Therefore, the three-factor model was extended by Carhart (1997), who added momentum as the fourth factor to the Fama and French model, to capture the persistence of short-term returns. The model appears as follows:

$$E\ (R_i) = E\ (R_f) + \beta_{1i}\ (R_m - R_f) + \beta_{2i}\ SMB + \beta_{3i}\ HML + \beta_{4i}\ MOM \qquad\qquad (2.5)$$

Where *MOM* is the difference in return between a portfolio of the past 12 months' winners and a portfolio of the past 12 months' losers.

2.3 Mutual Funds Industry

This section gives a brief overview about mutual funds and how they work, and touches on the legislation governing mutual funds. The cost associated with mutual funds is discussed. Then, the section illustrates the advantages and disadvantages of mutual funds, and elaborates upon the different types thereof. The mutual funds' performance and management skills are discussed, and finally, the market trends of global conventional and Islamic mutual funds, and those in the local Saudi market are presented.

2.3.1 Overview

Investors can invest directly in the stock market, building their own portfolios. This requires certain skills and knowledge, as well as a reasonable amount of capital. Alternatively, investors can buy shares in collective investment schemes, such as mutual funds, which pool funding from many investors who want to achieve diversification and professional management for their investment (Bodie et al., 2007). Thus, mutual funds are more suitable for individual investors who lack sufficient capital to diversify their investment portfolios, and also lack the expertise needed for direct investment. Mutual funds issue shares[10] of the fund that are divided into equal portions, and each investor owns a proportion of the mutual fund's investment portfolio, based on his/her initial contribution. In addition, mutual fund managers can invest in a wide range of asset classes such as equities, bonds and money markets, as well as investing in different sectors and perhaps in different countries, depending on the investment policies and objectives. Thus, mutual funds' investors hold a fractional share of many different securities; this is the key idea behind investing in mutual funds.

Furthermore, since shares of mutual funds are not traded on organized exchanges, mutual funds' managers stand ready to redeem the existing, or issue new shares on a continuous basis (Scott, 1991). This is to allow investors who want to withdraw from the fund to liquidate their shares, by selling them back to the fund manager. Also, it allows for new investors to participate in the funds as well as allowing the existing investors to increase their holdings. Thus, mutual funds do not have a fixed number of

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[10] Mutual funds' shares sometimes called units.

shares issued and outstanding. In the case of redemption of shares, mutual funds have to sell assets to raise the cash needed, or keep a level of cash consistent with expected share redemptions. Mutual funds' shares are sold and bought at their net asset value (NAV)[11] which is calculated at the end of each trading day, by subtracting the total market value of the portfolio's underlying securities from total liabilities, divided by the number of shares outstanding (Scott, 1991).

Therefore, the fluctuation of the price of a mutual fund's shares represents the fluctuation of the fund's underlying securities proportionally. In contrast, closed-end funds issue a fixed number of shares that remain outstanding and the shares are traded on organized exchanges. Thus, unlike open-end mutual funds, the shares can be purchased or sold (liquidated) in the secondary market through brokers similar to common stocks, in a regular securities transaction (Cheney and Moses, 1992). Thus, the shares priced of closed-end funds are determined by supply and demand factors, like any other traded stocks and hence, their prices may differ from NAV.

There are three sources of mutual fund returns: paying out of dividends and interest, distribution of realized capital gain and increase in mutual funds' shares (NAVs) (Mandll and Obrlen, 1992). Usually the dividends, interest and realized capital gains generated from the mutual funds are passed on to their shareholders. For example, in the US, mutual funds are required by law to distribute to shareholders any dividends/interest received, as well as distributing capital gains if they sell securities for a profit that can't be offset by a loss[12]. This is in order for mutual funds to avoid taxation for their earnings, and the tax to be collected by mutual fund shareholders rather than the fund itself (Scott, 1991). Thus, similar to direct investing, mutual fund investors are liable to pay tax on both dividends/interest received, and for capital gains distributed.

Mutual funds are gaining more popularity, with their number reaching 69,519, and controlling around US$ 24.7 trillion globally, as of the end of 2010 (Investment Company Institute, 2010). Also, a large number of households have exposure to

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[11] Purchases and redemption may also involve sales charges.
[12] U.S Securities and Exchange Commission official website, access in 2010.

collective investment schemes, for example, 44% of US households (constituting over 90 million investors) have shares in investment companies (Investment Company Institute, 2010). As a result, mutual funds became the third largest financial intermediary in the US, after commercial banks and life insurance companies (Cheney and Moses, 1992).

In addition, mutual funds' legislation has come into force, to protect shareholders' investments and also to protect the interest of the national public, due to the large assets under management as well as the high number of individual subscribers to mutual funds. In particular, after the US market crash of 1929, the US Congress passed the Federal Securities Act of 1933 (Cheney and Moses, 1992). This legislation regulates the primary market by requiring full financial disclosure, as well as full disclosure regarding investment objectives and management policies through a prospectus (Scott, 1991 and Cheney and Moses, 1992). This is to ensure the transparency and full disclosure of the initial public offering.

Subsequently, the Security Exchange Commission (SEC) was created after the Federal Securities Exchange Act of 1934, to regulate and supervise the secondary market. Then, the SEC administrated the Investment Company Act of 1940 and the Investment Advisors Act of 1940 (Scott, 1991 and Cheney and Moses, 1992). The purpose of the legislation is to ensure and promote market transparency as well as market integrity, through requiring mutual funds to be registered with the SEC as a governing body, and also to comply with certain regulations. The legislation covers the procedure used to establish investment policies and the relationships funds have with investment advisors in order to prevent any conflicts of interest in managing funds (Scott, 1991).

Also, the Investment Company Act of 1940 restricts mutual funds in the use of leverage and hence, mutual funds tend to have very few liabilities. Diversification is another important regulatory requirement, which ensures that mutual fund investors have exposure to many issuers. This is by restricting mutual funds to invest in a single security and not to hold more than certain threshold of a single company.

Cheney and Moses (1992) indicate that the main requirements imposed by the Investment Company Act of 1940 to investment companies are as follows:

1)   Provide investors with complete and accurate information;

2)   Refrain from attempting to concentrate control by 'pyramiding' companies or management;

3)   Use sound accounting practices;

4)   Allow shareholders to vote on major organizational or policy changes;

5)   Maintain adequate liquidity and reserves;

6)   Operate in the interest of shareholders;

7)   Ensure that company securities contain adequate provisions to protect the preferences and privileges of shareholders.

The US Investment Company Act of 1940, discussed above, was the first legislation to govern mutual funds' activities. In the UK, mutual funds are called unit trusts, and they are governed by the Financial Service Act (FSA) of 1986, which regulates all financial intermediaries in the UK. Subsequently, in most countries, mutual funds are required to be registered and governed by regulatory bodies - usually SEC - and meet certain requirements to protect shareholders and their investments.

2.3.2 Cost Associated with Mutual Funds

Mutual funds' fee structure is an important aspect that needs to be considered when choosing a mutual fund, alongside the investment policy and past performance. This is because the fee structure has implications on performance and therefore, investors should choose the best combination of fees to suit their investment preferences and time horizon (Bodie et al., 2007). For example, a long-term investor might prefer a one-time load to high annual charges, and vice versa with a short-term investor. The mutual fund costs can be categorized into two main categories: annual operating expenses (known as expense ratio) and initial/redemption shareholders' expenses (known as load fees). Shareholders do not receive an explicit bill for the mutual funds' expenses but the expenses are periodically reduced from the assets of the funds, which thus reduces the value of the portfolio (Bodie et al., 2007). To promote transparency, SEC usually requires all funds to be included in the prospectus in the form of a consolidated expense table that summarizes all relevant fees.

Annual operating expenses, known as the expense ratio, are the ongoing annual management fees that are paid out to fund managers for operating the portfolio. It usually ranges between 1% and 2% per annum[13], as a percentage of the fund's total net asset value, depending on the type of fund (Cheney and Moses, 1992). The operating expenses comprise the management fees incurred by mutual funds for the research team, investment advisors and fund managers. Also, it includes the administrative fees for record-keeping, brokerage fees and customer service as well as the distribution and advertisement fees.[14]

Furthermore, shareholders' expenses, also known as load fees, comprise front-end fees and/or redemption fees. While ongoing annual operating management fees are required by all mutual funds to cover their operational expenses, the one-time load fee is not required by all mutual funds. A front-end fee is a commission or sale charge, that is paid when a mutual fund's shares are purchased, and is usually used to pay the brokers who sell the fund (Bodie et al., 2007). Such a fee is paid as a percentage of the initial investment and hence, it reduces the amount invested. For example, if an investor wants to invest $10,000, and the front-end fee is 5%, he/she will be investing $9,500 only, since $500 will be paid for by the fund managers or his/her broker upfront. Thus, in order for the investor to only cover the initial cost in the first year, the return generated by the mutual fund should be 5.26%, otherwise the investor would incur a loss on his initial investment. Therefore, this type of fee does not seem suitable for short-term investors who want to invest over one year or less unless the market they invest in is highly profitable, otherwise they would not be able to break even.

On the other hand, no-load funds do not charge a front-end fee for sales commission, since their shares are sold directly through the fund managers (Cheney and Moses, 1992). Thus, load fees and brokerage commission can be avoided by investing in a no-load fund.

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[13] In some cases the fees can be higher than 2%.
[14] In the US marketing and selling activities fees which paid from the fund's assets to bring new customers known as 12b-1 fees and it is limited to 1% of a fund's average net assets per year (Bodie et al. 2007). This allows both load and no load funds to charge commissions or other distribution expenses.

Furthermore, some mutual funds charge redemption fees when a shareholder wants to withdraw from the mutual fund and redeem his/her shares, while others might not necessarily require such fees. A redemption fee is a deferred cost which reduces the overall realized return. Typically, mutual funds which impose an exit fee reduce the fee for every year in which the money is kept in the fund (Bodie et al., 2007). Moreover, in order to meet each individual investor's desire, some mutual funds offer classes that represent ownership in the same portfolio of securities, but with different combinations of fees (Bodie et al., 2007). For example, Class A shares might have front-end loads but charge relatively lower operating expenses, whereas Class B shares may apply relatively higher operating expenses but no front-end load is required.

In addition, unlike annual operating costs and shareholders' costs, which mutual funds are required, by law, to disclose in their prospectus and reports, there are some costs that are 'hidden', which might adversely affect the performance of mutual funds. An example of this is the cost of hoarded cash, whereby fund managers need to keep some percentage of the funds' asset, as cash or cash equivalent, to meet withdrawal demand, and also for operational expense purposes. This implies the cost of lost opportunity as a result of not investing such available cash. More importantly, mutual fund managers charge management fees as a percentage of the total net asset value, including hoarded cash. In other words, mutual funds investors not only don't benefit from the hoarded cash, but also pay management expenses for something that is not utilized. This does not seem to be justifiable.

What is more, expenses in soft dollars are another source of hidden cost, where the portfolio manager may earn 'soft dollar' credits with a brokerage firm, by directing the fund's trade to that broker (Bodie et al., 2007). In other words, the mutual fund manager might pay an unnecessarily high commission to the broker to get paid for some of the mutual fund's expenses such as database, computer hardware, etc., which leads to being able to report artificially low operational costs. In addition, high portfolio turnover is another potential source of additional costs. Portfolio turnover indicates how much security trading takes place in the portfolio over a certain period of time, and higher ratios indicate more trading activity by the portfolio manager (Cheney and Moses, 1992). Although the transaction fee cost is unavoidable,

excessive portfolio turnover leads to unnecessarily transaction costs, and might be due to a conflict of interest.

Previous studies investigate the relationship between management fees and a fund's performance, and the bulk of the literature finds a negative relationship between expenses and fund performance. Sharpe (1966) and Elton et al. (1993) indicate that mutual funds with higher management fees tend to underperform against those with lower fees. In addition, Malkiel (1995) and Otten and Bams (2002) find a significant negative relationship between a fund's total expense ratio and its net performance. Similarly, Carhart (1997) shows that costs associated with mutual funds, including expense ratios, transaction costs, and load fees all have a direct and negative impact on performance. Cheney and Moses (1992) state that funds with front-end load fees tend to generate lower returns. In addition, the influence of the fund's turnover on performance has also been investigated. Elton et al. (1993) find an inverse relationship between funds' turnover and performance. That is, the higher turnover is associated with lower net investment returns.

On the other hand, Grinblatt and Titman (1989) find that mutual funds with a higher expense ratio tend to generate higher gross returns, but they fail to provide higher net return. Chen et al. (1992) find significant positive relationships between fund expenses and performance. Wermers (2000) indicate that high turnover funds outperform the passive index fund on a net return basis and therefore he supports the active mutual fund management. However, Ippolito (1989) finds that mutual funds' returns are unrelated to funds' expenses and turnover.

2.3.3 Advantages & Disadvantages of Mutual Funds
There are some advantages and disadvantages associated with investing in mutual funds over direct investment and this is to be discussed next.

2.3.3.1 Advantages of Mutual Funds

Diversification
Mutual funds tend to diversify their holdings into different asset classes and sectors, and perhaps into different countries, depending on the investment objective; this

reduces the overall investment risk. Certainly, such a level of investment diversification cannot be attained by individual investors who lack the capital and expertise needed. Therefore, mutual funds allow individual investors, with the minimum amount required by mutual fund managers, to hold fractional shares of many different securities. Consequently, mutual funds' investors have some exposure to a wide range of opportunities that are available in different asset classes, sectors and/or across borders. For example, the median number of stocks held by US equity funds was 101.15 as of December 2010 (Investment Company Institute, 2010). This implies that in practice, most equity funds in the US are much more highly diversified than required by the regulation. It is worth mentioning that the level of diversification differs from one mutual fund to another, based on the fund's investment objectives. For example, mutual funds that invest globally tend to be more diversified than domestic ones and also, sector-oriented mutual funds tend to be less diversified than the broader funds, which invest across different sectors.

Professional Management

One of the main advantages of investing through mutual funds is professional management. This is because expert fund managers are more likely to make a diligent investment and better-informed investment decisions than individual investors. This is due to the relative ability of professional managers to research, select, time the market and monitor the investment portfolios. Thus, professional fund managers are more likely to provide superior returns compared to individual investors.

Convenience

Although mutual funds' investors have to search for the right mutual funds that suit their needs and generate superior or perhaps competitive returns, they have peace of mind of daily management, and operational investment activities of executing trading. Also, mutual funds' investors do not have to research and monitor the investment, as well as not having to maintain records of their investments, since such activities are done by the fund manager.

Economies of Scale

As a result of trading, selling and buying stocks in high volumes, the transaction costs of brokerage fees and commissions are reduced and this should in turn be reflected in

the performance. Also, the cost of investment research and management is reduced for each individual, since it is spread over a large number of investors in the fund.

2.3.3.2 Disadvantages of Mutual Funds

Additional Cost

Cost associated with mutual fund management is one of the main disadvantages of investing through mutual funds. Such management fees are paid as a percentage of the mutual fund's total net asset value, regardless of whether they make a profit or suffer a loss, which magnifies losses during bear markets. Also, front-end load tends to reduce the overall realized returns (Cheney and Moses, 1992 and Dellva and Olson, 1998). Thus, the additional costs imposed by fund managers sometimes eat into the returns and might lead to underperformance. Jensen (1968) finds that mutual funds, on average, could not earn rates of return that justified the expenses of operating the fund.

Malkiel (1995) investigates the effect of both advisory and non-advisory expense ratios on fund performance, and concludes that investors do not get their money's worth, even from expenditures on investment advice. Grinblatt and Titman (1989) show that investors cannot take advantage of fund managers who possess superior investment ability, since such managers charge more for their skills. In addition, as indicated earlier, the bulk of the literature finds a negative relationship between expenses and fund returns (see for example, Elton et al., 1993, Malkiel, 1995 and Carhart, 1997).

Lack of control

Unlike direct investing, mutual funds investors have no control or influence over the decisions of the mutual funds they invest in. This is because the decision is made discretionarily by the mutual fund's managers. Although this might be an advantage, sometimes investors may want to manage their own tax liabilities more efficiently. Mutual fund investors cannot time the realizations of capital gains and losses on their investment to efficiently manage their own tax liabilities (Bodie et al., 2007).

Less transparency

Mutual funds usually release only the information that is required by regulation and, as such, they do not disclose their portfolio holdings and investment activities on a continuous basis. Thus, unlike direct investing, mutual funds' investors are not fully aware of how and where their money is invested. Of course, a mutual fund's investment decisions should be within the investment objective of the mutual funds. For example, mutual funds' managers in the US have to invest at least 80% of the assets in the type of investment that is suggested by their funds' names[15].

Restrictions on investment

Unlike with direct investment, mutual funds usually have to meet certain regulations and requirements, which restrict their investment portfolios. For example, mutual funds are not allowed to invest more than a certain threshold of the portfolio's total assets in a single security. Also, they are not allowed to hold more than a certain percentage of a company's shares (usually between 5 and 10 per cent). This implies that they might forgo some opportunities by not utilizing mispriced securities, as well as the voting proxy. Furthermore, there is a dilution effect, whereby the more money gets into the mutual funds, the more dilution there is. That is, the more profitable mutual funds might become less profitable as a result of the size of the portfolio, which influences the fund managers to dilute, since he might not be allowed to increase the fund's holding in its existing profitable companies.

2.3.4 Types of Mutual Funds

There is a wide range of mutual funds with different risk and return profiles to suit individual investor's requirements, since investment objectives and risk tolerance differ from one investor to another. To meet the investment objectives of various types of investors, mutual funds' objectives range from highly aggressive to extremely conservative, emphasizing capital protection and liquidity (Scott, 1991). Therefore, investors can choose the funds that best meet their own desired outcomes. For example, risk-averse investors who prefer safety and liquidity may choose money market funds or high quality fixed income funds, whereas investors who are willing to take on more risks to achieve higher expected returns may invest in equity funds.

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[15] U.S Securities and Exchange Commission official website.

Those in the middle can choose the balanced funds. It is worth indicating that mutual funds, by law, must specify the purpose of their funds, and invest within the fund's objective (Mandll and Obrlen, 1992). This section illustrates the most common types of the mutual funds available.

Money Market Funds

These funds typically invest in highly liquid short-term debt instruments, traded in the money markets such as treasury bills, commercial paper and certificate of deposits (CDs). Thus, this is a less risky investment vehicle than other types of mutual funds and hence lower returns can be expected. Money market funds were developed to allow individual investors, even with a small amount, to participate in the money market securities, since most money market instruments require a relatively high minimum investment amount (Mandll and Obrlen, 1992). Moreover, money market funds provide a cash management tool with an interest rate risk almost eliminated, due to investing in short-term, highly liquid securities (Mandll and Obrlen, 1992).

Therefore, money market funds are sometimes perceived as investing in a savings account with a higher expected return, but, unlike savings accounts, the funds are not guaranteed by the Federal Deposit Insurance (Scott, 1991). However, due to the nature of the underlying instruments, it is unlikely that investors will lose the principal, which explains the low returns generated by such investments. With regards to the tax implication, unlike other types of mutual funds, there is no tax associated with the earning generated by money market funds (Bodie et al., 2007).

Fixed Income (Bond) Funds

The objective of this type of mutual fund is to provide a stable income stream for the investors, through investing in fixed-income bond securities, which usually pay interest rates semi-annually. There are two types of risk that should be considered when investing in bonds: credit risks (default risk) of the bond issuer, and the interest

rate risk (Bodie et al., 2007).[16] The former is the ability of the bond issuer to pay the periodic interest and repay the principal upon maturity, whereas the latter represents the volatility of the bond price, due to changes in the interest rate.[17] Therefore, various types of bond funds are available, based on different risk and return profiles. Some bonds funds specialize in high quality bonds, such as government debt securities, whereas others focus on corporate bonds. Of course, the higher the credit risks of the bond issuer, the higher the return. This implies that the yield of any bond from a lower-credit-rated issuer is higher than those of highly-rated ones and hence, the yield of corporate bonds is usually higher than that of government bonds.

Furthermore, while some bond funds specialize by the credit risk of the bond issuer ranging from very safe to junk bond, other bond funds are specialized by the maturity of the securities, ranging from short-term, to intermediate, to long-term (Bodie et al., 2007). Moreover, in order to provide greater diversification as well as exploiting opportunities that are available across the border, global bond funds exist, to provide investments in foreign debt securities, issued by governments and/or companies worldwide. Global bond funds may specialize in particular regions or countries.

Equity Funds

These funds generally invest in the stock markets. There is a wide range of different types of equity funds, based on various investment objectives. *Growth equity funds* focus on capital gains rather than dividend yields, by investing in companies that have the potential to grow; they aim to achieve higher growth in the market price, reflecting higher capital gains. They typically invest in companies with above-average growth in earnings, price-earnings ratios and price-book ratio, and low dividends yields. This implies that growth funds tend to pursue a much more aggressive investment strategy, in turn implying higher risk.

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[16] There are credit ratings agencies that specialize to assess the creditworthiness of the bond issuers ranging from very safe to junk bond.
[17] When interest rates rise, the market value of a debt security will fall and vice versa.

In contrast, *value equity funds* invest in companies that are believed to be traded below their intrinsic value (fundamentally undervalued) hoping and expecting that the value will be realized by others. Unlike growth equity funds, value equity funds typically invest in companies with lower price-book ratio, price-earnings ratio and relatively higher dividend yields. Furthermore, *income equity funds* seek to invest in income-producing companies, with long histories of dividend payments. However, such companies generally have little growth potential in their market price and hence, are less likely to generate high capital gains.

In addition, firm size, such as *large cap fund* and *small cap fund,* is another investment strategy adopted by equity funds. The former focuses on investing in large capitalization companies, whereas the latter seeks to invest in those with small capitalization.[18] Also, some equity funds may specialize (focus their investment) in a particular sector, such as healthcare, technology, utilities, natural resources, etc. Moreover, equity funds have also developed into global equity funds to invest their assets in foreign securities, aiming to achieve greater diversification, and have exposure to opportunities beyond the domestic market. Also, within the international funds category, there are regional funds which invest in certain geographical regions such as Europe, Asia or emerging markets; individual country funds are also popular.

Balanced Funds

These are hybrid funds that provide a complete investment program for shareholders, since the fund's portfolio includes different asset classes such as equities, bonds and money market securities (Cheney and Moses, 1992). The asset allocation differs from fund to fund, to meet individuals' investment needs. While conservative balance funds invest more in fixed-income and money market securities, aggressive balanced funds have a relatively higher proportion in equities. The fund manager can invest directly in different asset classes or, alternatively, he/she may invest in different types of mutual funds (equity, bond and money market), to create a fund-of-funds portfolio; in this case, the fund manager sets up the asset allocation that defines what percentage

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[18] Market capitalization is calculated by multiplying a company's shares outstanding by the current market price of one share. Thus, it represents the total market value of the company.

of the total fund's assets should be invested in each class, and then selects the right mutual fund/funds for each asset class.

Typical mutual funds, discussed above, apply an active management strategy; this is where the fund managers tend to change and adjust the asset allocation of the portfolio and its underlying securities frequently, based on their analysis and expectations. This is done to provide superior performance, by outperforming the passive market index benchmark. However, passive funds were developed as a result of the implication of the efficient market hypothesis (EMH), that the market price reflects all known information and hence, securities are fairly priced (Cheney and Moses, 1992). This implies that active management activities are not rewarding - a notion which is also supported by the bulk of empirical studies, which find that - on average - active mutual funds do not tend to be able to beat the market in the long run (Scott, 1991)[19]. Passive Funds, Index Funds and Exchange Traded Funds (ETFs), are discussed next.

Index Funds

Unlike typical 'active' mutual funds, index funds apply a passive investment strategy, whereby the funds replicate the portfolio of a chosen market index such as the FTSE 100 or the S&P 500, to track the index's movements. In particular, the index fund buys shares in securities included in the chosen index in proportion to each security's representation in that index to mimic the composition of the index. There are various types of index funds, each replicating different types of assets classes such as equity, bond, real estate etc. in both the international and the domestic markets.

In addition, the advantage of index funds is the low operational expenses, when compared to active mutual funds. This is due to the nature of such funds; they are passively managed and therefore do not require active portfolio management, such as security analysis, since a computer simply chooses the stocks to mimic the market index (Mandll and Obrlen, 1992). Also, there is the advantage of limited brokerage commission due to limited portfolio turnover, as a result of pursuing the buy and hold

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[19] This is discussed in section 2.6 below.

strategy. Another advantage associated with index funds is full portfolio transparency in terms of the underlying securities and their proportion in the portfolio, due to replicating a particular index. This is along with the advantage of investing in a well-diversified portfolio with a minimum investment requirement. However, unlike actively-managed mutual funds, investors should not expect to achieve superior returns by outperforming the market index, since they cannot take advantage of miss-priced securities.

Exchange Traded Funds (ETFs)

Similar to index funds, ETFs replicate the composition of a particular index to track its performance, which implies that they are passively managed. Also, similar to index funds, there is a wide range of different types of ETFs, mimicking various types of asset classes. However, unlike index funds and other types of open-ended mutual funds, discussed earlier, the shares of ETFs are traded on organized exchanges. Therefore, they can be sold and bought throughout the day, via brokers, similar to trading listed stocks and this feature is also similar to closed-end funds. Thus, ETFs combine the feature of diversification similar to mutual funds along with the feature of continuous pricing and trading flexibility, like traded stocks. Also, unlike mutual funds, ETFs can be sold short or purchased on margin like any other stocks, again affording more flexibility. In addition, ETFs have the advantage of full portfolio transparency, regarding the portfolio holdings as well as the advantage of limited operation and management expenses, due to the passive management nature, similar to index funds.

However, the main disadvantage of ETFs over mutual funds is that their traded share price may deviate from the net asset values before arbitrage activates resorts equality and even small discrepancies can easily swamp the cost advantage (Bodie et al., 2007). Another disadvantage is that ETFs must be purchased from brokers for a fee whereas mutual funds can be bought at no expense from no-load funds (Bodie et al., 2007).

It is worth indicating that, in addition to the traditional asset classes funds (money market, bond and equity), discussed above, there has been a growing demand for

alternative asset classes funds - such as Real Estate Investment Trust funds (REITs), Commodity funds, Private Equity funds and Hedge funds. These have gained popularity because they exploit opportunities beyond traditional equity and bond securities.

2.3.5 Mutual Funds' Performance and Management Skills[20]

There are numerous studies that investigate whether or not mutual fund managers are able to generate superior returns that outperform the market, and passive buy-and-hold investment strategy. The skills of mutual fund managers are divided into two components: stock selection ability and market timing ability, whereby the former requires micro-forecasting, and the latter macro-forecasting skills (Henriksson and Merton, 1981). In particular, stock selection ability describes the fund managers' skills to anticipate price movements of individual stocks and to identify mispriced securities. In contrast, market timing ability is the skills of fund managers to anticipate the direction of the general stock market movements, and adjusting the composition of their portfolios accordingly (Treynor and Mazuy, 1966). That is to say, if fund managers forecast that the market is going to fall, they shift the composition of the portfolios from more to less volatile securities, and vice versa (Treynor and Mazuy, 1966). If fund managers possess superior investment skills, they will earn abnormal returns, relative to an appropriate benchmark (Kon, 1983).

A large body of literature finds that, contrary to the general belief, mutual funds on average do not seem to provide superior returns, compared to unmanaged market indices' benchmarks or naive buy-and-hold passive strategy. This implies that mutual fund managers do not tend to have superior investment skills, or useful private information to compensate for the information's acquisition costs. Jensen (1968) finds that mutual funds' managers do not appear to be able to predict securities' prices, and thus, they do not provide superior returns, compared to the buy-and-hold strategy. Change and Lewellen (1984) conclude that mutual funds have been unable to collectively outperform a passive investment strategy.

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[20] This section focuses on the early pioneering works in the field during the late1960s and 1990s.

Grinblatt and Titman (1989) indicate that the risk-adjusted gross returns of some funds were significantly positive and hence, abnormal returns may in fact exist. However, they also show that these funds do not exhibit abnormal returns net of expense, and therefore investors cannot take advantage of the superior ability of these portfolio managers. Similarly, Elton et al. (1993) show that mutual fund managers underperform against passive portfolios and hence, they do not seem to earn returns justifying their information acquisition costs. Malkiel (1995) provides evidence that mutual fund managers do not appear to be able to outperform the market, and this holds true after management expenses 'net return', and even gross of expenses. Edelen (1999) controls for cost associated with providing liquidity to investors, and finds that the abnormal return of mutual funds, net of fees and expenses, is essentially zero. Also, Carhart (1997) does not support the existence of skilled or informed mutual fund portfolio managers.

On the other hand, Ippolito (1989) finds that actively managed mutual funds - net of all fees and expenses, except load charges - outperform index funds which follow a buy-and-hold passive investment strategy. Thus, he concludes that mutual funds provide returns superior to the market benchmark, which offset their management expenses. However, Elton et al. (1993) re-examine the sample of Ippolito (1989), and find that the outperformance of mutual funds documented by the study is because the benchmark used does not account for the performance of non-S&P 500 stocks. Therefore, Elton et al. (1993) corrected for the benchmark bias, and find that - similar to previous literature - mutual funds do not tend to provide abnormal returns, compared to the market benchmark.

With regards to the market timing ability of the mutual fund managers, Treynor and Mazuy (1966) find no evidence to prove that mutual fund managers are able to anticipate major changes in the stock markets' movements. Henriksson (1984) finds that mutual funds' managers are not successful market timers. Change and Lewellen (1984) indicate that mutual fund managers do not seem to have either market timing or security selection abilities. By contrast, Kon (1983) shows that at the individual mutual fund level, there is a significant superior timing ability and thus performance. However, fund managers, as a group, have no special information regarding the information of expectations on the returns of the market.

Likewise, socially responsible and Islamic mutual fund managers do not show superior management skills ability.[21] Schroder (2004) and Kreander et al. (2005) indicate that, similar to conventional funds, socially responsible funds do not tend to be successful market timers. Likewise, Elefakhani et al. (2005), Abdullah et al. (2007), Kraeussl and Hayat (2008) and Alkassim (2009) find that, in general, Islamic mutual funds' managers do not seem to possess either superior stock selection or market timing abilities.

It is worth indicating that the results of the bulk of the literature do not imply that mutual fund managers are incompetent or that mutual funds do not offer a financial service. In fact, they provide asset diversification that may not be achieved by individual stakeholders, as well as offering asset investments to meet the specific objectives of various types of investors (Scott, 1991). This is in addition to providing administrative services such as book-keeping and executing trading on behalf of their investors. The findings particularly assist mutual fund managers to reconsider the costs and the benefits of their research, management fees and trading activities (Jensen, 1986). This is to develop future investment strategies for the funds under their management, in order to maximize the investors' returns on the risk undertaken.

The question that arises here is: why do professional mutual fund managers in general do not seem to possess superior investment skills to generate significantly better returns than the passive buy-and-hold investment strategy, despite the additional fees paid for their expertise?

It is argued that the evidence provided by the majority of studies, showing no superior skills in forecasting returns associated with mutual fund managers, is consistent with the Efficient Market Hypothesis (EMH) (Kon, 1983, Scott, 1991, Elton et al., 1993 and Malkiel, 1995). That is to say that informed investors can not generate abnormal returns, since securities' market prices reflect all available information which in turn implies that there is no special information regarding the anticipated market returns (Kon, 1983 and Scott, 1991). As indicated by Henriksson and Merton (1981), "such

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[21] Socially responsible funds and Islamic funds apply certain screening criteria to exclude companies that violate their value systems and beliefs. The screening criteria of both groups of investments as well as their investment characteristics are discussed in greater detail in subsequent chapters.

violation (of EMH), if found, would have far-reaching implications for the theory of finance with respect to optimal portfolio holdings of investors, the equilibrium valuation of securities, and many decisions in corporate finance".

Furthermore, in practice, investing in the stock markets requires incurring transactional costs, and such costs are not captured by unmanaged market benchmarks. For example, if a mutual fund follows exactly the composition of the S&P 500 index portfolio, the fund must generate lower returns, equal to the transaction cost, which are not considered by the index. Wermers (2000) finds that fund managers do possess stock selection skills, but their inability to generate overall superior returns is due to non-stock holdings and the expense of transactional costs. This is consistent with Grinblatt and Titman (1989), who indicate that abnormal returns exist among mutual funds, before considering management fees.

However, Jensen (1968) and Malkiel (1995) provide contrary evidence, in that mutual fund managers do not seem to be able to outperform the market, even gross of expenses (before expenses). Moreover, mutual funds are affected by the need to maintain a degree of liquidity, to meet shareholders' redemptions, which reduces the overall return of the portfolio, compared to unmanaged market indices' benchmarks (Scott, 1991). Edelen (1999) attributes the common finding of inferior performance of mutual funds to the costs of liquidity-motivated trading, to satisfy investors' liquidity demand, rather than a lack of ability of the fund managers.

In addition, Grinblatt and Titman (1989) argue that finding no abnormal net return generated by mutual fund managers is not surprising, from an economic perspective. If mutual fund managers have superior investment talent, they may be able to capture the rents from their talent in the form of higher fees or prerequisites obtained through higher expenses. Scott (1991) argues in favour of mutual fund managers, in that "market efficiency is the result of trading by informed investors, such as mutual fund managers. Their expertise in investment research and trading causes prices to quickly move to their economically correct levels. Therefore, the expertise of individual fund managers cancels out their collective ability to beat the market". Treynor and Mazuy (1966) indicate that mutual fund managers should not be held responsible for failing

to foresee changes in market climate and hence, should not try to outguess the market movements.

2.3.6 Market Trends of Mutual Funds

This section presents the global market trends of conventional and Islamic mutual fund industries respectively. Then, the market trend of mutual funds in the Saudi market is presented separately.

<u>**2.3.6.1 Global Conventional Mutual Funds Market Trend**</u>

This section illustrates the market trend of global conventional mutual funds, in terms of total net asset value and total number of managed funds. The global market share of the top countries/regions is then presented, followed by the composition of global mutual funds, in terms of investment category.

Figures 2.4 and 2.5 show the global mutual funds' market trends, in terms of NAV and number of mutual funds, between 2004 and 2010. It can be seen that the NAV increased from $16,152 billion to $24,698 billion, whereas the number of funds grew from 55,523 to 69,519. Thus, the total number of mutual funds tends to exceed that of listed companies.

Figure 2.4: Worldwide Total Net Assets Value of Mutual Funds between 2004 and 2010 (Figures in Billions of US$)
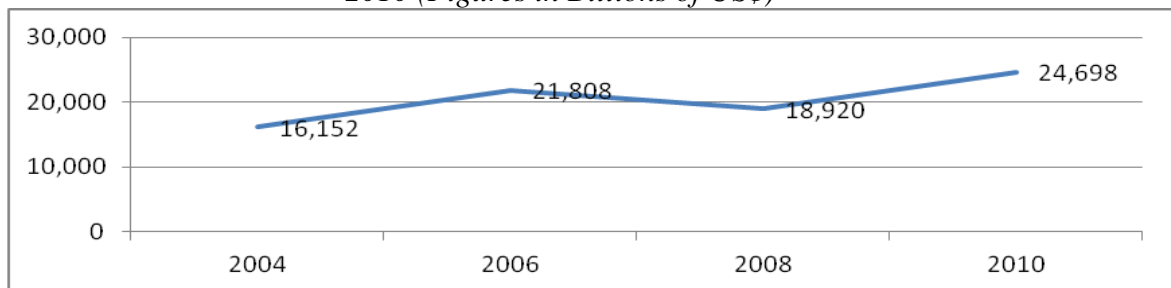
Source: Adopted from Investment Company Institute (ICI, 2010).

Figure 2.5: Worldwide Total Number of Mutual Funds between 2004 and 2010
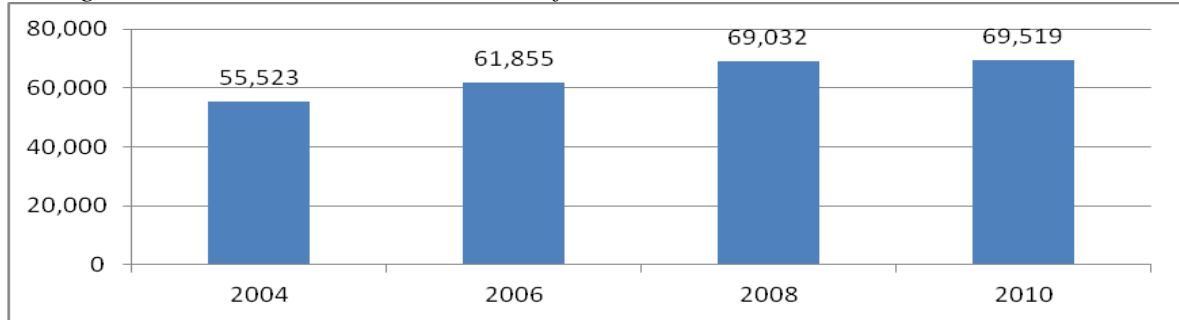
Source: Adopted from Investment Company Institute (ICI, 2010).

Furthermore, it can be seen from Figure 2.6 that the USA and Europe, respectively, control 47.2% and 30.4% of the total worldwide mutual funds' assets under management. This implies that the USA and European markets jointly control more than 77% of the total global mutual funds. Moreover, Brazil, Australia, Japan and Canada also count, combined, for a considerable stake of the global mutual funds industry, representing 5.9%, 5.5%, 3.9% and 3% respectively.

Figure 2.6: Market Share of Top Countries/Regions of Worldwide Investment Fund Assets at the end of 2011 Q2
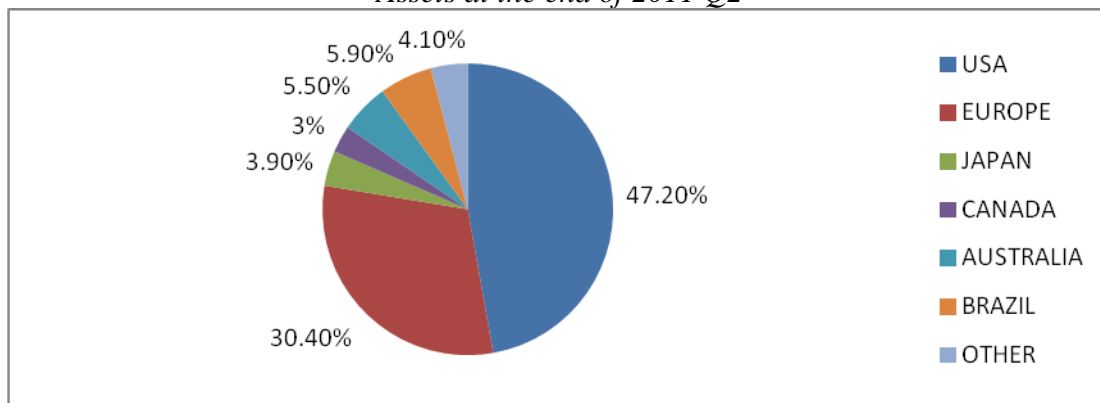
Source: Adopted from European Fund and Asset Management Association (EFAMA), 2011 Q2

In addition, with regards to the composition of the global mutual funds by asset classification, Figure 2.7 illustrates that the global mutual funds market is dominated by equity mutual funds, which account for 39% of the market. Bond mutual funds lie next with 21% of total mutual funds' assets, followed by money market, and balanced mutual funds with 18% and 10% respectively.
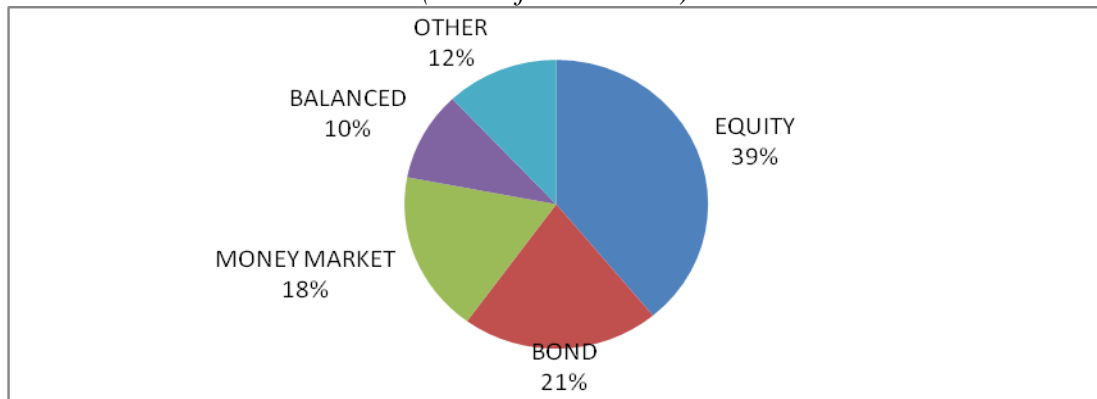
Source: Adopted from European Fund and Asset Management Association (EFAMA), 2011 Q2

2.3.6.2 Global Islamic Mutual Funds Market Trend

This section presents the global market trend of Islamic mutual funds in terms of assets under management. Then, the market share of the top countries in Islamic mutual funds and the composition of the global Islamic mutual funds, in terms of investment category, are illustrated respectively. The trend of average management fees associated with the Islamic mutual funds is also presented.

Figure 2.8 shows that there was a rapid growth in the Islamic mutual funds industry between 2005 and 2010; it increased from $34.1 billion to $58 billion. The figure indicates that - despite the growing interest in Islamic mutual funds – it still only represents around 2% of the total global mutual funds' assets under management. However, this figure is expected to rise, due to the growing population coupled with growing income levels in key Muslim countries (Ernst and Young, 2010).

Figure 2.8: Global Asset under Management of Islamic Mutual Funds between 2005 and 2010 (Figures in Billions of US$)
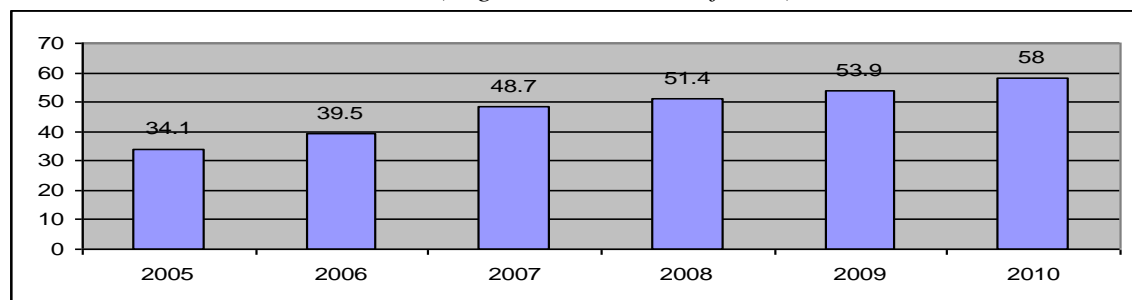
Source: Adopted from Ernst & Young, 2011.

*Figure 2.9: Market Share of the Top Countries/Regions of Global Islamic Investment
Fund Assets by Home Country of Asset Manager Q1 2011 (Figures in Billions of
US$)*
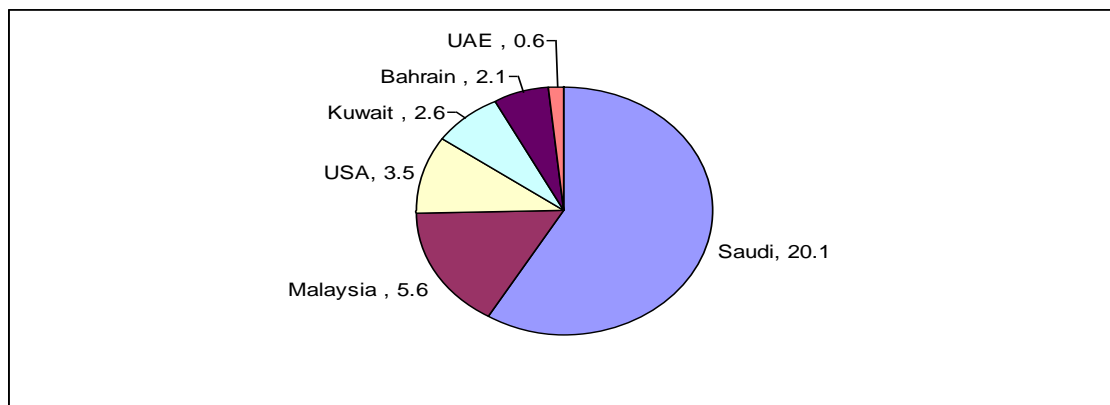
Source: Adopted from Ernst & Young, 2011.

In addition, Figure 2.9 indicates that Saudi Arabia is the world's largest home market
for Islamic mutual funds, controlling $20.1 billion (35% of the global Islamic mutual
funds asset under management). This is followed by Malaysia, USA, Kuwait, Bahrain
and UAE controlling $5.6, $3.5, $2.6, $2.1 and $.6 billions respectively. This shows
that the GCC and Malaysian markets are the leading markets of the global Islamic
mutual funds asset under management that jointly controlling around 50% of the
market share. Also domiciles such as Luxembourg, Ireland, Cayman Islands and
Singapore have attracted Islamic mutual fund managers (Ernst and Young, 2011).

Furthermore, Figure 2.10 shows that equity funds represent the largest share of the
assets under management of Islamic mutual funds, accounting for 39%, followed by
commodities, fixed income and real estate funds representing 15%, 13% and 12%
respectively. Then came money market funds and balanced funds, covering 9% and
2% respectively. Thus, similarly to the global conventional mutual funds, equity funds
represent the largest stake of the mutual funds' assets under management.

However, the global Islamic fixed income funds tend to represent a relatively smaller
proportion of the global Islamic mutual funds' assets under management. This is as
compared to the share of the global conventional fixed income funds in the global
conventional mutual funds' assets under management. This phenomenon might be
attributed to the relative novelty of *Sharia*-compliant fixed income instruments

(*sukuks*) since traditional fixed income bonds are not *Sharia*-compliant. Thus, there is a growth potential for Islamic fixed income funds, as the *sukuks* market develops.

Figure 2.10: Composition of Global Asset under Management of Islamic Funds by Investment categories (% of total assets, 2010)
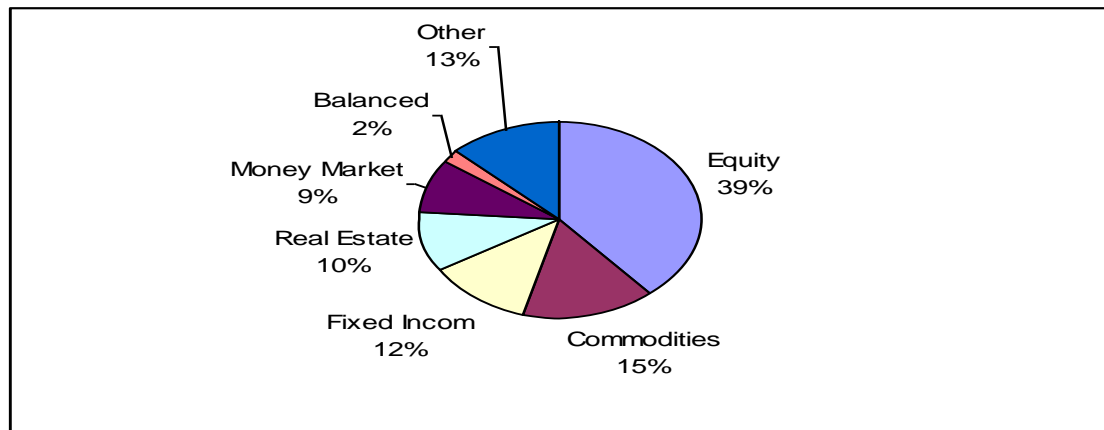
Figure 2.11 shows that there is a downward trend associated with average management fees of Islamic mutual funds; they have decreased from 1.44% in 2007 to 1 % in 2011, to come more into line with global standards. This seems to be due to the competition, as a result of increasing the number of Islamic mutual funds, which in turn has forced the average fees' trend to be a downward one. For example, the number of managed Islamic mutual funds doubled between 2005 and 2011, to reach more than 800 funds (Ernst and Young, 2011).

In addition, according to Ernst and Young (2011), in order for Islamic fund managers to break even, based on an average management fee, at least $100 million is required in assets under management. However, less than 30% of Islamic fund managers have more than $100 million assets under management, which implies that many Islamic mutual funds must consider consolidation or closure, due to cost inefficiency (Ernst and Young, 2011). In fact, the top 10 Islamic mutual fund managers have approximately 80% of the market share (Ernst and Young, 2011).
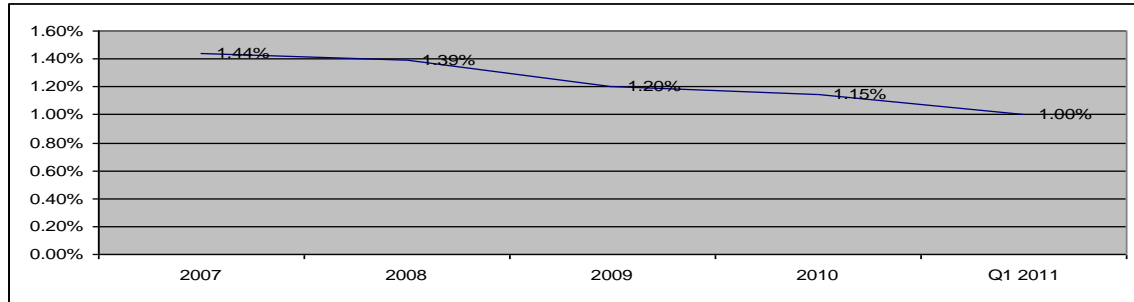
Source: Adopted from Ernst & Young, 2011

2.3.6.3 Saudi Mutual Funds Market Trend[22]

This section presents the trend of the mutual funds industry in Saudi Arabia in terms of total assets under management, total number of managed funds, and the number of mutual funds' investors. The market share and the composition of mutual funds in Saudi Arabia - in terms of investment category and investment region - are also illustrated.

It can be seen from Figure 2.12 that the total assets under management (AuM) of mutual funds in Saudi Arabia increased from $22.5 billion in 2006 to a peak of $28.1 billion in 2007, before dropping by almost 30% in 2008, when they stood at $19.9 billion. Thereafter, the total assets under management increased between 2008 and 2010 to reach $25.2 billion. The figure implies that mutual funds industry in Saudi Arabia represents around 1% of the total global mutual funds' AuM.

Figure 2.12: Trend of Total Asset under Management of Mutual Funds in Saudi Arabia between 2006 and 2010 (Figures in Billions of US$)
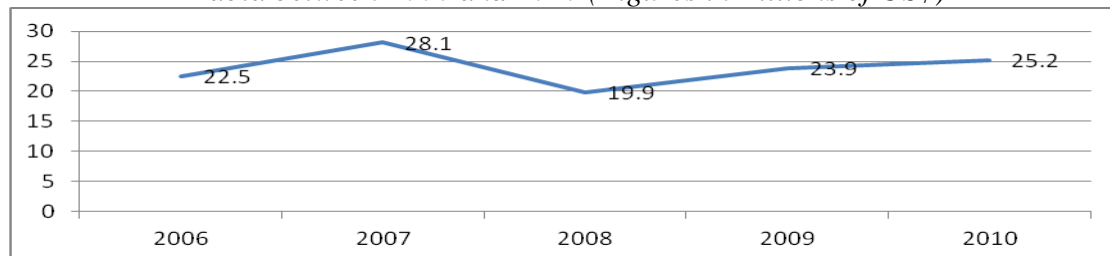
* Note: The figures are adjusted for US$.
Source: Adopted from Saudi Capital Market Authority (CMA) Annual Reports.

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[22] It should be noted that the Saudi Capital Market Authority (CMA) provides overall market trends of the Saudi mutual funds' industry, without segregating the data of Islamic mutual funds from those of conventional ones.

A noticeable remark is that the total ($25.2 billion) AuM of mutual funds in Saudi Arabia is much below the market capitalization of the Saudi stock market and the Saudi GDP which reached $353.4 billion and $434.6 billion respectively, by the end of 2010 (Saudi Capital Market Authority, 2010; The World Bank, 2010). In contrast, the total net assets of US investment companies reached $13.1 trillion, exceeding the market capitalization of the New York Stock Exchange (NYSE) by the end of 2010 (Investment Company Institute, 2010). In fact, the figure is close to the total US market capitalization and US GDP, which reached $17.2 trillion and $14.6 trillion respectively (The World Bank, 2010). Also, Ernst and Young (2010) indicate that at the end of 2008 the percentage of AuM of mutual funds in the Saudi market to deposits is only 9%, whereas in the US and UK it is 133% and 43% respectively. This indicates that potential Saudi investors tend to keep the cash in the banks rather than investing in mutual funds.

Furthermore, it can be seen from Figure 2.13 that there was a gradual increase in the number of mutual funds over the period of 2006 to 2010, growing from 208 to 267. This is despite the volatility in mutual funds' AuM over the same period. However, Figure 2.14 shows that there is a downward trend in the number of mutual funds' investors in Saudi Arabia, declining from 499,399 to 319,823 between 2006 and 2010. This implies that the majority of the Saudi citizens do not participate in the mutual funds, since only a small portion of the total population (27.5 million) participates in the mutual funds, representing less than 1%. In contrast, as indicated earlier, 44% of the households in US have exposure to mutual funds, and the number of mutual funds' investors exceeded 90 million out of a 309 million population by the end of 2010 (Investment Company Institute, 2010; The World Bank, 2010).

Figure 2.13: Trend of Total Number of Mutual Funds in Saudi Arabia between 2006 and 2010
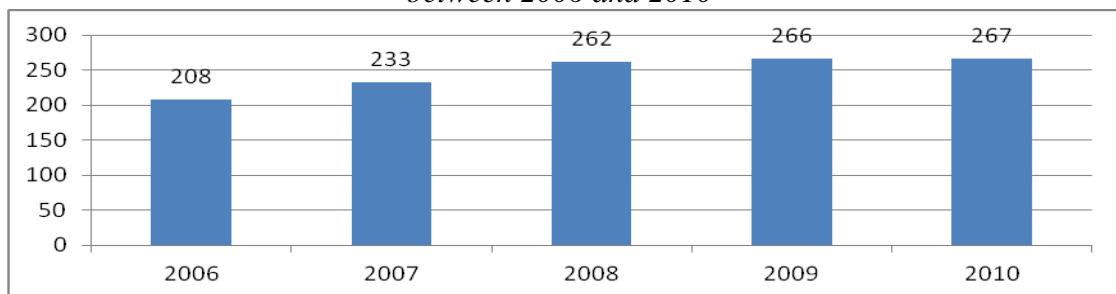
Source: Adopted from Saudi Capital Market Authority (CMA) Annual Reports.

Figure 2.14: The Trend of Number of Investors in Mutual Funds in Saudi Arabia from 2006 to 2010
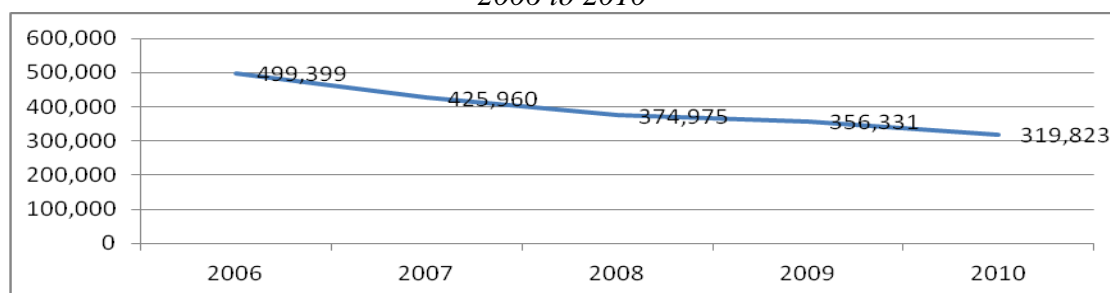
In addition, with regards to the composition of mutual funds in Saudi Arabia, Figure 2.15 shows that the mutual funds in Saudi Arabia are largely dominated by money market/*murabaha* funds, which represent 61.30% of the total funds, followed by equity funds - accounting for 32.70%. Thus, the AuM of mutual funds in Saudi Arabia are concentrated in money market/*murabaha* and equity mutual funds, which jointly control 94% of the industry. Unlike the global mutual funds industry, debt instruments funds and balanced funds represent only an insignificant portion of the market (only .2% and .1% respectively). Also, fund-of-funds, real estate and capital-protected funds account for 2.8%, 1.6% and .4% respectively.

The local debt market, both conventional and Islamic, is still in its infancy, since it was only established in 2006. This might explain the low stake of such an important asset class in the local Saudi market. Also, as indicated earlier, the conventional debt instruments are not *Sharia*-compliant and the alternative global *Sharia*-compliant fixed income market (*sukuks*) is still in its infancy. Another noticeable point is the high market share of the money market/*murabaha* funds, which exceed 60% of mutual funds' AuM in Saudi Arabia, exceeding the percentage even of equity funds. This might be because such funds provide similar features to savings accounts, in terms of safety and liquidity, and Saudi investors seem to prefer to place their money in a savings account, rather than mutual funds, as indicated above.

Figure 2.15: Composition of Mutual Fund Assets in Saudi Arabia by Asset Class, 2010 (% of total assets).
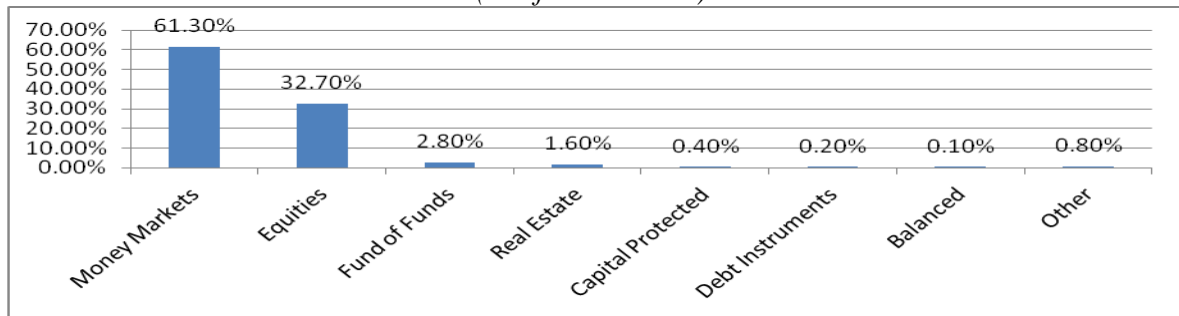
Source: Adopted from Saudi Capital Market Authority (CMA) Annual Reports.

Moreover, Figure 2.16 indicates that investment in equity mutual funds in Saudi Arabia is concentrated in the local equity market, representing 61.6%. In terms of global investment, European funds come first, with 7.1%, followed by GCC funds, with 6.3%, and then US funds and Asian funds, with 3.8% and 3.6% respectively. In fact, the total Saudi mutual funds market is largely dominated by local investment, representing around 80% of the total assets under management, whereas global investment controlled only around 20% by the end of Q1 2010 (Saudi Capital Market Authority, 2010). This shows that there is a significant home bias associated with the AuM of mutual funds in Saudi Arabia despite the small local market compared to the overall global market, and the huge opportunities available in both developed and emerging markets alike.

Figure 2.16 Composition of Equity Mutual Fund Assets in Saudi Arabia by Investment Regions, end of 2010 (% of total assets).
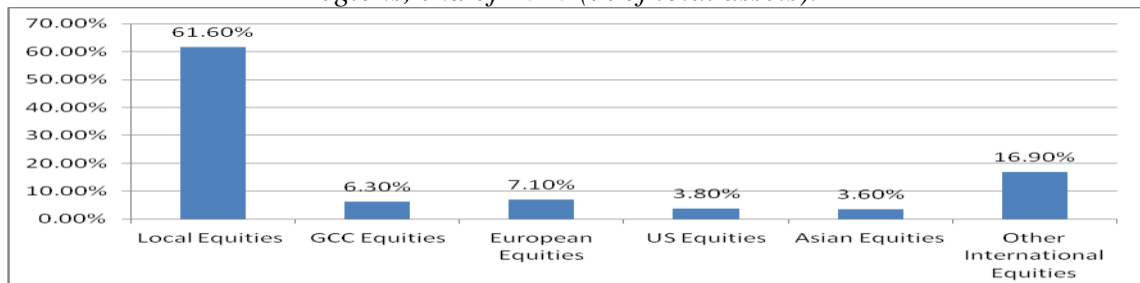
Source: Adopted from Saudi Capital Market Authority (CMA) Annual Reports.

2.4 Conclusion

This chapter provides the theoretical background to modern portfolios, asset pricing models and the mutual fund industry respectively. Modern portfolio theory, developed by Markowitz (1952), emphasizes two main issues. Firstly, it shows that diversification across securities which are not perfectly positively correlated always reduces overall portfolio risk. Secondly, it is the driving force behind the Markowitz efficient frontier, which in turn shows how an efficient portfolio can be constructed. All efficient portfolios lying on the efficient frontier are superior portfolios, since they provide the maximum level of return for a given level of risk, or the minimum amount of risk for a given level of return. Therefore, rational investors will choose portfolios on the efficient frontier, since these cannot be dominated by others. Tobin (1958) extended the work of Markowitz (1952) by introducing the risk-free rate in the investment selection that investors not only consider risky asset but also hold risk-free assets. Combining the risk-free asset with the risky market portfolio generates the new efficient frontier that dominates all other attainable portfolios, either lying on or inside the efficient frontier, which is now called the capital market line, and forms the optimal capital allocation line.

Furthermore, the capital asset pricing model introduced by Sharpe (1964), Lintner (1965) and Black (1972) separately, benefits from the modern portfolio theory and separation theorem, so that the only relevant portfolios are the risk-free rate and the optimal market portfolio, which should be held by all investors. Therefore, they develop a single index model, in which the expected return for a security is a positive linear function of its systematic risk/*beta*, in turn implying that the systematic risk/*beta* is the only risk that should be compensated for, since it cannot be diversified. Due to return anomalies found by later studies, questioning the ability of *beta* to explain all the cross-section of expected returns of securities, the CAPM was extended by Fama and French and later by Carhart to capture such anomalies and improve the average pricing error in single capital asset pricing models. The capital asset pricing models and its extend variants are widely used for evaluation of the performance of investment portfolios.

In addition, mutual funds are gaining more popularity, managing around US$24.7 trillion globally by the end of 2010, with a large number of households having some sort of exposure to the mutual funds. There are different types of mutual funds offered to suit various risk/return profiles of different investors, including money markets, fixed income (bonds) and equities with different investment styles. Besides, passive funds which do not require managerial involvement, such as index funds and exchange traded funds, have also gained popularity. Mutual funds have the advantage of diversification, professional management, convenience and economies of scale. However, the disadvantages associated with them are the additional costs, lack of control, decreased transparency, and restrictions on investment. Finally, despite the popularity of Islamic finance including mutual funds, Islamic mutual funds account for only an insignificant portion, around 2%, of the global mutual funds' assets under management.

Chapter 3

Socially Responsible and Islamic Investments:
Fundamentals, Screening Process and Market Trends

3.1 Introduction

This chapter aims to provide an overview regarding two growing types of investments, socially responsible and Islamic. The chapter starts by discussing the screening approaches adopted by socially responsible investors. These include, among others, a negative and positive screening approach, whereby the former strategy aims to exclude particular companies/sectors for their violation of SRI principles, whereas the latter implies investing in companies that support SRI and ethical investment practices, including best-in-class. The engagement approach is a proactive SRI approach that requires dialogue with companies' management through using shareholder advocacy by filing and co-filing shareholder resolutions for SRI practices, or voting against unethical practices. This approach has been vastly dominated by institutional investors. The community investing approach is another growing segment of SRI that support the local community and underserved people. The market trends of SRI is also presented with a particular focus on the US and Europe, since these contain the largest markets for SRI.

In addition, the fundamentals of Islamic finance are illustrated with particular reference to the prohibition of *riba*, *gharar* and *Sharia*-unethical businesses. *Sharia* investment screening process and its two screening stages are also discussed. The first stage is the qualitative sector screening to exclude sectors/companies that violate *Sharia* principles. The quantitative financial ratios make up the second screening stage in order to exclude companies that have high exposure to interest-based activities and/or impermissible income exceeding *Sharia*-tolerated level. The chapter is organized as follows: section 3.2 discusses SRI; section 3.3 illustrates Islamic investments; section 3.4 concludes the chapter.

3.2 Socially Responsible Investments (SRI)

The concept of SRI started with religious groups hundreds of years ago, to avoid investing in sin industries such as alcohol, tobacco, gambling and arms industry (Sauer, 1997; Kinder & Domini, 1997). In particular, in the early 1900s, the Methodist Church of the United Kingdom began to exclude sin stocks and subsequently, churches in the United States and Europe respectively played an important role for spreading the concept of SRI to such markets (White, 2005; Louche and Lydenberg, 2006). Despite the fact that SRI originated with religious groups, modern SRI activities started during the activist political climate in the 1960s and 1970s (Statman, 2005; Baure et al., 2005). These decades are considered as a significant turning point for the current practice of SRI. This is because this period witnessed the rise of human rights, anti-war activism against the Vietnam War, opposition to apartheid in South Africa, increasing awareness of environment protection and also, employees' unions became more involved and active (Hamilton et al. 1993; Saur, 1997; Statman, 2005; White, 2005).

During the late 1980s and early 1990s, the concept of SRI evolved and continued to grow. Instead of applying only negative screening criteria to exclude sin industries, positive screening criteria were also used (Saur, 1997; Hamilton et al., 1993; Statman, 2005). This approach would involve investing in companies that use alternative energy sources, support the community, have a good record in equal employment opportunity, adopt corporate governance practice, etc. More recently, the concept of SRI has been further developed and broadened by the entrance of mainstream institutional investors using the best-in-class and engagement approaches rather than just applying traditional exclusion and inclusion criteria.

Thus, SRI is no longer considered as a niche market for religious groups only, since it has been also adopted and largely dominated by mainstream institutional investors (USSIF, 2010; EUROSIF, 2010). Consequently, different SRI indices with a variety of SRI approaches were introduced by internationally recognized indices' providers such as FTSE and Dow Jones. This was done to meet the growing demand for these types of investments, and in recognition of the acceptability of the SRI industry by mainstream investors (White, 2005; Louche and Lydenberg, 2006).

As a result, the SRI market has witnessed tremendous growth in recent decades, controlling €7,594 billion of global assets under management, with SRI being largely dominated by mainstream institutional investors (EUROSIF, 2010; USSIF, 2010). The rest of the section is organized as follows: section 3.2.1 discusses the fundamentals and screening criteria of SRI; section 3.2.2 elaborates upon the growth and market share of SRI; section 3.3.3 illustrates the drivers for the growth and market share of SRI.

3.2.1 Fundamentals and Screening Criteria of Socially Responsible Investment

Although the concept of SRI started with religious groups avoiding investing in sin industries, as indicated earlier, there is no clear definition of the current practice of SRI. In fact, the definition of SRI is too broad and can vary greatly, because SRI criteria seem to be subjective and controversial, since they rely on individuals' values and beliefs, rather than agreed upon criteria (Hamilton et al., 2003). While one criterion is acceptable by one socially responsible investor, it might not be acceptable, or totally ignored by another. For example, some socially responsible investors consider the ethical aspects of the investment, whereas others emphasize the environmental issues. Therefore, socially responsible investors should consider all the available SRI products or approaches, to find which fits best with their philosophy, as well as their risk and return requirements.

Nevertheless, it is generally accepted that SRI combines investors' financial objectives with their concerns about social, environmental, ethical and/or corporate governance issues.[23] Clearly, the concept of SRI has significantly evolved and broadened from only excluding sin stocks, to cover one or more of the four elements indicated above. There are four main approaches/strategies that are used for SRI; these include screening, best-in-class, engagement and community investing.[24] These approaches can be used in a combination, or individually. A brief description of the major SRI approaches/strategies follows.

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[23] See US, UK, EUROPE Social Investment Forum Official websites (access October, 2010).
[24] See US, UK, EUROPE Social Investment Forum Official websites (access October, 2010).

Screening Approach

There are two main methods for SRI screening criteria, negative and positive criteria. Negative screening criteria describe a traditional SRI approach that excludes certain sectors/companies, which do not meet social, environment or ethical standards, from the SRI portfolios (UKSIF, 2007). Such a screening method was used solely by the earlier 'religious' socially responsible investors to avoid sin stocks, such as tobacco, alcohol, gambling, etc. In contrast, positive screening has also been adopted by socially responsible investors to invest in companies with a commitment to socially responsible business practices, for example, those which support the environment, social, community and/or corporate governance practice (UKSIF, 2007). This is to invest in profitable companies that also make positive contributions to society, such as companies that use alternative energy sources, contribute to the control of pollution, have equal employment opportunities, have good employee relations, etc. (USSIF, 2010).

In fact, socially responsible investors tend to use a combination of both negative and positive screening criteria rather than just using a single method (Hamilton et al., 1993; Saure, 1997). Thus, it is a common mistake to assume that SRI screening is simply exclusionary, and only involves negative screening (USSIF, 2010). The screening approach also known as 'ESG' or 'SEE' incorporation – which stand for 'environmental, social and corporate governance' and 'social, environmental and ethical' respectively – is sometimes used. Currently, there are specialized 'thematic' SRI mutual funds that apply positive screening to invest in a particular positive industry, for example, a fund that focuses on environmental technology (UKSIF, 2007; EUROSIF, 2010).

It should be noted that SRI screening criteria, negative and positive, vary from one socially responsible investor to another, since there is no consensus on a fixed set of negative/positive screening criteria (UKSIF, 2007). In fact, each socially responsible investor can set his/her own negative and positive criteria that fulfil their beliefs and concerns. For example, some socially responsible investors may screen out a tobacco company from their investment portfolios, since it is against their religion or belief. In contrast, other socially responsible investors might invest in a tobacco company because it has equal employment opportunities or supports the local community.

The Best-in-Class Approach

While a screening approach might screen out certain sectors/companies, the best-in-class approach is used to select the companies that are best in their sectors, in terms of financial performance, environment, social and corporate governors. This is regardless of the sector that the companies are involved in. In particular, the best-in-class approach concentrates equally on three elements (economic, environmental and social criteria) without excluding certain sectors.[25] For example, an oil company can be screened in if it has shown a distinguished record in terms of financial, environmental and social performance, when compared to its peers (UKSIF, 2007). The concept of the best-in-class approach has been adopted by mainstream indices' providers, such as Dow Jones which launched the Dow Jones Sustainable Index (DJSI) in 1999. Subsequently, other sustainability indices have also adopted the best-in-class approach to meet the growing demand for such type of market benchmarks (White, 2005).

The best-in-class approach aims to achieve an industry weighting, which approximates the weighting of the relevant conventional benchmark index, since it does not totally exclude certain industries (Fowler and Hope, 2007). For example, the Dow Jones Sustainability Index world (DJSI) and the Dow Jones Sustainability Index Europe (DJSISTOXX) both select top 10% and top 20% in each sector, from their broader conventional indices the DJI and the DJSTOXX respectively.[26] This ensures that each sector will be represented in the SRI index. As a result, unlike other SRI approaches, the best-in-class approach does not seem to be biased towards certain sectors or small companies. This is because each sector will be represented in the index, coupled with the fact that the best-in-class companies tend to be large in nature (Vermeir et al., 2005). Thus, it is argued that the best-in-class approach is about creating long-term value and managing the investment risk, rather than a set of ethical beliefs.

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[25] Dow Jones Sustainability Indexes Official Website (access December 2010).
[26] Dow Jones Sustainability Indexes Official Website (access December 2010).

Engagement Approach (or Shareholder Advocacy)

Unlike the screening and the best-in-class approaches, the engagement approach does not require certain criteria for inclusion or exclusion companies from SRI portfolios. Rather, it influences the companies to adopt environmentally, socially, ethically and/or corporate governance practice, by opening dialogue with senior management or using shareholder advocacy through a voting proxy (UKSIF, 2007). In particular, shareholder advocacy involves socially responsible investors who take an active role as the owners of stock in a corporation, by filing and co-filing shareholder resolutions on SRI business practice topics. Then, shareholder resolutions are presented, as a vote, to all owners of a corporation and such action in turn puts pressure on company management, often gets media attention and educates the public on SRI issues (USSIF, 2010). Also, different fund managers may engage in different SRI issues, operating either unilaterally or in collaboration with other managers, for example, through the institution investors' groups on climate change (UKSIF, 2007).

An engagement approach can either be combined with the exclusion/inclusion screening approach, or used on its own. Socially responsible investors who only adopt the engagement approach do not choose companies based on predetermined criteria, other than financial performance. Therefore, applying the engagement approach on its own, as an SRI approach, does not tend to affect the investment universe, the investment strategy or the investment practice and decisions (such as asset allocation, stock selection, level of diversification or any other strategic or tactical investment decision). Such an approach has been adopted by large mutual funds and mainstream institutional investors, especially pension funds, and many of the socially responsible pension funds tend to concentrate solely on this approach (UKSIF, 2007; USSIF, 2010; EUROSIF, 2010). This might be because this SRI approach allows mainstream institutional investors to adopt socially responsible practice, while in the meantime their investment universe and choice are not affected.

In addition, the adoption of pension funds in Europe (including UK) to SRI practice seems to be also driven by legislation which requires pension funds to show more transparency on SRI issues associated with their investment (UKSIF, 2007). This is despite not obliging pension funds' trustees to adopt responsible investment policies. For example, under the 1995 UK Pensions Act, occupational and stakeholder

pensions are required to have a 'Statement of Investment Principles', which must in turn be made available to members on request and must set out the scheme's approach to disclose ethical and SRI issues (UKSIF, 2007). Also, pension funds in other European countries are required by regulation to disclose the socially responsible attitudes and action of their investment to their clients (EUROSIF, 2010).

According to USSIF (2010), from 2008 through to 2010, more than 200 institutions, including public funds, labour funds, religious investors, foundations and endowments and investment management firms, filed or co-filed proposals that support SRI practices. These institutions and money managers collectively controlled $1.5 trillion in assets at the end of 2009. In contrast, in Europe, the engagement approach represents €1.514 trillion of the total managed assets in 2009, with the UK being the leader, followed by the Netherlands and the Nordic countries (EUROSIF, 2010).

Community Investing Approach (Community Development Finance)
Unlike other SRI approaches where it involves investing in stock markets (or companies), community investing pools capital from investors and lenders to provide access to basic banking products to local communities, underserved by traditional financial services (UKSIF, 2007; USSIF, 2010). It includes community development banks, community development credit unions, community development loan funds and community development venture capital funds (USSIF, 2010). Thus, community investing aims to support local communities by financing housing, healthcare, small business creation, development of communities' facilities and the empowerment of women and minorities, creating local jobs and also providing the required training and expertise for such groups to enable them to succeed and return the loan (USSIF, 2010).

It is worth emphasizing that community investing is not a charity, but rather, it is an investment strategy used by socially responsible investors to get competitive returns on their investment and in the meantime, helping the underserved communities (USSIF, 2010). In addition, community investing is the fastest growing area of SRI in the US that grew from a few billion in 1995 to more than $41 billion in 2010 (USSIF,

2010). In Europe, although the figure of community investing is much below that of US, it still counted for almost €1 billion in 2009 (EUROSIF, 2010).

In addition, it should be noted that European Social Investment Forum (EUROSIF) further classifies SRI strategies into two main approaches, Core SRI and Broad SRI. Core SRI includes negative screening in more than two criteria, whereas positive screening includes best-in-class and thematic approaches. In contrast, Broad SRI consists of engagement, simple exclusion up to two criteria, and integration approaches. They define an integration approach as one in which investors consider environmental, social and governance (ESG) risk into traditional financial analysis.

3.2.2 Growth and Market Share of Socially Responsible Investment

As pointed out, SRI enjoyed a massive growth in market share with total global SRI counting for €7,594 billion, led mainly by the European and US markets - with €4,986 billion and $3,069 billion respectively (EUROSIF, 2010; USSIF, 2010). Also, recently, SRI has gained popularity in other countries such as Canada, Australia and Japan counting for CND609.2, AUD93 and JPY579 billion in those countries, respectively (EUROSIF, 2010). This section illustrates the growth and market shares of SRI in US and Europe, since they are the major markets for SRI.

US SRI Market

US SRI counted for $3.07 trillion in 2010, which reflects the fact that more than 12% of the total $25.2 trillion assets under professional management in the US apply one or more SRI approach (USSIF, 2010). This implies that nearly one out of every eight dollars invested in the US is involved in SRI.

Table 3.1: US SRI Market between 1995 and 2010 (Figures in $Billions)

SRI Approach	2010	2007	2005	2003	2001	1999	1997	1995
Social Screening (ESG incorporation)	$2,512	$2,098	$1,685	$2,143	$2,010	$1,497	$529	$162
Shareholder Advocacy	$1,497	$739	$703	$448	$897	$922	$736	$473
Community Investing	$41.7	$25	$20	$14	$8	$5	$4	$4
Overlapping Strategies*	($981)	($151)	($117)	($441)	($592)	($265)	($84)	N/A
Total	**$3,069**	**$2,711**	**$2,290**	**$2,164**	**$2,323**	**$2,159**	**$1,185**	**$639**

* Overlapping assets involved in some combination of ESG incorporation, filing shareholder resolutions or community investing, are subtracted to avoid potential effects of double counting.
Source: USSIF, 2010

Table 3.1 shows several important things. Firstly, it can be seen that there was tremendous growth in the US SRI market, between 1995 and 2010, increasing from $693 billion in 1995 to $3.069 trillion. Over the period from 2007 to 2010, US SRI grow by almost 13%, from $2,711 trillion to $3,069 trillion, in a period when broad market indices, such as the S&P 500, declined, and the broader universe of professionally managed assets increased by less than 1% (USSIF, 2010). Secondly, in terms of SRI approaches, the total $3.069 trillion in the US is made up of social screening - counting for $2,512 trillion - shareholder advocacy, with $1.497 trillion, and finally community investing approach, controlling only $41.7 billion. Note that the overlapping strategies ($981 billion) should be subtracted.

Thirdly, while the social screening approach dominates the US SRI market, shareholders' advocacy and community investing recently has gained acceptance and became the fastest growing segment in the US SRI market. In addition, that market is largely dominated by institutional investors, since they invest $2.3 trillion out of the total $3.069 trillion - controlling around 75% of total US SRI (USFIF, 2010). This figure consists of $2.03 trillion from the ESG screening approach, $858.8 billion shareholders' advocacy, and $586.2 billion multiple strategies shared between screening, shareholder advocacy and community investing (USFIF, 2010).

Table 3.2: Figures of US Socially Responsible Funds Incorporating ESG Screening from 1995 to 2010 (NAV Figures in Billions)

	2010	**2007**	**2005**	**2003**	**2001**	**1999**	**1997**	**1995**
Number	493	260	201	200	181	168	144	55
NAV	$569	$202	$179	$151	$136	$154	$96	$12

Source: USSIF, 2010

It can be seen from Table 3.2 that the US socially responsible funds' industry increased dramatically between 1995 and 2010, in terms of both total NAV and number of funds. The total NAV of US socially responsible funds rose from only $12 billion with 55 funds to $569 billion with 493 funds, over the period of 1995 to 2010. This figure consists of all different types of investment funds, including mutual funds, closed-end funds, exchange-traded funds, alternative investment funds and other types of pooled products (USSIF, 2010). Also, it can be seen that there was a sharp growth in the industry between 2007 and 2010. It rose from 260 funds with $202 billion NAV, to 493 funds with $569 billion NAV in 2010, reflecting a growth rate of 90% and 182% in terms of number of funds and NAV respectively. In addition, the figure implies that the total NAV of socially responsible funds only counts for less than 19% of the total $3.069 trillion US SRI market. This seems to be as a result of the fact that the US SRI market is driven by institutional investors rather than retail investors as indicated earlier.

European Socially Responsible Investment Market

Similar to the US market, the European market enjoyed a rapid increase in SRI with a significant growth in market share. In 2009 the total European SRI assets under management reached €5 trillion out of the €10.7 trillion European assets management industry total (EUROSIF, 2010). Furthermore, in terms of European countries, the UK, France and the Netherlands are the largest markets in core European SRI, whereas Italy, France and the Netherlands are the fastest-growing (EUROSIF, 2010).

Table 3.3: European SRI Market between 2002 and 2009 (Figures in Billions)

SRI Approach	2009	2007	2005	2002
Core SRI	€ 1,200	€ 511.7	€ 105	€ 34
Broad SRI	€ 3,800	€ 2,153.7	€ 928	€ 302
Total SRI	€ 5,000	€ 2,665.4	€ 1,033	€ 336

Source: EUROSIF, 2010

According to Table 3.3, there was a rapid growth in the European SRI - increasing from only €336 billion in 2002 to €5,000 billion in 2009. In addition, similarly to the US SRI, the table shows the resilience of European SRI during the recent financial crisis, since it increased from €2,665 to €5,000, implying more than 85% growth over the two years between 2007 and 2009.[27] This shows a sharp contrast to the 8.4 % increase in total European asset management industry between 2008 and 2009 (EUROSIF, 2010). Furthermore, the total €5,000 billion of European SRI is made up of €1,200 billion core SRI and €3.800 billion broad SRI. This indicates that the European SRI market is significantly dominated by the broad SRI approach, which counts for 76% of the total, whereas the core approach counts only for 24%. It should be noted that the share of core and broad SRI approaches in Europe varies greatly from one European country to another. For example, Austria, Germany and Switzerland have the largest share of core SRI, whereas Italy, France, and the UK have the largest share of broad SRI (EUROSIF, 2010).

In addition, Figure 3.1 illustrates the main strategies applied by core and broad European SRI approaches. Core European SRI is dominated by an ethical exclusion approach, which counts for €868 billion (almost 77%) of the total core European SRI, followed by the best-in-class approach with €148 billion. Theme funds and other positive screens count for €35 billion and €145 billion respectively. In terms of the broad European SRI approach, it can be seen that all are higher than any core approach, and also, engagement and integration are much higher than core approaches as a whole. Integration is the highest SRI approach, counting for €2,828 billion,

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[27] EUROSIF (2010) attributes the high growth in European SRI especially broad approach due to the adopting of integration strategies and screening of specific criteria such as climate change by large asset owners.

followed by engagement with €1,514 billion, and finally simple exclusion SRI with €986 billion.

Figure 3.1: European SRI Approaches (Figures in €Billions)*
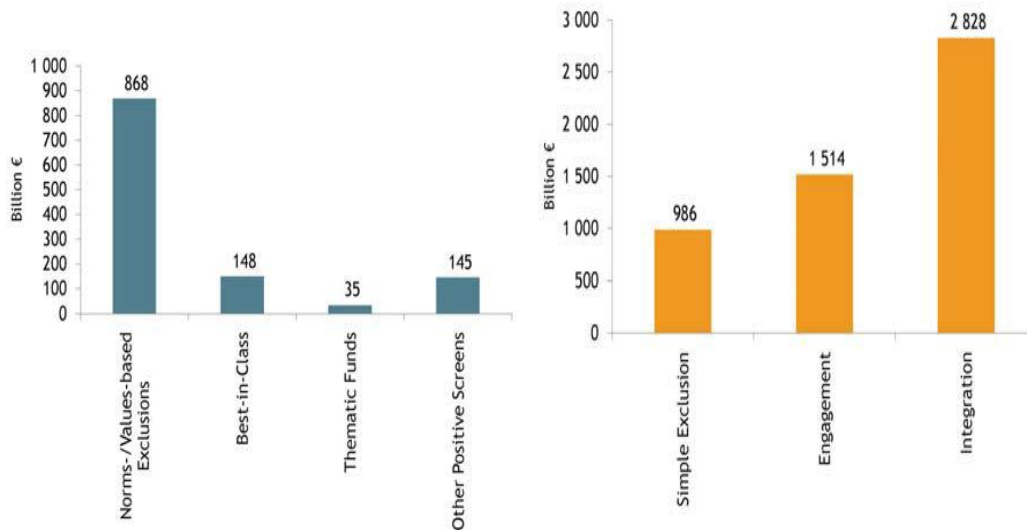
* Note, the figure does not add up to the total figure in Table 3.3 indicated above because the overlapping assets were controlled for (subtracted) from the total €5000 billion figure in the Table. Source: EUROSIF(2010).

Figure 3.2: Types of European Institutional Investors and their SRI Market Share
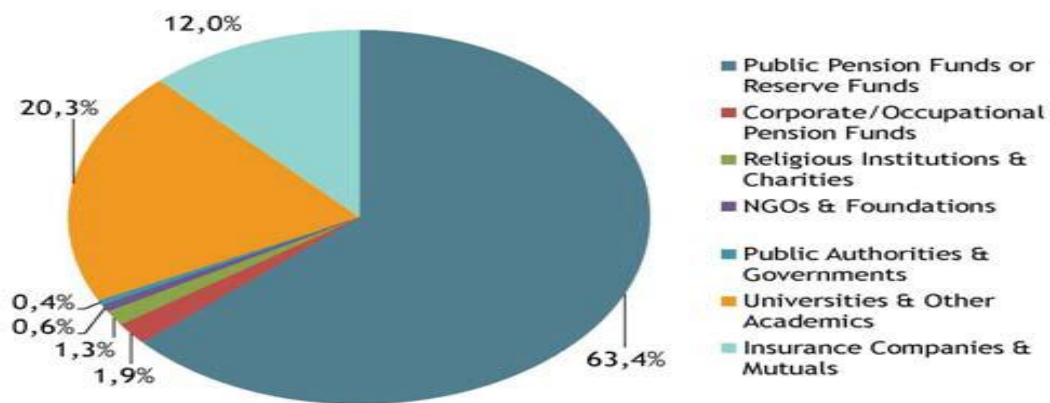
Source: EUROSIF (2010)

Furthermore, Figure 3.2 shows the main types of European institutional investors and their SRI market share, by volume of SRI assets. It can be seen that the largest player is the public pension fund which counts for 63.4% of the total SRI of European institutional investors, followed by universities and other academics - with 20.3% - and then insurance companies and mutual funds with 12%. Also, the figure indicates that corporate/occupational pension funds, religious institutions & charities and public authorities control only 1.9%, 1.3% and .4% of the total SRI of European institutional investors respectively. This shows that religious institutions accounts for only a negligible portion of the total European SRI market, which implies a shift of the SRI market towards mainstream institutional investors.

3.2.3 Drivers for Growth and Market Share of SRI

There seem to be six main causes of the high growth in the market share of SRI. First, there has been a demand increase for SRI, as a result of increased public awareness of the negative impact (of ignoring SRI) on the environment, such as global warming and climate change (EUROSIF, 2010). Equally important are recent corporate scandals such as Enron, Tyco, WorldCom, which have also increased awareness, in both regulators and the general public, of the importance of corporate governance practice, which also strongly supports SRI. In addition, the recent financial crisis has made investors more aware of the need of integrating ESG risk in the investment selection (EUROSIF, 2010).

Second, SRI legislation in US and Europe is one of the key drivers of SRI practice, as regulators influence pension funds to disclose their attitudes and actions towards SRI practice, and how they manage ESG risk, despite not necessarily requiring them to adopt SRI policies (USSIF, 2010; EUROSIF, 2010). At the European Parliamentary level, there is a discussion about forcing institutional investors into further SRI disclosure (EUROSIF, 2010). According to USSIF (2010), more than 52% of institutional investors said that they incorporate SRI, due to regulation or legislation rather than any other reason. In Australia the regulation goes beyond forcing the financial products' providers to disclose the social responsibility position of their investment. It requires financial advisors to ask if their clients regard environmental, social or ethical considerations as being important in their investment choice, which in

turn increases public awareness about the availability of such investment products (Bauer et al., 2006).

Third, external pressure - such as media and international organizations - has put greater burden on companies and institutional investors to adopt SRI practices (EUROSIF, 2010). For example, at the UN level, the introduction of the Principles for Responsible Investment (PRI)[28] mandate - which has been signed up to by leading global institutional investors - in 2006, provides a framework for global SRI practice. Such a mandate is gaining global acceptance for institutional investors around the world, and the principles in 2010 were signed up to by over 808 leading global institutional investors, with over $22 trillion total assets under management (EUROSIF, 2010).

Fourth, academic research also supports SRI by providing empirical evidence that the performance of SRI does, on average, not differ significantly from that of conventional investment[29]. This implies that socially responsible investors can combine their beliefs or environmental and social concerns in the investment process without sacrificing on returns. Fifth, the improvement of SRI practice and its current broad coverage (environmental, social and/or ethical) has led to the development of new SRI products and approaches, which have also been adopted by mainstream investors. In other words, while the initial practice of SRI was driven by religious groups and was mainly to avoid investing in sin industries, the concept has been evolved over time to consider broader environmental, social and corporate governance issues.

As a result of the above five reasons (public awareness and concern, legislation and disclosure requirements, external pressure, academic findings and broad SRI practice and product development), SRI shifted from being a niche market targeting religious and minority groups, to being adopted by institutional investors and hence, being in the mainstream market. Thus, the sixth driver is the adoption of SRI by mainstream institutional investors, such as pension funds. This is considered one of the main

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[28] The purpose of such mandate is to insure that the environmental, social and corporate governance (ESG) issues are considered in investment process.
[29] See Chapter 5, literature review.

forces behind such tremendous growth in the market share of SRI. For example, institutional investors count for 75% and 92% of the total SRI market in the US and Europe respectively (USSIF, 2010; EUROSIF, 2010). These figures show that the SRI market is significantly dominated and driven by institutional investors.

3.3 Islamic Investments

The Islamic economic and finance system is perceived as a socio-economic and finance system that requires incorporating ethicality and morality in economic activities, because of its embedded ethical values such as fairness, justice and equity (Chapra, 1985; Siddiqi, 2004). The underlying features of an Islamic economic system derive from the objectives of *Sharia,* which Al Ghazali identifies as promoting human beings' welfare, through the protection of their five basic interests (*masalih*): religion, life, reason, progeny and property (Siddiqi, 2004). These five objectives are not exhaustive. For example, Ibn Taymiya argued that securing benefits for people and protecting them from harm was the general umbrella under which the *Sharia* objectives could be subsumed, whereas Ibn Aashur stated that the objectives of *Sharia* are to reform this world and eliminate corruption (Siddiqi, 2004). The implications of the objectives of *Sharia* for economics and finance in general will be to achieve full employment, a positive economic growth rate with stability, and a fair distribution of real resources (Chapra, 1985).

The International *Fiqh* Academy issued a ruling in 1992 that approved trading common stocks of companies that do not engage in activities which would violate *Sharia* principles.[30] This was a significant ruling for the development and the realization of the Islamic mutual funds industry, since it allowed Muslim investors to participate in equity markets (Wilson, 2004; Hussein and Omran, 2005). Since then, the Islamic mutual fund industry has witnessed a tremendous increase, with an average annual growth of between 15% and 20%, making this particular industry the fastest growing area in Islamic finance (Hakim and Rashidian, 2004).

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[30] *Fiqh* Academy 7th session, Resolution 63, 1992 item no.6. (Wilson, 2001).

Furthermore, *Sharia* scholars played a crucial role in the realization of the Islamic equity mutual fund and market indices, by their relaxation of the *Sharia* constraints on interest-based activities, in order to remove the hardship for Muslims. The introduction of Islamic indices by globally reliable index providers, such as Dow Jones and FTSE, in the late 1990s was also a significant turning point for the development of the Islamic investment industry. It supports the Islamic mutual fund industry by promoting transparency, as well as showing the acceptance of the Islamic investment industry by mainstream players (Hakim and Rashidian, 2004).

In fact, modern Islamic finance and investment practice started in the 1970s, which witnessed the establishment of the first Islamic banks (Alkassim, 2009).[31] Subsequently, Islamic banks spread around Muslim countries, as well as being accommodated by global commercial and investment banks, such as HSBC, Deutsche, Citigroup, UBS, Barclays Capital, Merrill Lynch, Morgan Stanley (Hussein and Omran, 2005; Ghoul and Karam, 2007). It is estimated that the global total of Islamic finance assets is $1,033 billion at the end of 2010, and this figure is expected to grow further to reach $2.3 trillion by 2015 (Islamic Development Bank, IDB). This is with the estimation that there were more than 800 Islamic mutual funds around the world, with a total estimated asset value of US$58 billion by the end of 2010 (Ernst & Young, 2011). The rest of this section is organized as follows: section 3.3.1 illustrates the fundamentals of Islamic finance and investment; section 3.3.2 elaborates upon the implication of the Islamic law on the practice of mutual funds and market indices.

3.3.1 Fundamentals of Islamic Finance and Investment

There are two sources of knowledge in Islam, primary and secondary (Siddiqi, 2004). Primary sources comprise the Quran and *Sunnah* - revealed/divine knowledge from God to his Prophet, Mohamed. Secondary sources are the derived knowledge through exertion (*ijtihad*)[32] of scholars to accommodate new and contemporary issues, through agreed upon methodologies, such as consensus (*ijma*) and analogy (*qiyas*). In fact, *ijtihad* plays an important role in forming *Sharia*-compliant finance and investment

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[31] The late development of modern Islamic finance and investment tends to be because Muslim countries were under colonization and they gained independence only in 1970s (Alkassim,, 2009).

[32] *Ijtihad* is the use of independent reasoning by qualified scholars to obtain legal rules from *Sharia* and injunction *fatwas* of the proceeding jurists (Ahmed, 2011).

models that allow Muslims to engage in modern financial markets, without violating their religion. The most distinctive feature of the Islamic economic and finance system is the prohibition of *riba*, *gharar* and *Sharia*-impermissible businesses (Obaidullah, 2005). Thus, the Islamic finance system is a *riba-* and *gharar*-free finance system that also prohibits financing or investing in *Sharia*-unethical businesses, which are discussed next.

Prohibition of Riba

Riba is an Arabic word that literally means an increase or growth (Siddiqi, 2004). From a *Sharia* perspective, *riba* occurs when there is any excess benefit required by or given to the lender in a loan transaction, regardless of the amount of benefit - whether excessive or negligible (Usmani, 2009).[33] The prohibition of *riba* is deduced directly from the *Quran* and the *Sunnah.* "O you believers fear God and give up *riba* that remains outstanding if you are true believers. If you do not obey this commandment, then God declares war against you from Himself and from His Prophet. But, if you give up your outstanding *riba*, then you can claim your principles. Neither should you deal unjustly nor you shall be dealt with unjustly" (Quran 2:278-79). The Prophet said, "A loan from which some benefits occur to the creditor is one of the many different forms of *riba*".[34] Furthermore, the amount added to the original total, for postponing the debt settlement date, is considered *riba* as well: "If the debtor is in a difficulty, grant him time till it is easy for him to repay. But if you remit it by way of charity, that is best for you if you only knew" (Quran 2:280).

The implication of the prohibition of *riba* of loan to contemporary financial transactions is that all interest-based loans, and trading of all interest-bearing securities are both impermissible (Usmani, 2009). This includes bonds that are issued by governments or corporate, treasury bills, certificates of deposit (CDs), preferred stocks (Elfakhani et al., 2005).[35] Also, debt cannot be sold to third parties except if

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[33] *Riba* can be classified into two main types; *riba al dain* (loan) and *riba al buyu* (barter exchange) (Usmani, 2009). The emphasis here and the definition of *riba* stated above is on *riba al dain* (loan) since it is related to the thesis.

[34] Siddiqi, 2004.

[35] However, *sukuks* are alternative *sharia* compliant instruments to impermissible conventional bonds.

transferred at par *(hawala/sarf)* which implies that all types of debt, such as account receivables, must be sold at face value (Siddiqi, 2004).

Prohibition of Gharar

Gharar is an Arabic word that means risk, uncertainty and hazard (Obaidullah, 2005). The concept of *gharar* is not precisely defined and its interpretation can vary from one scholar to another. While excessive *gharar* is not allowed, unavoidable minor *gharar* is tolerated (Al Darir, 1997; Obaidullah, 2005). Nevertheless, the definition of *gharar,* in *Sharia* terminology, covers the unknown of the object being bought/sold, or its characteristics, as well as the uncertainty of whether the transaction will be concluded or not (Al Darir, 1997). Thus, *gharar* can be broken down into two categories: *gharar* in the terms of the contract and *gharar* in the object of the contract (Al Darir, 1997).

Gharar in the terms of the contract occurs when the two parties - the buyer and the seller - do not know whether the sale will take place. In other words, the *gharar* relates to the essence of the contract rather than to its object. Examples of such sales are two sales in one, suspended sale, future sale and other types of sales - such as the pebble, touch and toss sales.

Furthermore, *gharar* in the object of the contract occurs when the item sold or its characteristics are not explicit, which implies that the effect and the outcome of the contract are concealed. This type of *gharar* occurs as a result of ignorance (lack of knowledge) associated with the object of the contract in one or more of the following: the genus, the species, the attributes, the quantity, the specific identity and/or the time of payment (Al Darir, 1997). Inability to deliver the object, as well as contracting on a nonexistent object are also considered as *gharar* associated with the object of the contract (Al Darir, 1997). There are many *hadiths* that forbid *gharar,* one of which is the *hadith* reported by Abu Horaira: "the Prophet has forbidden the pebble sale and the *gharar* sale".[36]

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[36] Al Darir, 1997.

In addition, gambling (*mysir*) - a pure game of chance - is perceived as the most unadulterated and extreme form of *gharar*, since the outcome depends merely on chance (Obidullah, 2005). Its prohibition is stated in the Quran: "Satan wants to sow enmity and hatred among you with wine and gambling and hinder you from remembrance of God and prayer. So will you not then abstain?" (Quran 3:91).

The implication of the prohibition of *gharar* on contemporary financial transactions is that all kind of derivative transactions such as futures, forwards and options are not allowed, since both price and subject matter of sale are deferred, which introduces *gharar* into such transactions (Obidullah, 2005; Usmani, 2009). Also, there is a gambling element in these transactions, since the settlement, in most cases, is based on price differences, instead of actual object delivery (Al Darir, 1997 and Obidullah, 2005).

Furthermore, any form of gambling, including national lottery, casino and betting, is also not permissible. In addition, short selling is not allowed, since it violates the condition of owning and taking possession of the object before selling it, which introduces a gambling element into the transaction (Usmani, 2009). The Prophet said, "Do not sell what you do not have in possession".[37] Moreover, commercial insurance and commercial reinsurance contracts are not *Sharia*-compliant for the excessive *gharar* involved in these transactions, since the outcome is concealed (Islamic *Fiqh* Academy, 1985)[38].

Prohibition of Unethical Business

Muslims believe that everything is created by God and belongs to Him and property is given to human as trust. Therefore, humans have to be submitted to the will of God and follow his guidance by acquiring property rightfully through *Sharia* permissible (*halal*) activities such as trading and partnership and avoid *Sharia* impermissible (*haram*) activities such as *riba*, *gharar* and unethical business. Quran (57:7) says "Believe in Allah and His messenger and spend of that whereof He has made you trustees; and such of you as believe and spend (aright), theirs will be a great reward".

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[37] Al Darir, 1997.
[38] *Fiqh* Academy 2th session, Resolution N.2, 1985. (Al Darir, 1997).

Hence, while Islam provides a basic freedom to enter into transactions, the freedom is constrained by other norms such as the prohibition of *riba*, *gharar* and *Sharia*-impermissible businesses (Obidullah, 2005). The *Sharia* impermissible businesses are discussed in the next section under the sector/qualitative screening criteria.

As indicated above the Islamic finance system is *riba* and *gharar* free finance system that also prohibits financing or investing in unethical businesses. However, *riba* and some sort of *gharar* are integral part of many products such as in financial derivatives, insurance and short selling used in the existing conventional finance system. Also, conventional finance system has no objection on the operation of Islamic unethical business such as alcohol, tobacco and pornography. Thus, it is against Muslim believes to deal with some aspects of the existing conventional finance system since it violates the norms of their religion.

However, contemporary *Sharia* scholars worked on providing Islamic finance alternatives to remove the hardship for Muslims. This is to enable them to engage with the modern finance system without violating their religion. Therefore, Islamic finance has been developed with different segments such as banking, insurance, risk management instruments and investment and capital market including stocks, *sukuk* and mutual funds all of which should operate on an Islamic manner. As the focus of this research is equity mutual funds and stock market indices, the implication of the Islamic law to the practice of these segments is discussed in the subsequent section.

3.3.2 The Implications of Islamic Law on the Practice of Mutual Funds and Market Indices

As pointed out in 1992, Islamic *Fiqh* Academy issued a ruling that legalized investing in common stocks of *Sharia* compliant companies.[39] This is because stockholders are shareholders and partners in the companies and *Sharia* has no objection on such partnership contracts since stockholders share profit and loss without getting a guaranteed fixed return (Khatkhatay and Nisar 2006). Unlike traditional *musharaka*

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[39] *Fiqh* Academy7[th] session, Resolution 63, 1992 item no.6. (Wilson, 2001).

and *mudaraba* partnership contracts, investing in listed companies is less risky since listed companies and mutual funds are monitored and regulated by stock market authorities that promote transparency and fair transactions (Wilson, 2004 and Khatkhatay and Nisar 2006). Investing in listed companies provides greater liquidity since stockholders can sell their stocks at any time at the market price and, stockholders can also benefit from capital gain during market booms (Wilson, 2004). For these reasons the Islamic mutual funds industry has gained popularity.

In practice there are similarities in many aspects between Islamic mutual funds and conventional mutual funds (Elfakhani et al., 2005). In fact, both types of mutual funds apply the same finance and portfolio theories in terms of asset allocation, stock selection, performance evaluation and so on. However, unlike conventional mutual funds, Islamic mutual funds have to comply with and are governed by Islamic principles that forbid *riba*, *gharar* and *Sharia* impermissible businesses as indicated earlier. This influences the stock selection and the operation of Islamic mutual funds. Thus, Islamic mutual funds tend to be more restricted compared to their conventional counterparts in terms of asset allocation, stock selection and trading strategies. This section discusses *Sharia* screening criteria for Islamic mutual funds and market indices in terms of both qualitative and quantitative screening criteria. Then, the earning purification process is discussed followed by discussing the roles of *Sharia* supervisory boards.

3.3.2.1 *Sharia* Screening Criteria (Asset Allocation) for Islamic Investment

Muslim investors have to ensure that the business activities as well as the financial structure of the companies they invest in are *Sharia* compliant since they will become part owners of the companies and hence, responsible for their activities (Khatkhatay and Nisar, 2006). This can be done through investing in companies that pass *Sharia* screening criteria approved by *Sharia* scholars. There are two categories of *Sharia* screening criteria, qualitative sector screening and quantitative financial screening. These two *Sharia* screening criteria must be met in order for a company to be eligible for Muslim investors. There is a general consensus among Muslim scholars about these two *Sharia* screening categories in the broad sense that the business does not deal with *riba* and *gharar* and also the business activities are permissible from a

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Sharia perspective. *Sharia* sector screening and financial screening criteria are discussed next.

First Screening Criteria: Qualitative Sector Screening Criteria

According to Islamic principles, companies must not produce or sell *Sharia* impermissible products or services such as tobacco, alcohol, pornography, weapon productions, casino, pork related products etc.[40] Furthermore, conventional banks and conventional insurance companies are not *Sharia* compliant since their core business based on *riba* and *gharar* respectively (Obaidullah, 2005). Thus, conventional finance sectors as well as *Sharia* unethical businesses have to be excluded from Islamic investment portfolios. Once a company passes the sector screening criteria and its core business is *Sharia* permissible, it can be considered as a *Sharia* compliant company if it passes the financial screening criteria. According to Derigs and Marzban, (2008) *Sharia* sector screening excludes around 23% of the conventional S&P 500 investment universe for their *Sharia* violation.

Table 3.4 shows the sectors that are excluded from Islamic investment portfolios by the major four global Islamic indices providers. It can be seen that there is almost general consensus among *Sharia* supervisory boards of the major four Islamic indices on *Sharia* impermissible sectors. However, there appears to be disagreement between *Sharia* supervisory boards whether to consider weapons & defence and media agencies sectors as *Sharia* non compliant or not. In addition, it can be also seen that some *Sharia* supervisory boards are more tolerable than others. While *Sharia* supervisory boards of the Dow Jones and the S&P exclude companies which have any involvement with impermissible activities, *Sharia* supervisory boards of the FTSE and the MSCI tolerate minor violation as long as the core business is permissible. Clearly, such restriction imposes by the *Sharia* supervisory board of the Dow Jones and the S&P reduces the investment universe based on sector screening, because they force Islamic portfolios to totally eliminate sectors such as airlines, hotels and wholesales since these sectors provide alcohol (Derigs and Marzban, 2008).

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[40] See Table 3.4.

Table 3.4: Sector Screening Criteria Based on the Major Four Global Islamic Indices Providers

Sector	S&P	FTSE	Dow Jones	MSCI
Alcoholic Beverages	××	▪	××	▪
Broadcasting & Entertainment	××	▪	××	▪
Conventional Financial Services	××	▪	××	▪
Gambling	××	▪	××	▪
Hotels	××	▪	××	▪
Insurance	××	▪	××	▪
Media Agencies (except newspapers)	××		××	
Pork-related Products	××	▪	××	▪
Restaurants & Bars	××	▪	××	▪
Tobacco	××	▪	××	▪
Trading of Gold & Silver	××			
Weapons & Defence		▪	××	

Where ×× means any involvement and • implies core business
Source: Adopted from Derigs and Marzban, 2008.

It is worth mentioning that excluding industries such as broadcasting & entertainment, financial services, insurance, hotels, media agencies and restaurants from Islamic investment portfolios is because these sectors are more likely to engage with *Sharia* impermissible activities. Examples of *Sharia* impermissible activities in these sectors including alcohol, pornography, pork related products, gambling, *riba* and *gharar*. In other words, the reason for excluding these sectors is because of *Sharia* violation associated with their operations rather than the core business itself. Thus, if such sectors operate in an Islamic manner it should not be eliminated from Islamic investment portfolios. For example, hotels and restaurants in Saudi Arabia are not eliminated from Islamic investment portfolios since they do not violate *Sharia* principles. Similarly, Islamic banks and Islamic insurance companies are not excluded from Islamic investment portfolios.

Second Screening Criteria: Quantitative Financial Screening Criteria

Unlike conventional and socially responsible investment (SRI) portfolios, Islamic investment portfolios have to comply with certain financial screening criteria (Ghoul and Karam, 2007). The purpose of the financial screening criteria is to exclude companies with unacceptable levels of conventional debt, liquidity, interest-based investment and/or impure income. Ideally, according to Islamic principles, companies must not borrow with an interest rate, nor invest in conventional debt-bearing instruments, as well as not generating income through any other *Sharia* impermissible activities. However, such restrictions would screen out the vast majority -if not all- of the stocks that are available on the market, even those listed in Islamic countries (Wilson, 2004). This is because contemporary companies tend to have exposure to interest-based finance '*riba*' for managing their working capital, as well as for financing the acquisition of fixed assets for expansion and diversification purposes (Khatkhatay and Nisar, 2006 and Derigs and Marzban, 2008).[41]

Some Islamic scholars, therefore, demonstrate their understanding by tolerating some financial ratios screening, if the nature of the business is *Sharia* permissible and the exposure to *riba* and other impermissible activities is not excessive. They argue that the judgment should be based on the majority, since the majority deserves to be treated as the whole of a thing (AAOIFI, 2004). Also, the tolerance and relaxation of the Islamic norms aims to remove the hardship, acknowledging the general need for and widespread practice of interest-based activities, and that does not necessarily mean the acceptance of *riba* or other *Sharia* impermissible activities (AAOIFI, 2004). In other words, the reason for such s relaxation is that an individual Muslim investor has no control over the whole business practices of companies that are managed in a non-Islamic manner, it also deals with the fact that fully *Sharia* compliant companies are rare (Khatkhatay and Nisar, 2006 and Derigs and Marzban, 2008).

According to the Accounting and Auditing Organization for Islamic Financial Institution (AAOIFI),[42] in order for a company to be eligible for Muslim investors

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[41] Although dealing with Islamic banks and *Sharia* compliant instruments that are alternative to interest-bearing securities, such as *sukuk* to avoid having exposure to *riba*, conventional companies especially in non-Muslim countries tend to deal with conventional banks.

[42] AAOIFI *Sharia* Standard No. (21), 3/4.

there are certain financial screening ratios must be met if the nature of the business is *Sharia* permissible. For the determination of these percentages recourse is to be had to the last budget or verified financial position. These are as follow;

1) Interest based debt: Collective amount raised as loan on interest whether long term or short term debt does not exceed 30% of the market capitalization of the corporation.

2) Interest based deposit: The total amount of interest taking deposits whether short, medium or long term shall not exceed 30% of the market capitalization of total equity.

3) Earning from impermissible activities: The amount of income generated from prohibited component does not exceed 5% of the total income of the corporation irrespective of the income being generated by undertaking a prohibited activity, by ownership of a prohibited assets or in some other way.

4) Tangible assets and benefits: The total market value of assets, benefits and rights should not be less than 30% of the total asset value of the corporation, including all assets, benefits, rights and cash liquidity. This is irrespective to the size of debt associated with the company (the corporation's debts, current accounts with others, and bonds it holds which constitute debts), as these are secondary in such cases.[43]

Also, AAOIFI indicates that it is not permissible to undertake trading in the shares of a corporation when the assets of the corporation are cash exclusively or if the entire assets of the corporation are composed of debts, unless the rules for *sarf* and dealing with debts are observed.[44]

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[43] AAOIFI *Sharia* Standard No. (21), 3/19.
[44] AAOIFI *Sharia* Standard No. (21), 3/17 and 3/18.

Table 3.5: Financial Screening Criteria Based on the Major Four Global Islamic
Indices Providers and SAC of Malaysian SEC*

	Level of Debt	**Cash and interest bearing securities**	**Liquidity**	**Impermissible Income**
Dow Jones	Total Debt/ Market Cap (Aver.24month) less than 33%	Cash and interest bearing securities/ Market Cap (Aver.24month) less than 33%	Account Receivable/ Market Cap (Aver.24month) less than 33%	Should not exceed 5% of total revenue
FTSE	Total Debt/ Total Assets less than 33%	Cash and interest bearing securities/ total assets less than 33%	Account Receivable and cash/ total debt less than 50%	(Total interest and non compliant activities income) should not exceed 5% of total revenue
S&P	Total Debt/ Market Cap(Aver.36month) less than 33%	Cash and interest bearing securities/ Market Cap (Aver.36month) less than 33%	Account Receivable/ Market Cap (Aver.36month) less than 49%	(other than interest income) should not exceed 5% of total revenue
MSCI	Total Debt/ Total Assets less than 33.33%	Cash and interest bearing securities/ total asset less than 33.33%	Account Receivables and cash/ total asset less than 33.33%	Should not exceed 5% of total revenue
Malaysian SEC**	n/a	n/a	n/a	5% - 25% of total revenue

Source: Official Indices Websites, 2011
* Shariah Advisory Council (SAC) of the Malaysian Securities and Exchange Commission (SEC).
** Adopted from Rahimie (2010).

In addition, Table 3.5 shows the financial screening criteria applied by the major global Islamic indices providers. As it can be seen from the Table, none of the mentioned Islamic indices fully comply with AAOIFI standards. First, AAOIFI uses a 30% threshold for interest-based debt level, while the four global Islamic indices apply either a 33% or 33.33% threshold for total debt. Secondly, the AAOIFI does not require a certain level of liquidity (account receivables and/or cash), as long as the cash deposit does not generate income from interest rate, whereas all four global Islamic indices require such a liquidity ratio. Thirdly, unlike AAOIFI standards which require the impure income portion to not exceed 5% of the total income, Islamic indices use 5% of total revenue, rather than total income. Fourth, the divisor of the ratios used by AAOIFI is market capitalization, based on the last verified position without smoothing out the ratios.

On the other hand, the *Shariah* Advisory Council (SAC) of the Malaysian Securities and Exchange Commission (SEC) does not require financial screening criteria. They

are only concerned with interest-based income without considering the levels of interest-based investment and interest-based debt. In other words, their view is that as long as the interest income does not exceed the tolerated ratio, interest based investment and debt should be ignored. Also, the SAC of Malaysian SEC tends to be liberal in its impermissible income tolerance, which ranges from 5% up to 25% in some cases.

Clearly, there seems to be no general consensus among *Sharia* supervisory boards on the financial screening criteria, and the disagreement among scholars in such screening is much more pronounced than in the sector screening. The financial screening elements including financial ratios, threshold and divisor of the ratios are discussed next.

Financial Ratios

The main four financial ratios that are commonly used are levels of conventional debt, liquidity, interest-bearing securities/deposit and impure income, and these are to be discussed below.

Level of Debt

From a *Sharia* perspective, interest-based debt is not permissible. However, *Sharia* supervisory boards tolerate such restrictions, if the interest-based debt does not exceed the acceptable tolerated level of conventional debt, believed not to be excessive. This is due to the impracticality of such a restriction with contemporary companies, since the vast majority of companies have exposure to interest-based finance (Wilson, 2004). Thus, requiring that *Sharia* compliant companies do not exceed the excessive level of interest-based debt ensures that companies highly exposed to *riba* are excluded.

Level of Liquidity

From a *Sharia* point of view, liquid assets such as cash and debt must be traded at par (Siddiqi, 2004). Therefore, according to *Sharia* principles, a company that is majority comprised of cash or debt assets cannot be traded, either above or below its book value (Khatkhatay and Nisar, 2006). Thus, requiring a liquidity screening ratio is to avoid investing in companies whose liquid assets are traded at either premium or

discount. On the other hand, AAOIFI standards do not impose restrictions on the level of liquidity. They argue that liquidity is a secondary matter in such circumstances, but under the condition that the market value of tangible assets and benefits should not be less than 30% of total assets. Otherwise, the rules of *sarf* transactions in debts should be observed.

Interest Bearing Securities/Deposit

The purpose of this ratio is to ensure that the investment in interest-bearing securities is at an acceptable level. This is because interest based deposit, as well as interest-based securities, such as treasury bills, government and corporate bonds, certificates of deposit (CDs) and preferred stocks, are not *Sharia* compliant (Elfakhani et al., 2005). Also, minimizing the investment in interest-based securities/deposit reduces the income that is generated from *riba* (Khatkhatay and Nisar, 2006).

Impermissible Income

According to *Sharia* principles, income should be generated through *Sharia* permissible activities. However, most *Sharia* boards tolerate a small portion of impermissible income, as long as the nature of the business is *Sharia* permissible. This is because fully *Sharia* compliant companies are scarce, since companies do not operate entirely in an Islamic manner and hence, judgment should be based on the majority, rather than the whole entity (AAOIFI, 2004). However, Islamic investors are required to purify the impure income portion, resulting from the impermissible activities, by giving it away to charities. The earning purification process is discussed in section 3.3.2.2 below.

Tolerance Threshold

As can be seen from Table 3.5, there is no consensus on the level of the tolerance threshold used for financial screening criteria since it varies from one *Sharia* board to another. The commonly used thresholds are, (30 - 33%) level of conventional debt, (30 - 33%) interest-based investment/deposit, (33% - 50%) liquidity and (5% - 25%) of impure income. The question that naturally arises here is as to where these thresholds are deduced from. According to Obaidullah (2005) the 33% tolerance threshold was chosen by scholars, since one third is not considered as an excessive portion from a *Sharia* perspective, and this is based on a Prophet's *hadith* and a *fiqh*

rule. In terms of the *hadith*, the Prophet advised one of his companions not to donate more than one third of his wealth in a will, and commented that, "One third is too much". Regarding the *fiqh* rule, a commodity that is part-gold and part-brass is considered as gold where the rules of *riba* are applied, if gold exceeds one third of the commodity.[45]

Furthermore, it is also argued that the threshold range of between 33% and 49% is deduced from the *Sharia* maxim associated with the rule of the majority, whereby the majority can be classified as a 'simple majority' in the case of more than 50% and a 'super majority' in the case of more than 67%. With regards to the 5% threshold, it seems to be that this threshold is based on the *ijtihad* of contemporary scholars, rather than being explicit in the Quran or *Sunnah* (Derigs and Marzban, 2008).

The Ratios' Divisor (Market Capitalization vs. Total Assets)

As indicated in Table 3.5, there are two types of financial screening ratios' divisors that are used in practice, for measuring *Sharia* financial tolerance ratios. These are market capitalization and total assets. Advocates of the total assets divisor argue that unlike market capitalization divisor, which tends to be influenced by the market price fluctuation, total assets represent the true unbiased value of the company. On the other hand, proponents the market capitalization divisor argue that the fair company's value is reflected in its market price, because it captures the current value as well as the value of the intangible assets, which are not captured by the total assets divisor. This issue is discussed in greater detail in Chapter 4, Section 4.2.7.

3.3.2.2 Earning Purification

Earning purification means that if the core business of a company is *Sharia* permissible but a small portion of the income comes from *Sharia* impermissible activities, then that impure earning portion should be given away to charities (Elgari, 2000). In fact, the earning purification process seems to be unique to Islamic investment, since conventional SRI does not require such purification. According to AAOIFI standards, earning purification is obligatory for one who is the owner of the

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[45] The *fiqh* rule of gold is that, in order to avoid *riba* of barter exchange, gold must be sold under the conditions that gold for gold like for like and hand to hand (Obaidullah, 2005).

share, whether an investor or a trader, at the end of the financial period, regardless of whether the profit is distributed or not, and irrespective of the net financial result of the company (whether it made a profit or suffered a loss).[46] However, those who sell the shares before the end of the financial period are not obligated for such purification. Some scholars require that the impermissible income portion is purified from the dividends distributed only (DeLorenzo, 2000). Thus, the amount that needs to be purified, based on this view, is calculated as the ratio of impermissible income to total income multiplied by the dividend (Elfakhani et al., 2005 and Khatkhatay and Nisar, 2006). This approach is commonly used in practice, including by MSCI and S&P.

In addition, according to Elfakhani et al., (2005) the earning purification of Islamic mutual funds can be done either by direct deduction by the fund managers before any distribution of income. Alternatively, fund managers can report the amount that needs to be purified to the investors, so that they can purify it individually. They argue that the second method makes the Islamic mutual funds more profitable and comparable to conventional mutual funds for conventional and socially responsible investors, since they will not be penalized for the purification process according to this method. However, AAIOFI indicates that the responsibility of the purification falls upon the institution, in case it is trading for itself or managing the operations.[47]

Furthermore, *zakah* which is a percentage of personal wealth that must be paid annually to charities or needy people should be purified as well (Elfakhani et al., 2005). According to DeLorenzo (2000), the matter of *zakah* purification for Islamic mutual funds is best left to the investors themselves, since it depends on the circumstances of each investor.[48]

3.3.2.3 *Sharia* Supervision

A *Sharia* supervisory board is an independent body, assigned by the Islamic mutual fund manager or Islamic indices provider, to regulate and govern the activities of the Islamic investment portfolio in accordance with *Sharia* principles (DeLorenzo, 2000).

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[46] AAOIFI *Sharia* Standard No. (21), 3/4/6.
[47] AAOIFI *Sharia* Standard No. (21), 3/4/6.
[48] DeLorenzo refers to the fatwa of the *Sharia* supervisory board of Jordanian Islamic bank.

Furthermore, according to the AAOIFI, the *Sharia* supervisory board has to be a specialized jurist in Islamic commercial jurisprudence (*fiqh al-mu'amalat*), and may include a member who is an expert in the field of Islamic financial institutions and with knowledge of *fiqh al-mu'amalat.* Since there is no universal *Sharia* standard or *Sharia* governing authority, each Islamic investment entity has established its own *Sharia* supervisory board. Alternatively, a consultancy firm that has a distinguished *Sharia* board, which specializes in Islamic jurisdiction, can be assigned to advise on *Sharia* finance and investment matters. The first strategy is applied by the Dow Jones Islamic indices, whereas the latter is applied by FTSE and S&P Islamic indices.

Moreover, a *Sharia* officer might be appointed instead of a *Sharia* board, in case the fund managers track an Islamic index since the tracked index has its own *Sharia* board that establishes the Islamic guidelines and monitors the index (DeLorenzo, 2000). Although such a strategy is less expensive than the previous strategies due to the reduction of costs of the *Sharia* board and fund monitor, it limits the stock menu available for the fund managers, since they have to follow the composition of the tracked index only.

The main duties of the *Sharia* supervisory board are threefold. Firstly, they set up the *Sharia* guidelines and the frame work for fund managers, in accordance with *Sharia* principles (Elfakhani et al., 2005). Secondly, they supervise the activities of the fund managers to ensure that they are in line with the *Sharia* guidelines set up previously (Elfakhani et al., 2005). Islamic portfolios need to be monitored on a regular basis to ensure that the stocks that have been selected in the funds' portfolio are still *Sharia* compliant, and the stocks that had since become non *Sharia* compliant are removed (DeLorenzo, 2000). Thirdly, they make sure that earnings have been purified, by either deducting the impure earning from the dividends and giving it away to suitable charities, or by report it to investors to purify it on their own (DeLorenzo, 2000).

3.4 Conclusion

Despite its origin with religious groups to avoid investing in sin industries, the current practice of SRI is largely dominated by mainstream institutional investors. As a result, the SRI market has witnessed a tremendous growth in the last decades, controlling €7,594 billion of global asset under management (EUROSIF, 2010). There are several strategies that can be employed by socially responsible investors to combine their financial objectives with their concerns about social, environmental, ethical and/or corporate governance issues in their investment decisions. These include employing traditional negative screening criteria to exclude certain industries/companies for their SRI violation or employing positive screening criteria to invest in companies with commitment to SRI practices including best-in-class approach. Engagement is another SRI approach that has been widely used by mainstream institutional investors especially pension funds to influence companies to adopt SRI practices through using their shareholders advocacy right. This implies that SRI has been shifted from only traditional exclusionary and inclusionary screening criteria to promote proactive shareholders approach.

Islamic finance and investment is gaining more and more popularity and momentum controlling around $1,033 billion of total global assets under management (Ernst & Young, 2011). Furthermore, the most distinctive feature of Islamic economic and finance system is to eliminate *riba*, *gharar* and *Sharia* impermissible businesses. Therefore, *Sharia* investment screening process emphasizes on sector and financial screening criteria to ensure the permissibility of the investment from a *Sharia* point of view. However, fully *Sharia* compliant companies are rare since *riba* and some sort of *gharar* is embedded in the modern conventional financial system. Therefore, some scholars relax the Islamic constrains by allowing investing in companies even if they have interest based activities and/or have some exposure to *Sharia* impermissible activities as long as their primary business is *Sharia* permissible. However, the *Sharia* impermissible activities must not exceed the tolerated level that believed to be not excessive and that impure income portion should be purified by giving it away to charities. Such purification requirement seems to be unique to Islamic investment.

Chapter 4
Sharia Investment Screening Process: A Critical Review

4.1 Introduction

The current practice of the *Sharia* screening process is not without critics. Thus, after reviewing the literature on socially responsible and Islamic investment, the objective of this chapter is to critically review the *Sharia* investment screening process. This is to answer the first research question: what are the critical issues related to the *Sharia* screening process for stocks? This is in order to then give some recommendations and suggestions for improving the *Sharia* screening process. The chapter is organized as follows: section 4.2 discusses critical issues associated with implementing *Sharia* investment screening process, and section 4.3 gives a conclusion.

4.2 Critical Issues with *Sharia* Investment Screening Criteria

This section critically reviews the *Sharia* screening criteria, and discusses the issues associated with implementing the *Sharia* screening process. The issues discussed include the credibility, inconsistency, financial ratios screening and their divisor, the earning purification process, tolerance threshold, social responsibility and *Sharia* supervision.

4.2.1 Credibility

Although *Sharia* screening criteria are commonly used and generally accepted in practice, they have not been approved by a credible, independent and universal *Sharia* authority, such as the International *Fiqh* Academy or the Islamic Financial Services Board. Thus, *Sharia* screening criteria in general, and financial screening criteria in particular, remain a debatable issue. While the AAOIFI issued specific *Sharia* investment screening criteria, it can be argued that members of its *Sharia* boards are also members of *Sharia* boards in Islamic financial institutions, and hence they are not entirely independent from the industry. Unlike the International *Fiqh* Academy, the AAOIFI is only specialized to issue *Sharia* principles, in order to standardize the Islamic finance industry, rather than being responsible for general religious rulings.

Also, unlike the International *Fiqh* Academy, AAOIFI does not represent all Muslim countries.

4.2.2 Inconsistency

Sharia parameters, as applied by *Sharia* boards, seem to be somewhat subjective and are set arbitrarily. There appears to be no uniform *Sharia* investment code of conduct or a universal predetermined fixed set of *Sharia* screening criteria that is agreed upon between Muslim scholars (Hakim and Rashidian, 2004 and Derigs and Marzban, 2008). This is despite the general consensus among Muslim scholars about the *Sharia* screening criteria, in the broad sense that the business does not deal with *riba* or *gharar,* and also the core business activities are permissible from a *Sharia* perspective.

However, in practice there is disagreement among Muslim scholars in terms of the sectors that have to be excluded, and also in terms of the financial screening, with particular reference to the ratios used, ratios' divisor and tolerance threshold. For example, as indicated in Tables 3.4 and 3.5, some *Sharia* boards require an exclusion of the defense industry and media agencies from Islamic investment portfolios, while others do not. Another example is that, whereas some scholars tolerate only 5% impure income, others, such as the SAC of the Malaysian SEC, tolerate up to 25% of impure income in some cases. Another controversial issue is that the S&P provides an Israeli *Sharia*-compliant index in their *Sharia*-compliant market indices selection. This contradicts the *fatwa* (*Sharia* opinion) of most *Sharia* scholars, because of the occupation of Israel to the Palestinian land.

Furthermore, while some scholars require using total assets as the financial screening's divisor, others choose to use market capitalization instead. This *Sharia* inconsistency leads to the case that, while some of the fund structures or *Sharia*-compliant instruments are considered acceptable by one board or scholar, they might be seen as unacceptable by others. In fact, Derigs and Marzban (2008) indicate that different *Sharia* classifications even occur across different funds and indexes supervised by the same scholars. They also show that the same *Sharia* scholars defined, on average, approximately one out of five companies as *Sharia*-compliant for one product, yet as *Sharia* non-compliant for another product. This creates confusion

in the *Sharia* parameters, and shakes the confidence in Islamic mutual funds and indices, as well as in the independency of the *Sharia* boards.

Derigs and Marzban (2008) argue that there are two reasons seeming to explain such dissimilarities among Muslim scholars in terms of Islamic investment's screening criteria. Firstly, modern finance and investment is a new phenomenon and hence, the current practice is based on the *ijtihad* of contemporary scholars who have different opinions on *Sharia*. In particular, the financial tolerance threshold used in Islamic investment screening is not stated explicitly in the *Quran* or *Sunnah*, but rather, it is based on the *ijtihad* of contemporary scholars. Secondly, unlike in Christianity, there is no higher Islamic authority that is responsible for religious rulings to be followed by all Muslims. Therefore, each Islamic financial institution has its own *Sharia* committee, or a *Sharia* advisory firm, to set *Sharia* guidelines and approve transactions as *Sharia*-compliant.[49]

However, it can be argued that although there is no higher global Islamic authority, there are credible universal *Sharia* authorities, such as the International *Fiqh* Academy, which can set global *Sharia* investment screening standards. Furthermore, the higher Islamic authority can be at least set up at a national level to enforce *Sharia* consistency, and ensure the acceptability of the criteria, also to avoid conflicts of interest arising from allowing Islamic mutual funds to assign their own *Sharia* board. This approach has been applied in Malaysia, where there is the SAC of the Malaysian SEC.

4.2.3 Changing the Rules

Changing the *Sharia* rules is another focus of criticism associated with the *Sharia* screening process. For example, during the recent financial crisis, the Dow Jones Islamic Market index and the S&P Islamic indices increased the moving average of the market capitalization divisor from 12 trailing months to 24 and 36 respectively to further smooth out the ratio. Another example of changing rules is the modification of the divisor from total assets to market capitalization by Dow Jones, and also the move

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[49] There are some exceptions where there is a higher *Sharia* authority at the national level, such as Malaysia.

from having a 45% threshold for the level of accounts receivable, to 33% (Khatkhatay and Nisar 2006). The issue is that different *Sharia* rules result in a different set of *Sharia*-compliant investment universes. In other words, some companies which are considered as *Sharia*-compliant might become *Sharia* non-compliant as a result of changing the *Sharia* rules, even by the same board members who had earlier allowed them, and vice versa. This also damages the reputation of the *Sharia* standards and the *Sharia* boards.

4.2.4 Financial Ratios

The criticisms of financial screening ratios are discussed below:

Level of Conventional Debt and Interest-Bearing Securities

The current practice of the *Sharia* screening process allows investment in companies which deal with (impermissible by *Sharia*) interest-based debt or interest-bearing securities, as long as the exposure to such impermissible activities does not exceed the one-third threshold, which is believed to be not excessive. However, it is argued that the use of the *hadith* - in that the Prophet advised one of his companions not to donate more than one third of his wealth, and commented that, "One third is too much," - to tolerate interest-based activities is debatable, since it is used out of its context. This is because the situations described differ widely from the screening processes in which they are used here (Obaidullah, 2005).

In particular, the context of the above *hadith* was for donation, as the companion wanted to give away all of his wealth, but the Prophet advised him to not donate more than one-third, and to keep some of his wealth for his inheritors. This is a vastly different field from the tolerance of *Sharia*-impermissible interest-based activities. In addition, some scholars argue that the issue of *riba* cannot be tolerated at all in Islam, regardless of the extent of *riba*. The severity of *riba* is evident from the Quranic verse (2:279), in which God declares war on people who deal with it. There are also a Prophet's *hadiths,* which show how severely it is considered, to get even a negligible amount of *riba*. This might explain why the commonly used *Sharia* screening criteria have not yet been approved by a credible and independent *Sharia* authority, such as the International *Fiqh* Academy.

In addition, it can be argued that tolerating conventional debt and interest-bearing securities because of the necessity of them (as argued by some scholars) does not seem to be valid nowadays in some Muslim countries. This is due to the wide availability of Islamic banks and *Sharia*-alternative instruments to interest-based finance, such as *sukuks*, in these countries. Thus, it can be argued that conventional finance should be gradually replaced by Islamic finance in Muslim countries. Lowering the threshold level of conventional interest-based finance in these countries will induce companies to adopt Islamic financing models, which will in turn lead to further growth and development of Islamic finance, as well as it being adopted, even by conventional companies.

However, tolerating a level of conventional debt seems to be still necessary in non-Muslim countries, where all listed companies do use such conventional debt (Wilson, 2004). Nevertheless, it is argued that the tolerated level of this 'acceptable' debt should be based on unavoidable debt, such as working capital, and that the currently applied tolerance level seems to be too liberal, since a concession is made about the actual level of conventional debt, that is supposed to be zero (Khatkhatay and Nisar, 2006).

The most liberal view is that of the SAC of the Malaysian SEC which does not place any restriction on the level of debt or level of interest-bearing securities at all. They argue that the judgment should be based on the usage of the money, rather than its source, since the debt of a company has always occurred in the past (Dar Al Istithmar, 2009). In other words, as long as the current primary business of the company is permissible, its source of financing should be ignored. Another liberal view is that of Dow Jones and S&P, which do not seem to have a restriction on the level of interest rate income - this is also surprising. Such liberal views do not seem to be based on a strong Islamic belief, and tend to artificially increase the number of *Sharia*-compliant stocks. This is because, from a *Sharia* point of view, Muslims are not allowed to either receive or pay interest. While the former is not avoided in the case of Dow Jones and S&P *Sharia* screening criteria, the latter is equally not in the Malaysian case.

Level of Liquidity

Most *Sharia* boards require excluding highly liquid companies, in order to avoid investing in companies whose liquid assets are traded above or below their par value. This is because liquid assets, such as cash and debt, must be traded at par from a *Sharia* perspective. However, the AAOIFI does not have a restriction on the level of liquidity, and they argue that in such circumstances, such assets are deemed secondary and matters that are otherwise not normally overlooked can be disregarded. Nevertheless, the AAOIFI requires that the market value of tangible assets does not fall below 30% of the total assets; otherwise, the rule of *sarf* should be applied.

It can be argued that the assumption of *Sharia* scholars - that companies whose shares are traded above their book value indicates a premium paid over their liquid assets - does not seem to be valid in modern-world companies (Khatkhatay and Nisar, 2006). This is because, fundamentally, investors pay a premium over book value, if the company can generate future abnormal returns that compensate for the risk taken, regardless of its liquid assets. Thus, there is no direct connection between the company's total liquid asset value, and its market value. Abnormal returns might be driven by intangible assets, such as patents, copyright, management team, etc., which do not appear on the balance sheet (Khatkhatay and Nisar, 2006 and Dar Al Istithmar, 2009).

Another strong argument against the liquidity ratio is that market players assume ongoing concerns that companies' assets will not be liquidated in the short term and hence, the market price does not reflect the price assigned by the market to the company's receivables, payables and cash balances (Khatkhatay and Nisar, 2006). For example, a technology or a trading company which usually has negligible fixed assets might be sold for a huge premium in the market, according to its breakup value. This is not because it is able to sell its receivables and cash at a premium, or liquidate its debts at a discount, as the reasoning of the *Sharia* scholars requires, but rather because of its inherent or intangible strengths (Khatkhatay and Nisar, 2006).

Furthermore, it can be argued that imposing fixed ceilings on cash and liquidity holdings does not seem practical, since the level of holdings of cash and liquidity vary according to the business cycle (Wilson, 2004). For example, during bear and

uncertain market conditions, companies tend to hold more liquidity, and vice versa during a booming market. Also, applying a liquidity screening ratio might influence Islamic investment portfolios to choose illiquid companies that might suffer from insolvency (Dar Al Istithmar, 2009). The SAC of the Malaysian SEC does not require such a ratio. In fact, not requiring such a criterion seems to be justifiable, since the underlying assumption of it does not seem to be in line with the modern corporation.

4.2.5 Earning Purification Process

According to AAOIFI standards, in order for investors to calculate the impure income that should be purified per share, the total impure income should be divided by the total number of shares of the corporation.[50] This is regardless of whether the company declared a profit or suffered a loss and whether the profit is distributed or not. However, some scholars require that the impermissible income portion is purified from the dividends distributed only (DeLorenzo, 2000). In addition, some scholars require purifying interest income only (Dar Al Istithmar, 2009), whereas others - such as Dow Jones and S&P - do not require interest rate income purification at all (Khatkhatay and Nisar, 2006). Clearly, the issue of purifying the impure income portion is controversial.

It can be argued that excluding the impure income portion, regardless of the net financial result and the amount of dividend, as proposed by AAOIFI, seems to be more rational, since Muslim investors should not utilize or benefit from that impure income in any way (Dar Al Istithmar, 2009). This is because dividend-based purifications affect only a minor portion of the impure income, since retained earnings will not be purified (Khatkhatay and Nisar, 2006). Also, with dividend-based purification, if the subject company does not distribute the profit, or even suffered a loss, the impure income portion would not be purified. However, it can be argued that exposing investors to additional risk by requiring them to purify the prohibited

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[50]AAOIFI *Sharia* Standard No. (21), 3/4/6. However, the Standard does not indicate how the shares' number is calculated. Is it based on the number of shares outstanding that stated in the financial statement? Or is it based on the average number of shares over the period? This is because during the financial period companies may issue new shares or repurchase some of their shares.

income portion from their own pockets (if the subject company does not distribute the profit or suffered a loss) does not seem practical.

Furthermore, purifying capital gains also remains a controversial issue. Some scholars argue that capital gains' purification is not necessary, since the change in the stock price does not reflect the interest income, while others advocate it as a concept (Obaidullah, 2005). Those who are in favour of capital gains purification argue that it is safe not to utilize or benefit from impure income, which might be reflected in the capital gains. This is because, fundamentally, the market price capitalizes on the company's total earnings including those from *Sharia*-non-permissible activities. However, critics of capital gains purification argue that earnings from interest-based activities tend to be insignificant, and therefore, their impact on capital gains is negligible (Khatkhatay and Nisar, 2006).

Moreover, quantifying the impermissible income portion that needs to be purified, other than interest income, is a challenging task (Elgari, 2000). This is because companies are required to report their total revenue and total income without having to segregate them based on their business lines or services. For example, hotels, restaurants and airline companies do not usually indicate the percentage of revenue or income that is generated from *Sharia*-impermissible activities, such as alcohol and pork-related products. However, non-operating income, including interest rate income, is reported in a separate line in the income statement and hence, it can be quantified.

Another difficulty associated with the earning purification process is the time at which the shares were bought and sold. For example, if someone buys the shares just before the end of the financial period, then who is responsible for the earning purification? The buyer or the seller? Based on AAOIFI standards, the buyer is responsible for earning purification in this case and such purification is not obligatory for one who sells the shares before the end of the financial period.[51] However, it can be argued that the one who bought the shares just before the earnings report should not be penalized.

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[51] AAOIFI *Sharia* Standard No. (21), 3/4/6/1.

It can also be argued that, although the interest-earning portion can be eliminated through the earning purification process, interest which has been paid to the lenders - also prohibited - cannot be avoided. Another critique is that the earning purification process to some extent ensures that Muslim investors will get rid of the impure income portion. However, the purpose of prohibiting *riba* and unethical businesses in Islam is not only to avoid unethical earning, but also for broader purposes. These include avoiding socially irresponsible investment that harms society, besides the objective of allocating the resources properly by using them in businesses that make positive contributions to society. This cannot be attained through the earning purification process.

4.2.6 Tolerance Threshold

Inconsistency also arises within the same *Sharia* board for the tolerance threshold used across the different screening ratios. For example, the level of the tolerance thresholds of debt, liquidity, interest-bearing securities and impermissible income range are (33.33% - 30%), (33% - 50%), (33.33% - 30%) and (5% - 25%) respectively. This leads to the question as to why the financial thresholds are not consistent across the different screening ratios. As indicated earlier, the 33% and 49% tolerance thresholds are deduced from the *Sharia* maxim associated with the rule of the majority, whereby the majority can be classified as simple majority (in case of more than 50%) and super majority (in case of more than 67%). But the question again arises regarding why sometimes the super majority applies, whereas in other cases only the simple majority suffices. Also, in some instances, such as impure income threshold, neither the super nor the simple majority applies.

In other words, if from a *Sharia* point of view, 33% is not considered as an excessive portion for conventional debt level and interest-bearing securities level, why don't the impure income and liquidity ratios apply the same threshold? It is clear that the threshold appears to be set arbitrarily, since it is based on the *ijtihad* of scholars to deal with contemporary finance issues, rather than being explicitly linked to the Quran or *Sunnah* (Derigs and Marzban, 2008).

Furthermore, it is argued that using fixed financial thresholds, regardless of the market conditions and regardless of the industry examined, needs further

consideration. In other words, the financial threshold should be based on the situation that is being examined rather than generalizing and ruling that more than one-third should always be an excessive portion (Khatkhatay and Nisar, 2006). Different industries have different financial structures and hence have different exposure to conventional debt and also, the market price fluctuates during different market conditions, affecting the ratios accordingly (Wilson, 2004; Khatkhatay and Nisar, 2006). Thus, the necessity might differ from one situation to another and hence, the tolerance threshold levels cannot remain static either.

4.2.7 The Divisor of the Ratios (Total Assets vs. Market Capitalization)

As indicated earlier, market capitalization and total assets are used as divisors for the financial screening ratios. The criticisms of both the total asset and the market capitalization divisors are discussed below.

Criticisms of total asset divisor

Critics of the total assets divisor argue that, unlike market capitalization, which reflects the true economic value of companies, total assets represent only the historical value. Thus, total assets tend to underestimate the total worth of companies; the value of some parts of the business, such as intangible assets, which are generated internally, are not accounted for in the financial statements (Derigs and Marzban, 2008).[52] Furthermore, the total assets reported in the financial statements are affected by the accounting principles/methods applied, for example, accounting for inventories, revenue recognition and depreciation (Derigs and Marzban, 2008). In other words, if two companies have similar total assets before accounting adjustments, using different accounting principles/methods might result in having different values in their financial reports.

For example, in terms of accounting for fixed assets depreciation, companies can discretionarily choose the depreciation method and determine the parameters, such as

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[52] However, purchased intangible assets such as patents, franchises and copyrights are accounted for in the balance sheet. Also, goodwill which is the premium paid for acquiring a business is accounted for in the balance sheet.

the salvage value and the useful life.[53] If any of the parameters changes, the value of total assets reported in the financial statement will change accordingly. Similarly, applying different inventory methods leads to a different total assets value on the balance sheet.[54] Another disadvantage of using the total assets divisor is that total assets are determined only through the reported financial statements, which are published annually or perhaps quarterly. This is unlike market capitalization, which can be determined on a timely basis, through the market price and enables continued *Sharia* monitoring (Derigs and Marzban, 2008).

Criticisms of market capitalization divisor

Critics of the market capitalization divisor argue that using total assets divisor to measure the debt ratio seems to be more rational, since the total assets of a company are financed by the shareholders' equity and debt (Khatkhatay and Nisar, 2006). In other words, the level of debt may not have any direct relationship to the market capitalization. This is because, when using a market capitalization divisor, companies may become *Sharia*-compliant or *Sharia* non-complaint due to external market fluctuation, even though their total debts have not changed (Dar Al Istithmar, 2009). Furthermore, market capitalization does not necessarily represent the fair economic value of the company, since it is influenced by the market price fluctuation that, in turn, might be driven by speculators or irrational investment decisions (Khatkhatay and Nisar, 2006; Dar Al Istithmar, 2009).

In addition, it is argued that using market capitalization as a divisor is likely to lead to more volatile financial ratios, as compared to using the total asset divisor. This is because applying a market capitalization divisor makes the financial screening more vulnerable to the business cycle fluctuation, since market capitalization tends to be high during a bull market, while the opposite is true during a bear market (Wilson, 2004). Therefore, applying the market capitalization divisor is more likely to increase the investment universe for Islamic portfolios during a bull market and shrink their investment universe and lead to divestment during a bear market. Thus, using a

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[53] There are different accounting approaches for fixed assets depreciation such as straight line, sum of the year's digit, accelerated and units of production.
[54] There are different accounting approaches for recognizing the costs of inventories such as FIFO, LIFO and Average cost.

market capitalization divisor is likely to favour growth and/or speculative companies, while value companies are likely to be rejected. Hence, it might introduce growth cap bias with Islamic investment portfolios, because companies with high market premium over their book value are more likely to pass the *Sharia* screening criteria.

In addition, divestment during bear market required by the market capitalization divisor does not seem to be practical, since it might not be a good exit strategy, potentially leading to a further fall in the market price (Wilson, 2004). This is why those who use the market capitalization divisor need to smooth out the ratios, by taking the trailing average market capitalization. For example, in the recent financial crisis, the Dow Jones Islamic Market index and S&P Islamic indices increased the moving average of the divisor from 12 trailing months to 24 and 36 respectively. However, such a smoothing strategy might delay exclusion, but when bear markets persist, the inevitable occurs (Wilson, 2004). Moreover, total assets tend to be a more conservative divisor than market capitalization since it reduces the likelihood of wrongly accepting *Sharia* non-compliant companies. For example, the S&P Islamic index and the Dow Jones Islamic index, which both use a market capitalization divisor, have a larger number of *Sharia*-compliant companies in their asset universe compared to the other providers, who use total assets divisor (Derigs and Marzban, 2008).

To overcome the divisor issue some Islamic institutions, such as Al Rajhi Bank, apply max; total asset/market cap divisor. Obviously, such a divisor always increases the Islamic investment universe. A more plausible approach is that the divisor should be chosen based on the purpose and the objective of the ratio being used, rather than applying one type of divisor for all ratios (Khatkhatay and Nisar, 2006). For example, using the market capitalization divisor for measuring liquidity seems to be more rational, since the purpose of such a ratio is to ensure that liquid assets are not traded above or below their par value (Dar Al Istithmar, 2009). On the other hand, using the total assets divisor for measuring debt ratio seems to be more suitable (Dar Al Istithmar, 2009). Also, Dar Al Istithmar (2009) proposes using shareholders' equity as a divisor for measuring debt level (debt/equity ratio), which is known as the 'leverage ratio', since it is a commonly used financial ratio that measures the level of debt.

4.2.8 Social Responsibility

Unlike SRI screening, Islamic investment screening applies only exclusion criteria. As a result, they lack positive screening criteria, whereby investments are made in companies with a commitment to socially responsible business practices, in order to support the environment, social, community and/or corporate governance practice. For example, criteria such as human rights, employee rights, environmentally friendly production, etc., are not considered in the contemporary Islamic investment screening process (Wilson, 2004; Forte and Miglietta, 2007). In other words, in practice, the Islamic screening process focuses on whether the output of the business is *Sharia*-permissible or not, as well as the level of exposure to *riba*. However, non-income generating aspects, e.g., social and environmental concerns, are not incorporated (Dar Al Istithmar, 2009).

Ahmed (2009) indicates that in 2007, the Vedanta Resources (a diversified metals and mining company listed on the London Stock Exchange and a constituent of the FTSE100 index & the FTSE *Shariah* index UK) was divested from the Norway Government Pension Fund. This is because the Council on Ethics of the fund found a serious violation of human rights, and environmental damage associated with its subsidiary in India. However, such an action was not taken by the *Sharia* Board of the FTSE *Shariah* index. The author raises plausible questions, such as how a company involved in serious environmental and human rights' violations can be *Sharia*-compliant; is it not against the principles of *Sharia* to disrespect human rights and cause damage to the environment?

This is surprising, since it contradicts the fundamentals of Islamic finance and investment as a socio-economic and finance system that requires incorporating ethicality and morality into all economic activities. This is down to its embedded ethical values such as fairness, justice and equity. In other words, Islam principles promote ethicality and morality in doing business, and prohibit generating income through exploitation, deception, injustice or unethical manners that negatively affect the society or humanity.[55] Islam recognizes the rights of others, such as workers, neighbours, needy people, etc., and requires and encourages charitable giving as a

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[55] There are varies Prophet's *hadiths* which emphasis on these ethical issues.

form of community investment. In fact, not only humans have rights in Islam, but also animals, plants and the society as a whole. Thus, any Islamic investment screening process should emphasize both negative and positive screening criteria to invest in companies that make positive contributions to the society, and avoid investing in companies that cause any harm (Wilson, 2004; Dar Al Istithmar, 2009).

It can be argued that lacking positive criteria in the screening process of Islamic investment might be due to the relative 'newness' of contemporary Islamic finance and investment practice. For example, SRI started out similar to Islamic investment, only excluding sin industries, and subsequently they applied positive screening criteria. Recently, socially responsible investors have implemented the best-in-class and engagement approaches, instead of only traditional exclusion and inclusion criteria. Nevertheless, there has been a turning point for Islamic investment screening criteria when the Dow Jones Islamic Market index introduced the Islamic sustainability index in 2006. This was done to incorporate sustainability/socially responsible criteria into the traditional *Sharia* screening process. Thus, similar to SRI screening, more improvement and development within *Sharia* screening criteria is expected.

4.2.9 *Sharia* Supervision

Sharia supervisory boards focus mainly on the advisory, regulation and supervision activities, but lack a crucial proactive role. DeLorenzo (2000) argues that *Sharia* supervisory boards should ensure that the fund represents the Muslim way of life, in the best and most effective manner, in the annual shareholders' meetings. This can be done by influencing companies to adopt socially responsible and *Sharia*-compliant investment practices. He also argues that *Sharia* supervisory boards should create an added value for the investors, above and beyond *Sharia* guidelines and their supervision task, by representing the investors' interests. This can be done by promoting transparency and full disclosure to investors, namely through preparing reports on a regular basis, addressing the compliance of the fund with Islamic principles and informing the investors of the required purification process.

In addition, despite the rapid growth of Islamic finance and investment, there are only a few scholars who are both qualified in the jurisprudence of Islamic financial dealing

and Islamic economy, and have adequate knowledge of modern finance and economy. In fact, there are a few distinguished *Sharia* experts each one sits on dozens of boards. According to Funds at Works' report (2011), it is seen that the top 6 *Sharia* supervisory board members make up more than 30% of the entire universe of almost 1,054 board positions, and some of them form part of more than 80 *Sharia* boards located in different countries. This obviously raises the problems of competition and conflicts of interest. In addition, while investment institutions have their own internal *Sharia* boards, they lack external audit and corporate governance practices to ensure the compliance of the investment with *Sharia* guidelines, as well as the independence of the *Sharia* board.

4.3 Conclusion

In practice there appear to be inconsistencies in *Sharia* screening criteria among Islamic investment institutions, especially in terms of the tolerance level. This is because there is no universal consensus on a predetermined fixed set of *Sharia* screening criteria and hence, each Islamic investment institution has its own *Sharia* board, or a *Sharia* consultant firm, to set guidelines for its operations. Despite the use of *Sharia* screening criteria by different investment institutions, these have not been approved by a credible independent universal *Sharia* authority, such as the International *Fiqh* Academy. One reason for this may be that such a screening process, especially financial screening, and the tolerance level, cannot be linked directly to either the Quran or *Sunnah*; it is, however, based on *ijtihad* of some contemporary scholars. Inconsistency of *Sharia* screening criteria raises the problem of the reliability of such rulings. Also, it raises the issue of conflicting interests and the problems of competition and the independence of the *Sharia* supervisory boards. This is because Islamic investment institutions that apply more stringent standards will have a more restricted investment universe.

Furthermore, another crucial issue that needs to be also addressed is that *Sharia* screening criteria tend to change over time, based on the *ijtihad* of other scholars or even based on the changing opinion of the same scholars. This certainly damages confidence in the *Sharia* screening criteria standards, which might in turn adversely

affect the Islamic mutual fund industry. The AAOIFI issued *Sharia* investment screening criteria to standardize the industry, but such criteria have not been adopted by market players, despite the fact that the AAOIFI board members are also board members of Islamic financial institutions. In order to solve the inconsistency of the *Sharia* screening, some form of higher Islamic *Sharia* authority should be established, at least at a national level, to set up *Sharia* screening standards and guidelines for the whole industry of that country. This will also avoid conflicts of interest arising from allowing Islamic mutual funds/indices to assign their own, individual *Sharia* board.

Surprisingly, non-income generating aspects - such as social and environmental concerns - are not incorporated into the contemporary Islamic investment screening process. Thus, unlike SRI, the Islamic investment screening process does not reward positive screening criteria such as human rights, community investments and environmental protection. This seems to be rather paradoxical, since it contradicts the *Sharia* embedded ethical values of fairness, justice and equity. Therefore, positive screening criteria should not be separated from the Islamic investment screening process, as such separation is not in line with the fundamentals of Islam in general, and with the fundamentals of the Islamic economic and finance system in particular, since morality and ethicality is essential to the religion. Moreover, external auditing for the implementation of *Sharia* rules should be adopted to ensure the compliance of the investment with *Sharia* guidelines. Furthermore, it is desirable for *Sharia* boards to adopt corporate governance practice and take proactive roles - especially in Muslim countries - to influence companies to adopt socially responsible and *Sharia*-compliant investment practices.

Finally, the contemporary *Sharia* relaxation embedded in the Islamic investment screening process was proposed last decade, when the Dow Jones and the FTSE established their Islamic indices' families. However, nowadays, Islamic banking and alternative *Sharia*-compliant instruments to interest-based finance, such as *sukuk,* have been developed and gained popularity and wider availability in some Muslim countries. Thus, it can be argued that the necessity of using interest-based finance in modern economy might no longer exist in some Muslim countries. Hence, tolerance levels of conventional finance activities should be lowered in the Islamic investment

screening criteria in these Muslim countries. Obviously, this will put greater pressure on companies to adopt Islamic finance models. This in turn, can lead to further development and increases in the market share of the Islamic finance industry. However, such an argument is still debatable in non-Islamic countries. This is because Muslim shareholders form only a minority stake in most companies and hence, will not be able to influence the adoption of Islamic finance models. Furthermore, with no Islamic finance available in many countries, the necessity of tolerating conventional finance still exists in some regions.

Chapter 5

Investment Characteristics of Socially Responsible and Islamic Investments: Literature Review

5.1 Introduction

As previously pointed out, unlike conventional investors, socially responsible and Islamic investors impose additional non-financial screening criteria on their investment selection to remove certain sectors/companies, due to non-compliance with their value systems and beliefs, regardless of the risk and return profile associated with the excluded investments. This contradicts the underlying assumptions of the modern portfolio theory that rational investors seek to achieve the highest expected utility by maximizing their return and minimizing risk. This is done without giving any consideration to non-financial socially responsible, ethics, and beliefs screening criteria that influence the investment decision and hence, no investment restrictions.

This raises the question as to whether restricted socially responsible and religious investors would have to sacrifice performance and become exposed to higher risk than their unrestricted conventional counterparts, in order to comply with their value systems and beliefs. For this reason, researchers have tried to examine whether the investment characteristics of restricted investment portfolios, such as socially responsible and Islamic, differ from their unrestricted conventional counterparts.

This chapter reviews the literature on the investment characteristics of socially responsible and Islamic investment portfolios in terms of performance, risk and investment style respectively. The investment characteristics of both types of restricted investment portfolios - socially responsible and Islamic - are presented based on passive indices' portfolios and actively managed mutual funds' portfolios. This is to give a comprehensive review of the influence of socially responsible and *Sharia* screening criteria on the investment characteristics and management practice.

This chapter is organized as follows: section 5.2 presents the performance of socially responsible and Islamic investment portfolios; section 5.3 discusses the risk associated with both types of investment portfolios, socially responsible and Islamic; section 5.4 illustrates the investment style of socially responsible and Islamic investment portfolios; section 5.5 presents the investment managerial skills of socially responsible and Islamic mutual fund managers; finally, section 5.6 draws a conclusion.

5.2 Performance

It can be argued that conventional mutual funds are more likely to outperform restricted socially responsible and Islamic mutual funds, since they have the advantage of being able to freely select their stocks and freely manage their investment portfolios. For example, fund managers are more likely to prefer value stocks in times of expected recession, whereas they tend towards growth stocks in times of expected boom (Scholtens, 2005). Conventional mutual funds are more likely to outperform Islamic mutual funds during bull market condition since they have no restriction on their investment strategy and investment practice (Abdullah et al., 2007). For example, conventional mutual funds' managers can maximize their profit during a bull market by investing in risky assets and speculative activities including highly leveraged companies, and vice versa during a bear market. In contrast, Islamic mutual fund managers are restricted to *Sharia*-compliant stocks only.

However, most of the previous empirical studies find that, on average, the performance of restricted SRI and Islamic investment portfolios does not differ significantly from their conventional counterparts. Thus, the hypothesis that the returns of SRI and Islamic investment portfolios are equal to those of conventional investment portfolios cannot be rejected. The literature surrounding the performance of SRI and Islamic investment is to be reviewed next.

Socially Responsible Investment
A great deal of research has been done to investigate the performance of SRI mutual funds in developed markets. With regards to the empirical studies based on the UK market, the first study that investigated the performance of SRI mutual funds on a

systematic risk-adjusted basis was conducted by Luther et al. (1992).[56] They investigate the risk-adjusted returns of 15 UK ethical trusts, and find weak evidence of either outperformance or underperformance of UK ethical unit trusts, as compared to their conventional benchmarks. Improving on the aforementioned study of Luther et al. (1992), Luther and Matatko (1994) used a two index model, consisting of a large cap index and a small cap index, to control small cap bias associated with SRI mutual funds. They show that, consistent with Luther et al. (1992), there is no statistically significant difference between the risk-adjusted return of UK ethical trusts compared to their conventional benchmarks, based on a sample of 9 UK ethical unit trusts that invest in the domestic market.

By using a matched sample approach, Mallin et al. (1995) compare the performance of 29 UK ethical funds to their conventional equivalent funds and indicate that, similarly to previous studies, there is weak evidence of a performance difference between UK ethical unit trusts and their conventional matched sample unit trusts. Improving the study of Mallin et al. (1995), Gregory et al. (1997) also used a matched sample approach, based on a two index model, which consists of a small cap index and a broad market index, to examine the performance of 18 UK ethical unit trusts. They show that, consistent with previous studies, the risk-adjusted performance difference between UK ethical funds and their conventional matched sample is statistically insignificant. A recent study carried out by Gregory and Whittaker (2007) improved on the previous studies by applying more rigorous models. Confirming previous studies' findings, they find that the performance of UK SRI funds does not significantly differ from the performance of their conventional peers, irrespective of the method used.

Similarly, empirical studies which investigate the US market show that the risk-adjusted performance of US SRI funds is comparable to that of their conventional counterpart funds. Hamilton et al. (1993) find that, on average, there are no statistically significant differences between the performance of 32 US SRI funds and their conventional counterpart funds. This is consistent with Reyes and Grieb (1998), who show that the risk-adjusted performance of 15 US SRI funds does not differ

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[56] Schroder, 2004.

significantly from that of conventional funds. Further supporting previous studies, Goldreyer et al. (1999) indicate that, on average, the risk-adjusted return between US SRI funds and their conventional counterpart funds is not statistically significantly different. Moreover, Guerard (1997) provides evidence based on equally weighted portfolios that there are no economically or statistically significant performance differences between the return of an unscreened 1,300 US stock universe and a 950 SRI-screened stock.

Statman (2000) extended previous studies by using two market benchmarks, conventional index and SRI index, to investigate the performance of 31 US SRI funds. He finds that the performance difference between the SRI funds and their conventional matched sample funds is not statistically significant, regardless of the benchmark used. Similarly, Bello (2005) used a matched sample approach to examine the performance of 42 US SRI funds that invest in the local US market. He shows that, consistent with previous studies, the performance of US SRI funds is indistinguishable from that of conventional funds, whether the benchmark used is conventional or SRI. Confirming previous studies, Benson et al. (2006) indicate that there is no statistically significant difference between the return of domestic US SRI funds and conventional funds.

In addition, latter studies have extended and improved upon previous studies by giving new evidence from different markets and employing more rigorous performance valuation models such as unconditional and conditional multi-factor models to control for investment style bias. Schroder (2004) examines the risk-adjusted return of 30 US and 16 German and Swiss SRI funds. He finds that neither the US nor the German and Swiss funds significantly underperform against their conventional benchmarks. Bauer et al. (2005) compare the performance of 55 US, 16 German and 33 UK SRI funds to their conventional counterpart funds. They show that the difference in performance between ethical and conventional funds is statistically insignificant, for all three countries.

Extending previous studies on the European market, Kreander et al. (2005) investigate the performance of 30 European SRI funds from across the whole continent. They endorse previous studies, by finding that the performance differences between

European SRI funds and their conventional matched sample funds are statistically insignificant. Similarly, Scholtens (2005) shows that the risk-adjusted returns of 12 Dutch SRI funds do not significantly differ from those of conventional funds.

By looking at a larger sample and considering new European countries, Cortez et al. (2009) further extended previous studies on SRI funds in the European market. They investigate the performance of 88 European SRI funds based on seven different European countries. They confirm previous studies that, in general, the performance of European SRI funds tends to be comparable to their market benchmarks. Cortez et al. (2011) extended their earlier study (2009) by examining the performance of 46 SRI funds that invest globally - 39 of which are based on European markets. They indicate that the performance of European SRI funds that invest globally do not significantly underperform from their market benchmarks. This is with exception to Austrian SRI funds which document significant underperformance compared to their benchmarks. Also, they find that globally, US SRI funds tend to underperform their market benchmarks.

More recent studies extended previous works by exploring new markets such as Australia and Canada, applying the commonly used valuation models. Consistent with previous studies, Bauer et al. (2006) find that the difference in risk-adjusted returns between Australian ethical funds and their conventional peer funds is statistically insignificant. Likewise, Bauer et al. (2007) show that the risk-adjusted returns of Canadian SRI funds do not differ significantly from those of their conventional equivalents.

Consistent with SRI mutual funds, empirical studies find that in general the performance differences between SRI indices and conventional indices are not statistically significant. Sauer (1997) investigates the performance of the Domini Social Index (DSI 400)[57] compared to its conventional counterpart indices, the S&P 500 index[58] and the CRSP index.[59] He shows that the performance difference between

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[57] It includes 250 companies that are included in the S&P 500 index, 100 non S&P 500 companies selected to provide industry representation and 50 non S&P 500 companies with particularly strong social characteristics (Statman, 2006).
[58] The S&P 500 index represents the largest 500 US listed companies.

the DSI 400 and both conventional indices is indistinguishable. This is consistent with Statman (2000) who finds that there is no statistically significant difference between the performance of the DSI 400 index and that of its conventional counterpart indices, the S&P 500 and the CRSP. Similarly, DiBartolomeo and Kurtz (1999) indicate that the performance difference between the DSI 400 index and its CORE portfolio[60] compared to the S&P 500 index was not meaningful.

Statman (2006) extended previous studies on SRI indices in the US market. He investigates the performance of four US SRI indices: Citizens Index, DJ Sustainability Index US, Calvert Index and the DSI 400 index. He compares them to the performance of the S&P 500 index. Confirming previous studies, he does not reject the hypothesis that the performance of SRI portfolios are equal to those of conventional portfolios, although some SRI indices tend to outperform the S&P 500 index while others underperform compared to it.

Furthermore, due to the availability of SRI indices in different countries/regions in recent years, recent studies extended previous works by examining the performance of different SRI indices that are available in different markets with a larger sample. Schroder (2004) and Schroder (2007) investigate the performance of 10 and 29 SRI indices respectively, based on different markets. Consistent with previous studies, Schroder (2004) indicates that in general the performance of SRI indices does not show any statistically significant difference from that of their conventional counterpart indices. Similarly, Schroder (2007) shows that the performance differences between SRI indices and their conventional counterpart indices do not seem to be statistically significant, regardless of the analysis method used. Vermeir et al. (2005) investigate the performance of six various SRI indices and show that there is no statistical risk-adjusted performance difference between SRI indices, when compared to their conventional counterparts. They conclude that a sustainability screening does not have to come at the expense of poorer risk-return characteristics.

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[59] It is the index of Chicago Center for Research in Security Prices.
[60] It is a portfolio that consists only of the 250 Domini stocks that are also members of the S&P 500 index.

Islamic Investment

Similar to SRI investment, there is empirical evidence to show that Islamic investment portfolios do not seem to provide inferior performance when compared to their conventional equals. Wilson (2001) and Ahmed (2001) indicate that Islamic mutual funds are financially viable and *Sharia*-compliant investments can compete with conventional mutual funds on a commercial risk/return basis. Elefakhani et al. (2005) examine the performance of 46 Islamic mutual funds that were classified into their geographical and sector objectives. They show that there is no statistically significant difference between the risk-adjusted performance of the Islamic mutual funds and their benchmark indices, regardless of whether the benchmark used is Islamic or conventional.

Confirming previous studies, Kraeussl and Hayat (2008) find that the risk-adjusted performance differences between Islamic mutual funds and their benchmark indices - whether Islamic or conventional - are not statistically significant. This is based on a sample of 59 Islamic mutual funds that were categorized into different geographical focuses. This is consistent with Abderrezak (2008), who investigates the performance of 46 Islamic mutual funds with different geographical focuses, by using conventional, Islamic and socially responsible benchmarks. He shows that there is no strong evidence of either outperformance or underperformance of Islamic mutual funds irrespective of the benchmark used.

By using a matched sample approach, Abdullah et al. (2007) examine the performance of 65 Malaysian mutual funds, 14 of which are Islamic. They find that the differences in performance between Islamic and conventional mutual funds are marginally significant. Similarly, Mansor and Bhatti (2011) used a matched sample approach to investigate the performance of 350 Malaysian mutual funds, 128 of which are Islamic, and find that the return difference between both types of Malaysian mutual funds is statistically insignificant. Likewise, Hassan et al. (2010) indicate that there are no convincing performance differences between Islamic and non-Islamic Malaysian unit trust funds.

Hoepner et al. (2009) extended previous studies by investigating the performance of 262 Islamic mutual funds that are available in twenty Muslim and non-Muslim

countries. They show that on average Islamic mutual funds do not significantly underperform against their international benchmarks, if a home economy of an Islamic mutual fund has a high density of Muslim consumers coupled with being a relatively well developed market for Islamic financial services, such as GCC and Malaysia. Merdad et al. (2010) indicate that Islamic mutual funds managed by HSBC in Saudi Arabia tend to underperform their conventional counterparts during full period and bullish period, but they outperform conventional funds during bearish period and those of financial crisis.

On the other hand, Hoepner et al. (2009) indicate that in general, Islamic equity mutual funds that are available in non-Muslim countries tend to trail their equity market benchmarks. Alkassim (2009) investigates the performance of a sample of 28 Islamic equity mutual funds, 13 globally-oriented mutual funds and 15 Malaysian-oriented mutual funds. He finds that Islamic mutual funds tend to underperform their Islamic and conventional market benchmarks. However, neither study indicates whether the underperformance of Islamic equity mutual funds is due to *Sharia* criteria or due to managerial skills, since they did not use a matched sample approach. Furthermore, Alkassim (2009) indicates that Islamic mutual funds also underperform as compared to their Islamic benchmarks. This implies that the underperformance of Islamic mutual funds seems to be due to managerial skills, since Islamic mutual funds (in his sample) also underperform Islamic indices which have similar *Sharia* restrictions.

In addition, there is also empirical evidence that the performance difference between Islamic indices and conventional indices seems to be statistically insignificant. Hussein (2004) shows that over the entire examined period there was no significant difference between the performance of the FTSE Global Islamic index and the FTSE ALL World index. Hakim and Rashidian (2004) confirm that the Dow Jones Islamic Market index provides a risk-adjusted return performance that mirrors the performance of the Dow Jones World index.

To improve upon previous studies, and boost the robustness of their own result, Girard and Hassan (2005) used unconditional and conditional multi-factor models.

This is to control for investment style bias and allow for time varying beta, to examine the performance of seven Dow Jones Islamic indices that are based on different markets. They find that the performance difference between Islamic and conventional indices remains negligible. By using similar models, Girard and Hassan (2008) investigate the performance of the Islamic FTSE indices family compared to their conventional FTSE counterparts, and conclude that the performance difference between both groups is indistinguishable. Confirming the above studies, Hashim (2008) indicates that there is no statistically significant difference between the return of the FTSE Global Islamic compared to its conventional counterpart, the FTSE Global.

Likewise, Ahmad and Ibrahim (2002) and Albaity and Ahmad (2008) provide empirical evidence that the performance difference between the Kuala Lumpur *Syariah* Index (KLSI) and the Kuala Lumpur Composite Index (KLCI) is not statistically significant, regardless of the performance measure used. Dharani and Natarajan (2011) provide new evidence on Islamic investment portfolios in an Indian market, by examining the performance of the Nifty *Shariah* index and Nifty index. They show that - consistent with previous studies - both indices provide similar performance, since the performance difference between them does not seem to be statistically significant.

On the other hand, some studies find that Islamic indices tend to outperform their conventional counterparts. Hussein (2005) examines the performance of two Islamic indices, the Dow Jones Islamic Market index (DJIM) and the FTSE Global Islamic index. He finds that, in the long run, there is clear evidence that Islamic indices outperform their conventional counterpart indices; however they fail to maintain their superior performance during the subsamples. Hussein and Omran (2005) investigate the performance of the Dow Jones Islamic Market index (DJIM) and its 13 sub-indices that are based on different sizes and industries, compared to their conventional equivalent indices. They show that - consistent with Hussein (2005) - Islamic indices provide statistically significant positive abnormal returns, compared to their conventional counterpart indices for the entire period. However, Islamic indices do not tend to sustain their positive abnormal returns during the bear sub-period. Abul Hassan et al. (2005) examine the performance of the Dow Jones Islamic market index

compared to the conventional Dow Jones American index. They indicate that the performance of the Dow Jones Islamic market index is statistically significantly higher than its conventional counterpart index.

5.3 Risk

It can be argued that SRI and *Sharia* screening processes might lead to riskier investment portfolios, due to influencing the investment portfolios to have relatively less diversification as compared to their unrestricted conventional counterparts. Most of previous studies find that Islamic investment portfolios are more likely to be less exposed to the systematic risk compared to their conventional counterparts. The evidence surrounding the risk associated with SRI investment portfolios is not conclusive. The literature of such risk is reviewed next.

Socially Responsible Investment

The result of the examination of risk associated with SRI, as compared to conventional investment, is not conclusive. Luther et al. (1992) indicate that the systematic risk of the UK ethical unit trusts tends to be less than that of the market index, whether domestic or international. Mallin et al. (1995) find that the systematic risk of UK ethical unit trusts tends to be lower than the market index, as well as being lower than their conventional matched sample unit trusts. This is consistent with Gregory and Whittaker (2007), who show that UK ethical unit trusts seem to be significantly less risky than their conventional counterpart unit trusts, and that both of these tend to be less risky and less sensitive to the market movement.

Such findings are not exclusive to UK SRI mutual funds. Bauer et al. (2005) indicate that SRI funds in the US, UK and Germany tend to be significantly less sensitive to the market movements compared to their conventional counterpart funds. Similarly, Kreander et al. (2005) find that, on average, European SRI funds seem to be significantly less risky than their conventional matched pair funds. Confirming previous studies, Bauer et al. (2006) show that the systematic risk of domestic and international Australian ethical funds tend to be significantly less than that of their conventional counterpart funds. Bauer et al. (2007) indicate that Canadian SRI mutual funds tend to be less exposed to systematic risk than the market index, but their

systematic risk seems to be similar to their conventional equivalent mutual funds. However, Bello (2005) and Scholtens (2005) indicate that the domestic US and Dutch SRI funds respectively seem to be significantly more volatile than their conventional counterpart funds.

On the other hand, there is empirical evidence that SRI indices seem to be more volatile and more sensitive to the market movement than conventional indices. DiBartolomeo and Kurtz (1999) and Statman (2000) show that the risk associated with the DSI 400 index seems to be higher than that of the S&P 500 index. This is consistent with Statman (2006), who finds that US SRI indices tend to have a higher risk factor compared to the S&P 500 index. However, Sauer (1997) argues that, although the risk of the DSI 400 index is higher than both conventional indices (the S&P 500 and the CRSP), the risk difference between the two groups of indices is not statistically significant. Garz et al. (2002) indicate that the European DJSI is more aggressive than the composite universe of European shares, since it has greater systematic risk. Schroder (2007) finds that, consistent with previous studies, SRI indices tend to have significantly higher systematic risk than conventional indices. This is despite the fact that there are a few SRI indices showing lower systematic risk than their conventional counterpart indices.

Islamic Investment

Empirical studies indicate that Islamic investment portfolios tend to be less risky than their conventional counterparts. Abdullah et al. (2007) find that Islamic funds are less risky and less sensitive to the market volatility compared to conventional funds. Muhammad and Mokhtar (2008) find that Malaysian Islamic equity mutual funds are less sensitive to the market measured by the Kuala Lumpur Syariah Index (KLSI). In fact, Islamic mutual funds not only seem to be less sensitive to the volatility of the conventional market benchmarks but also less sensitive to the volatility of the Islamic market benchmarks. Kraeussl and Hayat (2008) indicate that Islamic equity mutual funds have lower systematic risk compared to broad market indices - both conventional and Islamic. Likewise, Abderrezak (2008) show that Islamic equity mutual funds seem to have *betas* less than unity, regardless of the benchmark used. Confirming previous studies, Hoepner et al. (2009) find that Islamic mutual funds tend to have a *beta* that is significantly less than unity. Merdad et al. (2010) indicate

that regardless of the benchmark used, whether Islamic or conventional, the systematic risk for Islamic funds is always lower than their conventional counterparts during the financial crisis period.

Similarly, Hakim and Rashidian (2002) find that the total risk of the US Dow Jones Islamic Index seems to be less than that of the Wilshire 5000 index. In another study, Hakim and Rashidian (2004) indicate that the Dow Jones Islamic Market index is less sensitive to volatility in systematic risk than the Dow Jones World index. Girard and Hassan (2005) also find that the Dow Jones Islamic indices family tends to be less risky than the conventional MSCI index family. This is in line with Hussein (2005), who indicates that both the Dow Jones Islamic Market index (DJIM) and the FTSE Global Islamic index seem to have betas less than unity, compared to the conventional MSCI world market's index. Confirming previous studies, Al-Zoubi and Maghyereh (2007) assess the risk associated with the DJIM index, compared to its conventional counterpart DJW index. They show that the risk level of the DJIM is significantly less than the DJW broad market basket of stocks. Likewise, Ahmad and Ibrahim (2002) and Albaity and Ahmad (2008) find that the Kuala Lumpur Syariah Index (KLSI) is less risky than the Kuala Lumpur Composite Index (KLCI).

On the other hand, Hussein (2004 and 2005) indicates that the Dow Jones Islamic Market index (DJIM) and the FTSE Global Islamic index tend to be associated with higher risk than their conventional counterpart indices, the Dow Jones World index (DJW) and the FTSE All-World index respectively. Similarly, Hashim (2008) finds that the systematic risk of the FTSE Global Islamic is higher than its conventional counterpart, the FTSE Global. Mansor and Bhatti (2011) indicate significant higher total risk associated with Malaysian Islamic mutual funds compared to their conventional counterparts.

5.4 Investment Style

There is empirical evidence proven by previous studies that, in general, SRI and *Sharia* screening processes tend to influence the investment style of SRI and Islamic investment portfolios, compared to their unrestricted conventional counterparts. The literature on the investment style of SRI and Islamic investment is reviewed below.

Socially Responsible Investment

Some previous studies find that SRI mutual funds seem to be dominated by small and growth companies. Luther et al. (1992) find that there is clear evidence that UK ethical unit trusts tend to be more skewed towards small capitalization companies, and low dividend yield companies. Luther and Matatko (1994) indicate that the returns of UK ethical unit trusts are not only influenced by the broad value weighted market index, but also by small cap index. Gregory et al. (1997) show that UK ethical unit trusts have significantly greater exposure to small companies than their conventional matched samples. Consistent with previous studies, Gregory and Whittaker (2007) indicate that there is significant small and growth companies' exposure associated with UK ethical unit trusts.

Likewise, Cortez et al. (2011) find that globally-oriented SRI funds in the US and Europe (including UK) tend to be biased towards small stock and growth stocks. Consistent with previous studies, Scholtens (2005) finds a small cap bias associated with Dutch SRI funds, as compared to their conventional counterparts. However, unlike previous studies, he indicates that Dutch SRI funds tend to be biased towards value stocks rather than growth stocks. Likewise, Bauer et al. (2006) find local Australian SRI funds to be influenced by small and value stocks.

On the other hand, US SRI mutual funds do not tend to be affected by small companies. Bello (2005) finds that the SRI screening process does not seem to influence the US SRI mutual funds to target smaller companies than conventional mutual funds of similar asset size do. In fact, US SRI mutual funds tend to overweight large companies instead of small ones. Schroder (2004) also indicates that while the German and Swiss SRI funds tend to be tilted towards small companies, US SRI funds tend to overweight large companies. Confirming previous studies, Bauer et al. (2005) find that UK and German SRI funds tend to be more exposed to small caps, whereas US SRI funds are more exposed to large caps. In addition, they find that (consistent with previous findings) both European and US SRI mutual funds tend to be more growth-oriented, or less value-oriented, compared to their matched samples of conventional funds.

In addition, there is empirical evidence that SRI indices seem to be tilted towards growth companies when compared to conventional indices, but there is no evidence of a small cap bias. Guerard (1997) indicates that the DSI 400 index seems to have a higher exposure to growth cap compared to the S&P 500. DiBartolomeo and Kurtz (1999) report similar findings. Garz et al. (2002) indicate that there tends to be a growth tilt associated with the European Dow Jones Sustainability index (DJS). This is in line with Statman (2006), who shows that - while the S&P 500 index is biased towards value stocks - the DSI 400 index is biased towards growth stocks.

Likewise, Kempf and Osthoff (2007) find that the high-rated SRI portfolio tends to be skewed towards growth stocks, compared to the low-rated SRI portfolio. However, they show that the investment style differences between the two portfolios are not significant. Statman and Glushkov (2008) indicate that SRI portfolios tend to be skewed towards growth stocks, and also high momentum stocks. On the other hand, Vermeir et al. (2005) find that, in general, SRI indices tend to be significantly more exposed to large cap, but their exposure to book-to-market factor (value/growth) is not significant.

Statman and Glushkov (2008) argue that applying different SRI criteria influences the investment style of the SRI portfolios differently. They find that community, employee relations, environment and products criteria tend to be growth bias. In contrast, diversity, human rights, and governance tend to be value bias. Furthermore, community, employee relations and diversity criteria tend to be skewed towards large companies, whereas environment, products, human rights and governance criteria seem to lean towards small companies. This might explain the inconsistency of previous studies in terms of the investment style of SRI portfolios. This is because different SRI portfolios apply different sets of SRI screening criteria, and this might result in a different investment style.

With regards to sector exposure, there is evidence that SRI portfolios and conventional investment portfolios seem to have significant differences (DiBartolomeo and Kurtz, 1999). Sectors such as industrials, energy, chemical and basic materials are classic sectors that tend to be excluded or underweighted in the SRI portfolios, owing to their high environmental risk (Garz et al., 2002 and Statman,

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2006). On the other hand, SRI portfolios tend to be more exposed to information technology, telecommunication services, healthcare and financial service sectors when compared to conventional investment portfolios (Garz et al., 2002, Schroder, 2004 and Statman, 2006).

Islamic Investment

Most previous empirical studies find that Islamic investment portfolios tend to be more exposed to small and growth stocks. This implies that small and growth companies are more likely to pass *Sharia* screening criteria than both large and value companies. Girard and Hassan (2005) show that the Dow Jones Islamic indices family has more investments in growth and small companies, whereas the conventional MSCI indices family is relatively more invested in value stocks. Likewise, Forte and Miglietta (2007) indicate that the FTSE Islamic Europe index tends to be strongly tilted towards growth stocks. Abderrezak (2008) finds that Islamic mutual funds seem to have a significant exposure to small and growth companies. Kraeussl and Hayat (2008) indicate that Islamic mutual funds tend to overweigh growth companies, and therefore they tend to focus on capital appreciation rather than dividends. Hoepner et al. (2009) find that, in general, Islamic mutual funds tend to be tilted towards small companies, but not growth companies. Hassan et al. (2010) show that, while Malaysian Islamic unit trust funds are small cap oriented, non-Islamic unit trust funds in Malaysia are focused on value.

Furthermore, in terms of a sector focus, Hussein and Omran (2005) investigate the dominant driving factors of the DJIM index's abnormally high return and find that small size, basic materials, consumer cyclical, industrial and telecommunication sectors are the dominant driving factors, rather than solely the technology sector, as is widely believed. Forte and Miglietta (2007) show that as a result of being a growth-tilted portfolio, the FTSE Islamic Europe index tends to overweigh growth sectors, such as industrials, consumer goods, healthcare and consumer services. Kraeussl and Hayat (2008) indicate that the DJIM has a 40% weight in technology and healthcare, divided almost equally between these two sectors. Furthermore, they find that Islamic investment portfolios tend to be more exposed to non-cyclical consumer goods, basic materials, information technology and industrial respectively, besides investing in the telecommunication and utilities sectors.

5.5 Investment Skills of Mutual Fund Managers

This section presents the literature review on the investment managerial skills of socially responsible and Islamic mutual fund managers respectively.

Socially Responsible Mutual Funds

There is empirical evidence that, similar to conventional mutual funds' managers, socially responsible mutual fund managers do not seem to possess superior management skills. Kreander et al. (2005) indicate that both types of funds - socially responsible and conventional - tend to suffer from poor market timing. However, the difference between both types of funds in terms of market timing ability is not statistically significant. On the other hand, they show that the stock selection ability of fund managers tends to be significantly positive for the majority of the funds, regardless of whether the funds are socially responsible or conventional.

Schroder (2004) finds that German and Swiss socially responsible funds seem to have poor market timing ability, whereas the market timing ability of US socially responsible funds tends to be more neutral. Benson et al. (2006) indicate that on average, both types of US funds, socially responsible and conventional, are unable to pick bargain stocks. Nevertheless, there is evidence that that the management skills of socially responsible funds are improving over time, as they gain experience (Bauer et al., 2005 and Bauer et al., 2006).

Islamic Mutual Funds

Similar to conventional and socially responsible mutual fund managers, on average, Islamic mutual fund managers do not seem to have superior stock selection or market timing abilities. Abdullah et al. (2007) indicate that managers of both types of Malaysian mutual funds, Islamic and conventional, have inferior stock selection and market timing abilities. Similarly, Elefakhani et al. (2005) show that, in general, Islamic equity mutual funds have the tendency to poorly time the market and select bargain stocks, although some Islamic equity mutual funds show distinctive stock selection and market timing skills. Confirming previous studies, Abderrezak (2008) finds that Islamic equity fund managers have poor stock selection abilities.

Consistent with previous studies, Kraeussl and Hayat (2008) find that Islamic equity fund managers do not show superior management skills. They indicate that, on average, Islamic mutual funds' managers are not able to significantly time the Islamic equity market, nor are they able to pick bargain stocks. This is despite the fact that some Islamic equity funds' managers showed good active management skills. Also, they show that these managers seem to be a little worse at outperforming conventional benchmarks than Islamic benchmarks, but the difference is rather small. Alkassim (2009) also documents poor managerial investment skills associated with Islamic mutual fund managers.

Finding that, on average, neither socially responsible nor Islamic mutual fund managers seem to possess a talent for management skills, in terms of market timing and stock selection abilities, is not surprising. This is because similar findings have been documented for conventional mutual fund managers.[61] Thus, such a phenomenon does not seem to be due to the restrictions imposed by *Sharia* or socially responsible principles. Rather, it is a more general occurrence.[62]

Reviewing the literature of Islamic investments reveals that there is a lack of empirical research examining the impact of *Sharia* screening criteria on the investment characteristics of Islamic mutual funds as compared to conventional and socially responsible investments. In particular, the performance, risk and investment style of Islamic equity mutual funds in Saudi Arabia, the world's largest home market for the Islamic mutual funds industry, have not been rigorously investigated so far. This indicates a gap in the literature of the Islamic mutual funds which needs to be filled.

The present study significantly improves upon the study of Merdad et al. (2010) and differs from it on various grounds. Merdad et al. (2010) use a sample of mutual funds managed by HSBC only, whereas the present study uses all the exiting equity mutual funds in Saudi Arabia that are managed by different investment institutions.

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[61] The managerial investment skills of conventional mutual funds have been discussed in Chapter 2, Section 2.3.5.
[62] This issue has been discussed in Chapter 2, Section 2.3.5.

Furthermore, the study of Merdad et al. (2010) suffers from methodological shortcomings. They pooled all types of mutual funds regardless of their asset class (money market, fixed income and equity) and their geographical focus in global and local equally weighted portfolios, both Islamic and conventional.

In other words, they used global and local equity market indices to measure portfolios that consist of different asset classes and investments in different global geographical markets. Such an approach introduces bias especially towards not using an appropriate benchmark. This is also evident by reporting lower R square of the regressions, indicating that the benchmark indices used are not good explanatory variables for mutual funds' performance. In addition, they did not investigate whether the risk adjusted performance difference between Islamic and conventional mutual funds is statically significant or not. Also, they did not employ a multi index model which is commonly used for mutual funds' performance measurement to control for an investment style bias.

Furthermore, as it has been pointed out, by definition, Islamic investment portfolios can be considered under the broad umbrella of SRI portfolios since they apply ethical screening criteria. However, in practice, the screening processes of the two groups differ vastly. The question that has not been answered by previous studies is whether applying different sets of screening criteria, particularly socially responsible and Islamic, influences the investment characteristics differently. Thus, the present study fills the gap in the literature by comparing the investment characteristics of Islamic investment portfolios to their socially responsible counterparts. In addition, the impact of incorporating socially responsible screening criteria to the traditional Islamic investment has not so far been investigated. This is notwithstanding that the impact of incorporating such screening to the conventional investment portfolios has already been greatly investigated. This is another gap in the literature that will be plugged by the present study.

At the methodological level, most of the previous studies in Islamic investment portfolios suffer from methodological problems, such as (among others) the empirical model used and their statistical significance, benchmarking bias and inconsistency of the sample data. This raises doubts about the robustness of their findings. To improve

upon this, the present study employed the widely used empirical models that have proven their validity for a sample of passive indices' portfolios, and actively managed mutual funds' portfolios. Also, a matched sample approach is used to allow for direct comparison between different groups of investment portfolios. By filling the gap and extending the literature on Islamic investment portfolios, the research aims to contribute to the development of Islamic finance and investment.

5.6 Conclusion

This chapter reviews the literature on the impact of socially responsible and *Sharia* screening processes on the investment characteristics, in terms of performance, risk and investment style. There is empirical evidence that, on average, the performance differences between socially responsible investment portfolios and their conventional counterparts do not seem to be statistically significant. Similarly, the performance of Islamic investment portfolios does not appear to differ significantly from that of their conventional counterparts. This result holds true based on both passive indices and actively managed mutual fund portfolios, and regardless of the model used. This implies that, in general, both types of restricted investment portfolios, socially responsible and Islamic, tend to provide similar returns when compared to their conventional counterparts. Hence, there is no loss from the restrictions that socially responsible and Islamic screening criteria impose, since both can compete with their conventional investment peers.

In addition, with regards to the risk associated with the two investment groups, previous empirical studies show that the risk associated with Islamic investment portfolios tends to be less than that of their conventional counterparts. In contrast, the results of the risk associated with socially responsible investment is not conclusive; while some studies find higher risk associated with this, as compared to their conventional counterparts, others find the opposite is true. In addition, previous studies find that socially responsible and *Sharia* screening processes seem to influence the investment style of the portfolio. Islamic investment portfolios are more likely to overweight small and growth caps, but underweight large and value

companies. In contrast, the result of the investment style associated with socially responsible investment is not conclusive.

Inconsistency in the previous studies' findings regarding the risk and investment style associated with socially responsible investments might be because different socially responsible investors apply different sets of screening criteria, which might affect the investment characteristics differently. This seems to be a plausible explanation for such a phenomenon. Moreover, similar to conventional mutual fund managers, socially responsible and Islamic fund managers do not seem to possess superior investment skills regarding stock selection, or market timing abilities.

Chapter 6

Research Methodology and Empirical Models

6.1 Introduction

In order to obtain reliable results and conclusions, it is important to ensure the suitability and reliability of the research methodology and empirical models employed in the study. As pointed out in Chapter 1, there are four main objectives associated with the present research.[63] The first objective is to critically review the *Sharia* investment screening process. Second is to investigate the impact of applying *Sharia* screening criteria on the investment characteristics of Islamic equity mutual funds in Saudi Arabia in terms of performance, risk and investment style as compared to their conventional counterparts. Thirdly, the aim is to compare the investment characteristics of Islamic investment portfolios with conventional and conventional socially responsible investment portfolios in terms of performance, risk and investment style. The final objective is to examine the result of incorporating conventional sustainability socially responsible screening criteria to the traditional *Sharia* screening process on the investment characteristics, performance, risk and investment style, of Islamic sustainability investment portfolios. Thus, this chapter discusses the methodology and empirical models that are used in the study in order to fulfil the research aims and objectives.

The remainder of the chapter is organized as follows: section 6.2 discusses the research methodology, to include the research approach, research design and strategy and research methods; section 6.3 illustrates the empirical models used to investigate the investment characteristics of Islamic, conventional and socially responsible portfolios in terms of performance, risk and investment style; section 6.4 gives a conclusion.

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[63] The research questions and testable hypotheses were discussed in great detail in Chapter 1.

6.2 Research Methodology

Research methodology comprises the research procedures and its rationale to help solve the research problems, in order to meet the research objectives and goals (Kumar, 2008). In other words, the research methodology is the broad research framework that includes the research approach, design, strategy and research methods (Saunders et al., 2007). This section discusses the research methodology used in the study, in terms of research approach, design/strategy, and research methods.

6.2.1 Research Approach

The research approach shows how theory and research are linked together; in the main, research approaches are either deductive or inductive, and these can be employed either singly or collectively (Bryman and Bell, 2003; Saunders et al., 2007). A deductive approach is considered as a general orientation towards the nature of the relationship between theory and social research, whereby the hypotheses are deduced from the theory first; this then leads to the process of gathering data, and the hypotheses being either confirmed or rejected (Bryman and Bell, 2003). On the contrary, with an inductive approach, data are collected first and then a theory developed as a result of the data analysis. Thus, with an inductive approach, theory would follow data rather than vice versa (Saunders et al., 2007). This approach can be considered as an alternative approach of linking empirical research to theory (Bryman, 2001). In other words, while the existing theory leads to observations and findings with a deductive approach, the theory is the outcome of observations and research in the indicative approach (Bryman and Bell, 2003; Saunders et al., 2007).

Therefore, the main difference between the two approaches is basically built around how a theory or hypothesis is arrived at, and how the data is then treated. It is worth noting that there is no rigid division between deduction and induction approaches, since deduction entails an element of induction, and similarly the inductive process is likely to contain a bit of deduction (Bryman, 2001 and Saunders et al., 2007).

The choice of the research approach is influenced by the nature of the research topic being investigated and the way in which a researcher chooses to answer the research questions (Creswell, 1994). Creswell (1994) argues that the deductive approach is

more appropriate in a research topic on which there is a wealth of literature, as a theoretical framework and a hypothesis can be defined from this base of knowledge. In contrast, with research into a topic on which there is little existing literature, it may be more appropriate to work inductively, by generating data and reflecting upon what theoretical themes the data suggest. Therefore, neither can be seen as a superior research approach since their selection depends on the research questions and subject matter being investigated (Saunders et al., 2007; Ghauri et al., 2010). The present research follows the deductive approach, where the theory and its deduced hypotheses come first and lead the process of data gathering and analysis. The process is later illustrated in Figure 6.1.

6.2.2 Research Design/Strategy

A research design is a general plan of how the research questions will be answered and hence, it turns the said questions into a research project (Saunders et al., 2007; Ghauri et al., 2010). In other words, the research design provides a framework for the collection and analysis of data and it therefore represents a structure that guides the execution of a research method (Bryman and Bell, 2003). There are different research designs that can be applied and the choice of design should always be based on the research questions and objectives, as well as being consistent with the research philosophy and approach (Bryman and Bell, 2003). The main four research designs that are frequently used in social science are experimental design, cross-sectional design, case study design and comparative design. These research designs are not necessarily mutually exclusive (Bryman, 2001 and Saunders et al., 2007). A brief description of each of the above is presented below.

Experimental Design: This design examines how the dependent variable responds to the independent variable, which is the experimental treatment. In the classical experimental design, two groups are established – an experimental and a control - whereby the former group receives the experimental treatment/intervention, while the latter does not (Saunders et al., 2007). Then, the dependent variable is measured before and after the manipulation of the independent variable (experimental treatment) so that the analysis can be conducted both before and after the intervention (Bryman, 2001). The members of the experimental and control groups are assigned randomly and hence, the only difference between the two groups for the dependent

variable is attributed to the experimental manipulation/intervention, since the control group is subject to exactly the same external influences as the experimental group, except from the planned intervention (Saunders et al., 2007).

Case Study Design: This design entails the detailed exploration of a specific case (a country, community, organization, etc.), and the emphasis tends to be upon an intensive examination of the case being investigated (Bryman, 2001). The focus of interest in the case study being examined is concentrated on its unique features. This uniqueness distinguishes a case study design from other research designs, which are concerned with generating statements applicable regardless of time or place (Bryman, 2001). In other words, the case being examined is an object of interest in its own right, and the researcher aims to provide an in-depth analysis of it. Unless such a distinction is used, it becomes impossible to differentiate the case study as a special research design because almost any kind of research can be constructed as a case study (Bryman, 2001).

Cross-Sectional Design: This design entails the collection of data across more than one case and at a single point in time (Bryman, 2001). In other words, the cross-sectional design is associated with the study of a particular phenomenon at a particular time (Saunders et al., 2007). Researchers employing the cross-sectional design are interested in disparity between variables (Bryman, 2001).

Comparative Design: This design studies at least two or more contrasting cases and data are collected from each case, usually within a cross-sectional design format, simultaneously (Bryman, 2001). The advantage of such a research design is that social phenomena can be understood better when they are compared in relation to two or more meaningfully contrasting cases or situations (Bryman, 2001). Furthermore, the main argument in favour of multiple case studies is that it improves theory-building, since by comparing two or more cases, the researcher is in a better position to establish the circumstances in which a theory will or will not hold (Bryman, 2001).

It is worth emphasizing that no research strategy is superior or inferior to any other and what is most important is not the label that is attached to a particular strategy, but whether it enables the researcher to answer the research questions and meet his/her

objectives (Saunders et al., 2007). The present study uses a combination of different research designs and strategies to strengthen the findings. The case study research design is implemented where the study concentrates on Islamic equity mutual funds in Saudi Arabia. The Saudi market is an object of interest in its own right and this fulfils the criteria of the case study design. The reason for using the case study design is to obtain greater insight and understanding of the investment characteristics of Islamic equity mutual funds in Saudi Arabia - the world's largest home market for Islamic mutual funds industry, which has not so far been investigated rigorously. Furthermore, the Saudi market is a relatively developed market for Islamic financial services, where there is a wide range of Islamic mutual funds available and therefore the research can be executed.

In addition, the comparative research design has also been adopted by relating the investment characteristics of Islamic and Islamic socially responsible portfolios to conventional and conventional socially responsible investment portfolios, based on a sample of mutual funds and market benchmarks. This is done to further enhance the robustness of analysis, and validity of any conclusions.

6.2.3 Research Methods

Once the research strategy and design have both been selected, different methods can be used to collect and analyze data and information, in order to address the research question. A research method is a technique for collecting data by employing different approaches, such as structured interviews, questionnaires or participant observations, etc. (Bryman and Bell, 2003). In other words, the research method is related to the details of how the data is being collected and analyzed. As indicated by Bryman (2001), research methods are needed to collect data, since simply choosing the research strategy and design will not provide data.

The main research methods employed are quantitative and qualitative, and these methods can be used with varying kinds of research strategy and design (Sekaran, 2003). A quantitative research method emphasizes quantification in the collection and analysis of data, whereas qualitative research method usually focuses on words rather than quantification in the collection and analysis of data (Bryman and Bell, 2003; Saunders et al., 2007). Thus, the main obvious difference between both research

methods is that while quantitative research method entails the collection of numerical data and employing measurement, qualitative research tends to be concerned with words (Bryman, 2001). The present study employs quantitative research methods in data collection and analysis. Secondary data on the net asset values of Islamic and conventional equity mutual funds, as well as market indices' benchmarks, were collected in order to test the hypotheses. Also, the widely used empirical models which have proven their validity in similar studies are also employed here. This is common with deductive research approach - typically associated with a quantitative research method (Bryman, 2001). Also, the nature of the study requires using quantitative research method for data collection and analysis.

Table 6.1 below summarizes the research methodology used in the study, in terms of research approach, research design and strategy and research methods respectively.

Table 6.1: A Summary of the Research Methodology used in the Study

Research Methodology Component	Description
Research Approach	A deductive approach is implemented where the theory and the hypotheses come first, and in turn drive the process of gathering data and then, the hypotheses are subjected to empirical tests to be either confirmed or rejected.
Research Design and Strategy	A combination of a case study research design and a comparative research design is used to strengthen the findings. The case study design is employed where the focus is on Islamic equity mutual funds in the Saudi market, and investigating such a market is an object of interest in its own right. Regarding the comparative research design, the investment characteristics of Islamic and Islamic socially responsible portfolios are compared to conventional and conventional socially responsible investment portfolios, based on a sample of mutual funds and market benchmarks.
Research Method	A quantitative method is applied where the secondary data is collected from reliable sources and the widely empirical models - which have proven their validity in similar studies - are employed.

6.2.4 The Research Approach Used in the Thesis

Figure 6.1 shows the process of deduction as identified by Bryman and Bell (2003), and implemented in the present research. The process is briefly highlighted below and will be discussed in greater details in subsequent sections and chapters.

Figure 6.1: The Process of Deduction Research Approach used in the Study

Theory

Hypotheses

Data Collection

Analysis Methods

Findings

Confirming/Rejecting Hypotheses
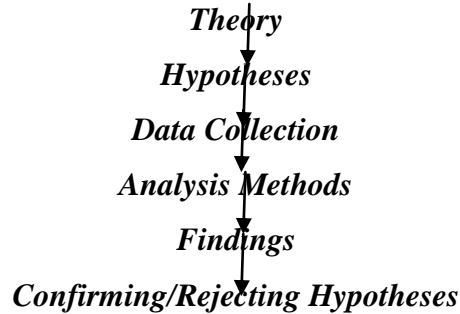
Source: Adopted from Bryman and Bell (2003).

Theory

As discussed in Chapter 1, there are two opposing views regarding the economic viability of restricted socially responsible and Islamic investment portfolios, due to imposing non-financial screening criteria on the investment decision. The first point of view is that, from the portfolio theory side, restricting the menu of assets available might lead to less efficient and sub-optimal investment portfolios, which is consequently expected to adversely affect the performance of the investment portfolio. This is because excluding certain industries/companies restricts the investment portfolio, which might lower the returns and reduce the level of diversification. In addition, as a result of restricting the investment universe and reducing the level of diversification, such investment portfolios are more likely to be riskier than their conventional counterpart portfolios. On the other hand, those who are in favour of Islamic and socially responsible screening processes argue that such screening criteria should lead to superior performance due to selecting reputable firms that are financially stronger and more profitable.

Hypotheses

As indicated earlier the main objective of this study is to investigate the impact of applying *Sharia* screening criteria on the investment characteristics of Islamic

investment portfolios compared to conventional and socially responsible investment portfolios. The investment characteristics examined are performance, risk and investment style. To investigate these issues, four research questions and nine related hypotheses have been developed. The hypotheses to be tested are presented in greater detail in Chapter 1.

Data Collection

Secondary time series data on mutual funds' historical net asset values, and benchmark indices' historical values, as well as other related economic time series data were collected from different sources. The secondary data on historical net asset value of both types of equity mutual funds in Saudi Arabia (Islamic and conventional) were gathered from the Saudi stock exchange (*Tadawul*). The secondary data on the historical values of market benchmark indices, both Islamic and conventional, as well as on different investment styles, such as small, large, value and growth indices, were collected from Morgan Stanley Capital International (MSCI). Also, data on historical values of conventional and Islamic market indices, and their subset socially responsible indices were collected from Dow Jones and FTSE. Other related economic variables such as the 3-month US Treasury bills were collected from DataStream. The features of these data are discussed further in Chapters 7 and 8.

Analysis Methods

The nature of the study requires using quantitative analysis techniques to analyze the secondary time series data. Several empirical models that are the most widely used, and have proven their validity in similar studies, were applied in this research. These specific models used are discussed in greater detail in section 6.3, below.

Findings and Confirming/Rejecting Hypotheses

The findings of the study are presented in Chapters 7 and 8 and discussed in Chapter 9. These chapters also test all the hypotheses listed in Chapter 1.

6.3 Empirical Models

This section discusses the empirical models used in the study to test the hypotheses in order to meet the research objectives and questions. In particular, the empirical models investigate the investment characteristics of Islamic and Islamic socially responsible investment portfolios, as compared to conventional and conventional socially responsible investment portfolios, in terms of performance, risk and investment style respectively. The analysis is based on a sample of managed mutual funds, as well as market indices' benchmarks. The empirical analysis is carried out at different levels: firstly, absolute performance analysis is presented, before risk-adjusted performance analysis ratios such as Treynor and Sharpe's are carried out. Finally, risk-adjusted single-index and multi-index equilibrium models, are discussed. These models are chosen because the theories underlying the models are well established. Also, they have been subjected to rigorous empirical tests in the previous studies for conventional mutual funds, as well as in studies centring on SRI and Islamic mutual funds.

It is common practice to use the continuously compounded returns (natural log) to reduce the effect of any skewness in the return distribution (see, for example, Jensen 1968, Gregory et al., 1997 and Kreander et al., 2005). The monthly continuously compounded return is calculated as follows:

$$R_p = Ln\ (P_t\ /\ P_{t\text{-}1}) \tag{6.1}$$

Where R_p is the portfolio's return, Ln is the natural log, P_t is the index value at time t and $P_{t\text{-}1}$ is the index value at time t-1.

6.3.1 Performance Analysis

Absolute Performance Analysis

The absolute performance analysis shows the raw return of the investment portfolios, without taking into account the risk associated with such returns. This is donated by measuring the mean return, which is calculated as the average return over the examined period.

$$Rp = \frac{1}{n} \sum_{i=1}^{n} Rpt \tag{6.2}$$

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Where R_p is the average rate of return on portfolio p, R_{pt} is return on portfolio p at time t and n is the number of observations. In addition, the paired sample statistical t-test is used to examine whether any of the differences in the mean returns between different groups of investment portfolios are due to chance or statistically significant. The t-statistics for equality in means is calculated as follows:

$$t= D/S_D$$

Where D is the difference between the two means, S_D is the standard error of the difference between the two means. The null hypothesis of the t-statistical test is that the mean return of both groups of examined investment portfolios is not significantly different.

Risk-Adjusted Performance

Unlike absolute performance, risk-adjusted performance considers both risk and return in performance measurement, since it is misleading to measure the performance, based solely on the absolute return without considering the risk associated with such returns. The risk-adjusted return relates the return generated to the level of risk, and hence, it shows whether the excess return generated by mutual funds' managers is due to superior management skills or additional risk taken. For example, a mutual fund might generate a higher absolute return compared to its peers, due to having a higher exposure to risky investment rather than the ability to time the market or select bargain stocks. Thus, risk-adjusted return facilitates comparability of the performance of different portfolios that have different risk exposure.

The most commonly used risk-adjusted return measures by both academics and practitioners are applied in the present study. The risk-adjusted return analysis can be classified into two categories: risk-adjusted ratios analysis and equilibrium models (regression) risk-adjusted analysis.

a) Ratios Analysis

Treynor ratio and Sharpe ratio are arguably the most popular traditional risk-adjusted ratios for performance valuation among both practitioners and academics alike. Hence, both of these ratios are implemented in the study.

Treynor Ratio

Treynor (1965) introduces a risk-adjusted performance measure called the reward-to-volatility ratio to measure the excess return over the risk-free rate, per unit of systematic risk (*beta*). It is calculated as follows:

$$TR = (R_i - R_f) / \beta_i \qquad (6.3)$$

Where R_i is the average return of the portfolio i, R_f is the average rate of return on the risk free asset and β_i is *beta* (systematic risk) for the portfolio i.[64] This ratio implies that investors should be rewarded only for systematic/market risk. This is because, unlike unsystematic risk, which can be avoided by holding a diversified portfolio, systematic risk cannot be eliminated. The higher the Treynor ratio is, the higher the return for each unit of systematic/market risk taken; hence, the better the performance from a risk-return perspective. A negative ratio indicates that the return generated by the portfolio is lower than the return of the risk-free asset and hence, investors were better off by investing in the risk-free asset over a risky portfolio, and vice versa with a positive ratio.

Sharpe Ratio

Sharpe (1966) develops a reward-to-variability ratio as a risk-adjusted performance measure in order to measure the excess return, per unit of total risk. Similar to the Treynor ratio, the numerator of the ratio is the risk premium presented by subtracting the risk-free rate from the return on risky assets. However, unlike the Treynor ratio, this one considers total risk (as measured by standard deviation) instead of systematic risk (*beta*) as a proxy for risk. It implies that investors should be rewarded for both types of risk - systematic and unsystematic. It is calculated as follows:

$$SR = (R_i - R_f) / \sigma_i \qquad (6.4)$$

Where R_i is the average return of the portfolio i, R_f is the average return on the risk free asset and σ_i is the standard deviation (total risk) of the return of the portfolio i. Similar to Treynor's ratio, the higher the Sharpe ratio, the better the performance from a risk return perspective, and also, a negative ratio indicates that investors are not rewarded for the excess risk taken and they would be better served by investing in the risk-free asset over a risky portfolio; the opposite is true for a positive ratio.

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[64] *Beta* is derived from equation 6.5 below.

It is worth mentioning that, although both the Treynor and Sharpe ratios are used as risk-adjusted measure to rank investment portfolios, the two may rank investment portfolios differently. This is because Treynor's compensates for the systematic risk only, whereas the Sharpe ratio compensates for the total risk, comprising both systematic and unsystematic. For example, a mutual fund with a relatively large unsystematic risk may outperform the market in Treynor ratio and may underperform the market in Sharpe ratio. Hence, a mutual fund with large Treynor ratio and low Sharpe ratio indicates that it has a relatively larger unique/unsystematic risk (Bodie et al., 2009).

b) Equilibrium Models (*Regression Analysis*)

Unlike the above pair of ratio measures, Sharpe and Treynor, which rely on relative performance measures for ranking portfolios, the equilibrium models' measurement provides an absolute measure for a risk adjusted portfolio's performance (Jensen, 1968). They indicate whether the fund managers generate a higher or lower return than the fund's required rate of return, as predicted by CAPM or its extended multi-index model. Also, using such models enables the researcher to conduct a statistical test to examine the significance of the results (Jensen, 1968). This substantially improves upon the traditional ratios measurement. Regression estimates in the present study are computed using the Ordinary Least Squares (OLS) method.

Single CAPM Index Model (Jensen's Alpha)

Jensen's *alpha* measure was developed by Michael Jensen in 1968. It measures the portfolio's performance compared to the required rate of return, as predicted by the equilibrium CAPM. In other words, Jensen's *alpha* indicates the difference between the portfolio's actual return and its expected return. It is argued that Jensen's single CAPM index model is the standard measure of performance evaluation, and has been the most widely-employed model in studies of investment portfolios. The popularity of Jensen's *alpha* is attributed to its direct application from the popular CAPM equilibrium[65]. It is calculated as follows:

$$(R_{it} - R_{ft}) = \alpha i + \beta_i (R_{mt} - R_{ft}) + \varepsilon_{it} \tag{6.5}$$

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[65] See Appendix VII.

Where α_i is the model's constant (intercept) which represents Jensen's *alpha* measure for portfolio performance, $(R_{it} - R_{ft})$ is the portfolio's excess return over risk free rate at time t, $(R_{mt} - R_{ft})$ is the market risk premium over risk free rate at time t, β_i is *beta* of the portfolio i (measures the market/systematic risk exposure of portfolio i) and ε_{it} is an error term with zero mean.

The null hypothesis is that the constant '*alpha*' is equal to zero, whereas the alternative hypothesis is that *alpha* is statistically significantly different from zero. Thus, Jensen's *alpha* assesses whether the portfolio has provided a superior or inferior performance compared to the market benchmark, by testing whether the generated *alpha* is significantly different from zero or not. Therefore, a statistical *t*-test is used to determine whether *alpha* is statistically significant from zero or otherwise.

A zero or an insignificant *alpha* indicates that the portfolio does not outperform or underperform the benchmark and hence, it generates a return that is equal to its required rate of return and sufficiently compensates for the systematic risk taken. A significantly positive *alpha* indicates a superior performance, whereas a significantly negative *alpha* indicates an inferior performance. Superior performance implies that the portfolio generates a risk-adjusted return that is above its required rate of return, as predicted by the CAPM, and vice versa with inferior performance. Therefore, the more positive and significant *alpha* is, the better the performance from a risk-return perspective.

Multi-Index Model (Fama & French Three Factor)

The expected return of a portfolio based on the single CAPM model considers only one risk factor - the market (systematic) risk. Hence, it implicitly assumes that by capturing the systematic risk exposure, the single CAPM model is sufficiently capable of explaining the cross-section of stock returns. However, it has been argued that the single CAPM model is not able to explain the cross-section of expected stock returns, and the well-known return anomalies found and documented in later studies, such as size and book-to-market equity anomalies. Fama and French (1992) find that, unlike *beta* in the single CAPM model, factors such as size and book-to-market equity are capable of explaining most of the cross-sectional variations in equity returns.

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Thus, to control for the cross-sectional variation of stock returns, Fama and French (1993) improve the single CAPM model by adding two additional risk factors besides the market risk to capture the size and the book-to-market equity anomalies. The size factor is calculated as the return difference between a small stock portfolio and a large stock portfolio, whereas book-to-market equity factor represents the return difference between a value stock portfolio and a growth stock portfolio. It implicitly assumes that small cap and value stocks are riskier than large cap and growth stocks respectively, and hence, the exposure to such risky investment should be captured in any given portfolio's performance measure. Thus, the Fama and French three-factor model is an extension to the traditional CAPM equilibrium, and consistent with a market equilibrium model with three risk factors. The model is constructed as follows:

$$(R_{it} - R_{ft}) = \alpha_i + \beta_{1i} (R_{mt} - R_{ft}) + \beta_{2i} SMB_t + \beta_{3i} HML_t + \varepsilon_{it} \qquad (6.6)$$

Where α_i is Jensen's *alpha* measure for portfolio performance, $(R_{it} - R_{ft})$ is the portfolio's excess return over risk free rate at time t, $(R_{mt} - R_{ft})$ is the market risk premium over risk free rate at time t, β_i is *beta* of the portfolio i which measures the market/systematic risk exposure of portfolio i, SMB_t is the difference in return between a small cap portfolio and a large cap portfolio at time t, HML_t is the difference in return between a value stocks portfolio (high book to market stocks) and a growth stocks portfolio (low book to market stocks) at time t and ε_{it} is an error term with zero mean.

It has been argued that the multi-index model gives a better explanation of mutual funds' behaviour since it gives insight information about what derives the performance of mutual funds (Scholtens, 2005 and Bauer et al., 2006). In other words, the advantage of the multi-index model is to control the investment style strategies, which are applied by fund managers, in performance measurement. Thus, it shows whether the generated performance is due to superior management skills and ability, or due to having exposure to different investment styles and varied risks of investment.

The multi-index model has been applied extensively in evaluating mutual funds' performance, because it has been empirically proven to be a superior model in explaining mutual fund returns, as compared to the single CAPM model. This is

because the former captures most of the cross-sectional variation in average stock returns. As a result, the multi-index model increases the explanatory power of the regression model, and in turn reduces the average pricing errors associated with the single CAPM model (see for example, Bauer et al. 2005). Similarly, empirical studies on SRI and Islamic investment portfolios indicate that using a multi-index model controlling for investment style bias, such as size and book-to-market, seems to be superior in explaining the return of SRI and Islamic mutual funds. This is because there is evidence of investment style tilts associated with SRI and Islamic investment portfolios.[66]

Similar to Jensen's *alpha* in the single CAPM model, the null hypothesis is that *alpha* is equal to zero, whereas the alternative hypothesis is that *alpha* is statistically significantly different from zero. Therefore, a statistical *t*-test will be used to determine whether *alpha* is statistically significant from zero or not. Furthermore, zero or insignificant *alphas* indicate a neutral risk-adjusted return performance, since the return generated does not differ from the required rate of return that compensates for the risk taken. A significant positive *alpha* indicates a superior risk-adjusted return of the mutual fund, and vice versa with a significant negative *alpha*.

6.3.2 Systematic Risk Analysis

Systematic risk is measured by β_i which is estimated in Equation 6.5, as the slope coefficient of the portfolio's returns and the market's returns. Thus, *beta* is a correlated volatility that measures the sensitivity of the portfolio's volatility to the market's volatility. In other words, *beta* measures the part of the portfolio's statistical variance that cannot be removed/avoided, or even reduced, by the diversification. Therefore, the systematic risk is the type of risk that cannot be diversified away, since it affects the entire market - regardless of sector, or the individual companies - and this is why the systematic risk is also called market risk or undiversifiable risk. Examples of such types of risk are macro-economic factors, political factors, natural disasters, wars and conflicts, etc. The higher the *beta* is the higher the systematic risk

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[66] See for example, Luther and Matatko (1994), Gregory et al. (1997) Bauer et al. (2005), Kreander et al. (2005), Scholtens (2005), Bauer et al. (2006) Bauer et al. (2007) Cortez et al. (2009) and Girard and Hassan (2005).

and a *beta* higher than 1 indicates higher systematic risk than the market portfolio benchmark and vice versa.

6.3.3 Investment Style Analysis

Although the Fama and French multi-index model has been developed for performance evaluation, the model can also be interpreted as a performance attribution model. This is where the coefficients and premia on the factor-mimicking portfolios indicate the proportion of mean return attributable to different widely-pursued investment style strategies (Bauer et al., 2006). The factors are estimated in Equation 6.6. A positive and significant β_2 indicates a higher exposure to small capitalization companies, whereas a significant negative value indicates higher exposure to large capitalization companies. A positive and significant β_3 indicates a higher exposure to value companies, whereas a significant negative value indicates higher exposure to growth companies. The multi-factor model has been used by studies in both SRI and Islamic investment portfolios to investigate the exposure of such portfolios to different investment styles.[67]

Table 6.2 below illustrates the empirical models used by previous socially responsible and Islamic studies alike.

Table 6.2: Empirical Models used by Previous (Islamic and SRI) Studies

	Socially Responsible	**Islamic**
Ratios	Kreander et al. (2005), Schroder (2007), Mallin et al. (1995), Reyes and Grieb (1998), Sauer (1997), Schroder (2004), Benson et al. (2006), Goldreyer et al. (1999), Luther et al. (1992),	Alkassim (2009), Abul Hassan et al. (2005), Abderrezak (2008), Elefakhani et al. (2005), Dharani and Natarajan (2011), Hussein (2004), Abdullah et al. (2007), Merdad et.al (2010), Hakim and Rashidian (2004), Wilson (2001), Hussein and Omran (2005), Albaity and Ahmad (2008), Ahmad and Ibrahim (2002), Hakim and Rashidian (2004), Hakim and Rashidian (2002),

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[67] See for example, Bauer et al. (2005, 2006 and 2007) and Girard and Hassan (2005).

Single Index Model	Luther et al. (1992), Luther and Matatko (1994), Mallin et al. (1995), Gregory et al. (1997), Bauer et al. (2005), Bauer et al. (2007), Schroder (2007), Kreander et al. (2005), Statman (2000), Scholtens (2005), Hamilton et al. (1993), Sauer (1997), Schroder (2004), Statman (2006), Vermeir et al. (2005), Bello (2005), Cortez et al. (2009), Cortez et al. (2011), Goldreyer et al. (1999),	Elefakhani et al. (2005), Kraeussl and Hayat (2008), Abderrezak (2008), Abdullah et al. (2007), Mansor and Bhatti (2011), Hoepner et al. (2009), Alkassim (2009), Girard and Hassan (2005, 2008), Abul Hassan et al. (2005), Dharani and Natarajan (2011), Hussein (2004), Hassan et al. (2010), Merdad et.al (2010), Hussein and Omran (2005), Albaity and Ahmad (2008), Ahmad and Ibrahim (2002), Hakim and Rashidian (2002), Hakim and Rashidian (2004).
Multi-Index Model	Bauer et al. (2005), Bauer et al. (2006), Bauer et al. (2007), Gregory and Whittaker (2007), Schroder (2007), Scholtens (2005), Vermeir et al. (2005), Cortez et al. (2011), {Luther and Matatko (1994), Gregory et al. (1997), Schroder (2004) used two benchmark indices, a blue chip index and a small cap index}	Hoepner et al. (2009), Alkassim (2009), Girard and Hassan (2005, 2008), Abul Hassan et al. (2005), Abderrezak (2008), Hassan et al. (2010),

6.4 Conclusion

This chapter elaborates upon the research methodology and empirical models used in the study. The present study follows the deductive approach, where the theory and its deduced hypotheses come first and lead the process of data gathering and analysis, with the aim of confirming or rejecting the hypotheses. The choice of such an approach is due to the nature of the topic, where there is existing literature in the field. Furthermore, a combination of different research designs and strategies is used to strengthen the findings. In particular, the case study research design and the comparative research design have been adopted.

The case study design is employed where the focus is on Islamic equity mutual funds in the Saudi market, and investigating such a market is an object of interest on its own. This is done in order to obtain greater insight and understanding of the investment characteristics of Islamic equity mutual funds in Saudi Arabia - the world's largest market for Islamic mutual funds industry – as it has not so far been

investigated rigorously. Also, the comparative research design has been executed by comparing the investment characteristics of Islamic investment portfolios to conventional and socially responsible investment portfolios, based on different geographical markets. This has been completed, in order to further enhance the analysis.

In addition, the nature of the study requires quantitative methods for data collection and analysis. Historical secondary data on mutual funds' NAV and indices' prices, as well as other related economic data were collected from reliable sources. The study employed the most widely used empirical models in similar studies. This includes the single CAPM index model and Fama and French's multi-index model, aside from the traditional Sharpe ratio and Treynor ratio. The chosen empirical models have been subjected to rigorous empirical tests in the previous studies; these studies have already proven their validity, in similar circumstances. The next chapters discuss the results of the statistical quantitative analysis.

Chapter 7

A Comparative Study between the Investment Characteristics of Islamic and Conventional Equity Mutual Funds in Saudi Arabia

7.1 Introduction

As pointed out, the estimated size of global Islamic finance assets is $1,033 billion, with $58 billion of that under management of the Islamic mutual fund industry, with more than 800 mutual funds in 2010 (E&Y, 2011). The Saudi market is the world's largest home market for the Islamic mutual fund industry, controlling $20.1 billion with 225 managed mutual funds (E&Y, 2011). This implies that the Saudi market represents almost 35% of the total global assets under management of the Islamic mutual funds industry. This figure shows the importance of investigating such a market.

The primary aim of this chapter is to examine the impact of a *Sharia* screening process on the investment characteristics of Islamic equity mutual funds in Saudi Arabia, compared to those of their conventional counterparts in terms of performance, risk and investment style. This is to fill the gap and extend the literature on Islamic mutual funds by providing new evidence on the world's largest home market for the industry. The study uses a sample of 95 diversified equity mutual funds, which have different geographical focuses, mainly Saudi Arabia, Global, US, Europe, Japan, Asia and GCC. To the best of my knowledge this study is the first study of its kind for the Saudi market.

There are five sections in this chapter: section 7.2 elaborates upon the testable hypotheses and the data used in the study; section 7.3 presents the empirical results on the performance, risk and investment style of Islamic equity mutual funds in Saudi Arabia compared to their conventional counterparts; finally, section 7.4 draws conclusions.

7.2 Testable Hypotheses and Data

This section elaborates upon the testable hypotheses associated with investment characteristics, in terms of performance, risk and investment style of Islamic equity mutual funds in Saudi Arabia compared to their conventional counterparts. Furthermore, the data used in the study are also discussed.

7.2.1 Testable Hypotheses

To achieve the aim and objective of this chapter, three hypotheses are examined to investigate the performance, risk and investment style of Islamic equity mutual funds in Saudi Arabia compare to their conventional counterparts. These hypotheses are listed under the research question 2 (does the application of a *Sharia* screening process have an adverse impact on the investment characteristics of Islamic equity mutual funds in Saudi Arabia compared to their unrestricted conventional counterparts?). The hypotheses derived, based on previous empirical studies in other markets are as follows:

Hypothesis 1: The performance of Islamic equity mutual funds in Saudi Arabia does not differ significantly from that of their conventional counterpart equity mutual funds and their conventional market benchmarks.

Hypothesis 2: Islamic equity mutual funds in Saudi Arabia are less exposed to systematic risk, as compared to their conventional counterpart equity mutual funds and their conventional market benchmarks.

Hypothesis 3: The investment style of Islamic equity mutual funds in Saudi Arabia is more skewed towards small and growth companies, compared to their conventional counterparts.

7.2.2 Data

This section discusses varies issues regarding the data used in the study, such as the data sample and time period, selection criteria and matched sample approach, and the construction of equally weighted portfolios and difference portfolios. Furthermore,

the benchmarks used in the study, such as risk-free rate and market benchmarks, are also discussed.

Data Sample and Time Period

The monthly net asset values (NAVs) of 95 diversified, open equity mutual funds, managed by different investment institutions in Saudi Arabia, were obtained directly from the Saudi Stock Exchange (Tadawul).[68] It is argued that monthly returns' samples remove a larger amount of noise from the data, compared to weekly and daily returns. Similar to previous studies, the NAVs used are gross NAVs that are inclusive of any distributions, net of annual management fees; however, they disregard load fees and exit charges.[69] The NAVs are commonly used for performance evaluation of mutual funds because they are considered appropriate for such open-ended funds, as purchase and sale prices are linked to them. The total 95 equity mutual funds' sample comprises of 55 Islamic equity mutual funds and 40 conventional equity mutual funds that focus on variety of geographical investment universes, and cover different international investment areas. The sample data covers the period from July 2005 to July 2010 with 61 monthly observations.[70]

Selection Criteria and Matched Sample Approach

Islamic equity mutual funds were matched to their conventional counterpart equity mutual funds on the basis of the geographical investment focus. This is to enhance comparability between both types of investment portfolios, by attributing the differences, if any, to *Sharia* criteria rather than geographical investment objectives. This is since geographical matching isolates any confounding effect caused by a specific regional focus. Thus, the matched sample approach improves the study since it allows for direct comparison between the two groups of equity mutual funds.

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[68] NAV is calculated as follows: (total market capitalization – liabilities)/numbers of outstanding units (Bodie, 2007). NAVs are reported by mutual funds' managers on a regular basis.
[69] See for example (Bauer et al., 2005, 2006 and 2007).
[70] Tadawul has a restriction on the released data, in that they do not release historical data for more than 5 years back.

In addition, dividing the samples on the basis of their geographical focus enables the researcher to use the relevant market benchmark for each subgroup which controls the benchmarking bias. This is because each subgroup will be evaluated based on its relevant market benchmark. The total 95 equity mutual fund sample was divided into seven relevant subgroups, based on their geographical investment focus. The seven subgroups are: Saudi, Global, US, Europe, Japan, Asia and GCC. To overcome the sample selection bias, all open equity mutual funds that can be categorized under one of the seven subgroups were considered in the analysis. Also, to enhance comparability, sector-specific, balanced, money market, real estate and guaranteed mutual funds were excluded.

Table 7.1: Sample of Islamic and Conventional Equity Mutual Funds used in the Study

Geographical Focus	Number of Funds
Saudi	
Islamic Portfolio	26
Conventional Portfolio	20
Global	
Islamic Portfolio	10
Conventional Portfolio	3
US	
Islamic Portfolio	1
Conventional Portfolio	5
Europe	
Islamic Portfolio	4
Conventional Portfolio	3
Japan	
Islamic Portfolio	1
Conventional Portfolio	3
Asia	
Islamic Portfolio	3
Conventional Portfolio	3
GCC	
Islamic Portfolio	10
Conventional Portfolio	3
Total	**95**

Table 7.1 illustrates the number of Islamic and conventional equity mutual funds used in each particular subgroup.[71] It can be seen from the table that most of the subgroups

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[71] For more information regarding the mutual fund used in the study, please refer to Appendix I.

suffer from a low number of funds. This is similar to most of the previous studies on Islamic mutual funds, which also use a limited number of samples in their subgroups.[72]

It can be argued that the purpose of the study is to investigate the investment characteristics of Islamic equity mutual funds compared to their conventional counterpart equity mutual funds that are available in Saudi Arabia. The reason for dividing the sample into subgroups is to overcome the benchmarking bias by using a suitable benchmark index for each geographical investment group. This is rather than aiming to investigate the performance across different geographical focuses. Equally importantly, the mutual funds investigated in each subgroup represent the whole existing population. Thus, the low number of mutual funds examined in each subgroup should not distort the results, though the results should be analyzed with caution.

Equally Weighted Portfolios

Following Bauer et al. (2005, 2006 and 2007), mutual funds are grouped into equally weighted portfolios, based on their geographical focus. This is because grouping the mutual funds in equally weighted portfolios enables the researcher to address the question of whether the ethical/'Islamic' investment industry is efficient enough as a whole (Bauer et al., 2005). Therefore, for each subgroup, two equally weighted portfolios are constructed - an Islamic and a conventional.

The use of equally weighted portfolios over value weighted portfolios can be justified as follows. First, it is common in practice to use equally weighted portfolios to examine the performance of mutual funds as a whole. Previous studies used equally weighted portfolios rather than value weighted portfolios to investigate the performance of socially responsible and Islamic mutual funds.[73] In addition, the

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[72] This phenomenon is attributed to the relative newness of Islamic mutual funds industry compared to their conventional counterparts. See for example, Elfakhani et al. (2005), Hayat et al. (2006), and Hoepner et al. (2009). Also, socially responsible studies such as Kreander et al. (2005), Cortez et al. (2009) and Cortez et al. (2011) suffer from low number of subgroups sample.

[73] See for example, Abu Alhassan (2005), Bauer et al. (2005), Bauer et al. (2006), Bauer et al. (2007), Gregory et al. (2007), Renneboog et al. (2008), Cortez et al. (2009), Hoepner et al. (2009) and Merdad et al. (2010).

purpose of the study is to examine whether the differences in investment characteristics between Islamic and conventional mutual funds, if any, are due to *Sharia* criteria or not. Value weighted portfolios will be tilted towards the behavior of large mutual funds, which might impose bias since the results will be affected by the behavior of large mutual funds (funds' size) rather than *Sharia* criteria. This is confirmed by Hoepner et al. (2009) who state that "*It is common practice to analyse portfolios of assets with religious or ethical characteristics based on equally weighted rather than value weighted portfolios. This practice ensures a focus on the assets' religious or ethical characteristics and substantially reduces the risk of bias due to idiosyncratic return characteristics of a specific asset (Hong and Kacperczyk, 2009; Renneboog et al., 2008)*".

Difference Portfolios

Following Bauer et al.'s (2005, 2006 and 2007) approach, a difference portfolio is evaluated for each subgroup examined. It is constructed by subtracting the returns of the conventional equally weighted portfolios from the returns of the Islamic equally weighted portfolios. This is done to enhance comparability between both types of portfolios, by examining whether the differences between Islamic mutual funds and their conventional counterparts, if any, are statistically significant or not. Thus, as pointed out by Bauer et al. (2006), the difference portfolio serves to examine differences in investment characteristics between the two investment groups and using such an approach implicitly attributes differences between ethical 'Islamic' funds and conventional funds to ethical screenings.

Risk Free Rate Benchmark

SIBOR (Saudi Interbank Offering Rate) one month is used as a proxy for the risk free rate. This is a valid risk free rate proxy for Islamic investment portfolios since Islamic finance modes such as *murabaha*, *ijara,* etc., use a conventional interest rate as a benchmark for determining the profit rate. In addition, SIBOR is used as a risk free rate for all subgroups, since the study is made from a Saudi perspective (i.e., mutual funds that target Saudi investors). [74]

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[74] For robustness check, 3 month US Treasury bills were also used as a risk free rate and does not change the conclusion.

Market Benchmarks

The Morgan Stanley Capital International (MSCI) indices' family is used by the present study as a market benchmark, since it is widely used by academics and practitioners as such a benchmark. Data were obtained from the MSCI database directly, over the study period from July 2005 to July 2010 and on a monthly basis. It is worth mentioning that MSCI indices are free float-adjusted market capitalization indices, designed to measure the equity market performance of developed and emerging markets in countries that cover around 85% of the world's market capitalization.[75] MSCI estimates that over US$3 trillion are currently benchmarked to their indices on a worldwide basis, with over 120,000 indices calculated daily, covering over 70 countries in developed, emerging and frontier markets; over 2,200 organizations worldwide use the MSCI international equity indices.

Table 7.2: MSCI Indices' Benchmarks Used for Different Geographical Investment Focus Portfolios

Geographical Focus	Conventional Benchmarks	Islamic Benchmarks
Global	MSCI AC World Index	MSCI AC World Islamic Index
US	MSCI US Index	MSCI US Islamic Index
Europe	MSCI Europe Index	MSCI Europe Islamic Index
Japan	MSCI Japan Index	MSCI Japan Islamic Index
Asia	MSCI AC Asia Index	MSCI AC Asia Islamic Index
GCC	MSCI GCC Index	MSCI GCC Islamic Index
Saudi	MSCI Saudi Arabia Domestic Index	MSCI Saudi Arabia Domestic Islamic Index

Table 7.2 shows that for each geographical investment focus portfolio, two types of benchmark indices are used, an Islamic and a conventional.[76] For global portfolios, the MSCI AC World Index and MSCI AC World Islamic Index are used. For US portfolios, MSCI US Index and MSCI US Islamic Index are used. For European

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[75] MSCI Official Website (access in October 2010).
[76] Gross Indices are used whereby the dividends are accounted for. This is to be consistent with NAVs since dividends were also considered.

portfolios, MSCI Europe Index and MSCI Europe Islamic Index are used. For Japanese portfolios, MSCI Japan Index and MSCI Japan Islamic Index are used. For Asian portfolios, MSCI AC Asia Index and MSCI AC Asia Islamic Index are used. For GCC portfolios, MSCI GCC Index and MSCI GCC Islamic Index are used. For Saudi portfolios, MSCI Saudi Arabia Domestic Index and MSCI Saudi Arabia Domestic Islamic Index are used. In addition, for each subgroup, the relevant MSCI investment styles indices - Large, Small, Value and Growth - were used as market benchmarks to construct Market, SMB and HML factors[77].

Table 7.3: Number of Constituents for each MSCI Index Used (as of 31/12/2009)

Geographical Focus	Conventional Benchmarks	Islamic Benchmarks	% of Constituents removed from Islamic Benchmark*
Global	2,423	894	63.10 %
US	600	236	60.67%
Europe	463	167	63.93%
Japan	346	126	63.58%
Asia	905	329	63.65%
GCC	106	44	58.49%
Saudi	37	18	51.35 %

* The percentage is calculated as follows: {(Conventional Benchmark's Constituents – Islamic Benchmark's Constituents)/ Conventional Benchmark's Constituents} * 100.
Source: adopted from MSCI 2009

It can be seen from Table 7.3 that around 60% of the conventional indices' constituents had to be removed from their Islamic subset indices due to their *Sharia* non-compliance. This shows that applying a *Sharia* screening process significantly reduces the investment universe for Muslim investors, as compared to conventional investors. A question that arises here - which is addressed in the next section - is whether the *Sharia* screening process has a significant adverse impact on the investment characteristics of Islamic equity mutual funds, due to restricting their investment universe.

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[77] This is following the approach, among others, Saure (2007) and Cortez et al. (2011).

7.3 Empirical Results

This section presents the results in terms of the performance, risk and investment style of the Islamic equity mutual funds, compared to their conventional counterparts in Saudi Arabia, for the sample period from July 2005 to July 2010 with 61 monthly observations. All the empirical models employed were explained and discussed in the research methodology and empirical models, (Chapter 6).

A summary of the descriptive statistics of monthly returns of the conventional and Islamic mutual funds and their market benchmarks over the period, July 2005 to July 2010, are reported in Appendix III. Furthermore, cross-correlation analysis between the independent variables was employed to ensure that the regressions do not suffer from multicollinearity (see Appendix V). Results of the cross-correlation tests - between 'Market', 'SMB' and 'HML' - indicate that there is no significant correlation among the independent variables regardless of the subgroup examined, which implies that there is no multicollinearity. In addition, an Augmented Dickey Fuller (ADF) unit root test was conducted to ensure that the time series does not suffer from unit root (i.e., the data are stationery). The unit root test results reported in Appendix IV reject the null hypothesis that the data contain unit root in favour of the alternative hypothesis, which states that the data is stationary. This holds true in all subgroups examined.

7.3.1 Performance Analysis

The results of the performance analysis of Islamic equity mutual funds compared to conventional equity mutual funds in Saudi Arabia in terms of absolute return and risk-adjusted return are presented. Mean return shows the absolute performance, whereas traditional ratios, Sharpe and Treynor, as well as single-index and multi-index equilibrium models show the risk-adjusted performance. In this section, the performance analysis based on absolute returns is presented first, followed by the performance based on risk-adjusted returns.

7.3.1.1 Absolute Return Analysis

This section presents the results of the absolute performance analysis of Islamic and conventional equity mutual funds in Saudi Arabia. Table 7.4 reports absolute mean monthly return for both groups of equally weighted portfolios, Islamic and conventional, computed for each geographical investment focus. Mean difference is also reported in the form of a *t* statistics test - to test whether the mean difference between both types of portfolios is statistically significant or otherwise.

Table 7.4: Absolute Mean Monthly Return of Islamic and Conventional Equity Mutual Funds (from July 2005 to July 2010)

Geographical Focus	Mean	Mean Difference
Saudi		
Islamic Portfolio	-.0067	0.0020
Conventional Portfolio	-.0087	(*t*=.1122)
Global		
Islamic Portfolio	.0006	6.64E-04
Conventional Portfolio	-6.44E-05	(*t*=.0573)
_US_		
Islamic Portfolio	.0007	0.0016
Conventional Portfolio	-.0009	(*t*=.1534)
Europe		
Islamic Portfolio	-.0001	0.0005
Conventional Portfolio	-.0006	(*t*=.0346)
Japan		
Islamic Portfolio	.0018	0.0052
Conventional Portfolio	-.0034	(*t*=.5057)
Asia		
Islamic Portfolio	.0064	-0.0013
Conventional Portfolio	.0077	(*t*=-.0972)
GCC		
Islamic Portfolio	-.0044	-0.0011
Conventional Portfolio	-.0033	(*t*=-.0748)

*Notes: The absolute return is estimated as per equation 6.2. The t statistics test is used to test whether the mean difference between both types of portfolios is statistically significant or not. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

In addition, Table 7.5 reports the absolute mean monthly return difference between both groups of equally weighted mutual funds' portfolios, Islamic and conventional, compared to their Islamic and conventional market benchmarks, computed for each geographical investment objective. The table also reports a *t* statistics test result, used

to test whether the mean difference between both types of portfolios and their market benchmarks are statistically significant or otherwise.

Table 7.5: *Analysis of Differences in Absolute Mean of Monthly Return between Mutual Funds and their Market Benchmarks (July 2005 to July 2010)*

Geographical Focus	Conventional Benchmarks		Islamic Benchmarks	
	Mean Difference	*t*-statistic	Mean Difference	*t*-statistic
Saudi				
Islamic Portfolio	0.0024	.1224	0.0056	.2742
Conventional Portfolio	0.0003	.0172	0.0036	.1684
Global				
Islamic Portfolio	-0.0021	-.1945	-0.0039	-.3751
Conventional Portfolio	-2.73E-03	-.2441	-4.57E-03	-.4176
_US_				
Islamic Portfolio	0.0001	.0162	-0.0022	-.2312
Conventional Portfolio	-0.0014	-.1428	-0.0038	-.3879
Europe				
Islamic Portfolio	-0.0027	-.2289	-0.0050	-.4512
Conventional Portfolio	-0.0031	-.2473	-0.0055	-.4540
Japan				
Islamic Portfolio	0.0013	.1463	0.0005	.0546
Conventional Portfolio	-0.0040	-.3696	-0.0049	-.4392
Asia				
Islamic Portfolio	0.0019	.1764	0.0012	.1129
Conventional Portfolio	0.0032	.2412	0.0025	.1886
GCC				
Islamic Portfolio	0.0044	.2774	0.0073	.4329
Conventional Portfolio	0.0054	.3613	0.0083	.5177

Notes: t statistics test is used to test whether the mean difference between both types of portfolios and their market benchmarks are statistically significant or not. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.

The results of the absolute mean returns' analysis for each geographical region, presented in Tables 7.4 and 7.5, are discussed below.

Saudi

Both types of mutual fund generate negative absolute returns during the period under consideration and the negative absolute return of conventional mutual funds is even greater. The absolute returns achieved by Islamic and conventional mutual funds are -.0067 and -.0087 respectively. Although Islamic mutual funds generate higher absolute returns than their conventional counterpart mutual funds by 0.0020, this

difference is not statistically significant. Furthermore, despite the negative absolute returns generated by Islamic and conventional mutual funds, the difference between both types of mutual funds and their market indices benchmark is statistically insignificant, irrespective of the benchmark used. This implies that the negative absolute returns generated by both types of mutual funds are attributed to the downward market.

Global

The absolute returns generated by Islamic and conventional mutual funds are .0006 and -6.44E-05 respectively. The 6.64E-04 raw return difference between both groups is not statistically significant. Furthermore, both types of mutual fund tend to achieve lower absolute returns when compared to their market indices' benchmark, irrespective of the benchmark used, but the returns difference between the mutual funds and their market indices is statistically insignificant.

US

Islamic mutual funds generate a positive raw return of .0007, whereas conventional mutual funds generate a negative raw return of -.0009; the 0.0016 difference between both groups is statistically insignificant. Consistent with the Global subgroup, both types of mutual funds seem to achieve lower absolute returns than their market indices' benchmark irrespective of the benchmark used - except Islamic mutual funds against a conventional benchmark. Nevertheless, in all cases the return difference between mutual funds and their market indices is statistically insignificant.

Europe

Similarly to the Saudi subgroup, both Islamic and conventional mutual funds provide negative absolute returns and Islamic mutual funds provide a slightly higher return than conventional mutual funds. The absolute returns generated by Islamic and conventional mutual funds are -.0001 and -.0006 respectively, but the 0.0005 difference is statistically insignificant. Furthermore, similar to the Global and US subsamples, Islamic and conventional mutual funds tend to generate a lower absolute return than their market indices' benchmark. Consistent with previous subgroups there is no statistically significant returns difference between both types of mutual funds and their market benchmarks.

Japan

Consistent with the Global and US subsamples, Islamic mutual funds achieved a positive raw return of .0018, whereas conventional mutual funds achieved a negative raw return of -.0034 but the 0.0052 difference is not statistically significant. While Islamic mutual funds generate higher absolute returns compared to their benchmark indices, conventional mutual funds generate lower absolute returns than their benchmark indices, regardless of the benchmark used. Nevertheless, confirming previous subgroups' findings, the absolute performance difference between mutual funds and their market indices' benchmark is not statistically significant.

Asia

Unlike other subgroups, both types of mutual funds generate positive absolute returns, with a higher return achieved by conventional mutual funds. The absolute returns of Islamic and conventional mutual funds are .0064 and .0077 respectively, but the 0.0013 performance difference between both groups of mutual funds is not statistically significant. In addition, both groups of mutual funds tend to generate higher absolute returns than their market benchmark, but their outperformance of their benchmarks does not seem to be statistically significant.

GCC

Similar to the Saudi and European subgroups, both types of mutual funds provide negative raw returns. The raw returns of Islamic and conventional mutual funds are -.0044 and -.0033 respectively which implies a 0.0010 higher absolute return achieved by conventional mutual funds over Islamic mutual funds. However, consistent with previous subsamples, the return difference between both groups of mutual funds does not seem to be statistically significant. Similarly to Saudi subgroup, both types of mutual funds seem to achieve greater absolute returns compared to their market benchmark, despite having negative returns. However, the performance difference between both groups of mutual funds compared to their market benchmarks does not tend to be statistically significant, which is in line with the previous subgroups.

Thus, the absolute return analysis reveals that there is no statistically significant performance difference between Islamic and conventional equity mutual funds in Saudi Arabia, regardless of the subgroup examined. In addition, the analysis shows

that both types of equity mutual funds, Islamic and conventional, do not tend to generate performance that is significantly different from their Islamic and conventional market benchmarks in all subgroups investigated.

7.3.1.2 Risk-Adjusted Return Analysis

This section presents the results of risk-adjusted ratios' analysis, followed by the results based on a single-index and multi-index equilibrium model.

a) Ratios' Analysis

This section presents the results of the risk-adjusted ratios, Sharpe and Treynor, of Islamic and conventional equity mutual funds in Saudi Arabia. Table 7.6 reports the risk-adjusted returns based on Sharpe ratio and Treynor ratios of both types of equally weighted mutual funds' portfolios, Islamic and conventional. Column 4 displays the results of Sharpe ratio, whereas Columns 2 and 3 display the result of the Treynor ratio, based on conventional and Islamic benchmarks respectively.

Table 7.6: Analysis of Sharpe and Treynor Ratios for Islamic and Conventional Equity Mutual Funds (from July 2005 to July 2010)

Geographical Focus	Treynor Ratio		Sharpe Ratio
	Islamic Benchmark	Conventional Benchmark	
Saudi			
Islamic Portfolio	-.0134	-.0123	-.0993
Conventional Portfolio	-.0146	-.0132	-.1079
Difference	*.0012*	*.0009*	*.0086*
Global			
Islamic Portfolio	-.0019	-.0020	-.0328
Conventional Portfolio	-.0023	-.0024	-.0402
Difference	*.0004*	*.0004*	*.0074*
US			
Islamic Portfolio	-.0017	-.0020	-.0335
Conventional Portfolio	-.0030	-.0034	-.0585
Difference	*.0013*	*.0014*	*.025*
Europe			
Islamic Portfolio	-.0027	-.0031	-.0432
Conventional Portfolio	-.0028	-.0032	-.0435
Difference	*1E-04*	*.0001*	*.0003*
Japan			
Islamic Portfolio	-.0008	-.0009	-.0146
Conventional Portfolio	-.0055	-.0052	-.0896
Difference	*.0047*	*.0043*	*.075*
Asia			
Islamic Portfolio	.0048	.0047	.0661
Conventional Portfolio	.0042	.0041	.0620

Difference	*.0006*	*.0006*	*.0041*
GCC			
Islamic Portfolio	-.0090	-.0081	-.0847
Conventional Portfolio	-.0095	-.0085	-.0816
Difference	*.0005*	*.0004*	*-.0031*

Notes; Sharpe ratio and Treynor ratio are estimated as per Equations 6.3 and 6.4 respectively.

The results of the Sharpe and Treynor risk-adjusted ratios for each geographical investment objective, presented in Table 7.6, are discussed below.

Saudi

Risk-adjusted ratios of Islamic and conventional mutual funds tend to be negative and Islamic mutual funds seem to generate slightly higher Sharpe and Treynor ratios compared to their conventional counterparts. The Sharpe ratio achieved by Islamic and conventional mutual funds is -0.0993 and -0.1079 respectively. Furthermore, the Treynor ratios are -0.0134 and -0.0146 for Islamic and conventional mutual funds respectively, against an Islamic benchmark, but -0.0123 and -0.0132 when against a conventional benchmark.

Global

Similarly to the Saudi subgroup, irrespective of the ratio used, Islamic mutual funds tend to provide a slightly greater performance than conventional mutual funds, and both generate negative ratios. Islamic mutual funds and their conventional complements generate negative Sharpe ratios of -0.0328 and -0.0402 respectively. The Treynor ratios are -0.0019 and -0.0023 for Islamic and conventional mutual funds respectively, against Islamic benchmark, whereas against conventional benchmark they are -0.0020 and -0.0024 for Islamic and conventional mutual funds respectively.

US

Consistent with previous subsamples, risk-adjusted ratios tend to be higher in the case of Islamic mutual funds, compared to their conventional counterpart mutual funds and both types of mutual funds provide negative risk-adjusted ratios. The Sharpe ratios of Islamic and conventional mutual funds are -0.0335 and -0.0585 respectively. Furthermore, the Treynor ratios of Islamic and conventional mutual funds are -0.0017

and -0.0030 respectively, against an Islamic benchmark, while against a conventional benchmark, they are -0.0020 and -0.0033 respectively.

Europe

Confirming previous subsamples, both types of mutual funds provide negative Sharpe and Treynor ratios, and Islamic mutual funds seem to achieve slightly higher risk-adjusted ratios than conventional mutual funds. The Sharpe ratio is -0.0432 and -0.0435 for Islamic and conventional mutual funds respectively. In addition, the Treynor ratio is -0.0027 and -0.0028 for Islamic and conventional mutual funds respectively, against Islamic benchmark, whereas -0.0031 and -0.0031, when against a conventional benchmark.

Japan

Similar to previous subgroups, Islamic mutual funds tend to generate higher risk-adjusted ratios compared to conventional mutual funds, irrespective of the ratio used, and both types of mutual funds generate negative ratios. The Sharpe ratio achieved by Islamic mutual funds is -0.0146, and conventional mutual funds -0.0896. In addition, the Treynor ratios are -0.0008 and -0.0055 for Islamic and conventional mutual funds respectively against an Islamic benchmark, but -0.0009 and -0.0052 against a conventional benchmark.

Asia

Confirming previous subgroups, Islamic mutual funds achieve higher risk-adjusted return ratios compared to their conventional counterpart mutual funds, irrespective of the ratio used. However, unlike previous subgroups, both types of mutual funds generate a positive Sharpe ratio and Treynor ratio. The Sharpe ratio of Islamic and conventional mutual funds is 0.0661 and 0.0620 respectively. Furthermore, Treynor ratio is 0.0048 and 0.0042 for Islamic and conventional mutual funds respectively against an Islamic benchmark, and 0.0046 and 0.0041 respectively, against a conventional benchmark.

GCC

Similar to previous subgroups, both types of mutual funds provide negative Sharpe and Treynor ratios. Unlike the findings of the previous subsamples, Islamic mutual

funds achieved a lower Sharpe ratio when compared to conventional mutual funds. The Sharpe ratios are -0.0847 and -0.0816, for Islamic and conventional mutual funds respectively. In addition, in terms of the Treynor ratio, Islamic and conventional mutual funds generate -0.0090 and -0.0095 respectively against an Islamic benchmark, and -0.0081 and -0.008 against a conventional benchmark.

Consistent with the absolute return performance analysis, risk-adjusted ratios' performance analysis reveals that Islamic mutual funds seem to slightly outperform their conventional counterparts, regardless of the ratio used (whether Sharpe or Treynor) in most subgroups examined. Nevertheless, the performance difference between both types of investment portfolios, Islamic and conventional, seems to be marginal, regardless of both the ratio used and the subgroup examined. This is also in line with the absolute return analysis. Furthermore, both types of equity mutual funds seem to generate negative risk-adjusted ratios, for Sharpe and Treynor, indicating that equity mutual funds tend to provide risk-adjusted returns below the risk-free rate over the examined period.

To investigate the robustness of such results, the regression analysis is employed next and a t statistics test used, to test whether the risk-adjusted performance differences between Islamic and conventional equity mutual funds are statistically significant or otherwise.

b) Equilibrium Models *(Regression Analysis)*

This section presents the results of single-index and multi-index equilibrium models based on both types of market benchmarks, Islamic and conventional.[78]

Single-index Model

Table 7.7 reports the OLS regression estimates of a single CAPM index model for both groups of equally weighted mutual funds' portfolios, Islamic and conventional, computed per geographical region. The difference portfolio is also reported, to test whether the difference between both types of portfolios is statistically significant or

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[78] For full OLS regressions estimates see Appendix VI.

otherwise. Columns 2 and 3 report the results of Jensen's *alpha* (α_i) and the adjusted coefficient of determination (adjR^2) based on conventional benchmarks, whereas columns 4 and 5 report the result of Jensen's alpha (α_i) and the adjusted coefficient of determination (adjR^2) based on Islamic benchmarks.

Table 7.7 Alpha of Islamic and Conventional Mutual Funds based on Single-index Model using Islamic and Conventional Market Benchmarks (July 2005 to July 2010)

Geographical Focus	Conventional Benchmarks		Islamic Benchmarks	
	alpha	adj R^2	*alpha*	adj R^2
Saudi				
Islamic Portfolio	-.0005 (*t*=-.185)	.900	0.0010 (*t*=.335)	.911
Conventional Portfolio	-.0014 (*t*=-.469)	.925	.0002 (*t*=.051)	.904
Difference Portfolio	*.0009 (t=.407)*		*.0008 (t=.394)*	
Global				
Islamic Portfolio	-.0021 (*t*=-1.009)	.890	-.0039 (*t*=-2.446)**	.909
Conventional Portfolio	-.0027 (*t*=-1.414)	.922	-.0048 (*t*=-2.680)***	.904
Difference Portfolio	*.0006 (t=.457)*		*.0009 (t=.550)*	
_US_				
Islamic Portfolio	-1.03E-05 (*t*=-.003)	.723	-.0022 (*t*=-1.079)	.772
Conventional Portfolio	-.0014 (*t*=-.727)	.814	-.0038 (*t*=-2.423)**	.839
Difference Portfolio	*.0013 (t=.660)*		*.0016 (t=.734)*	
Europe				
Islamic Portfolio	-.0027 (*t*=-1.2341)	.886	-.0050 (*t*=-3.756)***	.927
Conventional Portfolio	-.0031 (*t*=-1.400)	.877	-.0056 (*t*=-2.422)**	.854
Difference Portfolio	*.0004 (t=.194)*		*.0006 (t=.300)*	
Japan				
Islamic Portfolio	.0009 (*t*=.297)	.749	.0003 (*t*=.106)	.817

Conventional Portfolio	-.0037 (*t*=-1.483)	.765	-.0047 (*t*=-1.603)	.739
Difference Portfolio	*.0046* *(t=1.136)*		*.0050* *(t=1.165)*	
<u>Asia</u> Islamic Portfolio	.0022 (*t*=.596)	.715	.0018 (*t*=.528)	.718
Conventional Portfolio	.0027 (*t*=.597)	.815	.0019 (*t*=.566)	.836
Difference Portfolio	*-.0005* *(t=-.112)*		*-.0001* *(t=-.043)*	
<u>GCC</u> Islamic Portfolio	.0027 (*t*=1.103)	.933	.0038 (*t*=1.544)	.922
Conventional Portfolio	.0019 (*t*=.492)	.795	.0028 (*t*=.658)	.764
Difference Portfolio	*.0008* *(t=.257)*		*.0010* *(t=.392)*	

*Notes: Alphas of single-index model are estimated as per equation 6.5. OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

Multi-index Model

Table 7.8 reports the OLS regression estimates of the multi-index model for both groups of equally weighted mutual funds' portfolios, Islamic and conventional, computed per geographical investment objective. The difference portfolio is also reported to test whether the difference is statistically significant. Columns 2 and 3 report the results of multi-index' *alpha* (α_i) and the adjusted coefficient of determination (adjR^2) based on conventional benchmarks, whereas columns 4 and 5 report the result of alpha (α_i) and the adjusted coefficient of determination (adjR^2) based on Islamic benchmarks.

Table 7.8 Alpha of Islamic and Conventional Equity Mutual Funds based on Multi-index Model using Islamic and Conventional Market Benchmarks (July 2005 to July 2010)

Geographical Focus	Conventional Benchmarks		Islamic Benchmarks	
	alpha	adj R^2	*alpha*	adj R^2
Saudi				
Islamic Portfolio	-.0004 (t=-.128)	.900	.0011 (t=.370)	.911
Conventional Portfolio	-.0014 (t=-.471)	.924	.0001 (t=.033)	.903
Difference Portfolio	*.0010 (t=.510)*		*.0010 (t=.514)*	
Global				
Islamic Portfolio	-.0027 (t=-1.441)	.904	-.0045 (t=-2.737)***	.915
Conventional Portfolio	-.0029 (t=-1.558)	.921	-.0049 (t=-2.934)***	.916
Difference Portfolio	*.0002 (t=.216)*		*.0004 (t=.396)*	
_US_				
Islamic Portfolio	-.0003 (t=-.127)	.724	-.0023 (t=-1.030)	.767
Conventional Portfolio	-.0019 (t=-1.021)	.830	-.0041 (t=-2.678)***	.840
Difference Portfolio	*.0016 (t=.638)*		*.0018 (t=.720)*	
Europe				
Islamic Portfolio	-.0037 (t=-1.755)	.897	-.0055 (t=-3.824)***	.928
Conventional Portfolio	-.0039 (t=-1.560)	.892	-.0054 (t=-2.299)**	.877
Difference Portfolio	*.0002 (t=.077)*		*-1.E-04 (t=.029)*	
Japan				
Islamic Portfolio	.0013 (t=.385)	.742	.0002 (t=.088)	.812
Conventional Portfolio	-.0018 (t=-.640)	.775	-.0030 (t=-.944)	.744
Difference Portfolio	*.0031 (t=.728)*		*.0032 (t=.743)*	

Asia				
Islamic Portfolio	.0029 (*t*=.795)	.710	.0020 (*t*=.647)	.712
Conventional Portfolio	.0033 (*t*=.618)	.810	.0019 (*t*=.454)	.831
Difference Portfolio	*-.0004 (t=-.107)*		*.0001 (t=.032)*	
GCC				
Islamic Portfolio	.0026 (*t*=1.077)	.932	.0039 (*t*=1.527)	.919
Conventional Portfolio	.0020 (*t*=.474)	.790	.0031 (*t*=.691)	.764
Difference Portfolio	*.0006 (t=.184)*		*.0008 (t=.298)*	

Notes: Alphas of the multi-index model are estimated as per equation 6.6. OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.

The result of both the single-index and multi-index equilibrium risk-adjusted performance models for each geographical investment objective, presented in Tables 7.7 and 7.8, are discussed below.

Saudi

Single-index Model

Islamic and conventional mutual funds seem to generate a positive *alpha* when using an Islamic benchmark (0.0010 and .0002 respectively). However, the *alpha* of both types of mutual funds, Islamic and conventional, turned out to be negative, -.0005 and -.0014 respectively, when using a conventional benchmark. Nevertheless, regardless of the mutual funds examined and the benchmark used, the *alpha* of both types of mutual funds does not seem to be statistically significant. Furthermore, irrespective of the benchmark used, Islamic mutual funds seem to generate a slightly higher *alpha* than conventional mutual funds, by .0008 and .0009 against Islamic and conventional benchmarks respectively. However, the *alpha* difference between both portfolios is statistically insignificant.

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Multi-index Model

Similarly to single-index model, the *alpha* of Islamic and conventional mutual funds tends to be positive against Islamic benchmarks, yet negative against conventional benchmarks. The *alpha* is .0011 and .0001 for Islamic and conventional mutual funds respectively, against Islamic benchmarks, whereas against conventional benchmarks, they are -.0004 and -.0014. Nevertheless, the *alpha* of both types of mutual fund remains statistically insignificant. In addition, the .0010 outperformance of Islamic mutual funds over their conventional counterpart mutual funds with both Islamic and conventional benchmarks does not seem to be statistically significant.

Global

Single-index Model

Regardless of the benchmark used, the *alpha* of both mutual funds tends to be negative. *Alpha* of Islamic mutual funds, against an Islamic benchmark, is -.0039 and this is statistically significant at 5%, whereas *alpha* of conventional mutual funds, against the same benchmark, is -.0048, and this result is statistically significant at 1%. Also, *alpha* of both types of mutual funds is negative against conventional benchmark -.0021 and -.0027 for Islamic and conventional mutual funds respectively, but not significant in both cases. In addition, Islamic mutual funds seem to slightly outperform conventional mutual funds by .0009 and .0006, against Islamic and conventional benchmark respectively. However, the *alpha* difference between both investment groups is statistically insignificant.

Multi-index Model

Similar to the single-index model, the *alpha* of both types of mutual funds remains negative, -.0045 and -.0049 for Islamic and conventional mutual funds respectively against an Islamic benchmark, and this is statistically significant at 1%. Furthermore, the *alpha* of Islamic and conventional mutual funds is -.0027 and -.0029 respectively against a conventional benchmark, but it is statistically insignificant. In addition, Islamic mutual funds seem to generate a slightly higher *alpha* than conventional mutual funds by .0004 and .0002, against Islamic and conventional mutual funds respectively, but again, the difference is not statistically significant.

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US

Single-index Model

Similar to the Global subgroup, the alpha of Islamic and conventional mutual funds is negative regardless of the benchmark used. *Alpha* of Islamic mutual funds against an Islamic benchmark is -.0022, whereas the *alpha* of conventional mutual funds against an Islamic benchmark is -.0038. Furthermore, the *alphas* of Islamic and conventional mutual funds against conventional benchmark are -1.03E-05 and -.0014 respectively. However, *alpha* is not statistically significant here, except for conventional mutual funds against the Islamic index, at a 5% level. Although Islamic mutual funds generate higher *alpha* than conventional mutual funds by .0016 and .0014, against Islamic and conventional benchmark respectively, the *alpha* difference between both groups of mutual funds is statistically insignificant, regardless of the benchmark used.

Multi-index Model

The *Alpha* generated by both groups of mutual funds remains negative. The *alpha* of Islamic and conventional mutual funds against an Islamic benchmark is -.0023 and -.0041 respectively and this is statistically significant at 1% in the case of conventional mutual funds only. Furthermore, when using a conventional benchmark, *alpha* is -.0003 and -.0019 for Islamic and conventional mutual funds respectively, but in both cases statistically insignificant. *Alpha* seems to be lower in the case of conventional mutual funds compared to Islamic mutual funds but the .0018 and .0016 *alpha* differences between both investment groups against Islamic and conventional benchmarks respectively are not statistically significant.

Europe

Single-index Model

Similar to Global and US subgroups, the *alpha* of both types of mutual funds is negative irrespective of the benchmark used. *Alpha* generated by Islamic mutual funds against an Islamic benchmark is -.0050 and this is statistically significant at 1%, whereas that of conventional mutual funds against an Islamic benchmark is -.0056 and this is statistically significant at 5%. Furthermore, the *alphas* of Islamic and conventional mutual funds are -.0027 and -.0031 respectively, against a conventional benchmark, but neither is statistically significant. Moreover, consistent with previous subgroups, Islamic mutual funds seem to provide a higher *alpha* than conventional

mutual funds, regardless of the benchmark used. However, the .0006 and .0004 *alpha* differences against Islamic and conventional benchmarks respectively do not seem to be statistically significant.

Multi-index Model

Both types of mutual funds tend to generate negative *alpha*. When using Islamic benchmark, *alpha* of Islamic mutual funds is -.0055 and this is statistically significant at 1%, whereas *alpha* generated by conventional mutual funds is -.0054 and it is statistically significant at 5%. In addition, *alpha* generated by Islamic and conventional mutual funds is -.0037 and -.0039 respectively against conventional benchmarks but *alpha* of both types of mutual funds is not statistically significant. Also, the -1.E-04 and .0002 *alpha* differences between both types of mutual funds against Islamic and conventional benchmarks which are in favor of the Islamic mutual funds is not statistically significant.

Japan

Single-index Model

Regardless of the benchmark used, Islamic mutual funds seem to provide positive *alpha* - .0003 and .0009 against Islamic and conventional benchmarks respectively. In contrast, conventional mutual funds generate a negative *alpha* -.0047 and -.0037 against Islamic and conventional benchmark respectively. However, in all cases *alpha* is not statistically significant. Also, the .0050 and .0046 *alpha* difference between both types of mutual funds, against Islamic and conventional benchmarks respectively, is statistically insignificant.

Multi-index Model

Consistent with the single-index model, irrespective of the benchmark used, the *alpha* of Islamic mutual funds tends to be positive, whereas conventional mutual funds tend to provide negative *alpha; alphas* remain statistically insignificant in all cases. The *alpha* of Islamic mutual funds is .0002 and .0013 against Islamic and conventional benchmarks respectively, whereas that of conventional mutual funds is -.0030 and -.0018 against Islamic and conventional benchmarks respectively. Thus, Islamic mutual funds seem to achieve higher *alpha* than conventional mutual funds, but the

.0032 and .0031 *alpha* differences between both groups of mutual funds are statistically insignificant.

Asia

Single-index Model

Unlike previous subgroups, the *alpha* of both types of mutual funds tends to be positive and seems to be higher in the case of conventional mutual funds - regardless of the benchmark used. The *alpha* of Islamic and conventional mutual funds is .0018 and .0019 respectively against an Islamic benchmark, whereas it is .0022 and .0027 respectively against a conventional benchmark. Nevertheless, in all cases, *alpha* is not statistically significant. Unlike previous subgroups, conventional mutual funds generate a higher *alpha* than Islamic mutual funds, by .0001 and 0005 against Islamic and conventional benchmarks respectively. However, consistent with previous subgroups, the *alpha* difference between both groups of mutual funds is statistically insignificant irrespective of the benchmark used.

Multi-index Model

Confirming the single-index model's results, both types of mutual fund generate a positive *alpha*. The *alpha* generated by Islamic and conventional mutual funds is .0020 and .0019 respectively against Islamic benchmarks, while it is .0029 and .0033 of Islamic and conventional mutual funds respectively against conventional benchmarks. Thus, similarly to single-index model, conventional mutual funds seem to provide a higher *alpha* than Islamic mutual funds, but only against conventional benchmark. However, unlike the single-index model, Islamic mutual funds outperform conventional mutual funds against the Islamic benchmark. Nevertheless, irrespective of the benchmark used, *alpha* remains statistically insignificant and the .0001 and .0004 *alpha* differences between both groups against Islamic and conventional benchmark respectively are also statistically insignificant.

GCC

Single-index Model

Similar to the Asian subgroup, irrespective of the benchmark used Islamic and conventional mutual funds seem to generate a positive *alpha,* and in all cases it is not statistically significant. *Alpha* is .0038 and .0028 for Islamic and conventional mutual

funds respectively against an Islamic benchmark, whereas *alpha* is .0027 and .0019 respectively, against a conventional benchmark. Also, the .0010 and .0008 *alpha* differences between both types of mutual funds in favour of Islamic mutual funds, against Islamic and conventional benchmarks respectively, are not statistically significant.

Multi-index Model

Consistent with the single-index model, the *alpha* of both types of mutual funds tends to be positive but not statistically significant. *Alpha* is .0039 and .0031 for Islamic and conventional mutual funds respectively against an Islamic benchmark, whereas it is .0026 and .0020 respectively, against a conventional benchmark. Also, although Islamic mutual funds provide a higher *alpha* than conventional mutual funds by .0008 and .0006 against Islamic and conventional benchmarks respectively, these differences between both groups are statistically insignificant.

Thus, confirming the findings of the absolute return and risk-adjusted ratios, the equilibrium single-index and multi-index models show that the performance (*alpha*) difference between Islamic mutual funds and their conventional counterparts does not seem to be significant. This result seems to be robust, since it holds regardless of the benchmark used, the subgroup examined and the model used. Furthermore, equilibrium models' (regression) analysis reveals that, in most cases, the *alpha* of both types of mutual funds - Islamic and conventional - does not seem to be statistically significant, regardless of the benchmark and the model used. This implies that, in general, both types of mutual funds neither outperform nor underperform their market indices' benchmarks. This is with exception to the US's conventional mutual funds and Global and European subsamples, where both types of mutual funds significantly underperform against their Islamic market benchmark only.

Recall Hypothesis 1: The performance of Islamic equity mutual funds in Saudi Arabia does not differ significantly from that of their conventional counterpart equity mutual funds and their conventional market benchmarks.

The empirical results reveal that there is no statistically significant performance difference between Islamic and conventional equity mutual funds that are available in Saudi Arabia. This result seems to be robust, since it holds regardless of the benchmark used, the subgroup examined and the method employed. This implies that Islamic equity mutual funds that are managed by investment institutions in Saudi Arabia do not tend to provide either inferior or superior performance when compared to unrestricted, conventional equity mutual funds. Furthermore, the study also provides evidence that, similar to conventional equity mutual funds, the performance of Islamic equity mutual funds in Saudi Arabia does not tend to significantly differ from their conventional market benchmarks. Thus, the study provides empirical evidence that supports hypothesis 1 and hence, the hypothesis cannot be rejected.

7.3.2 Systematic Risk Analysis

This section presents the results of the systematic risk analysis of Islamic equity mutual funds compared to conventional equity mutual funds in Saudi Arabia. Table 7.9 reports *beta,* which measures the systematic risk for both groups of equally weighted mutual funds' portfolios, Islamic and conventional, computed per geographical investment objective. The difference portfolio is also reported in order to test whether the systematic risk difference between both types of mutual funds is statistically significant or otherwise. Column 2 reports the results of systematic risk/*beta* against the conventional index benchmark, whereas column 3 reports the results of systematic risk/*beta* against the Islamic index benchmark.

Geographical Focus	Conventional Benchmark		Islamic Benchmark	
	Beta	*t*-statistic	*Beta*	*t*-statistic
Saudi				
Islamic Portfolio	.75	18.052***	.69	29.019***
Conventional Portfolio	.85	28.036***	.77	17.309***
Difference Portfolio	*-.10*	*2.778***	*-.08*	*-2.231**
Global				
Islamic Portfolio	.96	10.277***	1.02	10.946***
Conventional Portfolio	1.06	16.323***	1.10	15.826***
Difference Portfolio	*-.09*	*-2.508**	*-.08*	*-2.174**
US				
Islamic Portfolio	.92	7.183***	1.03	7.357***
Conventional Portfolio	1.03	12.580***	1.15	12.948***
Difference Portfolio	*-.11*	*-1.026*	*-.12*	*-.749*
Europe				
Islamic Portfolio	.86	15.161***	.98	15.123***
Conventional Portfolio	.98	12.719***	1.08	10.779***
Difference Portfolio	*-.12*	*-4.212***	*-.10*	*-2.309**
Japan				
Islamic Portfolio	.80	11.371***	.81	12.599***
Conventional Portfolio	1.14	9.913***	1.08	9.998***
Difference Portfolio	*-.34*	*-2.480**	*-.27*	*1.902*
Asia				
Islamic Portfolio	.83	8.559***	.80	8.354***
Conventional Portfolio	1.25	9.610***	1.22	10.834***
Difference Portfolio	*-.42*	*-6.077***	*-.42*	*-7.191***
GCC				
Islamic Portfolio	.85	13.377***	.76	11.844***
Conventional Portfolio	.69	6.246***	.61	5.478***
Difference Portfolio	*.16*	*2.742***	*.15*	*2.814***

*Notes: Beta is calculated based on equation 6.5. OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

The results of systematic risk for each geographical investment objective, presented in Table 7.9, are discussed below.

Saudi

Both types of mutual fund seem to have a lower systematic risk than the market benchmark, irrespective of the benchmark used. The *beta* of Islamic and conventional mutual funds is .69 and .77 respectively, against an Islamic benchmark, whereas *beta*

is .75 and .85 for Islamic and conventional mutual funds respectively against a conventional benchmark. Regardless of the benchmark used, *beta* of both types of mutual funds is statistically significant at 1%. Furthermore, the *beta* difference between both types of mutual funds is -.08 and -.10, against Islamic and conventional benchmark respectively, and this is statistically significant at 1%. Thus, Islamic mutual funds seem to have a significantly lower systematic risk than their conventional counterpart mutual funds.

Global

While conventional mutual funds have a higher systematic risk than the market irrespective of the benchmark used, Islamic mutual funds have lower systematic risk than the conventional market benchmark, but slightly higher than that of the Islamic benchmark. *Beta* of Islamic and conventional mutual funds is 1.02 and 1.10 respectively against an Islamic benchmark, whereas it is .96 and 1.06 respectively, against a conventional benchmark, and this result is statistically significant at 1%. The systematic risk difference between both types of mutual funds is -.08 and -.10 against Islamic and conventional benchmarks respectively, and this is statistically significant at 5%. This indicates that Islamic mutual funds seem to have a lower systematic risk than their conventional counterpart mutual funds and this result is statistically significant.

US

Similar to Global mutual funds, while conventional mutual funds have a higher systematic risk than the market irrespective of the benchmark used, Islamic mutual funds have lower systematic risk than the conventional market benchmark but slightly higher than the Islamic benchmark. *Beta* of Islamic and conventional mutual funds is 1.03 and 1.15 respectively against an Islamic benchmark, but it is .92 and 1.03 respectively against conventional benchmark. *Beta* of both types of mutual funds is statistically significant at 1%, irrespective of the benchmark used. Thus, Islamic mutual funds seem to have a lower systematic risk than their conventional counterpart mutual funds, since the *beta* difference between both types of mutual funds is -.12 and -.11 against Islamic and conventional benchmarks respectively. However, this *beta* difference between funds is statistically insignificant.

Europe

Islamic mutual funds seem to have a lower systematic risk than the market, irrespective of the benchmark used, whereas conventional mutual funds tend to have a higher systematic risk than Islamic benchmark, but lower than the conventional benchmark. *Betas* of Islamic and conventional mutual funds are .98 and 1.08 respectively against an Islamic benchmark, whereas.86 and .98 respectively against a conventional benchmark. Regardless of the benchmark used, *beta* of both types of mutual funds is statistically significant at 1%. The *beta* difference between both types of mutual funds is -.10 and -.12 against Islamic and conventional benchmark respectively, and this is statistically significant at 10% and 5% respectively. This implies a lower systematic risk associated with Islamic mutual funds compared to their conventional counterpart mutual funds.

Japan

While Islamic mutual funds tend to be less exposed to systematic risk, conventional mutual funds tend to have higher systematic risk than the market benchmark, regardless of the benchmark used. The *beta* of Islamic and conventional mutual funds is .81 and 1.08 respectively against an Islamic benchmark, while it is .80 and 1.14 for Islamic and conventional mutual funds respectively against a conventional benchmark. The *beta* of both groups of mutual funds is statistically significant at 1%. The systematic risk difference between both types of mutual funds is -.27 and -.34 against Islamic and conventional benchmarks, and this is statistically significant at 10% and 5% respectively. This implies that Islamic mutual funds tend to have lower systematic risk than their conventional counterpart mutual funds.

Asia

Similar to the Japanese subgroup, regardless of the benchmark used, Islamic mutual funds tend to have a lower systematic risk than the market, whereas conventional mutual funds seem to have higher systematic risk than the market, and this is statistically significant at 1%. The *beta* of Islamic and conventional mutual funds is .80 and 1.22 respectively against an Islamic benchmark, whereas *beta* is .83 and 1.25 respectively against a conventional benchmark. The difference between both types of mutual funds in terms of *beta* is -.42 against both Islamic and conventional benchmark, and this is statistically significant at 1%. This implies lower systematic

risk associated with Islamic mutual funds compared to their conventional counterpart mutual funds.

GCC

Similar to the Saudi subgroup, both types of mutual funds tend to have less exposure to the systematic risk irrespective of the benchmark used, and this is statistically significant at 1%. Unlike other subsamples, Islamic mutual funds seem to have a higher systematic risk than their conventional counterpart mutual funds. *Beta* of Islamic and conventional mutual funds is .76 and .61 respectively against an Islamic benchmark, but .85 and .69 for Islamic and conventional mutual funds respectively, against a conventional benchmark. Also, the .15 and .16 *beta* differences between both groups of mutual funds against Islamic and conventional benchmark respectively, are statistically significant at 1%.

Systematic risk analysis reveals that Islamic equity mutual funds tend to be less risky than their conventional market indices' benchmarks, since the *beta* of Islamic mutual funds is statistically significantly less than unity against conventional market benchmarks, in all subcategories examined. Also, the *beta* of Islamic mutual funds tends to be less than unity against Islamic benchmarks, except those of the Global and US subsamples, where *beta* of both types of mutual funds was higher than unity. Furthermore, systematic risk analysis also shows that, in general, Islamic mutual funds not only seem to be less risky than their conventional market benchmarks but also less exposed to systematic risk, regardless of the benchmark used. This result seems to be robust since the systematic risk difference between both types of mutual funds is statistically significant irrespective of the subcategory examined, with exception to the US subsample. However, in the GCC subcategory conventional mutual funds tend to carry significantly lower systematic risk than Islamic mutual funds and both types of mutual funds have significantly less systematic risk than the market benchmark.

Recall Hypothesis 2: Islamic equity mutual funds in Saudi Arabia are less exposed to the systematic risk compared to their conventional counterpart equity mutual funds and their conventional market benchmarks.

The empirical results provide evidence that Islamic equity mutual funds that are managed by investment institutions in Saudi Arabia seem to be significantly less exposed to systematic risk compared to their conventional market benchmarks in all subgroups examined. In addition, Islamic equity mutual funds not only tend to be less risky than their conventional market benchmarks but also significantly less exposed to systematic risk when compared to their conventional counterpart equity mutual funds in most subgroups examined. Therefore, the study provides empirical evidence that, in general, Islamic mutual funds in Saudi Arabia tend to be less exposed to systematic risk compared to their conventional counterpart mutual funds and their conventional market indices' benchmarks. Thus, there is no convincing evidence to reject hypothesis 2 and hence, the hypothesis cannot be rejected.

7.3.3 Investment Style Analysis

This section presents the results of the investment style analysis of Islamic equity mutual funds compared to conventional equity mutual funds in Saudi Arabia, by using Fama and French multi-index model. Table 7.10 reports OLS regression estimates for equally weighted portfolios of both groups of mutual funds, Islamic and conventional, computed per geographical investment objective. The difference portfolio is also reported in order to test whether the difference between both types of portfolio is statistically significant. Columns 2, 3 and 4 report the results of the exposure of Islamic mutual funds and conventional mutual funds to Market, SMB (Small cap portfolio – Big cap portfolio) factor and HML (High book to market portfolio – Low book to market portfolio) factors. Column 5 displays the adjusted coefficient of determination (adjR^2) of the model. It is worth mentioning that a positive and statistically significant SMB indicates net exposure to small cap, whereas a negative and significant factor indicates a net exposure to large cap. Positive and significant HML indicates net exposure to value stocks, whereas negative and significant factor indicates net exposure to growth stocks.

*Table 7.10: Investment Style/Factors Sensitivity of Multi-index Model of Islamic and
Conventional Equity Mutual Funds (July 2005 to July 2010)*

Geographical Focus	Market	SMB	HML
Saudi			
Islamic Portfolio	.746	.043	.085
	(t=18.608)***	(t=1.167)	(t=.422)
Conventional Portfolio	.841	.039	-.071
	(t=28.355)***	(t=1.501)	(t=-.376)
Difference Portfolio	*-.096*	*.004*	*.157*
	*(t=-2.706)****	*(t=.233)*	*(t=.984)*
Global			
Islamic Portfolio	.943	.230	-.387
	(t=14.803)***	(t=2.682)***	(t=-2.881)***
Conventional Portfolio	1.049	.109	-.019
	(t=18.453)***	(t=.739)	(t=-.109)
Difference Portfolio	*-.106*	*.121*	*-.368*
	*(t=-4.266)****	*(t=.996)*	*(t=-4.166)****
_US_			
Islamic Portfolio	.906	.029	-.232
	(t=7.588)***	(t=.255)	(t=-1.952)*
Conventional Portfolio	1.016	.035	-.356
	(t=13.229)***	(t=.284)	(t=-1.705)*
Difference Portfolio	*-.110*	*-.006*	*.124*
	(t=-.799)	*(t=-.027)*	*(t=.512)*
Europe			
Islamic Portfolio	.912	.106	-.345
	(t=23.819)***	(t=1.431)	(t=-2.488)**
Conventional Portfolio	.936	.339	-.047
	(t=18.121)***	(t=3.673)***	(t=-.236)
Difference Portfolio	*-.025*	*-.233*	*-.298*
	(t=-.625)	*(t=-2.424)***	*(t=-2.018)***
Japan			
Islamic Portfolio	.799	.055	-.055
	(t=11.206)***	(t=.525)	(t=-.463)
Conventional Portfolio	1.081	.098	-.415
	(t=11.737)***	(t=.901)	(t=-1.690)*
Difference Portfolio	*-.281*	*-.043*	*.360*
	*(t=-2.616)***	*(t=-.304)*	*(t=1.139)*
Asia			
Islamic Portfolio	.820	-.146	-.167

	(*t*=9.576)***	(*t*=-.516)	(*t*=-.432)
Conventional Portfolio	1.23 (*t*=8.851)***	.139 (*t*=.570)	-.151 (*t*=-.477)
Difference Portfolio	*-.409 (t=-4.978)****	*-.286 (t=-.725)*	*-.016 (t=-.033)*
GCC Islamic Portfolio	.844 (*t*=14.070)***	.014 (*t*=.490)	-.178 (*t*=-1.282)
Conventional Portfolio	.700 (*t*=6.530)***	-.031 (*t*=-.554)	.175 (*t*=.628)
Difference Portfolio	*.144 (t=2.624)***	*.044 (t=1.052)*	*-.353 (t=-1.639)*

Notes: The model is estimated as per Equation 6.6. OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.

The results of the investment style analysis for each geographical investment objective reported in Table 7.10 are discussed next.

Saudi

The SMB is .043 and .039 for Islamic and conventional mutual funds respectively, but such a small cap tilt is statistically insignificant. Also, the .004 small cap exposure difference between the two mutual funds is not statistically significant. In addition, the HMLs of Islamic and conventional mutual funds are .085 and -.071 respectively, but the results are statistically insignificant in both cases. Also, the .157 growth cap exposure difference between Islamic and conventional mutual funds is statistically insignificant.

Global

SMB is .230 and .109 respectively, for Islamic and conventional mutual funds. The small cap exposure is statistically significant at 1% in the case of Islamic, but insignificant in conventional mutual funds. Although Islamic mutual funds have higher exposure to small cap than conventional mutual funds, the .121 small cap difference between both groups is not statistically significant. Furthermore, HML is -.387 and -.019 for Islamic and conventional mutual funds respectively; this is

statistically significant at 1% in the case of Islamic mutual funds, but statistically insignificant in the case of conventional mutual funds. The -.368 growth cap exposure difference between both groups of mutual funds is statistically significant at 1%, which implies that Islamic mutual funds are more exposed to growth cap than conventional mutual funds.

US

SMB of Islamic and conventional mutual funds is .029 and .035 respectively. However, such a small cap tilt is not statistically significant and also, the -.006 small cap exposure difference is statistically insignificant. Moreover, HML is -.232 and -.356 for Islamic and conventional mutual funds respectively, and these results are both statistically significant at 10%. This shows that both types of mutual funds are more exposed to growth cap, and the exposure of conventional mutual funds is higher than Islamic mutual funds. However, the .124 difference in terms of growth cap exposure between both groups is statistically insignificant.

Europe

SMB of Islamic and conventional mutual funds is .106 and .339 respectively and this is statistically significant at 1% in the case of conventional, but insignificant in the case of Islamic mutual funds. Thus, the conventional funds are more tilted towards small cap compared to Islamic mutual funds, and the -.233 SMB difference between both groups is statistically significant at 5%. In addition, both types of mutual funds are exposed to growth cap - Islamic mutual funds more so. HML is -.345 and -.047 for Islamic mutual funds and conventional mutual funds respectively, and this result is statistically significant at the 5% level in the case of Islamic mutual funds but it is insignificant in the case of conventional mutual funds. Also the -.298 growth cap exposure difference between Islamic and conventional mutual funds is statistically significant at 5% which implies a higher exposure of Islamic mutual funds to growth cap.

Japan

Consistent with previous subsamples, the SMB of both types of mutual funds is positive, indicating small cap exposure. It is .055 and .098 for Islamic and conventional mutual funds respectively but the small cap tilt is not statistically

significant for either group. Also, the -.043 small cap exposure difference between both groups of mutual funds is not statistically significant. Furthermore, HML is -.055 and -.415 for Islamic and conventional mutual funds respectively but this result is only statistically significant at 10% in the case of conventional mutual funds. However, the .360 growth cap exposure difference between both groups is not statistically significant.

Asia

SMB is -.146 and .139 for Islamic and conventional mutual funds respectively, but these results are not statistically significant. Although conventional mutual funds seem to be more exposed to small cap than Islamic mutual funds, the -.286 difference is statistically insignificant. Moreover, HML is -.167 and -.151 for Islamic mutual funds and conventional mutual funds respectively, but, again, the result is not statistically significant for both groups. Also, the -.016 growth cap exposure difference between both groups is statistically insignificant.

GCC

SMB of Islamic and conventional mutual funds is .014 and -.031 respectively but this is statistically insignificant for both groups and also, the .044 small cap tilt difference between both groups is statistically insignificant. Furthermore, HML of Islamic and conventional mutual funds is -.178 and .175 respectively but this result is not statistically significant in both groups; the -.353 difference between both groups is statistically insignificant.

Investment style analysis reveals that size does not seem to be a significant factor to explain the returns of Islamic and conventional equity mutual funds in Saudi Arabia since, in most cases, such a factor is not statistically significant. This is with exception to Islamic Global mutual funds and conventional European mutual funds where they tend to be significantly more exposed to small cap. Furthermore, the analysis shows that regardless of the subgroup examined, the difference between both groups of mutual funds, in terms of the size factor, is statistically insignificant. This is with exception to the European subgroup where conventional mutual funds tend to be significantly more exposed to small cap.

With regards to the book to market factor, Global and European Islamic mutual funds tend to have significant exposure to growth cap, whereas in the case of the US, both types of mutual funds tend to be significantly tilted towards growth stocks. In the case of Saudi, Japan, Asia and GCC the book to market factor does not appear to be significant. Moreover, the growth cap exposure difference between Islamic and conventional mutual funds does not seem to be statistically significant in most cases, except in the Global and European subsamples where Islamic mutual funds tend to be statistically significantly more exposed to growth cap than conventional mutual funds.

It is worth indicating that, the Fama and French three factors, market, size and book to market, tend to be jointly capable of explaining the return of Islamic and conventional equity mutual funds, since an f test of the regression is statistically significant.[79] This is despite the fact that size factor, and also in some cases book to market factor, does not seem to be individually capable of explaining the return of Islamic and conventional mutual funds, across most subgroups examined.

Recall Hypothesis 3: The investment style of Islamic equity mutual funds in Saudi Arabia is skewed towards small and growth companies, when compared to their conventional counterparts.

There is evidence that Islamic mutual funds in Saudi Arabia tend to be significantly exposed to growth caps, in the Global, US and Europe subsamples. However, there is no evidence of significant growth cap preference associated with Islamic mutual funds in the Saudi, Japanese, Asia, and GCC subsamples. With regards to small cap tilt, the study finds evidence that the *Sharia* screening process does not seem to influence Islamic mutual funds in Saudi Arabia to target small cap. In addition, the analysis of the investment style difference between Islamic and conventional equity mutual funds shows that, in most cases, the *Sharia* screening process does not seem to influence Islamic equity mutual funds in Saudi Arabia towards small or growth companies more than conventional equity mutual funds of similar geographical focus

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[79] See Appendix VI.

do. Thus, there is no convincing evidence that supports hypothesis 3 and hence, the hypothesis cannot be accepted.

7.4 Conclusion

This chapter provides new empirical evidence on the investment characteristics of Islamic equity mutual funds in Saudi Arabia compared to their conventional counterpart equity mutual funds. The study employed the widely used mutual funds' valuation models to investigate the performance, risk and investment style of a diversified matched sample of 95 equity mutual funds, Islamic and conventional. The sample focuses on seven different geographical investment objectives - namely Saudi, Global, US, Europe, Japan, Asia and GCC - over the period of July 2005 and July 2010, with 61 monthly observations.

The performance analysis reveals that a *Sharia* screening process does not seem to have an adverse impact on the absolute and the risk-adjusted performance of Islamic equity mutual funds in Saudi Arabia compared to their conventional counterpart equity mutual funds and compared to their market benchmarks - whether Islamic or conventional. In addition, a systematic risk analysis shows that, in most cases, Islamic equity mutual funds in Saudi Arabia tend to be significantly less exposed to market risk than their conventional counterpart equity mutual funds, and also compared to their conventional market benchmarks. Thus, the assumption that *Sharia* investment constraints lead to inferior performance and riskier investment portfolios, because of a restricted investment universe seems to be rejected.

With regards to the investment style, Islamic mutual funds in Saudi Arabia seem to be more growth-oriented in some cases but do not seem to be influenced to target smaller companies. However, the investment style difference between Islamic and conventional mutual funds does not seem to be significant in most cases. This indicates that the *Sharia* screening process does not seem to influence Islamic equity mutual funds in Saudi Arabia towards small or growth companies, any more than conventional equity mutual funds of similar geographical investment focus.

Chapter 8

A Comparative Study between the Investment Characteristics of Islamic, Islamic Sustainability and Socially Responsible Indices

8.1 Introduction

Incorporating the concerns about social, environmental, ethical and/or corporate governance issues with the financial objectives in the investment selection is a key part of the current practice of SRI. As indicated, the total SRI counts for €7,594 billion globally and that is largely dominated by mainstream institutional investors controlling around 92% and 75% of the total SRI, in Europe and US respectively (USSIF, 2010; EUROSIF, 2010). This brought the attention of academics and practitioners alike to investigate the investment characteristics of SRI, in order to provide evidence whether such type of investments come at the expense of performance and risk. However, there is no empirical work that examines the impact of incorporating conventional sustainability criteria into the traditional *Sharia* screening process on investment characteristics. Also, the investment characteristics of Islamic and conventional socially responsible portfolios have so far not been compared.

Therefore, this chapter aims to give empirical evidence on whether incorporating conventional sustainability criteria in the *Sharia* screening process has a significant impact on investment characteristics in terms of performance, risk and investment style. The chapter also aims to investigate whether the application of an Islamic screening process and a conventional SRI screening process provide similar investment characteristics. This is done by providing empirical evidence on the impact of applying different screening criteria on the investment characteristics.

Thus, the study fills the gap and extends the literature on the Islamic investment portfolios by comparing the investment characteristics of four types of investment portfolios (conventional, Islamic, conventional socially responsible and Islamic socially responsible) using global Dow Jones and FTSE indices families. To the best

of my knowledge this study is the first of its kind. There are four sections in this chapter: section 8.2 illustrates the testable hypotheses and data used in the study; section 8.3 presents the empirical results; finally, section 8.4 draws a conclusion.

8.2 Testable Hypotheses and Data

This section elaborates upon the testable hypotheses associated with the performance, risk and investment style of traditional Islamic investment portfolios compared to conventional socially responsible and Islamic socially responsible investment portfolios. Furthermore, the data used in the study are also discussed.

8.2.1 Testable Hypotheses

In order to fulfil the aim and objective of this chapter, six hypotheses are examined, to provide evidence on the investment characteristics in terms of performance, risk and investment style of four groups of investment indices (conventional, Islamic, conventional socially responsible and Islamic socially responsible). This is done in order to answer research questions 3 and 4 respectively, as shown below:

Does the application of Islamic and SRI screening processes provide similar investment characteristics?

Does incorporating conventional sustainability socially responsible criteria in the *Sharia* screening process have an adverse impact on the investment characteristics of Islamic investment portfolios?

The testable hypotheses are presented below. These hypotheses were derived based on previous academic empirical studies and were discussed in previous chapters.

The hypotheses associated with the first question are as follows:

Hypothesis 4: The performance of the Islamic index does not differ significantly from the conventional socially responsible index.

Hypothesis 5: The Islamic investment index is less exposed to systematic risk compared to conventional socially responsible indices.

Hypothesis 6: There is no statistically significant investment style difference between the Islamic and conventional socially responsible indices.

The hypotheses associated with the second question are as follows:

Hypothesis 7: The performance of the Islamic socially responsible index does not differ significantly from the Islamic index, and the conventional socially responsible index.

Hypothesis 8: The systematic risk of Islamic socially responsible index is comparable to that of the Islamic index and the conventional socially responsible index.

Hypothesis 9: There is no statistically significant investment style difference between Islamic socially responsible index and the Islamic, or conventional socially responsible, index.

8.2.2 Data

The study uses the monthly index values of four groups of market indices that are provided by the global Dow Jones and FTSE indices families, the most popular global indices providers. Using samples based on two different market indices providers is to improve the robustness of the results. Both indices providers offer a standard conventional index, a conventional socially responsible index and an Islamic index. Besides, the Dow Jones also provides an Islamic sustainability index, which combines both *Sharia* and conventional socially responsible investment criteria. The specific indices used are Dow Jones Global Index, Dow Jones Sustainability World Index, Dow Jones Islamic Market World Index and Dow Jones Islamic Market Sustainability Index. With regards to the FTSE, the indices used are FTSE All-World Index, FTSE 4Good Global Index and FTSE *Shariah* All-World Index. The monthly index values of these indices were obtained directly from the Dow Jones and FTSE over the period of July 2005 to July 2010 with 61 monthly observations.

It is worth indicating that the Dow Jones Global Index represents approximately 95% of the float-adjusted market capitalization of 42 developed and emerging countries that are open to foreign investors.[80] In contrast, the FTSE Global index covers securities in 48 different developed and emerging countries; it captures 98% of the world's investable market capitalization.[81] In addition, the Dow Jones and FTSE Indices offer a variety of equity indices as well as fixed-income and alternative indices, including measures of hedge funds, commodities and real estate.[82] In order to meet the growing demand for socially responsible and Islamic investments, Dow Jones and FTSE also offer a series of socially responsible and Islamic market indices, besides the standard conventional indices.

i) Sustainability and Sharia Screening Criteria used by Dow Jones[83]

Dow Jones Sustainability Screening Criteria: The Dow Jones Sustainability World Index consists of globally leading companies that are members of the Dow Jones Global Index and go through a corporate sustainability assessment. To meet the sustainability requirements, companies must be in the top 10% of their industries based on a sustainable business practice model, established by SAM (Sustainability Asset Management Group). This model accounts for long-term economic, environmental and social criteria. Thus, the sustainability index follows the positive best-in-class SRI screening approach, where no sector is excluded.

Dow Jones Sharia Screening Criteria: The Dow Jones Islamic Market World Index includes all securities in the Dow Jones Global Index universe that pass the industry type and the financial ratio screens for Islamic compliance guidelines, as identified by the *Sharia* Board. *Industry type* excludes companies that represent the following lines of business: alcohol, tobacco, pork-related products, conventional financial services, defence/weapons and entertainment. *Financial ratios* exclude companies that exceed 33% of the following: total debt divided by trailing 24-month average market capitalization, the sum of a company's cash and interest-bearing securities divided by

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[80] Dow Jones Official Website (Access September 2011).
[81] FTSE Official Website (Access September 2011).
[82] Dow Jones and FTSE Official Websites (Access September 2011).
[83] Dow Jones Official Website (Access September 2011).

a trailing 24-month average market capitalization, accounts receivables divided by a trailing 24-month average market capitalization.

Dow Jones Sharia Sustainability Screening Criteria: The Dow Jones Islamic Market Sustainability Index tracks stocks which are members of the Dow Jones Islamic Market World Index which pass rules-based screens for compliance with Islamic investment guidelines, and which are also determined to be leaders in sustainable business practices based on the best-in-class model indicated above. Thus, it incorporates sustainability criteria into the traditional *Sharia* screening process.

ii) Socially Responsible (4Good) and Sharia Screening Criteria used by FTSE[84]

FTSE Socially Responsible (4Good) Screening Criteria: The FTSE 4Good Global Index is a subset index of the FTSE All World Index. To qualify for inclusion in the FTSE 4Good, companies must be in the FTSE All World Developed Index and pass the corporate responsibility assessment. To research any company's corporate responsibility performance, FTSE works in association with Experts in Responsible Investment Solutions (EIRIS). Unlike Dow Jones, which applies the best-in-class approach, FTSE employs various sets of positive and negative screening criteria. *Inclusion Criteria:* Eligible companies must meet criteria requirements in five areas (working towards environmental sustainability, upholding and supporting universal human rights, ensuring good supply chain labour standards, countering bribery and mitigating and adopting to climate change). *Exclusion Criteria:* Companies which have involvement in the following industries are excluded: producing tobacco, manufacturing either whole, strategic parts or platform for nuclear weapon systems or manufacturing whole weapon systems.

FTSE Sharia Screening Criteria: The FTSE *Sharia* All World Index is a subset index of the FTSE All World Index universe, whereby the included companies must pass the industry type and the financial ratios screens for Islamic compliance guidelines,

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[84] FTSE Official Website (Access September 2011).

identified by the independent *Sharia* consultancy firm, Yasaar Ltd. *Industry type,* similarly to Dow Jones, excludes companies that represent the following lines of business: alcohol, tobacco, pork-related products and non-*halal* food, conventional financial services, defence/weapons and entertainment. *Financial ratios* exclude companies where the following is true: total debt divided by total assets less than 33%, the sum of a company's cash and interest-bearing securities divided by total assets less than 33%, accounts receivables and cash divided by total assets less than 50%, total interest and non-compliant activities income should not exceed 5% of total revenue.

Tables 8.1 and 8.2 show the sector exposure and the component number of the different types of investment portfolios - conventional, conventional socially responsible, Islamic and Islamic socially responsible - based on the global Dow Jones and FTSE indices. It can be seen that Islamic and Islamic sustainability/socially responsible investment portfolios tend to be more exposed to technology, health care, basic materials/resources, oil & gas and industrial sectors, but have almost no exposure to the financial sector. In contrast, the conventional sustainability/socially responsible portfolio seems to be more exposed to the financial, consumer goods, industrial, healthcare and technology sectors. Excluding financial sectors from the composition of Islamic indices is due to the prohibition of '*riba'* - interest-based activities - by Islamic teaching. In addition, it is argued that the high exposure of Islamic indices to the technology sector is because technology companies tend to rely on very little debt for their financing (Ghoul and Karam, 2007).

In addition, the composition of the indices shows that around 60% and 50% of the unrestricted conventional index did not pass the *Sharia* screening process in the case of both Dow Jones and FTSE respectively. Also, it can be seen that applying sustainability criteria into the investment selection process results in a very restricted investment portfolio, when compared to the broad and unrestricted portfolios. Also, incorporating sustainability criteria into the *Sharia* screening process leads to an even more restricted investment portfolio. This is because Dow Jones' sustainability criteria screen considers only the top 10% of companies in each industry. This raises the question, as addressed in the next section, would *Sharia* and *Sharia* socially

responsible screening processes have a significant adverse impact on the investment characteristics due to restricting the investment universe?

Table 8.1 Sector Exposure and Component Number of Four Dow Jones Indices Groups (as per Jun 30, 2011)

Sector	Dow Jones Global Index	Dow Jones Sustainability World Index	Dow Jones Islamic Market World Index	Dow Jones Islamic Market Sustainability Index
Health Care	7.89%	11.62%	15.68%	24.83%
Technology	9.33%	9.82%	17.86%	21.54%
Basic Materials	8.96%	11.22%	14.64%	19.55%
Oil & Gas	10.96%	7.81%	19.28%	12.54%
Industrials	13.38%	12.24%	14.25%	9.70%
Consumer Goods	11.83%	13.43%	8.31%	7.90%
Consumer Services	9.17%	5.43%	6.05%	2.20%
Telecommunication	4.12%	4.68%	2.49%	1.56%
Utilities	3.86%	3.63%	1.05%	.18%
Financials	20.51%	20.13%	.38%	-----
Component Number	6,805	324	2,599	100

Source: Adopted from Dow Jones Official Documents, (June 30, 2011)

Table 8.2 Sector Exposure and Component Number of the FTSE Indices Groups (as per Jun 24, 2011)*

Sector	FTSE All-World Index	FTSE Shariah All-World Index
Health Care	8.01%	12.51%
Technology	9.44%	12.69%
Basic Resources	5.52%	9.55%
Oil & Gas	10.88%	18.94%
Industrials	10.64%	11.73%
Telecommunication	4.7%	5.39%
Utilities	3.88%	3.82%
Financials	18.72%	.19%
Real Estate	2.47%	1.04%
Construction & Materials	1.63%	2.49%
Chemicals	3.09%	5.22%
Automobiles & Parts	2.62%	2.60%
Food & Beverage	4.80%	3.84%
Personal & Household	4.71%	5.17%
Retail	4.66%	3.67%
Media	2.26%	.79%
Travel & Leisure	1.97%	.36%
Component Number	2,867	1,412

* The sector exposure and the component number of the FTSE 4Good Global Index are not available.
Source: Adopted from FTSE Official Documents, (June 24, 2011).

Risk-free Rate Benchmark

As a proxy for the risk-free rate, the 3-month US Treasury bills gathered from DataStream are used in the study, since they are the most widely used for this purpose. This is also a valid risk-free rate proxy for Islamic investment portfolios, since Islamic finance modes such as *murabaha*, *ijara*, and so on, use a conventional interest rate as a benchmark for determining the profit rate.

Market Benchmarks

Similar to the previous chapter, the Morgan Stanley Capital International (MSCI) Indices family is used as a set of market benchmarks. In particular, Morgan Stanley Capital International MSCI AC World Index and its different investment style indices - Large, Small, Value and Growth - were used as market benchmarks to construct Market, SMB and HML factors.[85] Data were obtained from the MSCI database directly, over the study period from July 2005 to July 2010. The MSCI indices family is widely used by academics and practitioners and hence, it is acceptable to use these in academic studies.

Difference Portfolios

Following Bauer et al.'s (2005, 2006 and 2007) approach, a difference portfolio between each pair examined was evaluated by subtracting the returns of one portfolio from the other. This is to enhance comparability between different types of portfolios by examining whether the differences between each pair being investigated are statistically significant or not. Thus, as pointed out by Bauer et al. (2006), the difference portfolio serves to examine differences in return, risk and investment style between the two investment approaches and using such an approach allows implicit attribution of differences in the risk-adjusted performance to the screens applied.

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[85] This is following the approach, among others, Saure (2007) and Cortez et al. (2011).

8.3 Empirical Results

The section presents the results of the investment characteristics in terms of performance, risk and investment style of different groups of restricted investment portfolios, for the sample period from July 2005 to July 2010, with 61 monthly observations. Particularly, the indices examined are: standard conventional, conventional socially responsible, Islamic and Islamic socially responsible. All are based on the global Dow Jones and FTSE indices families, and all the empirical models employed in the study were explained and discussed in the research methodology and empirical models, (Chapter 6).

A summary of the descriptive statistics of monthly returns of the Dow Jones and FTSE global indices and their Islamic and socially responsible subsets indices over the period, July 2005 to July 2010, are reported in Appendix III. Furthermore, cross-correlation analysis between the independent variables was employed to ensure that the regressions do not suffer from multicollinearity (see Appendix V). Results of the cross-correlation tests - between 'Market', 'SMB' and 'HML' - indicate that there is no significant correlation among the independent variables regardless of the subgroup examined, which implies that there is no multicollinearity. In addition, an Augmented Dickey Fuller (ADF) unit root test was conducted to ensure that the time series does not suffer from unit root (i.e., the data are stationery). The unit root test results reported in Appendix IV reject the null hypothesis that the data contain unit root in favour of the alternative hypothesis, which states that the data is stationary. This holds true in all subgroups examined.

8.3.1 Performance Analysis

The results of the performance analysis are presented in terms of absolute returns and risk-adjusted returns respectively. Mean returns show the absolute performance, whereas traditional ratios, Sharpe and Treynor, as well as single-index and multi-index equilibrium models show the risk-adjusted performance.

8.3.1.1 Absolute Return Analysis

This section presents the results of the absolute performance analysis of conventional, conventional socially responsible, Islamic and Islamic socially responsible indices. Table 8.3 reports absolute mean monthly returns for different groups of investment portfolios.

Table 8.3: Absolute Mean Monthly Returns of the Different Groups of Investment Indices (from July 2005 to July 2010)

Provider	Type of Portfolio	Mean
Dow Jones	Conventional	.0022
	Conventional Sustainability	.0016
	Islamic	.0030
	Islamic Sustainability	.0023
FTSE	Conventional	.0012
	Islamic	.0020
	4Good	.0013

Notes: The mean return is estimated as per Equation 6.2.

Furthermore, Tables 8.4 and 8.5 report the difference in absolute mean monthly returns between the different types of investment portfolios. A *t* statistics test is used to test whether the mean differences are statistically significant or otherwise.

Table 8.4: Analysis of Differences in Absolute Mean Monthly Return between the Different Groups of Investment Indices (from July 2005 to July 2010)

Provider	Pairs Examined	Mean Difference	*t*-statistic
Dow Jones	Islamic, Conventional	.0008	.084
	Islamic, Conventional Sustainability	.0014	.141
	Conventional Sustainability, Conventional	-.0006	-.056
FTSE	Islamic, Conventional	.0010	.096
	Islamic, 4Good	.0007	.072
	4Good, Conventional	.0002	.023

Notes: t statistics test is used to test whether the mean difference between the different types of portfolios is statistically significant. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.

Table 8.5: Analysis of Differences in Absolute Mean Monthly Return between the Islamic Socially Responsible Index and other Groups of Investment Indices (from July 2005 to July 2010)

Provider	Pairs Examined	Mean Difference	*t*-statistic
Dow Jones	Islamic Sustainability, Islamic Islamic Sustainability, Conventional Islamic Sustainability, Conventional Sustainability	-.0007 .0001 .0007	-.075 .012 .070

*Notes: t statistics test is used to test whether the mean difference between the different types of portfolios is statistically significant. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

The results of the absolute performance analysis for each type of index, presented in Tables 8.3, 8.4 and 8.5, are discussed below.

Dow Jones

While the absolute monthly return provided by conventional index and conventional sustainability index is .0022 and .0016 respectively, the Islamic index generated .0030. This implies that the Islamic index achieved the highest absolute return, as compared to the conventional and conventional socially responsible indices. However, the performance difference analysis shows that there is no statistically significant absolute return difference between the Islamic index as compared to these others. Similarly, the performance difference between conventional socially responsible and conventional indices is insignificant.

In addition, the absolute monthly return achieved by the Islamic sustainability index is .0023, which is lower than that of the Islamic index but higher than both unrestricted conventional and conventional socially responsible indices. However, there does not seem to be a significant absolute return difference between the Islamic sustainability index and conventional, Islamic and conventional sustainability indices.

FTSE

The absolute returns generated by conventional, conventional socially responsible and Islamic indices are .0010, .0013 and .0020 respectively. Similar to Dow Jones' indices, the FTSE Islamic index seems to achieve higher absolute returns compared to the unrestricted conventional index and the conventional socially responsible index.

Nevertheless, consistent with Dow Jones' indices, the performance difference between the Islamic index and the conventional and conventional socially responsible indices does not seem to be statistically significant. Likewise, there is no significant absolute return difference between the conventional socially responsible and conventional indices.

Thus, the absolute performance analysis shows that, regardless of the pairs examined, the performance difference between the different groups of indices does not seem to be statistically significant, irrespective of whether the sample used is from the Dow Jones or FTSE index.

8.3.1.2 Adjusted Return Analysis

This section presents the results of risk-adjusted ratios' analysis followed by presenting the results based on single-index and multi-index equilibrium models.

a) Ratios' Analysis

This section presents the results of the risk-adjusted ratios, Sharpe and Treynor, of conventional, conventional socially responsible, Islamic and Islamic socially responsible indices. Table 8.6 reports the risk-adjusted return, based on the Sharpe and Treynor ratios, of the different groups of investment indices examined. Columns 3 and 4 display the results of Sharpe ratio and Treynor ratio respectively.

Table 8.6: Analysis of Sharpe and Treynor Ratios for the Different Groups of Investment Indices (from July 2005 to July 2010)

Provider	Type of Portfolio	Sharpe	Treynor
Dow Jones	Conventional	.0030	.0001
	Conventional Sustainability	-.0070	-.0004
	Islamic	.0191	.0011
	Islamic Sustainability	.0056	.0003
FTSE	Conventional	.0034	.0002
	Islamic	.0222	.0014
	4Good	.0087	.0005

Notes: Sharpe ratio and Treynor ratio are estimated as per equation 6.3 and 6.4 respectively.

In addition, Tables 8.7 and 8.8 report the difference Sharpe and Treynor ratios between the different types of investment portfolios.

Table 8.7: Analysis of Difference of Sharpe and Treynor Ratios between the Different Groups of Investment Indices (from July 2005 to July 2010)

Provider	Pairs Examined	Sharpe	Treynor
Dow Jones	Islamic, Conventional Islamic, conventional Sustainability Conventional Sustainability, Conventional	.0161 .0261 -.0100	.0010 .0015 -.0005
FTSE	Islamic, Conventional Islamic, 4Good 4Good, Conventional	.0188 .0135 .0053	.0012 .0009 .0003

Notes: Sharpe ratio and Treynor ratio are estimated as per equation 6.3 and 6.4 respectively.

Table: 8.8 Analysis of Difference of Sharpe and Treynor Ratios between Islamic Socially responsible Index and other Groups of Investment Indices (from July 2005 to July 2010)

Provider	Pairs Examined	Sharpe	Treynor
Dow Jones	Islamic Sustainability, Islamic Islamic Sustainability, Conventional Islamic Sustainability, Conventional Sustainability	-.0135 .0026 .0126	-.0008 .0002 .0007

Notes: Sharpe ratio and Treynor ratio are estimated as per equation 6.3 and 6.4 respectively.

Dow Jones

The Sharpe ratio achieved by conventional, conventional sustainability and Islamic indices is .0030 and -.0070 and .0191, whereas the Treynor ratio is .0001 and -.0004 and .0011 respectively. Thus, the Islamic index tends to provide higher Sharpe and Treynor ratios compared to their conventional and conventional sustainability counterparts. Furthermore, the conventional index seems to generate higher Sharpe and Treynor ratios than its sustainability subset index.

In addition, the Sharpe ratio and Treynor ratio achieved by the Islamic sustainability index is .0056 and .0003 respectively. Hence, the risk-adjusted ratio of Islamic

sustainability is higher than that of conventional and conventional sustainability but lower than that of the Islamic index.

FTSE

Both types of restricted investment portfolios, Islamic and conventional socially responsible, tend to generate higher Sharpe and Treynor ratios than unrestricted conventional investment portfolio. The Sharpe ratio achieved by conventional, conventional socially responsible and Islamic indices is .0034, .0087 and .0222 respectively. In addition, the Treynor ratio of conventional, conventional socially responsible and Islamic is .0002, .0005 and .0014 respectively. This indicates that the Islamic index appears to generate higher Sharpe and Treynor ratios than conventional and conventional socially responsible indices, which is in line with the findings from the Dow Jones indices.

Thus, the risk-adjusted ratios, Sharpe and Treynor, show that Islamic and Islamic sustainability indices seem to outperform their conventional and conventional socially responsible counterparts, regardless of the index used. To investigate the robustness of such a result, the regression analysis is employed next, and a *t* statistics test is used to test whether the risk-adjusted performance differences between the different types of indices are statistically significant or otherwise.

b) Equilibrium Models (Regression Analysis)

This section presents the results of equilibrium models, both single-index and multi-index.[86] Table 8.9 reports OLS regression estimates for the different groups of market indices examined, using single-index and multi-index models. Columns 3 and 4 report the results of Jensen's alpha (α_i) and the adjusted coefficient of determination (adjR^2) based on single CAPM index model. Columns 5 and 6 report the result of Jensen's alpha (α_i) and the adjusted coefficient of determination (adjR^2) based on multi-index model.

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[86] For full OLS regressions estimates see Appendix VI.

Table 8.9: Alpha of Single-index Model and Multi-index Model of the Different Groups of Investment Indices (from July 2005 to July 2010)

Provider	Type of Portfolio	Single-index Model		Multi-index Model	
		alpha	adj R^2	*alpha*	adj R^2
Dow Jones	Conventional	-.0004 (*t*=-.348)	.904	-.0008 (*t*=-.653)	.908
	Conventional Sustainability	-.0011 (*t*=-.661)	.893	-.0012 (*t*=-.671)	.893
	Islamic	.0004 (*t*=.295)	.875	2.21E-05 (*t*=.014)	.886
	Islamic Sustainability	-.0002 (*t*=-.111)	.852	-.0003 (*t*=-.139)	.857
FTSE	Conventional	-.0015 (*t*=-1.311)	.904	-.0020 (*t*=-1.435)	.908
	Islamic	-.0005 (*t*=-.263)	.846	-.0009 (*t*=-.511)	.859
	4Good	-.0013 (*t*=-.824)	.871	-.0013 (*t*=-.923)	.879

*Notes: Alphas of single-index model and multi-index model are calculated based on equation 6.5 and 6.6 respectively. OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

Table 8.10: Analysis of Difference in Alpha of Single-index Model and Multi-index Model between the Different Groups of Investment Indices (from July 2005to July 2010)

Provider	Pairs Examined	Difference Alpha (Single-index Model)	Difference Alpha (Multi-index Model)
Dow Jones	Islamic, Conventional	.0008 (*t*=.704)	.0008 (*t*=1.158)
	Islamic, Conventional Sustainability	.0015 (*t*=.839)	.0012 (*t*=.946)
	Conventional Sustainability, Conventional	-.0007 (*t*=-.579)	-.0004 (*t*=-.198)

	Islamic, Conventional	.0010 (t=.671)	.0010 (t=.867)
FTSE	Islamic, 4Good	.0007 (t=.339)	.0003 (t=.251)
	4Good, Conventional	.0002 (t=.238)	.0006 (t=.945)

Notes: OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.

Table 8.11: Analysis of Difference in Alpha of Single-index Model and Multi-index Model between the Islamic Socially Responsible Index and other Groups of Investment Indices (from July 2005 to July 2010)

Provider	Pairs Examined	*Difference Alpha (Single-index Model)*	*Difference Alpha (Multi-index Model)*
Dow Jones	Islamic Sustainability, Islamic	-.0006 (t=-.639)	-.0003 (t=-.312)
	Islamic Sustainability, Conventional	.0002 (t=.100)	.0005 (t=.483)
	Islamic Sustainability, Conventional Sustainability	.0009 (t=.458)	.0009 (t=.645)

Notes; OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.

Furthermore, Tables 8.10 and 8.11 report difference *alpha* between the different types of investment portfolios examined, based on both single-index model and multi-index model. A *t* statistics test is used to test whether the *alpha* differences between different types of portfolios are statistically significant or otherwise. The result of the equilibrium risk-adjusted performance analysis for each type of portfolio reported in Tables 8.9, 8.10 and 8.11 are discussed below.

Single-index Model

Dow Jones

All types of indices generate a negative *alpha* except the Islamic index, but none of the generated results is statistically significantly different from zero. Conventional index and conventional sustainability index generated -.0004 and -.0011 *alpha* respectively. In contrast, *alpha* of the Islamic index is .0004. This shows that the Islamic index seems to generate a higher *alpha* than conventional and conventional sustainability indices, whereas the conventional index tends to generate a slightly higher *alpha* than its subset sustainability index. However, the *alpha* differences between Islamic index as compared to conventional and conventional sustainability indices do not appear to be statistically significant. Similarly, the *alpha* difference between conventional and conventional sustainability indices is statistically insignificant.

In addition, *alpha* generated by Islamic sustainability index is -.0002, which is higher than conventional and conventional sustainability indices, but lower than the Islamic index, which is consistent with the results of the absolute return and risk-adjusted ratios. Nevertheless, the *alpha* difference between Islamic sustainability index as compared to conventional, Islamic and conventional sustainability indices is not statistically significant.

FTSE

All types of indices generate a negative *alpha* but, again, none of the results is statistically significant. The conventional index provided -.0015 *alpha*, whereas Islamic index and conventional socially responsible index resulted in -.0005 and -.0013 respectively. This shows that Islamic and conventional socially responsible indices seem to generate higher *alpha* than the conventional index. However, the *alpha* differences between Islamic and conventional indices and also between conventional socially responsible and conventional indices do not tend to be statistically significant. Also, the higher *alpha* generated by Islamic index compared to conventional socially responsible index seems to be statistically insignificant.

Multi-index Model

Dow Jones

Similarly to the single-index model, all types of indices generate a negative *alpha* except Islamic index, but none of the *alpha* results is statistically significant. The conventional and conventional sustainability indices gave a -.0008 and -.0012 *alpha* respectively, whereas the Islamic index's *alpha* was 2.21E-05. This indicates that, similar to the single-index model, the Islamic index seems to generate a slightly higher *alpha* than conventional and conventional sustainability indices, whereas the conventional index tends to provide slightly higher *alpha* than its subset sustainability index. Nevertheless, the *alpha* differences between Islamic index as compared to conventional and conventional sustainability indices do not tend to be statistically significant. Also, the *alpha* difference between conventional and conventional sustainability indices is not statistically significant. These results are also in line with the single-index model.

With regards to the Islamic sustainability index, the *alpha* generated is -.0003. This shows that the *alpha* generated by Islamic sustainability index is higher than that of conventional and conventional sustainability indices, but lower than that of the Islamic index, again in line with the single-index model. Nevertheless, consistent with the single-index model, the *alpha* differences between the Islamic sustainability index and the conventional, Islamic and conventional sustainability indices do not appear to be statistically significant.

FTSE

Consistent with the single-index model, *alpha* tends to be negative for all groups of indices and also remains statistically insignificant. The *alpha* of the conventional index is -.0020, whereas the *alpha* of the Islamic and conventional socially responsible indices is -.0009 and -.0013 respectively. Thus, in line with the single-index model, Islamic and conventional socially responsible indices seem to generate a higher *alpha* than conventional index, and also the Islamic index tends to provide a higher *alpha* than conventional socially responsible index. However, the *alpha* differences between Islamic and conventional indices, and also between Islamic and conventional socially responsible indices are not significant. Similarly, the *alpha*

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difference between conventional socially responsible and conventional indices is not significant.

Thus, equilibrium (regression) risk-adjusted models for performance evaluation reveals that the four types of investment portfolios, conventional, Islamic and their subset socially responsible indices, tend to generate an *alpha* that is not statistically significantly different from zero. Furthermore, consistent with the absolute return, regardless of the pairs examined, the performance difference among the different groups of investment portfolio does not seem to be statistically significant, irrespective of the model and the sample used. This implies that there is evidence that the performance of restricted investment portfolios - Islamic, conventional socially responsible and Islamic socially responsible - does not significantly differ from unrestricted conventional investment portfolio, and also among themselves. This result is consistent with the previous chapter, in that the performance difference between Islamic equity mutual funds compared to their conventional counterparts tends to be insignificant.

Recall Hypothesis 4: The performance of the Islamic index does not differ significantly from the conventional socially responsible index.

The empirical results reveal that there is no statistically significant difference between the performance of Islamic index compared to conventional and conventional socially responsible indices. This result seems to be robust, since it holds regardless of the method employed and the sample used. Thus, the study provides empirical evidence that supports hypothesis 4 and hence, the hypothesis cannot be rejected. This implies that both types of restricted investment portfolios, Islamic and conventional socially responsible, exhibit a similar performance. The findings imply that - although both types of portfolios, Islamic and conventional socially responsible - apply different sets of screening criteria, their performance difference seems to be insignificant.

Recall Hypothesis 7: The performance of the Islamic socially responsible index does not differ significantly from the Islamic index, and the conventional socially responsible index.

The empirical results reveal that there is no statistically significant difference between the performance of Islamic socially responsible index compared to conventional, Islamic and conventional socially responsible indices. This result seems to be robust since it holds regardless of the method employed. Thus, the study provides empirical evidence that supports hypothesis 7 and hence, the hypothesis cannot be rejected. This implies that incorporating conventional sustainability criteria in the *Sharia* screening process does not seem to lead to inferior performance, when compared to a traditional Islamic portfolio or a conventional socially responsible portfolio.

8.3.2 Systematic Risk Analysis

This section presents the results of the systematic risk analysis of conventional, conventional socially responsible, Islamic and Islamic socially responsible indices. Table 8.12 reports *beta,* which measures the sensitivity of the portfolio volatility to the market volatility for the four groups of market indices. Column 3 reports the results of systematic risk/*Beta* (β_i) against market index benchmark, whereas column 4 reports the results of *t* statistic.

Table 8.12: Systematic Risks (Beta) of the Four Groups of Investment Indices (from July 2005 to July 2010)

Provider	Type of Portfolio	*Beta*	*t*-statistic
Dow Jones	Conventional	.928	24.923***
	Conventional Sustainability	.955	18.573***
	Islamic	.854	24.774***
	Islamic Sustainability	.832	18.553***
FTSE	Conventional	.949	26.652***
	Islamic	.859	16.633***
	4Good	.921	15.284***

*Notes: Beta is calculated based on equation 6.5. OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

In addition, Tables 8.13 and 8.14 report *beta* differences between the different groups of market indices examined, conventional, Islamic and their socially responsible subset indices. The difference portfolio is examined to test whether the difference between different types of indices is statistically significant or otherwise. Column 2 reports the results of difference systematic risk/*Beta* (β_i), whereas column 3 reports the results of the *t* statistic test.

Table 8.13: Examining the Difference in Systematic Risks (Beta) between the Different Groups of Investment Indices (from July 2005 to July 2010)

Provider	Pairs Examined	*Beta*	*t*-statistic
Dow Jones	Islamic, Conventional Islamic, conventional Sustainability Conventional Sustainability, Conventional	-.074 -.101 .027	-3.738*** -3.202*** 1.372
FTSE	Islamic, Conventional Islamic, 4Good 4Good, Conventional	-.090 -.061 -.028	-2.363** -2.176** -.944

*Notes; OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

Table 8.14: Examining the Difference in Systematic Risks (Beta) between the Islamic Socially Responsible Index and other Groups of Investment Indices (from July 2005 to July 2010)

Provider	Pairs Examined	*Beta*	*t*-statistic
Dow Jones	Islamic Sustainability, Islamic Islamic Sustainability, Conventional Islamic Sustainability, Conventional Sustainability	-.022 -.096 -.123	-1.199 -4.440*** -5.949***

*Notes; OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

The results of the systematic risk analysis for each type of index reported in Tables 8.12, 8.13 and 8.14 are discussed below.

Dow Jones

The results reveal that the systematic risk of the conventional and conventional sustainability indices seem to be higher than that of the Islamic index and *beta* is statistically significant irrespective of the index examined. *Beta* of conventional and

conventional sustainability index is .928 and .955 respectively, whereas *beta* of Islamic index is .854. This implies that the Islamic index tends to be significantly less exposed to systematic risk than both the conventional and conventional sustainability indices, since the *beta* difference is statistically significant. However, the *beta* difference between the conventional and conventional sustainability indices is statistically insignificant.

Furthermore, the *beta* of the Islamic sustainability index is .832, and this is statistically significant. Similarly to Islamic index, the Islamic sustainability index tends to have a significantly lower systematic risk than conventional and conventional sustainability indices, since the *beta* difference is statistically significant. However, the *beta* difference between Islamic sustainability index and Islamic index is statistically insignificant.

FTSE

The systematic risk of Islamic and conventional socially responsible indices seems to be lower than that of conventional index. The *beta* of the conventional index is .94, whereas *beta* of the Islamic and conventional socially responsible indices is .85 and .92 respectively. *Beta* is statistically significant irrespective of the index examined. While the *beta* difference between the Islamic and conventional indices is statistically significant, the difference between the *beta* of the socially responsible index and conventional index is statistically insignificant. Furthermore, the systematic risk difference between the Islamic and conventional socially responsible indices is statistically significant, indicating less systematic risk associated with Islamic index.

Recall Hypothesis 5: The Islamic investment index is less exposed to systematic risk compared to conventional socially responsible indices.

The empirical results provide evidence that the Islamic index tends to be significantly less exposed to systematic risk compared to its conventional and conventional socially responsible counterpart indices. Thus, there is evidence that supports hypothesis 5 and hence, the hypothesis cannot be rejected. This result is consistent with the previous

chapter, which concluded that Islamic investments appear to be less exposed to systematic risk.

Recall Hypothesis 8: The systematic risk of Islamic socially responsible index is comparable to that of the Islamic index and the conventional socially responsible index.

The study provides evidence that there is no statistically significant systematic risk difference between the Islamic index and its subset Islamic socially responsible index. Similar to the Islamic index, the Islamic socially responsible index tends to be significantly less exposed to systematic risk compared to its conventional and conventional socially responsible counterparts. Thus, there is no convincing evidence to support the latter part of hypothesis 8 and hence, the hypothesis cannot be accepted. This implies that incorporating conventional sustainability criteria in the *Sharia* screening process does not seem to expose Muslim investors to higher systematic risk compared to traditional *Sharia*-compliant investment portfolios.

8.3.3 Investment Style Analysis

This section presents the results of the investment style analysis of conventional, conventional socially responsible, Islamic and Islamic socially responsible indices by using the Fama and French multi-index model. Table 8.15 reports the OLS regression estimates for the four groups of indices. Columns 3 and 4 report the results of the exposure of the four groups of market indices to Market, SMB (Small cap portfolio – Big cap portfolio) factor and HML (High book to market portfolio – Low book to market portfolio) factor respectively. It is worth mentioning that a positive and significant SMB indicates net exposure to small cap, whereas a negative and significant factor indicates a net exposure to large cap. Positive and significant HML indicates net exposure to value stocks, whereas negative and significant factor indicates net exposure to growth stocks.

Table 8.15: Factor Sensitivity of the Multi-index Model of the Different Groups of Investment Indices (from July 2005 to July 2010)

Provider	Type of Portfolio	Market	SMB	HML
Dow Jones	Conventional	.884 (*t*=21.379)***	.293 (*t*=1.489)	.124 (*t*=.590)
	Conventional Sustainability	.942 (*t*=18.861)***	.055 (*t*=.350)	.186 (*t*=.837)
	Islamic	.839 (*t*=17.498)***	.170 (*t*=1.543)	-.325 (*t*=-1.422)
	Islamic Sustainability	.849 (*t*=15.679)***	-.066 (*t*=-.485)	-.309 (*t*=-1.196)
FTSE	Conventional	.907 (*t*=21.880)***	.296 (*t*=1.418)	.102 (*t*=.486)
	Islamic	.850 (*t*=12.670)***	.151 (*t*=.960)	-.398 (*t*=-1.628)
	4Good	.894 (*t*=17.342)***	.134 (*t*=.951)	.369 (*t*=-1.761)*

*Notes, The model is estimated based on equation 6.6. OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

Table 8.16 Analysis of Difference in Factor Sensitivity of the Multi-index Model between the Different Groups of Investment Indices (from July 2005 to July 2010)

Provider	Pairs Examined	Market	SMB	HML
Dow Jones	Islamic, Conventional	-.045 (*t*=-2.615)**	-.123 (*t*=-2.891)***	-.449 (*t*=-7.685)***
	Islamic, Conventional Sustainability	-.103 (*t*=-3.831)***	.115 (*t*=1.336)	-.511 (*t*=-6.352)***
	Conventional Sustainability, Conventional	.058 (*t*=3.006)***	-.238 (*t*=-4.059)***	.062 (*t*=1.292)
FTSE	Islamic, Conventional	-.056 (*t*=1.556)	-.145 (*t*=-1.943)*	-.501 (*t*=-4.026)***
	Islamic, 4Good	-.043 (*t*=-1.238)	.016 (*t*=.173)	-.768 (*t*=-5.229)***

	4Good, Conventional	-.013 (*t*=.817)	-.161 (*t*=-4.081)***	.267 (*t*=6.784)***

*Notes; OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

Table 8.17 Analysis of Difference in Factor Sensitivity of the Multi-index Model between the Islamic Socially Responsible Index an other Groups of Investment Indices (from July 2005 to July 2010)

Provider	Pairs Examined	Market	SMB	HML
Dow Jones	Islamic Sustainability, Islamic	.010 (*t*=.547)	-.236 (*t*=-3.322)***	.016 (*t*=.271)
	Islamic Sustainability, Conventional	-.035 (*t*=-1.308)	-.359 (*t*=-6.066)***	-.433 (*t*=-5.200)***
	Islamic Sustainability, Conventional Sustainability	-.093 (*t*=-3.779)***	-.121 (*t*=-2.023)**	-.495 (*t*=-6.872)***

*Notes; OLS regression is used and t-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

In addition, Tables 8.16 and 8.17 present the investment style differences between the four groups of market indices, conventional, Islamic and their socially responsible subset indices. The difference portfolio is also examined to test whether the difference between the different types of indices is statistically significant or otherwise. Columns 3, 4 and 5 report the results of the difference exposure to market, size and book to market factors respectively. The results of investment style analysis for each type of index presented in Tables 8.15, 8.16 and 8.17 are discussed below.

Market Factor

Dow Jones

Market exposure of conventional and conventional sustainability indices is .884 and .942 respectively, whereas the market exposure of the Islamic index is .839, and these results tend to be statistically significant. Thus, similarly to market exposure (*beta*) in the single-index model, the Islamic index seems to be relatively less exposed to

market factor compared to its conventional and conventional sustainability counterparts, and this result is statistically significant. However, unlike the single-index model, the conventional sustainability index tends to be more exposed to market risk than the unrestricted conventional index.

The market exposure of the Islamic sustainability index is .849, and this is statistically significant, indicating less exposure to systematic risk as compared to conventional and conventional sustainability indices. In addition, consistent with the single-index model, there is no statistically significant difference between the Islamic and its subset Islamic sustainability index in terms of market exposure.

FTSE

Market exposure of conventional, conventional socially responsible and Islamic indices is .907, .850 and .894 respectively and these results tend to be statistically significant. Thus, consistent with market exposure (*beta*) in the single-index model, the Islamic index seems to be relatively less exposed to market factor, compared to its conventional and conventional socially responsible counterparts but the difference here is not statistically significant. Similarly to the single-index model, the market exposure difference between the conventional socially responsible index and the unrestricted conventional index is not significant.

Size Factor (SMB)

Dow Jones

The SMB factors of conventional and conventional sustainability are .293 and .055, whereas for Islamic and Islamic sustainability indices, SMB is .170 and -.066 respectively. Nevertheless, the SMB factor does not tend to be statistically significant, in all types of indices examined. This implies that size does not seem to be a significant factor to explain the returns of any of the four groups of investments. Furthermore, the Islamic and conventional sustainability indices seem to be relatively more exposed to large cap than broad conventional index, and this result is statistically significant. Thus, there is evidence that *Sharia* and sustainability screening processes both seem to influence Islamic and sustainable investment portfolios to target relatively larger cap, compared to the broader unrestricted

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conventional index. However, there is no statistically significant difference between Islamic and conventional sustainability indices in terms of size factor.

In addition, the Islamic sustainability index tends to be relatively more exposed to large cap compared to the other three types of indices - conventional, conventional sustainability and Islamic - and this result is statistically significant. This implies that combining sustainability criteria with the traditional *Sharia* process in the investment selection leads to a further large cap tilt.

FTSE

SMB is .296, .134 and .151 for conventional, conventional socially responsible and Islamic indices respectively, but this is statistically insignificant. Similar to Dow Jones' indices, the restricted Islamic and conventional socially responsible indices tend to be relatively more exposed to large cap, as compared to their unrestricted conventional counterparts and this result is statistically significant. Furthermore, the size factor difference between Islamic and conventional socially responsible indices does not seem to be statistically significant; this is also consistent with Dow Jones' indices.

<u>Book to Market Factor (HML)</u>

Dow Jones

The HML factors of conventional and conventional sustainability indices are .124 and .186, whereas that of Islamic and Islamic sustainability indices is -.325 and -.309 respectively. Similarly to the SMB factor, HML factor does not tend to be statistically significant in all types of indices examined, which implies that HML factor does not seem to be a significant factor to explain the return of any of the four groups of investments. Furthermore, Islamic and Islamic sustainability indices seem to be relatively more exposed to growth cap compared to conventional and conventional sustainability indices and this result is statistically significant.

However, there is no statistically significant book-to-market factor difference between Islamic and Islamic sustainability indices. This implies that, although incorporating the sustainability criteria in the *Sharia* screening process leads to a growth cap tilt, it does not lead to more growth cap tilt than with the traditional *Sharia* criteria. Likewise, the difference between the conventional and conventional sustainability indices in terms of HML is statistically insignificant.

FTSE

The HML factor load of the conventional socially responsible index is .369; indicating higher exposure to value stocks, this result is statistically significant. In contrast, the book-to-market factor load of the Islamic index is -.398, indicating a higher exposure to growth cap; but the result is not statistically significant. With regards to the conventional index, the .102 book-to-market factor is statistically insignificant. In addition, the difference in HML factor exposure between Islamic and conventional socially responsible indices is statistically significant. Also, the HML difference between Islamic and conventional socially responsible indices as compared to the conventional index is statistically significant. This shows that, consistent with Dow Jones' indices, an Islamic index tends to be more exposed to growth stocks, whereas a conventional socially responsible index seems to be more exposed to value stocks.

Recall Hypothesis 6: There is no statistically significant investment style difference between the Islamic and conventional socially responsible indices.

The study provides evidence that there is no statistically significant difference between the Islamic and conventional socially responsible indices in terms of size factor. However, there is a significant difference between the two groups of indices in terms of book-to-market factor. The Islamic investment portfolio tends to be relatively more growth-stocks-oriented compared to conventional and conventional socially responsible investment portfolios. Thus, there is no convincing evidence to support hypothesis 6 and hence, it cannot be accepted. This implies that although both types of restricted investment portfolios, Islamic and conventional sustainability, exhibit similar performance, the returns' drivers of each type of investment portfolio seem to

be different. Unlike that of the conventional socially responsible index, the return of the Islamic index tends to be relatively driven by growth stocks.

Recall Hypothesis 9: There is no statistically significant investment style difference between Islamic socially responsible index and the Islamic, or conventional socially responsible, index.

The study finds evidence that Islamic socially responsible indices are significantly more exposed to large cap compared to the Islamic index and conventional socially responsible index. With regards to book-to-market factor, the Islamic socially responsible index is significantly more exposed to growth cap compared to the conventional socially responsible index. However, there is no statistically significant difference between Islamic socially responsible and Islamic indices, and both types of portfolio are relatively skewed towards a growth cap. Thus, there is no convincing evidence to supports hypothesis 9 and hence, the hypothesis cannot be accepted.

8.4 Conclusion

This chapter provides new empirical evidence on the investment characteristics of Islamic and Islamic socially responsible investment portfolios, compared to their conventional and conventional socially responsible counterparts. The study employed the widely used valuation's models to investigate performance, risk and investment style of the Global Dow Jones and FTSE indices' families. This is over the period between July 2005 and July 2010 with 61 monthly observations.

The performance analysis reveals that neither the *Sharia* nor the socially responsible screening process seems to have an adverse impact on either the performance or risk of Islamic, conventional socially responsible and Islamic socially responsible investment portfolios compared to their unrestricted conventional counterparts. Thus, it seems to be that - regardless of the type of the restrictions used (*Sharia*, socially responsible or *Sharia* socially responsible) - restricted investment does not lead to inferior performance or higher exposure to systematic risk compared to the broad,

unrestricted investment counterparts. In fact, Islamic and Islamic socially responsible indices tend to be significantly less exposed to systematic risk compared to their conventional and conventional socially responsible counterparts.

Furthermore, the study also reveals that there is no statistically significant difference between the performance of Islamic socially responsible investment portfolios as compared to traditional Islamic and conventional socially responsible portfolios. The study also finds that the systematic risk difference between Islamic and its subset Islamic socially responsible index is not significant. This implies that incorporating conventional sustainability criteria in the *Sharia* screening process does not seem to lead to underperformance or higher exposure to systematic risk. Therefore, Muslim investors as well as socially responsible investors can choose investments that are consistent with their value system and beliefs, without being forced to sacrifice performance or be exposed to higher risk. This result is consistent with the result in the previous chapter.

In addition, with regards to the investment style analysis, Islamic and Islamic socially responsible indices tend to be more growth-oriented stocks compared to their conventional and conventional socially responsible counterparts. This implies that growth companies are more likely to pass *Sharia* screening criteria, compared to value stocks. Moreover, the empirical study finds that *Sharia* and socially responsible criteria seem to lead to a relatively large cap tilt compared to broader conventional portfolios. Interestingly, incorporating conventional sustainability criteria into the traditional *Sharia* screening process leads to a large cap tilt. The Islamic socially responsible index tends to be significantly more exposed to large cap compared to conventional, Islamic and conventional socially responsible indices.

Chapter 9
Discussion and Conclusion

9.1 Introduction

Despite the growing interest in Islamic finance in general, and Islamic mutual funds in particular, academic research on Islamic equity investment portfolios is limited. The primary aim of the present study is to fill the existing gap and extend the literature on Islamic investment portfolios, in order to contribute to the development of Islamic finance. The study has critically reviewed the application of the *Sharia* screening process, from both *Sharia* and practical perspectives. In addition, the study presented a comprehensive analysis of the investment characteristics of Islamic equity investment portfolios as compared to their conventional and conventional socially responsible counterparts. Also, the impact of incorporating conventional sustainability criteria into the traditional *Sharia* screening process on the investment characteristics was investigated, by employing the widely used valuation's models to investigate the performance, risk and investment style over the period of July 2005 to July 2010, with 61 monthly observations.

In order to improve the robustness of the results and provide a comprehensive analysis about the investment characteristics of Islamic investment portfolios, the study used a sample of actively managed equity mutual funds and passive market indices. In particular, the investment characteristics of Islamic equity mutual funds in Saudi Arabia, the world's largest home market for the Islamic mutual funds' industry, were compared to their conventional counterparts based on various geographical focuses. Furthermore, the investment characteristics of Islamic and Islamic socially responsible indices were compared to each other as well as being compared to their conventional and conventional socially responsible counterparts, based on the global Dow Jones and FTSE indices families.

Recall the four research objectives associated with the present study:

Objective 1: To critically review the *Sharia* investment screening process.

This has been addressed in Chapter 4, in the form of the following research question: What are the critical issues related to the *Sharia* screening process for stocks?

Objective 2: To investigate the impact of applying *Sharia* screening criteria on the investment characteristics of Islamic equity mutual funds in Saudi Arabia in terms of performance, risk and investment style, as compared to their conventional counterparts.

This has been discussed in Chapter 7 by addressing the following research question: Does the application of a *Sharia* screening process have an adverse impact on the investment characteristics of Islamic equity mutual funds in Saudi Arabia compared to their unrestricted conventional counterparts?

Objective 3: To compare the investment characteristics of Islamic investment market indices to their socially responsible counterparts, in terms of performance, risk and investment style.

Objective 4: To examine the impact of incorporating conventional sustainability socially responsible screening criteria to the traditional *Sharia* screening process on the investment characteristics of Islamic sustainability investment portfolios. The performance, risk and investment style of the Islamic socially responsible investment portfolios are compared to their conventional, conventional socially responsible and Islamic portfolios.

These later two research objectives were addressed in Chapter 8 by answering the following research questions: Does the application of Islamic and SRI screening processes provide similar investment characteristics? Does incorporating conventional sustainability socially responsible criteria in the *Sharia* screening process have an adverse impact on the investment characteristics of Islamic investment portfolios?

The reminder of the chapter is organized as follows: section 9.2 presents the findings and the discussion of the study; section 9.3 illustrates the practical implications of the results; section 9.4 presents the research limitations; section 9.5 provides suggestions for further research; section 9.6 gives a concluding remark.

9.2 Findings and Discussion

The main findings of the study in terms of the critical issues associated with the *Sharia* screening process as well as the investment characteristics of Islamic and Islamic socially responsible investment in terms of portfolio performance, risk and investment style are discussed next.

9.2.1 Critical issues related to the *Sharia* investment screening process

The *Sharia* investment screening processes emphasizes its sector and financial screening criteria to ensure the permissibility of the investment, from a *Sharia* point of view. This is because *Sharia* prohibits *riba*, *gharar, maysir* and other *Sharia*-impermissible businesses. However, fully *Sharia*-compliant companies are rare, since *riba* and some sorts of *gharar* are embedded in the modern conventional financial system. Therefore, some scholars relax the Islamic constraints, by allowing investment in companies (even if they have interest-based activities and/or have some exposure to *Sharia*-impermissible activities), as long as their primary business is *Sharia*-permissible. However, the *Sharia*-impermissible activities must not exceed the tolerated level, believed to be not excessive; the impure income portion should also be purified by giving it away to charities. Such a purification requirement seems to be unique to Islamic investment.

In practice there appears to be inconsistency in the *Sharia* screening criteria among Islamic investment institutions. This is because there is no universal consensus on a predetermined, fixed set of *Sharia* screening criteria and hence, each Islamic investment institution has its own *Sharia* board or a *Sharia* consultant firm in order to set guidelines for its operations. Despite the use of *Sharia* screening criteria by different investment institutions, these have not been approved by a credible independent universal *Sharia* authority, such as the International *Fiqh* Academy. One reason for this may be that such a screening process, especially financial screening, and the tolerance level cannot be linked directly to either the Quran or *Sunnah*, but instead it is based on the *ijtihad* of contemporary scholars. Inconsistency of *Sharia* screening criteria raises the problem of the reliability of such rulings. Also, it raises the issue of conflicts of interest and the problems of competition and the independence of the *Sharia* supervisory boards. This is because Islamic investment

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institutions that apply more stringent standards will have a more restricted investment universe accordingly.

Furthermore, another crucial issue that needs to be addressed is that *Sharia* screening criteria tend to change over time, based on the *ijtihad* of other scholars, or even based on the changing opinion of the same scholars. This certainly affects confidence in the *Sharia* screening criteria standards, which might in turn adversely affect the Islamic mutual fund industry. The AAOIFI issued *Sharia* investment screening criteria to standardize the industry, but these standards have not yet been adopted by market players, despite the fact that the AAOIFI board members are also board members of Islamic financial institutions.

Moreover, external auditing for the implementation of *Sharia* rules should be adopted to ensure the compliance of the investment with *Sharia* guidelines. Furthermore, it is desirable for *Sharia* boards to adopt corporate governance practice and take proactive roles - especially in Muslim countries - to influence companies to adopt socially responsible and *Sharia*-compliant investment practices. The study also advocates setting up a higher Islamic authority at the national level, to set up *Sharia* screening standards and guidelines for the nationwide industry. This would enforce *Sharia* consistency and ensure the acceptability of the criteria and also avoid conflicts of interest arising from allowing Islamic mutual funds to assign their own *Sharia* board. This approach has already been successfully adopted in Malaysia.

Another criticism associated with Islamic funds is that non-income generating aspects - such as social and environmental concerns - are not incorporated in the contemporary Islamic investment screening process. This raises the question of whether Islamic investment portfolios truly are socially responsible. In order to address the above question properly, socially responsible investment needs to be defined first.

As indicated earlier, SRI criteria are subjective and controversial, since they rely on individuals' values and beliefs, which can vary greatly from one person to another (Hamilton et al., 2003). Therefore, there is no agreed definition (or criteria) for the current practice of SRI. Acknowledging such difficulty, the globally independent SRI

authorities have proposed a broad definition for SRI. The Ethical Investment Research Service (EIRIS) defines a 'green' or 'ethical' SRI fund as a fund where the choice of investments is influenced by one or more social, environmental or other ethical criterion. The Social Investment Forum in the US and Europe defines the main approaches/strategies that are used for SRI, which include negative and positive screening, best-in-class, engagement and community investing. They indicate that these approaches can be used in a combination, or individually.

By applying the above broad definition of SRI proposed by global and highly credible independent SRI authorities, Islamic mutual funds can be classified under the broad umbrella of SRI, since they apply negative screening criteria to exclude certain sectors/companies that are deemed to be unethical, such as, among others, alcohol, tobacco, pornography, weaponry. This is despite not adopting other SRI approaches such as positive screening and sustainability criteria or proactive SRI approaches, as well as ignoring broad social and environmental issues in the screening process. This is similar to some other SRI 'religious' funds which only apply negative screening to exclude 'sin' industries from their investments. In spite of this, they are still classified as ethical investment. This is because, by definition, adopting only one of the SRI criteria/approaches, including negative screening, still classifies the fund as SRI.

It should be noted that not all conventional SRI funds place equal concerns regarding the impact of their investments on the social and environment surrounding, since each socially responsible investor can set his/her own criteria that fulfil their specific beliefs and concerns. For example, a socially responsible investor might exclude oil and gas sectors from his/her investment portfolio due to their environmental risk, whereas another socially responsible investor might invest in such a sector, so long as they have equal employment opportunities and support the community. While the former investor is more concerned about the environmental issues, the latter emphasizes the social aspects of his/her investments, yet both investors by definition are considered socially responsible. Another example, the Dow Jones SRI index, applies sustainability criteria whereby the best companies in each sector in terms of financial performance, environmental and social impact are selected regardless of the sector that the companies are involved in. In contrast, the FTSE SRI index applies a combination of positive and negative screening that excludes certain sectors such as

tobacco and nuclear weaponry. This is clearly unlike the Dow Jones SRI index, which does not totally exclude any sector.

In short, by definition, Islamic funds can be considered under the broad umbrella of SRI, since they do adopt negative screening, despite not adopting other positive or sustainability screening. On the other hand, Islamic funds might not be deemed as SRI for those investors who emphasize the social and environmental consequences of their investments since such issues are not captured by the *Sharia* screening process. The plausible question that needs to be answered is whether *Sharia* really has no objection for socially or environmentally irresponsible investments. In other words, is it *Sharia*-compliant to invest in companies which have been involved in serious environmental damages or human rights violations? These questions are raised because the traditional *Sharia* investment screening process does not exclude these companies.

This seems to be rather paradoxical, since it contradicts the *Sharia*-embedded ethical values of fairness, justice and equity. Therefore, it is argued that positive social and environmental screening criteria should not be separated from the Islamic investment screening process to reward criteria such as human rights, community investing and environmental protection (Wilson, 2004; Dar Al Istithmar, 2009). This is because such a separation is not in line with the fundamental beliefs of Islam in general, and with the fundamentals of the Islamic economic and finance system in particular, since morality and ethics is essential in all aspects of Islam.

As indicated earlier, ethicality and morality are promoted by Islam in business, and religious values forbid any income from exploitation, deceit and other unethical sources. The rights of others are also important throughout the religion, but not only humans have such privileges - animals, plants and the society at large do too. Unfortunately, these social and ethical issues are not captured by the current *Sharia* screening process, though they are usually incorporated in the conventional SRI screening.

Furthermore, since the ethicality and social responsibility of Islamic funds is a debatable issue by nature, the researcher has his own point of view. I argue that Islamic and conventional SRI are two different investment families, despite having similarities, and 'overlapping' in terms of excluding certain sectors/companies that deemed to be unethical. This is because, unlike all conventional SRI funds, the major

driving force of Islamic funds is excluding the conventional financial sector and excluding relatively highly-leveraged and highly-liquid companies (because of *riba*). Examining the sector exposure of Islamic investments compared to their conventional counterparts shows that while the conventional and conventional SRI funds have a high exposure to the financial sector (around 20% of the overall weight of their investment portfolio, and by far the highest sector they have exposure to), Islamic investments, on the other hand, have almost no exposure to such sector.[87]

In contrast, the sector exposure difference between the conventional FTSE index and its subset Islamic index, in terms of food & beverage and retail sectors, is only 1% each.[88] This shows that, unlike excluding financial sector, excluding companies which involve alcohol and tobacco does not seem to have a significant influence for the Islamic investment portfolios. In addition, excluding highly-leveraged and highly-liquid companies for their *Sharia* non-compliance also plays a crucial role in identifying the Islamic investment universe.

Derigs and Marzban (2008) indicate that, as of 2007, the total number of companies of the conventional S&P 500 that passed the *Sharia* screening criteria was 271 out of 500. They also show that 113 companies were excluded from the conventional S&P 500 due to sector screening, 23% of the total investment universe, and that 78 of the excluded companies are from the financial sector. This implies that around 70% of the removed constitutes from the conventional S&P 500 for their sector non-compliance is from the financial sector. In addition, while 113 companies were excluded due to sector screening, the remaining 116 excluded companies were due to the financial screening (to exclude highly leveraged and highly liquid companies). This implies that the *Sharia* financial screening alone removed more than 23% of the conventional S&P 500 investment universe.

Thus, unlike SRI, the main driving force for identifying a *Sharia*-compliant investment universe is avoiding/or reducing the exposure of the investment to *riba* through removing the conventional financial sector, and highly leveraged and highly liquid companies. The question that arises here is whether excluding the conventional

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[87] See Tables 8.1 and 8.2.
[88] See Table 8.2.

financial sector as well as highly leveraged and highly liquid companies - which plays a significant role in the *Sharia* screening process - for a socially responsible purpose.

From a conventional SRI point of view, financial sector and highly leveraged and highly liquid companies are not perceived as socially irresponsible businesses by nature. In fact, as shown in Table 8.1, conventional SRI tends to have high exposure to financial sector, which might be because the financial sector is considered as a green sector. Besides, companies in the financial sector tend to be large by nature, and hence are likely to have the financial capacity to adopt SRI practices such as corporate governance, community investing etc. In contrast, from a *Sharia* point of view, the financial sector and highly leveraged and highly liquid companies are excluded because they violate *Sharia* principles, mainly *riba*, and hence become *Sharia* non-compliant.

Therefore, there is a clear contradiction between the Islamic and conventional SRI screening criteria. While the driving force for the *Sharia* screening process is to avoid or reduce the exposure to *riba* (for religious purposes), such activities are not perceived by conventional SRI as socially irresponsible or unethical. Hence, it seems to be more appropriate to classify Islamic funds as religious funds, rather than SRI funds. This is in line with Forte and Miglietta (2007) who also advocate for defining norm-based funds such as Catholic, Islamic, Lutherans or Methodist as "religious funds" or "faith-based funds", in order to underline their religious basis and to give investors a clear understanding of the values that characterize each fund and its potential risk and return profile. This is because they find that Islamic and SRI investments are two different portfolios, not only in terms of country and sector exposure, but also in terms of the econometric trends that characterize each portfolio.

9.2.2 Performance

The analysis shows that there is no statistically significant difference between the performance of Islamic equity mutual funds in Saudi Arabia and their conventional counterpart equity mutual funds, and also compared to their conventional market indices' benchmarks. This implies that the application of the *Sharia* screening process does not seem to have a significant impact on the performance of Islamic equity mutual funds in Saudi Arabia, when compared to their unrestricted conventional

counterparts. Thus, Muslim investors in Saudi Arabia can choose Islamic investments that are consistent with their beliefs without being forced to sacrifice performance.

This finding is in line with most previous empirical studies, which indicate that Islamic mutual funds do not seem to be associated with inferior performance compared to their conventional counterparts. As indicated earlier, Elefakhani et al. (2005), Kraeussl and Hayat (2008) and Abderrezak (2008) find that, on average, Islamic mutual funds do not lead to underperformance compared to their Islamic and conventional market benchmarks. Similarly, Abdullah et al. (2007) and Mansor and Bhatti (2011) indicate that the performance difference between Islamic and conventional Malaysian mutual funds is insignificant. Likewise, Ahmad and Ibrahim (2002), Hussein (2004), Hakim and Rashidian (2004), Girard and Hassan (2005 and 2008), Hashim (2008), Albaity and Ahmad (2008) and Dharani and Natarajan (2011) all indicate that the performance of Islamic market indices does not differ significantly from that of their conventional counterparts.

One might argue that the performance similarity between both groups of investment portfolios is because Islamic mutual funds' structure does not differentiate hugely from that of their conventional counterparts. This takes us back to the famous question of "how Islamic is an Islamic financial institution?" However, as indicated earlier, Islamic investment portfolios are subset portfolios of the unrestricted conventional investment universe; they invest in a relatively lower-leveraged and lower-liquidity companies, and also exclude the conventional financial sector and *Sharia*-impermissible businesses (such as alcohol, tobacco, pornography etc.). Consequently, Islamic investment portfolios are usually forced to remove around 50% - 60% of the unrestricted conventional investment universe regardless of the risk/return profile of the excluded companies, since they are not *Sharia*-compliant[89].

As a result, the *Sharia* screening criteria create restricted Islamic investment portfolios that are different from their conventional counterparts in terms of the number of constituents[90], investment style[91], sector exposure[92] and systematic risk

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[89] See Tables 7.3, 8.1 and 8.2.
[90] See Tables 7.3, 8.1 and 8.2.
[91] This is discussed in section 9.2.4
[92] This is discussed in section 9.2.4. Also, see Tables 8.1 and 8.2.

profile[93]. This distinguishes Islamic investment portfolios from their unrestricted conventional counterparts despite providing performance that is neither better nor worse. Thus, although both types of portfolios generate a comparable performance, the return drivers of each type of portfolio tend to be different. Furthermore, unlike conventional mutual funds, Islamic mutual funds are not allowed to use conventional derivatives contracts, nor are they allowed to invest in traditional fixed income instruments.[94] Also, Islamic mutual funds have to sacrifice returns through a purification process to donate any *Sharia*-impermissible portion of their income. This is also unique to Islamic funds.

Thus, claiming that the performance similarity between conventional and Islamic mutual funds is because both groups of mutual funds have a similar structure or investment portfolio does not seem to be accurate. Finding insignificant performance differences between Islamic funds as compared to their conventional counterparts is consistent with most previous studies on actively managed SRI mutual funds, which also indicate that, on average, SRI mutual funds tend to provide a performance comparable to that of their unrestricted conventional counterparts, regardless of the market examined.[95]

Furthermore, the study finds that, despite the fact that Islamic and conventional SRI portfolios apply different sets of screening criteria, the performance differences between both restricted investment groups tend to be insignificant. The study also reveals that there is no statistically significant performance difference between Islamic SRI portfolios and conventional, conventional SRI or Islamic investment portfolios. This implies that incorporating conventional sustainability criteria into the *Sharia* screening process does not seem to lead to a diminished performance.

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[93] This is discussed in section 9.2.3

[94] Although *sukuks* are *Sharia*-alternative instruments to fixed income, the *sukuks* market is still in its infancy. For example, *sukuks* have not been issued by developed governments and globally large corporation listed in developed markets. Also, due to the newness of *sukuks* market there is lack of the availability and liquidity of such instruments compared to conventional bonds.

[95] See for example, Luther et al. (1992), Luther and Matatko (1994), Mallin et al. (1995), Gregory et al. (1997) Hamilton et al. (1993), Reyes and Grieb (1998), Goldreyer et al. (1999), Statman (2000), Schroder (2004), Scholtens (2005), Bello (2005) and Benson et al. (2006), Kreander et al. (2005), Cortez et al. (2008) and Cortez et al. (2009), Bauer et al. (2005), Bauer et al. (2006) and Gregory and Whittaker (2007). These have been illustrated in Chapter 5.

Thus, Muslim investors can invest in a *Sharia*-compliant portfolio, which is also socially and environmentally responsible, without being forced to sacrifice returns. This finding is in line with the majority of previous studies on conventional SRI, which show that implementing socially responsible screening criteria in the investment selection does not tend to provide inferior performance. For example, Sauer (1997), Statman (2000), DiBartolomeo and Kurtz (1999), Vermeir et al (2005), Statman (2006) and Schroder (2004, 2007) indicate that, in general, the performance differences between SRI indices and conventional indices are not statistically significant.

Therefore, the present study provides evidence that the performance of restricted investment portfolios - whether their criteria are Islamic, conventional SRI or Islamic SRI - does not significantly differ from that of their unrestricted conventional counterparts. This holds true, regardless of the type of the portfolio examined - passive indices benchmarks or actively managed equity mutual funds - and irrespective of the performance measure used - absolute or risk-adjusted returns. Also, the study reveals that the performance differences among specific types of these restricted investment portfolios seem to be statistically insignificant.

These findings also do not support attributing the performance similarity between Islamic and conventional funds to having similar investment portfolios. This is because Islamic portfolios tend to provide performance that is comparable to conventional SRI portfolios, despite having different investment portfolios[96]. Also, further restricting the Islamic investment universe by imposing additional sustainability criteria does not seem to lead to inferior performance. For example, although only 100 companies have passed the *Sharia* and sustainability criteria employed by the global Dow Jones Islamic sustainability index (out of the 6,805 number of constituents in the conventional global Dow Jones index[97]), the performance difference between both groups of indices remains statistically insignificant. This is despite the significant documented difference between both groups of investments in terms of investment style, sector exposure and systematic risk profile.

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[96] See for example, Forte and Miglietta (2007).
[97] See Table 8.1.

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[96] See for example, Forte and Miglietta (2007).
[97] See Table 8.1.

Thus, it seems to be that, irrespective of the type of restrictions used, whether Islamic, socially responsible or Islamic socially responsible, restricted investment portfolios do not tend to significantly underperform against their unrestricted conventional counterparts. The question that arises here is: how do the restricted Islamic, conventional socially responsible and Islamic socially responsible portfolios provide performance that is indistinguishable from their unrestricted conventional counterparts, despite the constraints associated with their investment universe?

It appears that, although both the *Sharia* and the socially responsible screening processes restrict the investment menu, the number of companies that pass the screening process is sufficiently large to provide a competitive performance. Thus, it seems that the benefit of diversification (or a large investment universe - the number of companies which pass the screening criteria) follows the diminishing utility function, whereby the more companies are added in the investment universe the better the diversification, and hence, the performance. This is true, but only up to a certain level/number of companies, after which adding more companies does not tend to add significant benefits for the investment portfolios.

The number of companies that pass the *Sharia*/socially responsible screening process seems to comfortably reach the level of constituting a 'sufficient' investment universe and this might explain their performance similarity to unrestricted conventional portfolios. Therefore, it seems that as long as the number of companies passing the screening process is large enough, the restricted investment portfolios will be able to compete with their unrestricted counterparts, regardless of the actual restrictions used. This seems to be a more plausible reason to explain the performance similarity between the restricted Islamic and socially responsible investments as compared to their conventional counterparts.

The study concludes that neither the *Sharia* nor the socially responsible screening process seems to have an adverse impact on the absolute and the risk-adjusted performance of investment portfolios, as compared to their unrestricted conventional counterparts. Also, further restricting the Islamic investment portfolios by incorporating conventional socially responsible criteria into the traditional *Sharia* screening process does not seem to have an adverse impact on performance. In other

words, rational investors who only consider risk and return in their investment selection, without giving any consideration to socially responsible, ethical or religious criteria (restrictions) do not seem to be able to provide a superior return. Thus, there is no penalty for being *Sharia-*/socially responsible-compliant investors, nor does the *Sharia*/socially responsible screening process enhance the investment performance. Therefore, the assumption that *Sharia*/socially responsible investment constraints lead to inferior performance because of their restricted investment universe, and because of imposing additional non-financial criteria on the investment selection, seem to be rejected. Thus, Muslim investors as well as socially responsible investors can choose investments that are consistent with their value system and beliefs, without being forced to sacrifice performance.

9.2.3 Systematic Risk

The study reveals that in most cases Islamic equity mutual funds in Saudi Arabia tend to be statistically significantly less exposed to market risk compared to their conventional counterpart equity mutual funds and compared to their conventional market benchmarks. Therefore, Islamic equity mutual funds in Saudi Arabia tend to be defensive investment vehicles, due to their decreased sensitivity to the market's movement. This is consistent with Abdullah et al. (2007), who find that Malaysian Islamic funds are less risky and less sensitive to market volatility compared to conventional funds. It is also in line with Kraeussl and Hayat (2008), Abderrezak (2008), Muhammad and Mokhtar (2008) and Hoepner et al. (2009) who all indicate that Islamic equity mutual funds tend to have *betas* significantly less than unity, indicating a lower systematic risk when compared to broad market indices.

Similarly, there is empirical evidence showing that Islamic and Islamic socially responsible indices tend to be significantly less exposed to systematic risk compared to their conventional and conventional socially responsible counterparts. This is in line with Ahmad and Ibrahim (2002), Hakim and Rashidian (2004), Girard and Hassan (2005), Hussein (2005) and Albaity and Ahmad (2008), who find that the systematic risk of Islamic indices tends to be less than that of their conventional complementary indices. The study also finds that the systematic risk difference

between an Islamic index and its subset Islamic socially responsible index is not significant. This implies that incorporating sustainability criteria into the traditional *Sharia* screening process does not seem to expose Muslim investors to higher systematic risk.

As a result of being defensive investment vehicles, Islamic equity investment portfolios can be used for hedging purposes, especially during a bear market condition, due to their lower sensitivity to the market change and hence, they might be attractive even for risk averse non-Muslim investors (Abdullah et al., 2007; Kraeussl and Hayat, 2008 and Hoepner et al., 2009). The question that arises here is: why do Islamic and Islamic socially responsible indices seem to be less exposed to market volatility as compared to their conventional and conventional socially responsible counterparts?

It can be argued that the restrictions imposed by *Sharia* principles - which prohibit *riba*, *gharar* (uncertainty elements) and gambling - seem to minimize the risk of Islamic investment portfolios (Abdullah et al., 2007). In particular, the lower systematic risk associated with Islamic investments seems to be attributed to excluding high-leverage companies and financial sectors from the investment compositions for their *Sharia* violation (Hussein and Omran, 2005; Ghoul and Karam, 2007; Kraeussl and Hayat, 2008 and Hoepner et al. 2009). This is consistent with early pioneering researchers, such as Beaver, Kettler and Scholes (1970), Hamada (1972) and Breen and Lerner (1973), who find a positive relationship between financial leverage and systematic risk. This implies that highly leveraged companies tend to be risky by nature. For example, the DJIM index removed high-profile firms such as WorldCom, Enron and Tyco from its composition before their collapse occurred, due to their high leverage (Hussein and Omran, 2005).

In addition, as a result of *Sharia* restrictions, Islamic investment portfolios are exposed to non-cyclical sectors which make them relatively less volatile and less correlated to the overall market movements (Abdullah et al., 2007; Kraeussl and Hayat, 2008). Also, the exposure to *Sharia*-compliant securities only might be another reason for lower sensitivity of Islamic investment portfolios to the overall market volatility (Abdullah et al., 2007; Kraeussl and Hayat, 2008). In addition, with regards

to Islamic mutual funds, managers are not allowed to invest in certain types of risky investments, such as derivative instruments. Also, they are restricted from certain risky investment practices, such as short selling and margin trade, due to their *Sharia*-impermissibility. This might be another source of their decreased exposure to systematic risk.

Moreover, Al-Zoubi and Maghyereh (2007) argue that the decreased risk associated with the Islamic index as compared to its conventional equivalent seems to be attributed to the profit-and-loss-sharing principle of Islamic finance. They argue that Islamic firms provide lower contingent payoffs for shareholders in good states, and higher contingent payoffs in bad states, since the financier will bear the loss during bad states and will share the profit during good states. Such an argument may seem to be acceptable in the sense that applying profit-and-loss-sharing as a financing mode tends to reduce the overall financial risk of the company.

However, the argument does not seem to be plausible for explaining the lower systematic risk associated with Islamic investment portfolios. This is because *Sharia*-compliant companies which are components of Islamic investment portfolios do not necessarily apply Islamic financing modes. The *Sharia* screening process ensures that, besides the *Sharia*-permissibility of the business, the conventional debt does not exceed a certain threshold (33%) of the total assets or market capitalization in order for a company to be *Sharia*-compliant. This is rather than requiring *Sharia*-compliant companies to apply Islamic modes of finance. For example, none of the *Sharia*-compliant companies that are listed in Western markets completely apply Islamic financing modes, but their conventional leverage does not exceed the *Sharia*-tolerated threshold. Attributing the low exposure of Islamic equity investment portfolios (to systematic risk) to excluding highly leveraged companies seems to be more plausible.

However, it can be argued that the *Sharia* objection is not with the level of leverage itself. The reason for excluding highly leveraged companies from Islamic investment portfolios is that most companies use conventional interest-based debt, rather than *Sharia*-compliant financing. In other words, if the *Sharia*-compliant debt-based finance, such as *murabaha* or *tawaruq,* were used, the level of debt would not be an issue from a *Sharia* point of view. In other words, highly leveraged companies would

not be excluded from Islamic mutual funds, regardless of the level of debt, as long as the debt was *Sharia*-compliant. As indicated by AIOFFI, debt is a secondary matter in such circumstances.[98]

Thus, the lower systematic risk associated with Islamic investment portfolios does not seem to be intrinsic or embedded in the *Sharia* screening criteria. Rather, it is due to the relative unavailability of the *Sharia*-compliant alternative debt finance market and also, the less adoption of *Sharia*-compliant finance modes as compared to interest-based financing, especially in non-Muslim countries. Thus, in an economy where only *Sharia* financing modes are applied, the distinctions between Islamic and conventional investment portfolios would disappear, as Islamic investments are relatively exposed to less leveraged companies.

However, one might argue that the difference between Islamic and conventional financing is in terms of the usage of debt. For example, using *Sharia*-compliant debt-based financing, such as *murabaha,* is less risky than conventional interest based-finance, since *murabaha* financing is more likely to be attached to the real economy, such as in fixed assets or goods. However, such a claim needs to be verified since it does not base itself on either theoretical or empirical evidence. Nevertheless, this does not invalidate the argument proposed above - that Islamic investment portfolios are exposed to relatively lower leveraged companies, because corporations do not use *Sharia*-compliant alternative finance, especially in non-Muslim countries, rather than being attributed to *Sharia* requirements.

In addition, it can be argued that Islamic investment portfolios seem to be more efficient, and hence superior, compared to their conventional and conventional socially responsible counterparts. This is because they tend to provide similar performance to conventional and conventional socially responsible portfolios with statistically significantly less systematic risk. However, as indicated earlier, risk-adjusted performance measures (which consider both risk and return) do not confirm that Islamic investment portfolios are superior to their conventional and conventional counterparts, since both provide a comparable risk-adjusted return. A plausible

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[98] AAOIFI *Sharia* Standard No. (21), 3/19.

explanation of such a phenomenon is that, although the systematic risk difference between Islamic investment portfolios as compared to conventional and conventional socially responsible investment portfolios appears to be statistically significant, the differences are economically marginal. This seems to explain why the systematic risk difference is not reflected in the form of superior performance.

Moreover, it is worth indicating that conventional mutual fund managers have the flexibility to choose, at their discretion (or based on the investment objectives stated in their prospectus), the level of risk for their investment portfolios, since there is no restriction on their investment selection. In other words, conventional mutual fund managers can exclude highly leveraged companies at their discretion, if they want to lower their exposure to such companies. Also, they can shift their exposure, so that they can deliberately increase their exposure to highly leveraged companies during bull market period, aiming to increase their return, and *vice versa* during bearish market. This is unlike Islamic mutual fund managers, who must not invest in companies whose total interest-based debt does not exceed one-third of total market capitalization/total assets, regardless of the market condition.

9.2.4 Investment Style

The investment style analysis reveals that, in terms of the book-to-market factor, Islamic equity mutual funds in Saudi Arabia tend to be more growth-oriented in the Global, US and Europe subgroups. This is in line with Girard and Hassan (2005), Forte and Miglietta (2007) Kraeussl and Hayat (2008) and Abderrezak (2008), who document a growth cap tilt associated with Islamic investment portfolios. However, the book-to-market factor does not seem to be significant in the cases of the Saudi, Asia, Japan and GCC subgroups. Although this finding is not consistent with earlier studies, it is consistent with Hoepner et al. (2009), who indicate that Islamic equity mutual funds do not tend to favour growth companies.

Furthermore, the study finds evidence that the *Sharia* screening process does not seem to influence Islamic mutual funds in Saudi Arabia to target small caps. This finding is not in line with Abderrezak (2008) and Hassan et al. (2010), who both find that, in general, Islamic mutual funds tend to be tilted towards small companies. However, it

is in line with Hoepner et al. (2009), who indicate that Islamic mutual funds do not seem to be associated with small cap, if the home economy has a high density of Muslim consumers and a relatively well-developed market for Islamic financial services such as GCC and Malaysia. This is consistent with our finding, which is based on the Saudi market.

The analysis of the investment style difference between Islamic and conventional equity mutual funds shows that, in most cases, the difference between both groups of investment is insignificant. Thus, the *Sharia* screening process does not seem to influence Islamic equity mutual funds in Saudi Arabia towards small or growth companies any more than conventional equity mutual funds of similar geographical investment focuses do. This finding is in line with recent studies on socially responsible mutual funds, such as Bello (2005), Bauer et al. (2006) and Bauer et al. (2007), who all find that the investment style of socially responsible mutual funds in the US, Australia and Canada respectively tends to mirror that of their conventional counterpart mutual funds. Such a finding might imply that the distinction between socially responsible and conventional mutual funds could become too vague in practice (Bauer et al., 2006). This raises concerns about whether socially responsible and Islamic mutual fund managers strictly follow the socially responsible/*Sharia* criteria, or not. Alternatively, it can be argued that such a phenomenon associated with mutual funds might be due to active managerial decisions/selections, whereby mutual fund managers attempt to influence the investment style of the portfolios, according to their expectations and aiming to outperform the market.

In addition, the study shows that, in spite of the performance similarity between Islamic and conventional socially responsible investment portfolios, the return drivers of each group of investments tend to be different, in terms of both book-to-market factor and sector exposure. Islamic and Islamic socially responsible indices tend to be more growth-oriented stocks. However, there does not seem to be a significant difference between the two groups of investment portfolios in terms of size factor. In terms of sector exposure, Islamic and Islamic sustainability investment portfolios tend to be more exposed to the technology, healthcare, basic materials, and oil & gas sectors, but have no exposure to financial sector. In contrast, conventional socially

responsible portfolios seem to be more exposed to the financial services, healthcare and consumer goods sectors.

There are several reasons that might explain the tendency of Islamic investment portfolios towards a growth cap. It can be argued that using a market capitalization debt screening approach, which requires certain financial ratios to not exceed a certain percentage (33%) of the market capitalization, might lead to a growth investment style bias. This is because companies with high market capitalization to book value are more likely to pass *Sharia* financial screening criteria, compared to companies with low market capitalization to book value. However, the analysis of the FTSE *Sharia* Index, which applies an asset-based screening 'divisor', also shows that the Islamic index tends to be relatively skewed towards growth cap. This implies that the argument for a market capitalization divisor is not a strong one. Another source of the growth cap tilt associated with Islamic investment portfolios might be excluding conventional financial sectors, which tend to be value companies by nature (Forte and Miglietta, 2007).

Furthermore, the restriction on the level of liquidity imposed by *Sharia* criteria might be another source of targeting growth companies, which are relatively associated with lower liquidity, due to reinvesting the available cash for potential growth projects. Also, having a high exposure to the technology companies - which tends to be a typical growth sector - might be another cause of the growth cap bias. Girard and Hassan (2008) argue that the growth cap tilt of Islamic investment portfolios tends to be due to the *Sharia* screening process, which excludes traditional value sectors for their higher environmental risk such as chemical, energy and basic industries. However, such argument does not seem plausible, since the *Sharia* screening process does not require excluding companies with higher environmental risk.

On the other hand, finding that there is no significant growth cap preference associated with some Islamic mutual funds' subgroups might be attributed to the active managerial role associated with mutual funds, whereby fund managers change their investment styles based on their market expectations as indicated earlier, although these subgroups might need further investigation.

Moreover, the study finds that *Sharia* and socially responsible criteria applied by Dow Jones and FTSE indices seem to relatively lead to a large cap tilt, compared to broader conventional portfolios. Interestingly, incorporating sustainability criteria into the traditional *Sharia* screening process led to a further large cap tilt. The Islamic sustainability index tends to be significantly more exposed to large cap compared to the conventional, Islamic and conventional socially responsible indices. This is consistent with Vermeir et al. (2005), who find that socially responsible indices - including Dow Jones - tend to be more exposed to large cap.

Vermeir et al. (2005) also argue that the coverage and communication effects seem to be the main reasons to explain such a phenomenon. That is to say, large companies have more resources to adopt sustainability criteria and are more able to communicate with SRI agencies, in addition to the coverage effect, where SRI agencies initially concentrate their analyses on large caps. Also, Dow Jones sustainability screening requires that any included companies must be in the top 10% companies in their sector based on a sustainable business practice that accounts for long-term economic, environmental and social criteria. It can be argued that such a requirement might be another plausible reason for the large cap tilt associated with Dow Jones' sustainability indices. With regards to FTSE's socially responsible index, only companies which are included in the FTSE All World Developed Index are eligible for inclusion. This seems to explain the large cap tilt associated with the FTSE 4Good index since, in general, listed companies in developed countries tend to be larger by nature, compared to the companies in emerging countries.

Thus, the present study finds evidence that the *Sharia* screening process does not seem to influence Islamic investment portfolios to target small cap. This seems to reject the argument that large companies are more likely to be excluded from Islamic investment portfolios due to their higher leverage and higher revenue from *Sharia*-impermissible activities, exceeding the tolerated ratio (Abderrezak, 2008; Hoepner et al. 2009). This finding is contrary to some previous studies, such as Girard and Hassan (2005 and 2008) Abderrezak (2008) and Hassan (2010). However, the finding is in line with Abul Hassan et al. (2005) who does not document a small cap tilt associated with DJIM.

9.3 Practical Implications

There are several practical implications relevant to the present study, which are illustrated below:

1. The empirical evidence, proving that incorporating sustainability criteria into the traditional *Sharia* screening process does not lead to inferior performance or higher exposure to systematic risk, opens the door for *Sharia* scholars to reconsider social and environmental aspects in the *Sharia* screening process. This is to be more in line with the embedded social and ethical concerns in the *Sharia* principles, which have thus far not been captured by the contemporary *Sharia* screening process. This might lead to further development of the *Sharia* screening process, similar to SRI. For example, SRI started by only excluding sin stocks, and nowadays it is being adopted and dominated by large mainstream institutional investors to incorporate positive screening, and sustainability criteria, into their investment selection process.

2. Islamic investment portfolios can be marketed to socially responsible/ethical investors who share similar beliefs, in terms of excluding certain industries, such as tobacco, alcohol, pornography, arms and defence, etc. This is despite socially responsible investors having no objection to investing in financial sectors, or the level of leverage associated with the investment. This finding is especially applicable in Muslim countries where there are usually no mutual funds categorized as SRI, but rather Islamic.

3. Mutual fund providers in Saudi Arabia can target both Muslim and non-Muslim investors who are not willing to sacrifice returns (invest conventionally), by showing them that they can get competitive performance and risk whilst still complying with their religion. For non-Muslims investors the attraction is Islamic portfolios provide similar returns with exposure to relatively lower risks. This is a competitive advantage for Islamic mutual funds' providers over their conventional peers.

4. For economies of scale, mutual fund providers in Saudi Arabia who provide both types of mutual funds - conventional and Islamic (or conventional only) - might convert their conventional mutual funds to Islamic mutual funds, since both types

tend to deliver a similar performance. This would provide one type of mutual funds that target both *Sharia*-compliant clients and also conventional investors. Therefore, there is potential for the Islamic mutual funds industry in Saudi Arabia to undergo further expansion.

9.4 Research Limitations

Time period: The limited time period associated with the study, due to the restriction on the data releases by the data providers. Having a longer time period would have enabled the researcher extend the study to cover longer time frame and to draw a more robust results.

Sample: Limited sample of mutual funds, however, such an unavoidable limitation is similar to most of the previous studies on Islamic mutual funds due to the newness of Islamic mutual funds industry. Also, the equity mutual funds sample suffer from survivorship bias since only existing mutual funds are included in the analysis due to data unavailability of mutual funds which were closed over the study period.

Empirical models: Despite the wide availability and popularity of the empirical models used in the study, they are nevertheless subject to limitations and criticisms as discussed in Chapter 2. Furthermore, although the time series method was used in the empirical analysis (in line with the bulk of the literature in the field), using a panel estimation (for the mutual funds' data) would improve the robustness of the results due to the nature of the data. In addition, another limitation associated with the present study is that the impact of the investment skills of mutual fund managers was omitted in the empirical analysis.

9.5 Suggestions for Further Research

The following are the recommendations for future studies related to Islamic funds:

- Studies can examine the performance and risk of pure Islamic investment portfolios, where no tolerance applies, compared to their conventional and *Sharia*-tolerated investment counterparts in relatively developed markets for Islamic

finance, such as GCC or the Saudi market in particular - as it is the largest GCC market. This can be done by creating pure hypothetical *Sharia*-compliant portfolios, due to the unavailability of such investment portfolios, either in the form of mutual funds or indices.

- There is a need to revise the tolerance level of conventional debt and interest-bearing securities by searching for the maximum tolerance level of conventional debt that could be applied by Islamic mutual funds, while still providing competitive performance. This is whereby the number of *Sharia*-compliant companies is just enough to diversify the portfolio in order to provide competitive performance. This is since a concession is made about the actual zero level of interest rate. For example, if it were proven that Islamic mutual funds can still provide a competitive performance with lower than 1/3 threshold of conventional debt tolerance. Then, it will be argued that 1/3 tolerance seems to be liberal and needs to be reduced to reach the minimal necessary level of tolerated conventional debt. This might be revised case-by-case, market-by-market and perhaps sector-by-sector, rather than simply generalizing a 1/3 tolerated threshold.

- The managerial skills of Islamic mutual fund managers compared to their conventional peers needs further investigation. This is to provide evidence as whether or not Islamic mutual fund managers suffer from a lack of investment talents, compared to conventional managers.

- The demand side associated with Islamic mutual funds needs to be explored. This can be done by examining the perception, motives and the behaviour of investors towards Islamic mutual funds.

- Studies need to examine the performance of different *Sharia*-compliant asset classes (other than equity), such as fixed income, money market, balanced funds and real estate funds.

- To examine the impact of applying different sets of *Sharia* screening criteria on the investment characteristics of the investment portfolios. This would give

empirical evidence as to whether or not applying different sets of *Sharia* screening criteria influence the investment characteristics differently.

- To further investigate the reason for the investment style inconsistency of Islamic mutual funds. For example, is it due to active managerial involvement, or due to the geographical focus?

9.6 Concluding Remark

The thesis aimed to fill the gap and extend the literature on Islamic investment portfolios, in order to contribute to the development of Islamic finance through presenting four research objectives and nine testable hypotheses. These are related to investigating the investment characteristics of Islamic equity mutual funds compared to their conventional counterparts in Saudi Arabia. It also aimed to compare the investment characteristics of Islamic and conventional socially responsible investment portfolios, as well as examining the impact of incorporating the conventional sustainability criteria to the traditional *Sharia* criteria on the investment characteristics. Besides the above, it had the objective of critically reviewing the *Sharia* investment screening criteria from both *Sharia* and practical points of view. By meeting the research objectives and answering the research questions and hypotheses, the research has achieved its aims.

By providing insight analysis with regards to the investment characteristics of the Islamic investment portfolios, the thesis will assist regulators' and policymakers' decision to get more understanding of the behaviour of Islamic investment portfolios. Furthermore, the study helps Islamic fund managers to identify their performance to develop future strategies for the funds under their management. Also, future investors in Islamic mutual funds will have a general historical idea for the investment characteristics of Islamic investment portfolios as compared to conventional and conventional socially responsible investment portfolios. In addition, the findings also might lead to further development in the traditional *Sharia* screening process by incorporating conventional sustainability criteria, since positive evidence on the impact of incorporated screening process is provided.

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Appendices

Appendix I: Equity Mutual Funds Sample Used in the Study

Local Saudi Equity Mutual Funds

Fund Name	*Fund Manager*
i) Islamic Equity Mutual Funds Riyad Equity Fund 2	Riyad Capital
Altaiyebat Saudi Equities Fund	Aljazira Capital
SAIB Saudi Companies Fund	SAIB BNP Paribas Asset Management
Al-Saffa Saudi Equity Trading	Caam Saudi Fransi
Amanah Saudi Equity Fund	HSBC Saudi Arabia Limited
Al Raed Fund	Samba Capital & Investment Management
AlAhli Saudi Trading Equity Fund	NCB Capital
Al-Rajhi Local Shares Fund	Al Rajhi Capital
AlAhli Saudi Dynamic Trading Equity Fund	NCB Capital
Al Yuser Saudi Equity Fund	Saudi Hollandi Capital
Amanah Saudi Industrial Fund	HSBC Saudi Arabia Limited
Al-Mubarak Saudi Equity Fund	ANB Invest
Al-Mubarak Pure Saudi Equity Fund	ANB Invest
Asayel Fund	Albilad Investment
Bakheet Saudi Trading Equity Fund	Bakheet Investment Group
Falcom Saudi Equity Fund	Falcom Financial Services
Jadwa Saudi Equity Fund	Jadwa Investment
Alawwal Saudi Stock Market	Alawwal financial Services Co
Jadwa Saudi Equity Index Fund	Jadwa Investment

Global Saudi Equity - Al-Noor	Global Investment HouseSaudi
Rasmala Saudi Equity Sharia	Rasmala Investments Saudi
The Investor Al-Hurr Saudi Equity	The Investor For Securities
KSB Saudi Equity Fund	KSB Capital Group
Al-Safwa Saudi Index Fund	Audi Capital
Islamic Saudi Equity Gateway	SHUAA Capital Saudi Arabia
MEFIC Saudi Equity Fund	Middle East Financial Investment

ii) Conventional Equity Mutual Funds

Riyad Equity Fund 1	Riyad Capital
Riyad Equity Fund 3	Riyad Capital
SAIB Saudi Equity Fund	SAIB BNP Paribas Asset Management
Saudi Istithmar Fund	Caam Saudi Fransi
Saudi Equity Fund	HSBC Saudi Arabia Limited
Saudi Equity Trading Fund	HSBC Saudi Arabia Limited
Al-Arabi Saudi Equity Fund	ANB Invest
Al Fareed Fund	Samba Capital & Investment Management
Al Musahem Fund	Samba Capital & Investment Management
Saudi Equity Fund	Saudi Hollandi Capital
Rana Saudi Equity Fund	Rana Investment
HSBC Saudi Equity Index Fund	HSBC Saudi Arabia Limited
Saudi Index Fund	Audi Capital
EFG-Hermes Saudi Arabia Equity	EFG-Hermes KSA
Global Saudi Equity Fund	Global Investment HouseSaudi
Morgan Stanley Saudi Equity	Morgan Stanley Saudi Arabia
Rasmala Saudi Equity Fund	Rasmala Investments Saudi

Watan Fund for Saudi equity	Watan Investment & Securities
Saudi Equity Gateway Fund	SHUAA Capital Saudi Arabia
Al-Arabi Saudi Companies Fund	ANB Invest

Global Equity Mutual Funds

Fund Name	*Fund Manager*
i) Islamic Equity Mutual Funds Global Equity Fund	Riyad Capital
Alkhair Equities Fund	Aljazira Capital
Amanah Global Equity Index Fund	HSBC Saudi Arabia Limited
Al-Mubarak Global Equity Fund	ANB Invest
Al Manal Global Equity Trading	Samba Capital & Investment Management
AlAhli Global Trading Equity Fund	NCB Capital
Al-rajhi Global Equity Fund	Al Rajhi Capital
Small Cap Trading Equity Fund	NCB Capital
Al Rajhi Global Small Cap Equity	Al Rajhi Capital
Jadwa World Equity Fund	Jadwa Investment
ii) Conventional Equity Mutual Funds International Fund	Riyad Capital
SAIB Global Equity Fund	SAIB BNP Paribas Asset Management
International Equity Fund	Samba Capital & Investment Management

US Equity Mutual Funds

Fund Name	Fund Manager
i) Islamic Equity Mutual Funds Al-Ahli US Trading Equity	NCB Capital
ii) Conventional Equity Mutual Funds American Stock Fund	Riyad Capital
SAIB US Equity Fund	SAIB BNP Paribas Asset Management
Al-Arabi US Equity Fund	ANB Invest
North American Equity Fund	Samba Capital & Investment Management
US Aggressive Fund	Samba Capital & Investment Management

European Equity Mutual Funds

Fund Name	Fund Manager
i) Islamic Equity Mutual Funds Althoraiya Equities Fund	Aljazira Capital
AlAhli Europe Trading Equity	NCB Capital
Al-Rajhi Euorpean Equity Fund	Al Rajhi Capital
Amanah Pan-European Equity Fund	HSBC Saudi Arabia Limited
ii) Conventional Equity Mutual Funds European Growth Fund	Riyad Capital
Al-Arabi European Equity Fund	ANB Invest
European Equity Fund	Samba Capital & Investment Management

Japanese Equity Mutual Funds

Fund Name	Fund Manager
i) Islamic Equity Mutual Funds Almashareq Japanese Equity	Aljazira Capital
ii) Conventional Equity Mutual Funds Japan Stock Fund	Riyad Capital
Japan Equity Fund	Samba Capital & Investment Management
Al-Arabi Japan Equity Fund	ANB Invest

Asian Equity Mutual Funds

Fund Name	Fund Manager
i) Islamic Equity Mutual Funds Al-Ahli Asia Pacific Trading Equity	NCB Capital
Al Naqaa Asia Growth Fund	Caam Saudi Fransi
Amanah Asia Pacific Fund	HSBC Saudi Arabia Limited
ii) Conventional Equity Mutual Funds South East Asian Fund	Riyad Capital
Far Eastern Equity Fund	Samba Capital & Investment Management
Al-Arabi Asian Equity Fund	ANB Invest

GCC Equity Mutual Funds

Fund Name	*Fund Manager*
i) Islamic Equity Mutual Funds	
SAIB Gulf Companies Fund	SAIB BNP Paribas Asset Management
AhAhli GCC Trading Equity Fund	NCB Capital
Al-Rajhi GCC Equity Fund	Al Rajhi Capital
SAIB Gulf Industrial Co. Fund	SAIB BNP Paribas Asset Management
Al Danah GCC equity trading fund	Caam Saudi Fransi
Al Raed GCC Fund	Samba Capital & Investment Management
HSBC Amanah GCC Equity Fund	HSBC Saudi Arabia Limited
Jadwa GCC Equity Index Fund	Jadwa Investment
Jadwa GCC Equity Fund	Jadwa Investment
Riyad Gulf Fund	Riyad Capital
ii) Conventional Equity Mutual Funds	
SAIB GCC Equity Fund	SAIB BNP Paribas Asset Management
Al Musahem GCC Fund	Samba Capital & Investment Management
GCC Equity Fund	Saudi Hollandi Capital

Appendix II: Data Characteristics of Equity Mutual Funds Sample[99]

	No of funds	Average size (US Dollar)	Average expense	
			Upfront fees	Expense ratio
Saudi market				
Islamic portfolio	26	122,245,511	1.51%	1.69%
Conventional portfolio	20	78,449,630	1%	1.62%
Global market				
Islamic portfolio	10	60,704,156	%1.40	%1.61
conventional portfolio	3	151,107,882	1.33%	1.58%
US market				
Islamic portfolio	1	18,463,679	0.00%	1.75%
conventional portfolio	5	61,814,237	1.20%	1.70%
European market				
Islamic portfolio	4	17,743,486	1.25%	1.81%
conventional portfolio	3	177,260,266	1.33%	1.67%
Japanese market				
Islamic portfolio	1	32,640,871	0.00%	1.5%
conventional portfolio	3	8,200,455	1.33%	%1.67
Asian market				
Islamic portfolio	3	16,737,550	2.00%	1.67%
conventional portfolio	3	13,459,592	1.33%	%1.67
GCC market				
Islamic portfolio	10	32,971,905	1.68%	1.76%
conventional portfolio	3	38,516,457	0.83%	1.80%

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99 Data regarding mutual funds' size, expense and age were collected from Tadawul (Saudi Stock Exchange) directly and from their official website: www.tadawul.com.sa. (Access on 30/03/2011). Please note that the size is adjusted from the local currency to US Dollar whenever necessary.

Appendix III: Descriptive Statistics

Descriptive Statistics of Equally Weighted Mutual Fund Portfolios
(From July 2005 to July 2010, with 61 monthly observations)

Geographical Focus	Mean	Std. Dev.	Max	Min
Saudi				
Islamic Portfolio	-.0067	.0933	.1919	-.2307
Conventional Portfolio	-.0087	.1045	.1869	-.2905
Global				
Islamic Portfolio	.0005	.0597	.0831	-.3343
Conventional Portfolio	-6.44E-05	.0647	.0987	-.3419
US				
Islamic Portfolio	.0007	.0557	.0699	-.3139
Conventional Portfolio	-.0009	.0591	.1171	-.2540
Europe				
Islamic Portfolio	-.0001	.0623	.1184	-.3117
Conventional Portfolio	-.0005	.0714	.1229	-.3853
Japan				
Islamic Portfolio	.0018	.0473	.1230	-.1393
Conventional Portfolio	-.0034	.0668	.1001	-.3184
Asia				
Islamic Portfolio	.0064	.0591	.1083	-.2610
Conventional Portfolio	.0077	.0835	.1822	-.4089
GCC				
Islamic Portfolio	-.0044	.0816	.1455	-.2652
Conventional Portfolio	-.0033	.0720	.1107	-.2528

Descriptive Statistics of MSCI Market Benchmark Indices
(From July 2005 to July 2010, with 61 monthly observations)

Geographical Focus	Mean	Std. Dev.	Max	Min
Saudi				
Islamic	-.0123	.1292	.3090	-.3019
Conventional	-.0090	.1182	.2307	-.2624
Global				
Islamic	.0045	.0558	.1064	-.2535
Conventional	.0026	.0585	.1103	-.2753
US				
Islamic	.0028	.0473	.0921	-.2020
Conventional	.0005	.0518	.1042	-.2268
Europe				
Islamic	.0049	.0613	.1334	-.2591
Conventional	.0025	.0681	.1418	-.3151
Japan				
Islamic	.0013	.0532	.1053	-.1739
Conventional	.0005	.0514	.0986	-.1599
Asia				
Islamic	.0052	.0625	.1458	-.2588
Conventional	.0045	.0602	.1346	-.2577
GCC				
Islamic	-.0116	.1029	.1901	-.2755
Conventional	-.0087	.0928	.1558	-.2487

Descriptive Statistics of Dow Jones Indices
(From July 2005 to July 2010, with 61 monthly observations)

Type of Portfolio	Mean	Std. Dev.	Max	Min
Conventional	.0022	.0570	.1142	-.2213
Conventional Sustainability	.0016	.0591	.1177	-.2187
Islamic	.0030	.0534	.0906	-.2002
Islamic Sustainability	.0023	.0527	.0874	-.1850

Descriptive Statistics of FTSE Indices
(From July 2005 to July 2010, with 61 monthly observations)

Type of Portfolio	Mean	Std. Dev.	Max	Min
Conventional	.0010	.0584	.1150	-.2291
4Good	.0013	.0577	.1188	-.2041
Islamic	.0020	.0546	.0886	-.1912

Appendix IV: Unit Root Analysis

Augmented Dickey Fuller (ADF) unit root test is employed to test whether the times series is stationary or not. The null hypothesis of the test states that H$_o$: $\rho = 1$, which implies that the time series has unit root (nonstationary) against the alternative hypothesis of H$_1$: $\rho < 1$, which implies that the time series has no unit root (stationary).

Unit Root Test Results of MSCI Market Benchmark Indices
(From July 2005 to July 2010, with 61 monthly observations)

Portfolio	ADF Test Statistic	Decision
Saudi		
Islamic	-7.109***	Reject H$_0$. Thus, data is stationary
Conventional	-7.456***	Reject H$_0$. Thus, data is stationary
Global		
Islamic	-6.180***	Reject H$_0$. Thus, data is stationary
Conventional	-5.723***	Reject H$_0$. Thus, data is stationary
_US_		
Islamic	-6.947***	Reject H$_0$. Thus, data is stationary
Conventional	-2.981**	Reject H$_0$. Thus, data is stationary
Europe		
Islamic	-5.741***	Reject H$_0$. Thus, data is stationary
Conventional	-5.432***	Reject H$_0$. Thus, data is stationary
Japan		
Islamic	-3.227***	Reject H$_0$. Thus, data is stationary
Conventional	-5.809***	Reject H$_0$. Thus, data is stationary
Asia		
Islamic	-5.931***	Reject H$_0$. Thus, data is stationary
Conventional	-6.147***	Reject H$_0$. Thus, data is stationary
GCC		
Islamic	-6.168***	Reject H$_0$. Thus, data is stationary
Conventional	-3.696***	Reject H$_0$. Thus, data is stationary

*Notes; * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

Unit Root Test Results of MSCI Market Benchmark Indices
(From July 2005 to July 2010, with 61 monthly observations)

Portfolio	ADF Test Statistic	Decision
Saudi		
SMB Portfolio	-5.634***	Reject H_0. Thus, data is stationary
HML Portfolio	-6.161***	Reject H_0. Thus, data is stationary
Global		
SMB Portfolio	-5.956***	Reject H_0. Thus, data is stationary
HML Portfolio	-6.161***	Reject H_0. Thus, data is stationary
_US_		
SMB Portfolio	-7.517***	Reject H_0. Thus, data is stationary
HML Portfolio	-6.626***	Reject H_0. Thus, data is stationary
Europe		
SMB Portfolio	-6.154***	Reject H_0. Thus, data is stationary
HML Portfolio	-7.226***	Reject H_0. Thus, data is stationary
Japan		
SMB Portfolio	-7.985***	Reject H_0. Thus, data is stationary
HML Portfolio	-6.165***	Reject H_0. Thus, data is stationary
Asia		
SMB Portfolio	-7.264***	Reject H_0. Thus, data is stationary
HML Portfolio	-6.751***	Reject H_0. Thus, data is stationary
GCC		
SMB Portfolio	-7.458***	Reject H_0. Thus, data is stationary
HML Portfolio	-6.161***	Reject H_0. Thus, data is stationary

Notes; * Significant at 10%, ** Significant at 5% and *** Significant at 1%.

Unit Root Test Results of Equally Weighted Mutual Fund Portfolios
(From July 2005 to July 2010, with 61 monthly observations)

Portfolio	ADF Test Statistic	Decision
Saudi		
Islamic Portfolio	-6.745***	Reject H_0. Thus, data is stationary
Conventional Portfolio	-6.954***	Reject H_0. Thus, data is stationary
Global		
Islamic Portfolio	-6.359***	Reject H_0. Thus, data is stationary
Conventional Portfolio	-6.544***	Reject H_0. Thus, data is stationary
_US_		
Islamic Portfolio	-7.892***	Reject H_0. Thus, data is stationary
Conventional Portfolio	-7.284***	Reject H_0. Thus, data is stationary
Europe		
Islamic Portfolio	-5.876***	Reject H_0. Thus, data is stationary
Conventional Portfolio	-6.334***	Reject H_0. Thus, data is stationary
Japan		
Islamic Portfolio	-5.922***	Reject H_0. Thus, data is stationary
Conventional Portfolio	-6.402***	Reject H_0. Thus, data is stationary
Asia		
Islamic Portfolio	-2.952**	Reject H_0. Thus, data is stationary
Conventional Portfolio	-6.302***	Reject H_0. Thus, data is stationary
GCC		
Islamic Portfolio	-5.389***	Reject H_0. Thus, data is stationary
Conventional Portfolio	-4.617***	Reject H_0. Thus, data is stationary

Notes; * Significant at 10%, ** Significant at 5% and *** Significant at 1%.

Unit Root Test Results of Dow Jones Indices
(From July 2005 to July 2010, with 61 monthly observations)

Portfolio	ADF Test Statistic	Decision
Conventional	-2.961**	Reject H_o. Thus, data is stationary
Conventional Sustainability	-2.834*	Reject H_o. Thus, data is stationary
Islamic	-5.405***	Reject H_o. Thus, data is stationary
Islamic Sustainability	-5.373***	Reject H_o. Thus, data is stationary

Notes; * Significant at 10%, ** Significant at 5% and *** Significant at 1%.

Unit Root Test Results of FTSE Indices
(From July 2005 to July 2010, with 61 monthly observations)

Portfolio	ADF Test Statistic	Decision
Conventional	-2.920**	Reject H_o. Thus, data is stationary
Islamic	-5.506***	Reject H_o. Thus, data is stationary
4Good	-2.941***	Reject H_o. Thus, data is stationary

*Notes; * Significant at 10%, ** Significant at 5% and *** Significant at 1%.*

Appendix V: Multicollinearity Test

Cross correlations between the independent variables are conducted to check whether there is multicollinearity between the independents variables or not[100].

Cross Correlations between the Independent Variables of MSCI Benchmarks for Saudi Subgroup (from July 2005 to July 2010, with 61 monthly observations)

	Market (Islamic)	Market (Conventional)	SMB	HML
Market (Islamic)	1		.276377	-.268073
Market (Conventional)		1	.177851	-.275120
SMB	.276377	.177851	1	.035830
HML	-.268073	-.275120	.035830	1

Cross Correlations between the Independent Variables of MSCI Benchmarks for Global Subgroup (from July 2005 to July 2010, with 61 monthly observations)

	Market Index (Islamic)	Market Index (Conventional)	SMB	HML
Market Index (Islamic)	1		.428139	-.024693
Market Index (Conventional)		1	.450572	.091540
SMB	.428139	.450572	1	-.052133
HML	-.024693	.091540	-.052133	1

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[100] The correlations between Islamic market index benchmark and conventional market index benchmark are not reported since these two variables were not used as independent variables in the same regressions. Therefore, there is no need for multicollinearity test.

Cross Correlations between the Independent Variables of MSCI Benchmarks for
US Subgroup (from July 2005 to July 2010, with 61 monthly observations)

	Market Index (Islamic)	Market Index (Conventional)	SMB	HML
Market Index (Islamic)	1		.412922	-.154354
Market Index (Conventional)		1	.454010	-.038861
SMB	.412922	.454010	1	-.173098
HML	-.154354	-.038861	-.173098	1

Cross Correlations between the Independent Variables of MSCI Benchmarks for
European Subgroup (from July 2005 to July 2010, with 61 monthly observations)

	Market Index (Islamic)	Market Index (Conventional)	SMB	HML
Market Index (Islamic)	1		.366029	.475123
Market Index (Conventional)		1	.378368	.552816
SMB	.366029	.378368	1	.219834
HML	.475123	.552816	.219834	1

Cross Correlations between the Independent Variables of MSCI Benchmarks for
Japanese Subgroup (from July 2005 to July 2010, with 61 monthly observations)

	Market Index (Islamic)	Market Index (Conventional)	SMB	HML
Market Index (Islamic)	1		-.213177	-.446388
Market Index (Conventional)		1	-.232054	-.425253
SMB	-.213177	-.232054	1	-.035933
HML	-.446388	-.425253	-.035933	1

Cross Correlations between the Independent Variables of MSCI Benchmarks for Asian Subgroup (from July 2005 to July 2010, with 61 monthly observations)

	Market Index (Islamic)	Market Index (Conventional)	SMB	HML
Market Index (Islamic)	1		.135366	-.485204
Market Index (Conventional)		1	.125430	-.465129
SMB	.135366	.125430	1	-.027006
HML	-.485204	-.465129	-.027006	1

Cross Correlations between the Independent Variables of MSCI Benchmarks for GCC Subgroup (from July 2005 to July 2010, with 61 monthly observations)

	Market Index (Islamic)	Market Index (Conventional)	SMB	HML
Market Index (Islamic)	1		.065210	-.230595
Market Index (Conventional)		1	.044094	-.184852
SMB	.065210	.044094	1	-.011401
HML	-.230595	-.184852	-.011401	1

Appendix VI: OLS Regressions Estimates[101]

OLS Regression Estimates of Single Index Model for Equally Weighted Mutual Funds, based on Islamic Benchmarks (from July 2005 to July 2010, with 61 monthly observations)

Geographical Focus	Intercept (α)	Market (β)	Adj2
Saudi			
Islamic Portfolio	0.0010 ($t=.335$)	.69 ($t=29.019$)***	.911
Conventional Portfolio	.0002 ($t=.051$)	.77 ($t=17.309$)***	.904
Difference Portfolio	.0008 ($t=.394$)	-.08 ($t=-2.231$)**	.203
Global			
Islamic Portfolio	-.0039 ($t=-2.446$)**	1.02 ($t=10.946$)***	.909
Conventional Portfolio	-.0048 ($t=-2.680$)***	1.10 ($t=15.826$)***	.904
Difference Portfolio	.0009 ($t=.550$)	-.08 ($t=-2.174$)**	.083
US			
Islamic Portfolio	-.0022 ($t=-1.079$)	1.03 ($t=7.357$)***	.772

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[101] *t*-statistics (in brackets) are derived from Newey–West heteroskedasticity and autocorrelation consistent standard errors. * Significant at 10%, ** Significant at 5% and *** Significant at 1%.

Conventional Portfolio	-.0038	1.15	.839
	$(t$=-2.423)**	$(t$=12.948)***	
Difference Portfolio	.0016	-.12	.011
	$(t$=.734)	$(t$=-.749)	
Europe			
Islamic Portfolio	-.0050	.98	.927
	$(t$=-3.756)***	$(t$=15.123)***	
Conventional Portfolio	-.0056	1.08	.854
	$(t$=-2.422)**	$(t$=10.779)***	
Difference Portfolio	.0006	-.10	.059
	$(t$=.300)	$(t$=-2.309)**	
Japan			
Islamic Portfolio	.0003	.81	.817
	$(t$=.106)	$(t$=12.599)***	
Conventional Portfolio	-.0047	1.08	.739
	$(t$=-1.603)	$(t$=9.998)***	
Difference Portfolio	.0050	-.27	.093
	$(t$=1.165)	$(t$=1.902)*	
Asia			
Islamic Portfolio	.0018	.80	.718
	$(t$=.528)	$(t$=8.354)***	
Conventional Portfolio	.0019	1.22	.836
	$(t$=.566)	$(t$=10.834)***	

Difference Portfolio	-.0001	-.42	.317
	(*t*=-.043)	(*t*=-7.191)***	
GCC			
Islamic Portfolio	.0038	.76	.922
	(*t*=1.544)	(*t*=11.844)***	
Conventional Portfolio	.0028	.61	.764
	(*t*=.658)	(*t*=5.478)***	
Difference Portfolio	.0010	.15	.305
	(*t*=.392)	(*t*=2.814)***	

OLS Regression Estimates of Single Index Model for Equally Weighted Mutual Funds, based on Conventional Benchmarks (from July 2005 to July 2010, with 61 monthly observations)

Geographical Focus	Intercept (*α*)	Market (*β*)	Adj2
Saudi			
Islamic Portfolio	-.0005	.75	.900
	(*t*=-.185)	(*t*=18.052)***	
Conventional Portfolio	-.0014	.85	.925
	(*t*=-.469)	(*t*=28.036)***	
Difference Portfolio	.0009	-.10	.280
	(*t*=.407)	(*t*=2.778)***	
Global			
Islamic Portfolio	-.0021	.96	.890
	(*t*=-1.009)	(*t*=10.277)***	

Conventional Portfolio	-.0027	1.06	.922
	(*t*=-1.414)	(*t*=16.323)***	
Difference Portfolio	.0006	-.09	.141
	(*t*=.457)	(*t*=-2.508)**	
_US_			
Islamic Portfolio	-1.03E-05	.92	.723
	(*t*=-.003)	(*t*=7.183)***	
Conventional Portfolio	-.0014	1.03	.814
	(*t*=-.727)	(*t*=12.580)***	
Difference Portfolio	.0013	-.11	.019
	(*t*=.660)	(*t*=-1.026)	
Europe			
Islamic Portfolio	-.0027	.86	.886
	(*t*=-1.2341)	(*t*=15.161)***	
Conventional Portfolio	-.0031	.98	.877
	(*t*=-1.400)	(*t*=12.719)***	
Difference Portfolio	.0004	-.12	.126
	(*t*=.194)	(*t*=-4.212)***	
Japan			
Islamic Portfolio	.0009	.80	.749
	(*t*=.297)	(t=11.371)***	
Conventional Portfolio	-.0037	1.14	.765
	(*t*=-1.483)	(t=9.913)***	

Difference Portfolio	.0046	-.34	.139
	(*t*=1.136)	(*t*=-2.480)**	
Asia			
Islamic Portfolio	.0022	.83	.715
	(*t*=.596)	(*t*=8.559)***	
Conventional Portfolio	.0027	1.25	.815
	(*t*=.597)	(*t*=9.610)***	
Difference Portfolio	-.0005	-.42	.295
	(*t*=-.112)	(*t*=-6.077)***	
GCC			
Islamic Portfolio	.0027	.85	.933
	(*t*=1.103)	(*t*=13.377)***	
Conventional Portfolio	.0019	.69	.795
	(*t*=.492)	(*t*=6.246)***	
Difference Portfolio	.0008	.16	.273
	(*t*=.257)	(*t*=2.742)***	

OLS Regression Estimates of Multi- Index Model for Equally Weighted Mutual Funds (from July 2005 to July 2010, with 61 monthly observations)

Geographical Focus	Intercept (α)	Market (β)	SMB	HML	Adj2	Prob (F-test)
Saudi						
Islamic Portfolio	-.0004	.746	.043	.085	.900	(0.00)
	(t=-.128)	(t=18.608)***	(t=1.167)	(t=.422)		
Conventional Portfolio	-.0014	.841	.039	-.071	.924	(0.00)
	(t=-.471)	(t=28.355)***	(t=1.501)	(t=-.376)		
Difference Portfolio	.0010	-.096	.004	.157	.269	(0.00)
	(t=.510)	(t=-2.706)***	(t=.233)	(t=.984)		
Global						
Islamic Portfolio	-.0027	.943	.230	-.387	.904	(0.00)
	(t=-1.441)	(t=14.803)***	(t=2.682)***	(t=-2.881)***		
Conventional Portfolio	-.0029	1.049	.109	-.019	.921	(0.00)
	(t=-1.558)	(t=18.453)***	(t=.739)	(t=-.109)		
Difference Portfolio	.0002	-.106	.121	-.368	.327	(0.00)
	(t=.216)	(t=-4.266)***	(t=.996)	(t=-4.166)***		
US						
Islamic Portfolio	-.0003	.906	.029	-.232	.724	(0.00)
	(t=-.127)	(t=7.588)***	(t=.255)	(t=-1.952)*		
Conventional Portfolio	-.0019	1.016	.035	-.356	.830	(0.00)
	(t=-1.021)	(t=13.229)***	(t=.284)	(t=-1.705)*		
Difference Portfolio	.0016	-.110	-.006	.124	.054	(0.00)

	(t=.638)	(t=-.799)	(t=-.027)	(t=.512)		
Europe						
Islamic Portfolio	-.0037	.912	.106	-.345	.897	(0.00)
	(t=-1.755)	(t=23.819)***	(t=1.431)	(t=-2.488)**		
Conventional Portfolio	-.0039	.936	.339	-.047	.892	(0.00)
	(t=-1.560)	(t=18.121)***	(t=3.673)***	(t=-.236)		
Difference Portfolio	.0002	-.025	-.233	-.298	.265	(0.00)
	(t=.077)	(t=-.625)	(t=-2.424)**	(t=-2.018)**		
Japan						
Islamic Portfolio	.0013	.799	.055	-.055	.742	(0.00)
	(t=.385)	(t=11.206)***	(t=.525)	(t=-.463)		
Conventional Portfolio	-.0018	1.081	.098	-.415	.775	(0.00)
	(t=-.640)	(t=11.737)***	(t=.901)	(t=-1.690)*		
Difference Portfolio	.0031	-.281	-.043	.360	.135	(0.00)
	(t=.728)	(t=-2.616)**	(t=-.304)	(t=1.139)		
Asia						
Islamic Portfolio	.0029	.820	-.146	-.167	.710	(0.00)
	(t=.795)	(t=9.576)***	(t=-.516)	(t=-.432)		
Conventional Portfolio	.0033	1.23	.139	-.151	.810	(0.00)
	(t=.618)	(t=8.851)***	(t=.570)	(t=-.477)		
Difference Portfolio	-.0004	-.409	-.286	-.016	.285	(0.00)
	(t=-.107)	(t=-4.978)***	(t=-.725)	(t=-.033)		

GCC						
Islamic Portfolio	.0026	.844	.014	-.178	.932	(0.00)
	(*t*=1.077)	(*t*=14.070)***	(*t*=.490)	(*t*=-1.282)		
Conventional Portfolio	.0020	.700	-.031	.175	.791	(0.00)
	(*t*=.474)	(*t*=6.530)***	(*t*=-.554)	(*t*=.628)		
Difference Portfolio	.0006	.144	.044	-.353	.306	(0.00)
	(*t*=.184)	(*t*=2.624)**	(*t*=1.052)	(*t*=-1.639)		

OLS Regression Estimates of Single Index Model for Dow Jones Market Indices
(from July 2005 to July 2010, with 61 monthly observations)

Type of Index	Intercept (α)	Market (β)	Adj2
Conventional	-.0004	928	.904
	(t=-.348)	(t=24.923)***	
Conventional Sustainability	-.0011	.955	.893
	(*t*=-.661)	(t=18.573)***	
Islamic	.0004	.854	.875
	(*t*=.295)	(t=24.774)***	
Islamic Sustainability	-.0002	.832	.852
	(*t*=-.111)	(t=18.553)***	

OLS Regression Estimates of Multi- Index Model for Dow Jones Market Indices
(from July 2005 to July 2010, with 61 monthly observations)

Type of Index	Intercept (α)	Market (β)	SMB	HML	Adj2	Prob (F-test)
Conventional	-.0008	.884	.293	.124	.908	(0.00)
	(t=-.653)	(t=21.379)***	(t=1.489)	(t=.590)		
Conventional Sustainability	-.0012	.942	.055	.186	.893	(0.00)
	(t=-.671)	(t=18.861)***	(t=.350)	(t=.837)		
Islamic	2.21E-05	.839	.170	-.325	.886	(0.00)
	(t=.014)	(t=17.498)***	(t=1.543)	(t=-1.422)		
Islamic Sustainability	-.0003	.849	-.066	-.309	.857	(0.00)
	(t=-.139)	(t=15.679)***	(t=-.485)	(t=-1.196)		

OLS Regression Estimates of Single Index Model for FTSE Market Indices (from
July 2005 to July 2010, with 61 monthly observations)

Type of Index	Intercept (α)	Market (β)	Adj2
Conventional	-.0015	.949	.904
	(t=-1.311)	(t=26.652)***	
Islamic	-.0005	.859	.846
	(t=-.263)	(t=16.633)***	
4Good	-.0013	.921	.871
	(t=-.824)	(t=15.284)***	

OLS Regression Estimates of Multi-Index Model for FTSE Market Indices (from July 2005 to July 2010, with 61 monthly observations)

Type of Index	Intercept (α)	Market (β)	SMB	HML	Adj2	Prob (F-test)
Conventional	-.0020 (t=-1.435)	.907 (t=21.880)***	.296 (t=1.418)	.102 (t=.486)	.908	(0.00)
Islamic	-.0009 (t=-.511)	.850 (t=12.670)***	.151 (t=.960)	-.398 (t=-1.628)	.859	(0.00)
4Good	-.0013 (t=-.923)	.894 (t=17.342)***	.134 (t=.951)	.369 (t=-1.761)*	.879	(0.00)

Appendix VII: The Derivation of Jensen's Single Index Model from CAPM[102]

CAPM assumes that the efficient market hypothesis holds and the only risk that should be compensated for is the systematic risk since it is unavoidable/undiversifiable. Thus, CAPM estimates the required rate of return, based on systematic risk exposure of stocks/portfolios as follows:

$$E\ (R_{it}) = E\ (R_{ft}) + \beta_i\ E\ (R_{mt} - R_{ft})$$

Thus; $E\ (R_{it} - R_{ft}) = \beta_i\ E\ (R_{mt} - R_{ft})$
Where E = expectations operator

Assuming rational expectations and efficient markets, the equation above can be written as:

$(R_{it} - R_{ft}) = \beta_i\ (R_{mt} - R_{ft}) + e_i$
Where e_i = forecast error with mean of zero

Since Jensen's measure of performance includes a constant in the equation above such that:

$(R_{it} - R_{ft}) = \alpha_i + \beta_i\ (R_{mt} - R_{ft}) + e$
Thus: $\alpha_i = (R_{it} - R_{ft}) - \beta_i\ (R_{mt} - R_{ft})$

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[102] Adopted from (Abul Hassan, 2005).