DOCTOR OF PHILOSOPHY

Mutual fund performance : evidence of stock selection and market timing ability from Islamic mutual funds

Alkassim, Faisal

Award date:
2009

Awarding institution:
Bangor University

Mutual Fund Performance: Evidence of Stock Selection and Market Timing Ability from Islamic Mutual Funds

Faisal A. Alkassim
Bangor Business School

BSc Finance, Real Estate, and Law – California State University, Long Beach
MSc Finance – University of Wales, Bangor

Supervised by Professor Phillip Molyneux

A thesis submitted to Bangor Business School in fulfilment of the requirement for the degree of Doctor of Philosophy (PhD)

January 2009

Acknowledgments

I would like to express my deep appreciation to Professor Phillip Molyneux, my supervisor, for allowing me to undertake this challenging research topic. The PhD is an independent journey full of turbulence that requires maintained motivation. However, I am very happy to reach this stage.

Special gratitude goes to Professor John Goddard, Bangor Business School, who provided support with modelling and results interpretation. Also, Kenneth French at Tuck School of Business, Dartmouth College, who was cooperative communicating through email and phone providing support on how to estimate the performance of mutual funds.

I am grateful to Riadh Koubaa, at Bloomberg who assisted me with the data collection process. It was a difficult stage at the beginning that also consumed a major time period from this research.

Many Thanks goes to my sponsor, the Saudi Arabian Ministry of Higher Education, which gave me an opportunity to pursue my higher education.

Last but not Least, I would like to thank all my friends in Bangor.

I dedicate this project to my parents Dr. Abdullah and Dr. Shariffah Alkassim

Abstract

The main objective of this thesis is to provide a detailed analysis of the performance of mutual funds with particular focus on Islamic funds. Studies that review the performance of Islamic funds are rare although there has been a significant growth in the number and assets in recent years. The average annual growth in the number of Islamic funds amounted to 18% and the average annual growth in total assets of such funds came to 42% between the year 2005 and 2006 according to Failaka International. In this thesis we use four stock selection models and three market timing models to evaluate the performance on a sample of Islamic mutual funds over the period 2000 and 2006 using weekly returns. Overall, the results from the performance study of Islamic mutual funds indicate that there is underperformance in terms of stock selection ability. Thus, there is a lack of market timing ability. In consequence, we test for robustness in market timing results by adopting a conditional market timing model similar to Prather and Middleton (2006) and Cuthbertson, Nitzsche, and O'Sullivan (2006). However, we arrive at negative conditional market timing results. Moreover, we test for evidence of performance persistence for Islamic mutual funds and the results suggest that there is evidence of negative performance persistence.

Table of Contents

List of Tables

List of Figures

Chapter 1 – Introduction

1.1 Background of the Study

The mutual fund industry has recently witnessed a dramatic increase in the amount of wealth held and traded by mutual fund managers. The value of mutual funds under management increased from $11.8 trillion in 2000 to $22.7 trillion in 2007 (Investment Company Institute (ICI) and European Fund and Asset Management Association (EFAMA), 2007). A mutual fund is an investment company that pools money from shareholders to be invested in a variety of securities, including stocks, bonds, and money market securities (Reilly and Brown, 2003). Moreover, mutual funds offer attractive advantages such as the ability to invest in an equity fund without incurring transaction costs or cost of collecting information. Thus, mutual funds allow diversification and provide administration in dealing with investments to reduce the workload of individual investors.

There are many types of mutual funds ranging from equity, bond, and money market funds that are suitable for investors seeking different investment objectives, such as building capital for retirement or to finance children's future education. Each type of mutual fund has its own features in terms return and risk. Some of these funds yield smaller returns compared to others such as money market funds compared to equity funds but money market funds have static returns that allow investors to generate continuous income over the long term. However, investors in equity funds aim for greater returns in volatile stock markets. Equity funds are the most common compared to other types of mutual funds. Therefore, this study will examine the performance of a sample equity mutual funds.

It is important to know whether mutual fund managers add value to the mutual funds they manage by examining their performance. The performance measurement of managed mutual funds is also important to prospective clients that wish to efficiently allocate their assets. Also, performance measurement is important to managers themselves seeking to evaluate the effectiveness of their strategies.

Typically studies are carried out to examine whether mutual fund forecasting skills earn superior performance. It is usually assumed that forecasting skills can be partitioned into two distinct components, forecasting of price movement for selected individual stocks (stock selection), and forecasting of price movements for the stock market as whole (market timing), (Berent 1995, p.2). Therefore, we will examine a sample of mutual funds to see if overperformance is achieved using the stock selection and market timing approaches.

The sample of equity mutual funds that this study will examine are Islamic equity mutual funds. Islamic equity mutual funds are similar to traditional mutual funds but screened to maintain consistency with Shariah principles. In fact, Islamic mutual funds fall under the umbrella of Islamic finance which consists of three branches, Islamic banking, Islamic insurance, and Islamic mutual funds. All these branches operate in accordance to Shariah which mainly avoids interest (Obaidullah 2005). Conversely, there are many types of Islamic mutual funds but equity funds are the main concern of this thesis. In particular, a sample of global equity funds and Malaysian equity funds are examined. Our interest in Islamic funds stems from their increasing importance and development particularly in the Arab world. The Islamic mutual fund industry is estimated to hold assets worth more than $16 billion as of 2007 (Failaka, 2007).

Academic research on mutual fund performance focuses on the analysis of risk and its impact on returns. The introduction of the Capital Asset Pricing model (CAPM) in the 1960's provided financial researchers with a means of adjusting return for risk. Jensen (1968) then evaluated stock selection of a sample of managed US mutual funds and found lack of fund performance when compared with the S&P 500 index. Similarly, Fama and French (1993)[1] built on Jensen (1968) by adopting a 3-factor model to study the characteristics of a managed portfolio. They both identify mutual fund stock selectivity. But, Treynor and Mazuy (1966) and Henriksson and Merton (1981) developed methods to identify for market timing. Henriksson (1984) examined market timing for a sample of equity funds in the US using the NYSE index where he found evidence that there is lack of market timing.

Empirical research on Islamic mutual funds is scarce for multiple reasons. Data availability and consistency is the biggest barrier. However, Elfakhani and Hassan (2005) examine a sample of 46 Islamic mutual funds between 1997 and 2002 where they divided the sample into fund groups according to regions and all regions underperformed in terms of stock selection except the emerging market fund group. Abdullah, Hassan, and Mohammad (2007) compared the performance of Islamic and conventional Malaysian funds between 1992 and 2001 where they found results indicating a lack of stock selection ability.

[1] This will be discussed in further detail in Chapter 3 on the literature review on mutual fund performance

1.2 Aims and Motivation to the Study

The prime objective of this study is to analyse in detail the performance of a sample of Islamic equity mutual funds. The sample is divided into two groups global funds invested in global markets and Malaysian funds invested in Malaysian markets. A sample of Islamic mutual funds were chosen for our analysis since there is lack of research in the field of Islamic mutual fund performance and the number of empirical studies in the area is somewhat limited. However, research on the conventional mutual fund industry is extensive as will be seen in the literature review chapter. Therefore, this study will aim to contribute towards the research on Islamic mutual fund industry.

The conclusion of this thesis will most importantly help Islamic fund managers identify their performance and develop future strategies for the funds under their management. Also, future investors seeking to allocate their assets in Islamic mutual funds will have a general historical idea of the performance of Islamic mutual funds. Thus, this thesis aims to assist regulators and policy makers decisions with regards to providing a full understanding of the Islamic mutual fund industry.

The main research questions that this study aims to answer are as follows;

- Do Islamic funds develop stock selection strategies to obtain superior performance?
- Are Islamic mutual funds successful market timers?
- Is there persistence in Islamic mutual fund performance?

All these research questions are aims of this study and will be answered in different chapters. However, the main aim of the thesis is to examine the performance of Islamic mutual funds using stock selection and market timing approaches.

The motivation and inspiration for this study has been experienced after noting a gap in the empirical research on the Islamic finance sector in general and specifically on Islamic mutual funds. Also, there is a growing interest in the field of Islamic mutual funds by researchers and professionals which was another motivational factor to be undertaken in this thesis.

1.3 Methodology of the Study and Major Findings

The performance study on mutual funds will be carried out on a sample of Islamic mutual funds. To identify the performance there will be two methodologies, a stock selection performance approach as suggested by Sharpe (1964), Treynor (1965), Jensen (1968) and Fama and French (1993). Also, a market timing approach as suggested by Treynor and Mazuy (1966) and Henriksson and Merton (1982). Both methodologies take into account the risk and fund return features. However, the definition of risk may vary since some models use pure risk and others use systematic risk. All these models will be applied to the sample of Islamic mutual funds. Implication from such models will suggest under or over performance and also if there is stock selection or market timing ability. The approach for estimating stock selection models uses ratio calculations except for the Jensen (1968) and Fama and French (1993) approaches that use Ordinary Least Squared (OLS) regression models to estimate for selectivity. Besides, Treynor and Mazuy (1966) and Henriksson and Merton (1982) also use OLS regression to estimate for market timing.

The data sample includes open-ended Islamic equity mutual funds, 13 global funds invested in global markets and 15 Malaysian funds invested in Malaysian markets. The sample period is between January 2000 and September 2006 using weekly returns. It was challenging searching for such data but what is not available and more challenging is to search for the components or holdings of these mutual funds. Islamic mutual funds appear to have a problem maintaining databases that provide appropriate time series records of prices and stock holdings. The lack of regulation of Islamic mutual funds allows fund managers not to have to disclose data on a regular basis, this is unlike the SEC in the US where mutual funds are required to disclose holdings each quarter.

There are four market benchmarks used to compare the performance of the Islamic funds understudy. The four market indices include the FTSE Global Islamic Index and FTSE All World Index (compared to the global Islamic funds) and FTSE Bursa Malaysia and KLCI (compared to the Malaysian Islamic funds). The general findings suggest that Islamic funds underperformed their market benchmarks.

The major findings from this body of research on Islamic mutual funds suggests that there is lack of stock selection and market timing ability for both global and Malaysian Islamic funds. Moreover, global funds obtained higher ranking when compared to Malaysian funds. This may suggest that global funds are better diversified.

This research contributes to the somewhat limited field of research on Islamic mutual funds performance. There is lack of empirical work on Islamic mutual funds as will be noted which this study aims to contribute. Overall, the findings from this thesis aim to provide Islamic fund investors, regulators, and fund managers with an insight into the performance of such funds and shows that there is little evidence of stock selection and market timing for such investments. These findings are probably a consequence of the limited data availability of Islamic funds in general and their relatively poor performance over the study period. Further research on such funds is hampered by data issues and the study highlights the need for greater availability and transparency in reporting the make-up of Islamic funds.

Generally, this body of research aims to contribute to the theory of mutual fund management in particular and asset management in general. The quantitive findings will draw better conclusions in regards to the empirical background of Islamic mutual funds management. Hence, the review of historical performance using empirical models could determine a healthier future for the Islamic mutual fund industry. Finally, the practical contributions from this thesis links the theoretical issues and empirical findings of Islamic mutual funds to arrive at adequate results.

1.4 Structure of the Study

There are six chapters in this thesis. Chapter 1 gives a general background and overview of the thesis. Chapter 2 provides an overview of the mutual fund industry. The definition and advantages of mutual funds will be discussed. Also, the history of mutual funds and fund regulation and governance will be reviewed with emphasis on regulatory bodies in the United States (Security Exchange Commission) and the United Kingdom (Financial Services Authority). Also, different types of mutual funds will be explained ranging from money market funds, equity funds, bond funds, and hedge funds. Finally, we will present a background on Islamic finance with a focus on Islamic mutual funds and highlighting the Shariah principles that fund managers need to comply.

Chapter 3 provides a literature review of studies that focus on the performance of mutual funds. Some studies date back to the 1960s which focus on risk and return relationships. However, recent literature examines mutual fund performance in relation to mutual fund characteristics or mutual fund performance persistence. Also, the empirical literature also has evolved to examine specialised funds such as ethical and Islamic funds. In general, the market timing literature will be the main focus of this chapter.

Chapter 4 outlines the methodological approaches that we use to examine the performance of Islamic mutual funds. The literature identifies two main methods for identifying the performance of mutual funds, stock selection ability and market timing ability. Stock selectivity is identified using Sharpe and Treynor ratios where higher ranking funds obtain higher ratios. Besides, Jensen alpha and Fama and French selectivity models are used to identify overperforming funds relative to their benchmarks by attaining positive alphas. In addition, market timing models developed by Treynor and Mazuy & Henriksson and Merton will be used which recognise market timing funds by obtaining positive gammas.

Chapter 5 presents the results on the stock selection and market timing ability for our sample of Islamic mutual funds. Also, results from a conditional market timing model are presented to test the robustness for market timing ability. We present yearly results first to examine the trend in performance then we present the performance for the whole period. Finally, we examine for performance persistence. Overall, we find negative stock selection and negative market timing ability results even when conditional market timing models are used and negative performance persists.

Chapter 6 is the conclusion and also discusses the limitations of the thesis and offers suggestions for further research.

Chapter 2 - Background on the Mutual Fund Industry

2.1 Introduction

This chapter aims to provide an overview of the mutual fund industry and in particular, Islamic mutual funds and how they operate in the financial services sector. Islamic mutual funds are similar to conventional mutual funds. Therefore, we will present the experience of the conventional mutual fund industry first and then discuss the Islamic mutual fund industry. There are seven sections to this chapter. Section 2.2 will define the features of mutual funds while section 2.3 discusses the advantages of mutual funds for individual investors as well as to the overall economy. Section 2.4 outlines the history of the mutual funds industry and the current features of the global mutual funds industry. Furthermore, section 2.5 previews the governance of mutual fund business focusing on regulation of the industry in the UK and US. Section 2.6 shows the key features of different mutual fund types ranging from money market, equity, and bond funds. Section 2.7 reveals Islamic finance and its main branches, Islamic banking, Islamic insurance, and Islamic mutual funds and this leads to section 2.8 that discusses in detail Islamic mutual funds.

2.2 Definition

Mutual funds are investment vehicles in financial markets investing a pool of cash into securities on behalf individual investors also described as investment companies. The fund can be investing in equity securities, bond securities or real estate depending on the mutual fund objective (Mohoney, 2004). In addition, each investor in a mutual fund owns a proportion of the fund depending on the amount contributed. Mutual funds issue shares of the fund known as units that can be repurchased at net asset value. The net asset value of a mutual fund is estimated by subtracting assets from liabilities divided by the number of shares outstanding (Bodie, Kane, and Marcus 2005, p. 108).

Investors in mutual funds invest in two different forms, open-ended mutual funds and closed-ended mutual funds (Gremillion, 2005). Open-ended mutual funds have variable number of units depending on existing shareholders. If new investors enter the fund after the initial offering period, then new shares are issued. In contrast, closed-ended mutual funds are closed for new investors only if an existing investor wishes to sell then a new investor can enter. Also, closed-ended mutual funds have a fixed number of shares with a defined maturity date and traded on organised exchanges similar to common stocks (Pozen 2002, p. 89).

Besides different forms of mutual funds, there are different costs and expenses such as front-end load fees, back-end load fees, and operating management expenses. Expenses and load fees are known to reduce the amount of capital invested. Front-end load fees are commission or sale charges paid when an investor enters into a mutual fund usually for brokerage services. Back-end load fees are paid at redemption when an investor liquidates. Operating management expenses are usually annual, administrative, or advisory expenses (Levy and Post 2005, p122) and (Bodie, Kane, and Marcus 2005, p. 116).

The specific fees paid out by investors depends on the fund itself, usually based on basis points. A basis point is one-hundredth of a percent (0.01). The majority of mutual funds carry a fee of around 100 basis point per year or even more (Bogle 2005, p.7). This has caused regulatory bodies to enforce tighter discloser requirements on funds, especially funds with higher fees. According to Karceski, Livingston, and O'Neal (2004), funds that have lower fees (commissions) have lower turnover (performance) while mutual funds that have higher fees exhibit higher performance.

There are many ways of investing in a mutual fund (through a broker[2]) either through a lump sum or through a regular contribution (Christoffersen, Evans, and Musto, 2006). Regular contributions to a fund can be accepted via an automatic transfer of money from monthly salary payment or other regular incurs. Moreover, investors in a fund have different objectives; for instance, investing for the purpose of retirement or to save money for future education costs (Russell 2007, p39).

[2] Individual investors use brokerage firms that market mutual funds where brokers help consult with investors as to the best asset allocation strategy (Bergstresser, Chalmers, and Tufano, 2006)

2.3 Advantages of Mutual Funds

There are many advantages that mutual funds can provide to individual investors and to the overall economy. First, individual investors benefit from mutual funds by using valuable information and professional knowledge, especially individual investors with limited time and information about financial markets. Thus, the cost of obtaining investment information maybe too costly particularly for investors with modest amounts to invest. Furthermore, an investment manager usually decides which security to buy and sell depending on market conditions and trading skills. Further, this allows an investor to choose from a range of funds that are suitable to their anticipated risk and return appetite (Russell 2007, p30).

Diversification is another advantage for individual investors who invest in mutual funds. A mutual fund can hold securities from a large number of issuers, far more than most investors could afford on their own. Thus, diversification decreases the risk of a serious loss due to a specific problem in a particular company or sector. Also, another benefit to individual investors is the liquidity that the mutual fund provides. Shares in most mutual funds can be easily bought and sold and access to money can be within days depending on the fund policy (Obaidullah 2005, p.204).

The evolution of the mutual fund industry can also benefit the overall economy by improving liquidity in financial markets. Besides, the volume of trade in financial markets will increase when liquidity increases. This will consequently create opportunities and improve economic wellbeing of capital markets.

Investing directly in financial markets requires substantial experience and information and therefore, many investors use mutual funds as a low cost way to access financial markets. This is direct evidence on how mutual funds benefit individual investors and the overall economy. Furthermore, mutual funds provides participation in rising securities markets and enable invested capital to work towards realising goals for retirement, education and financial stability (Fortune, 1997 & 1998). That is why professionally managed funds are a viable alternative for investing directly in securities. In addition, as many countries begin to face the prospect of aging populations, they are considering the need for increased private savings to meet retirement needs.

So as to provide a flavour of the development of the fund industry, the following section will present the history of the mutual fund industry globally with a focus on the US and UK.

2.4 History and Current Trend in the Mutual Funds Industry

The beginning of the mutual fund industry is marked in Britain in 1868 when the first Foreign and Colonial Government Trust was created. The fund intended to invest in government debt securities[3]. Then British laws provided a favourable environment for mutual funds and by 1875 there were 18 mutual funds similar to the Foreign and Colonial Government Trust with assets exceeding £6.5 million. For instance, the Scottish American Investment Trust 1873 aimed to invest in the US with an income return objective. On the other hand, in the US, the New York Stock Trust 1889 marked the first fund to be established followed by the Boston Personal Property Trust 1893, and Railway and Light Securities Company 1904. All these funds were closed-ended funds (Bogle 2005, p 14).

During the 1920's the American stock market experienced a bull period which attracted major investments that took advantage of the benefit of mutual fund diversification, professional management, and economies of scale. On the 24th October 1929 the market was hit by a major crash known as "Black Thursday". At the time there were 89 closed-ended mutual funds with a $3 billion market capitalisation. The market capitalisation of the New York Stock Exchange was approximately $87 billion in the year of the market crash (Baumol et al, 1990). Open-ended mutual funds were not popular amongst the investment community compared to closed ended-funds. There were only 19 open-ended mutual funds by the time of the crash with assets worth $140 million. The largest open-ended mutual fund was the 1924 Massachusetts Investors Trust (MIT). During its first year of launch the value of the fund was only $392,000 with 200 investors investing in industrial, railroad, utilities, and insurance sectors.

[3] Bullock (1959)

In the aftermath of the 1929 "Black Thursday" crash, the growth of the mutual fund industry in the US slowed down. This also saw Congress passing the Securities Act of 1933 requiring listed companies to be registered. Then another Act was passed known as 1934 Security Exchange Commission (SEC) Act assigning the SEC to regulate and supervise financial markets activity. The SEC issued legislation known as the Investment Company's Act 1940 with regards to mutual funds. This legislation required mutual funds to provide a prospectus statement to prospective investors (Bogle 2005, p. 19). The Investment Company Act 1940 will be discussed in detail later on in this chapter in section 2.5 which focuses on fund regulation and governance.

Between 1940 and 1980 there was a slow but steady growth in the US mutual fund industry. By 1951 the total number of mutual funds surpassed 100 and the number of shareholders accounts exceeded one million (Investment Company Institute, 2007). One of the largest contributors to mutual fund growth was the introduction of Individual Retirement Account (IRA) provisions which allowed individuals including those already in corporate pension plans to contribute $2,000 a year to mutual fund investments within retirement accounts (Woodard, 2006). Indeed, retirement accounts in the US nowadays account for nearly 40% of mutual fund industry holdings (ICI, 2006). In addition, open-ended mutual funds have become the dominant model for mutual fund organisation, suggesting that it has been an important innovation contributing to the sectors modern success.

The evolution of the British mutual fund industry from the 1920s until the 1950s was also relatively modest with legislation imposed in the 1930's that restricted the placement or creation of new mutual funds. However, by 1939 there were 15 managing houses operating 98 funds with £83 million of assets. Also, the strength of the fund industry was confirmed by the low level of failure amongst existing mutual funds, and funds that were established prior to the war survived successfully (Berent 1995, p.17).

During the 1960s the mutual fund industry in the UK begin to make a real impact amongst the general public hosted by the favourable economic environment and the legislative changes introduced to encourage investments. By 1967 total assets in the mutual fund industry was estimated at £835 million with 150 mutual funds under management (Berent 1995, p.23). However, market conditions in the 1970s were different; by 1974 the "oil shock" occurred which caused a significant fall[4] compared to the American 1929 "Black Thursday". Investors by then realised that mutual funds were volatile and could move in both directions. Moreover, inflation made matters worse soaring to a peak of 27% in 1975. But it was quickly when the market changed trend; in 1976 markets made a positive move and the FTSE index increased by more than 180% and the value of the mutual fund industry marked another peak at £2.5 billion (Financial Service Authority, 2007).

[4] The FTSE All Share Index dropped by more than 50% in 1974

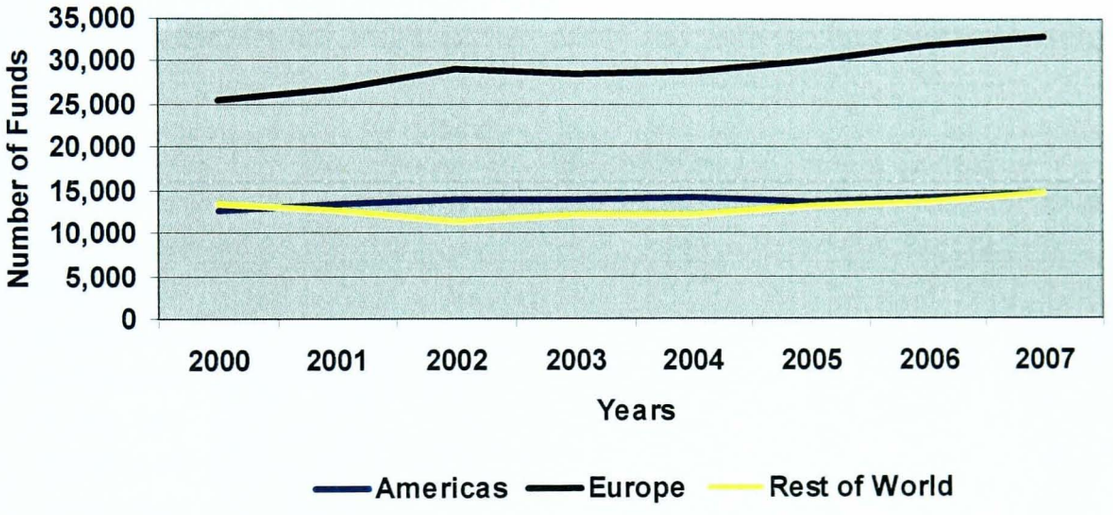
In the 1980s and 1990s the British mutual fund industry continued to grow. European Union legislation introduced in October 1989, known as the UCITS[5] Directive, permitted the cross-marketing of collective investment funds between European countries which assisted the mutual fund industry. The passed act was supportive of mutual fund industry growth and even the sold funds were referred to as UCITS. In addition, in the 1990s and particularly in 1993 there was again a strong bull market which increased the value of the mutual fund industry from £36 billion in 1987 to £99.9 billion by January 1994. Management houses increased from 121 in 1987 to 162 by 1994 offering 1,559 mutual funds (Berent 1995, p.30).

The mutual funds industry has also evolved gradually in global financial systems during the 1980s and 1990s. South America, China, India, and various Middle Eastern countries have been active in developing their mutual funds industries. In addition, innovation in product development, such as UCITS in the EU, assisted the mutual fund industry where new channels of distribution were created to increase the expertise in mutual fund industry and to be made available to the public (Goetzmann, Massa, and Rouwenhosrt, 2004). Furthermore, the mutual fund industry has grown sharply in recent years in worldwide markets. The US mutual fund industry alone is estimated to be worth more than $10 trillion as of 2007 consisting of nearly 50% of the global mutual fund industry size (ICI, 2007).

[5] (Undertakings for Collective Investments in Transferable Securities) which aims to allow mutual funds to operate freely throughout the EU with a concept of a single market with transferable securities.

Figure 2.1 shows the growth trend in the number of mutual funds in America, Europe, and rest of the world. From the figure it can be seen that Europe has the greatest number of mutual funds followed by America and the rest of the world. The total number of mutual funds globally as of 2007 is 62,522 which increased from 51,574 in 2000.

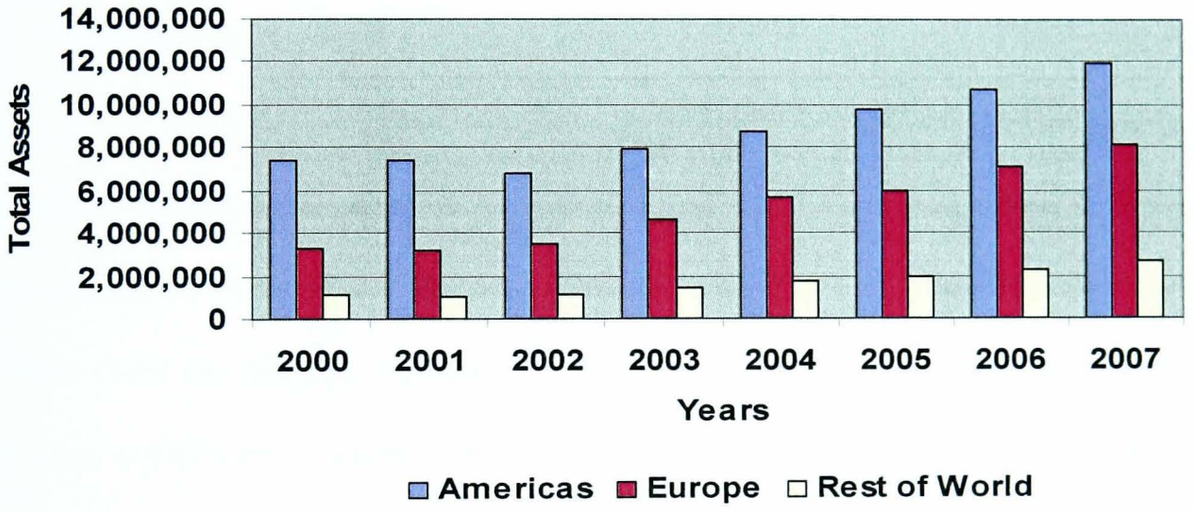
Figure 2.1: Number of Mutual Fund between 2000 and 2007



Source: European Fund and Asset Management Association (EFAMA), p. 23 and Investment Company Institute (ICI), 2007, p.10.

Figure 2.2 shows the growth trend in total assets in millions of US dollars from 2000 until 2007. The total assets represent the market capitalisation of mutual funds. It can be seen that America has the greatest mutual fund size of assets followed by Europe and the rest of the world. As of 2007 the American mutual fund industry size is estimated to be approximately $12 trillion. The overall global mutual fund industry size increased from $11.8 trillion in 2000 to $22.7 trillion in 2007, a growth of 92% over the eight year period.

Figure 2.2: Mutual Funds Total Assets (Millions of US Dollars)



Source: European Fund and Asset Management Association (EFAMA), p.24. and Investment Company Institute (ICI), 2007, p.8.

The following section will elaborate the key features of fund governance and discuss how regulating bodies oversee mutual fund industries.

2.5 Fund Governance

The rising number of mutual funds has increased the demand for regulatory bodies to protect shareholders investments. According to Pitchhadze (1995) who studied various financial crises, such as "Black Thursday" in the US and the "oil shock" of the 1970s, he mentions that regulatory reactions tend to come into effect after a crisis occurs typically when there is no public agenda for reform. The creation of the Security Exchange Commission (SEC) and Financial Services Authority (FSA) to a certain extent were used to support and protect shareholders investments (Radin and Stevenson, 2006).

The objectives of fund governing bodies are to protect shareholders invested in mutual funds in order to ensure market transparency as well as market integrity. Shareholder protection is attained by assuring that the fund management maintains solvent positions. Solvency involves preserving a continuing level of capital adequacy so that when there are setbacks, the fund can deal with reduced income from the market or when a net redemption is experienced. Also, fund governing bodies usually ensure that there is independence between the managing board of a fund and the custodian. The custodian is usually a bank acting as a guardian to a fund. Thus, communication with fund shareholders is essential and frequently regulators ensure that the prospectus statement is clear to investors (Russell 2007, p.45). Moreover, there are other quantitive regulations such as restrictions for a fund to be invested in a single security and not to hold more than 10% of a single company; however, these concentration rules differ between regions and countries.

Fund governance also assures that corporate criminals and prospective wrongdoers are prosecuted and that insider information and financial fraud is not violated. Moreover, regulators seek to ensure that financial data is consistent and transparent in a satisfying level to shareholders. For instance, in the US for example, the 1984 Insider Trading Sanction Act made illegal the trade of non-public information, and the 1988 Insider Trading and Securities Fraud Enforcement Act punishes and penalises insider traders (Anderson and Ahmed, 2005). The remainder of this section discusses evolution of US and UK mutual fund regulation.

The Securities Exchange Commission (SEC) is the main regulatory body for the mutual fund industry in the US. The Security Act of 1934 appointed the SEC to enforce federal securities law (Campbell, 1994). The first legislation concerning mutual funds, known as the Investment Company Act 1940 aimed: "to mitigate and eliminate the conditions which adversely affect the national public interest and the interest of the investors" by enhancing transparency and integrity of investment companies. Before the passing of the Security Act of 1934 there was the 1933 Securities Act addressing a broader arena than just mutual funds, requiring public offerings to register securities and provide prospective investors with prospectus statements and disclosing the nature of investment (Walsh, 2004).

The Investment Company Act of 1940 concerning mutual funds stated various investment policy guidelines. These investment policy guidelines included income source and portfolio composition. The income source requires at least 90% of a mutual funds income to be from passive income such as dividends or gain on sales of securities (Fink, 1996). This requirement ensures that the mutual fund does not use non-investment activities to support revenue. On the other hand, the portfolio composition guideline aimed to restrict mutual funds from taking control of other firms such pooling investments in a single firm. Moreover, under the Investment Company Act mutual funds are required to disclose their security holdings every quarter (Anderson and Ahmed 2005, p8).

The British mutual fund governing system is organised by the Financial Services Authority. The Financial Service Act (FSA) was implemented in 1986 and directions came into force in October 1989. The FSA is the main piece of legislation governing mutual funds in the UK nowadays. At its inception, Chapter VIII of the Act requires the Securities and Investment Board (SIB) to undertake a number of activities concerning the regulation of mutual funds. Furthermore, the SIB reported directly to the Department of Trade and Industry as of March 1988 but the Department of Trade and Industry later lost its legislative control over SIB which transferred responsibilities of the mutual fund industry to the Department of Treasury. In 1997 the SIB was renamed the Financial Services Authority (Russell 2007, p.48). Besides, the FSA regulatory system requires mutual funds to implement a Self Regulatory Organisation (SRO). A (SRO) monitors the mutual fund activity and ensures consistence with legislation, then the FSA can oversees the mutual fund SRO (Berent 1995, p.42).

Kong and Tang (2006) who studied mutual fund governance, also suggest that fund managers should have their own internal governing board. This governing body then should assure adherence to regulations of various governing bodies and ensure that insider trading is not violated. Their findings support the Financial Services Authority legislation that requires a mutual fund manager to have a SRO. On the other hand, there is a positive relationship between effectiveness of governance and mutual fund performance according to Ding and Wermers (2005). This indicates that better governance and protection of shareholders wealth leads to a better performing mutual fund industry. However, it is difficult to gauge the effectiveness of mutual fund governance from country to another. Table 2.1 illustrate a sample of regulatory bodies that have been established to regulate both the securities sector as well as the mutual fund industry[6].

Table 2.1: Governing Bodies in Various Countries

Country	Governing Body	Established
Australia	Managed Investment Act	2001
Canada	Mutual Fund Dealers Association	-
China	Investment Fund Law and Security Association of China	1999
France	Autorite des Marches Financier	1988
Germany	Federal Financial Supervisory Authority	1994
Hong Kong	Securities and Futures Commission	1978
India	Securities and Exchange Board of India	1996
Ireland	Irish Financial Services Regulatory Authority	2003
Italy	Commission Nazionale per la Societa e la Borsa	1998
Japan	Financial Supervisory Agency	1952
Korea	Financial Supervisory Commission	1969
Luxembourg	Instiut Monetaire Luxembourgeois	1983
South Africa	Financial Advisory and Intermediary Services	2002
Spain	Comision Nacional del Mercado de Valores	1998

Source: (Russell, 2007 p.49) Introduction to Mutual Funds Worldwide

[6] Access to information of some regulators were an obstacle since the official language is non-English.

2.5.1 Mutual Fund Policy Statements

One of the main regulatory requirements is for a mutual fund to provide a policy statement or some times referred to as a prospectus statement. The policy statement helps individual investors understand the mutual fund and the type of investment. A policy statement is the objective of a mutual fund which clarifies the intuition of the fund manager's asset allocation strategy. However, once the investment policy is in place, the prospect statement can only be changed with a majority vote of the shareholders (Kong and Tang, 2006). In addition, funds also typically provide another statement known as the statement of additional information that contains information which does not need to be included in the policy statement that is deemed of additional interest to investors.

The policy statement format is a front and back page cover including fund name and date. Also, the policy statement needs a risk and return summary, expenses tables, investment objectives, management organisation, shareholders information, and distribution arrangement. On the other hand, the statement of additional information includes information such as the fund history, description of the fund, control person, investment advisory, portfolio managers, brokerage allocation, taxation of the fund, and financial statements (Bogle 2005, p.61).

Mutual funds usually have a minimum investment requirement with a lock-up period[7]. Moreover, there are some funds that are classified for certain types of investor such as institutional or retail investors. This depends on the mutual fund policy statement (Fink, 1995). The following section of this chapter presents different types of mutual funds ranging from money market, equity, bond, and hedge funds.

[7] A time period when the shareholder in the fund is not allowed to liquidate

2.6 Types of Mutual Funds

Mutual funds are offered by investment companies in different types and each fund has its own features according to reward and risk relationships. A mutual fund can be offered as open-ended, with an unlimited number of shares, or closed-ended, with a fixed number of shares. There are many types of mutual funds but the most common will be discussed in this section.

2.6.1 Money Market Funds

A money market fund invests in low risk and low return investments such as Certificate of Deposit (CD) or T-Bill. Money market funds frequently have stable net asset value prices which consequently reduces losses for individual investors. Dividends on money market funds generally reflect the interest rate but the inflation risk is always a barrier on dividends for investors in these types of funds. Hence, a money market fund is usually considered an income fund that provides smooth income during a life span. In addition, investing in a money market fund can be compared to investing in a saving account but not guarantied even though allocation is in high quality short-term investments (Reilly and Brown 2003, p.86). Money market funds are an important type of funds and estimated to account for 30% of the mutual fund industry (ICI, 2007).

2.6.2 Equity Funds

Equity funds are the most common type of funds, according to the ICI (2007), the total assets of equity funds in the US account for 50% of total funds. Equity funds are vehicles with a main objective to invest in listed common equity stocks. There are many forms that equity funds follow such as aggressive growth, income, or value which offer investors the benefit of diversification and professional management. Some equity funds invest locally in specific sectors such as (power or health) or in international stocks.

Also, common equity stocks have different styles such as firm size including small-cap, mid-cap, and large-capitalisation stock. The size of the stock is measured by multiplying the stock price by the number of shares outstanding which provides the market capitalisation. A large capitalisation stock is usually greater than £5 billion in value and a small capitalisation stock is usually less than £1 billion in value. However, the definition of large-cap and small cap may vary between markets (MorningStar Fact Sheet, 2004).

Stocks also have various book-to-market ratios. The book-to-market ratio is simply the book price of a listed stock divided by its market price. A stock with a low book-to-market ratio is referred to as "value stock" and usually trades below book value with high dividend yield. Nevertheless, a high book-to-market ratio indicates a "growth stocks" that usually has more volatile prices with smaller dividend payout ratios (MorningStar Fact Sheet, 2004). Figure 2.3 provides an illustration of the MorningStar stock classification.

Figure 2.3: MorningStar™ Stock Classification

		Book-to-Market		
		Value	Blend	Growth
Size	Large-Cap			
	Mid-Cap		■	
	Small-Cap			

Source: MorningStar Fact Sheet (2004), p. 2.

MorningStar is probably the market leader in providing mutual fund ratings. The company was established in 1984 and aims to provide fund investors with information, analysis, and research on the mutual fund industry. MorningStar evaluates and rates mutual funds based on their stock holdings. The rating of a mutual funds varies from five star to one star based on past performance. Risk-adjusted return is used to evaluate the performance of a fund relative to peers within the same population of fund investment style. The top performing 10% gets five star, the next 22.5% four star, the middle 35% three star, 22.5% two star, and the bottom 10% one star. However, funds in existence for less than three years are not included in the ratings (Meier and Schaumburg, 2004).

2.6.3 Index Funds

An index fund tries to emulate the performance of a market index such as the FTSE 100 or the Standard & Poor's 500 by matching the asset allocation of the index. The fund buys shares in securities included in the index in accordance to a weighted proportion to the index. Investing in an index fund is known as a passive investment as returns track the market movements. Passive fund management involves a buy and hold strategy where rebalancing or adjusting the holdings of a fund occur infrequently. The desire is to obtain so called beta returns for investors In contrast active fund management involves changing the allocation of a fund on a constant basis to attract higher (or alpha plus beta) returns (Gruber, 1996). The market share of active funds compared with passive funds is nearly 85% (ICI, 2007). Moreover, index funds are passively managed but active fund management attempts to outperform the relevant index using stock picking techniques such as technical or fundamental analyses. Some literature argues that

active management may not be rewarding since such an approach generally involves higher trading expenses (Malkiel, 1996).

Index funds, which are passively managed, are not necessarily invested in equity indices, there have been recently launched bond and real estate indices that track the movement of bond and real estate prices. Furthermore, index funds are known to have low trading costs compared to other funds since transactions are limited (Bodie, Kane, & Marcus 2005, p. 113).

2.6.4 Exchange-Traded Funds (ETF's)

The problem with traditional mutual funds or an index fund is that they are priced or revalued daily after market closing and all transaction are executed at that price. As a consequence of this limitation the American Stock Exchange (AMEX) in 1993 created an index fund tied to the S&P 500 known as an Exchange Traded Fund (ETF) which could be traded continuously and has an updated price during a trading day. So, the difference between an index fund and an ETF is the interactive price during trading hours. The concept of an ETF has been applied in different regional markets and has experienced substantial growth (Reilly and Brown 2003, p.87).

2.6.5 Fund of Funds

A fund of fund (FOF) is a structured investment company investing in other funds rather than investing directly in stocks or bonds. The funds at the underlying level are typically funds which an individual investor can enter directly but a FOF provides greater diversification. A FOF will charge a management fee which is smaller than that of an original fund since it is considered an asset allocation service. The fees charged on the underlying fund level do not pass through on the statement of operations but usually are disclosed in the funds annual report or statement of additional information. Evaluation of a FOF is based on the combination of the overall fund of fund level expense and the underlying fund expense as both reduce the return on the overall investment (Euromoney, 2006).

2.6.6 Hedge Funds

A hedge fund is similar to a normal mutual fund in terms of the pooling of the invested capital but there are some major differences. Hedge funds are private investments open for wealthy and institutional investors and typically unregulated although some maybe registered with local governing bodies. Besides, hedge funds heavily trade financial derivatives, security short selling, and leveraging (Anson, 2005).

Many hedge funds have a small number of clients usually no more than a hundred and often wealthy investors that seek sophisticated financial products to obtain high (alpha) returns. However, small investors are not permitted to invest in hedge funds and frequently an investor in a hedge fund is required to have an asset profile of no less than $1 million (Strachman, 2007). Additionally, hedge funds are not regulated and are often not expected to be registered with fund industries governing bodies even in developed markets such as the UK or US. But large hedge funds maybe required to register since they control a larger liquidity. Furthermore, hedge funds are not allowed to advertise. In addition, hedge funds use financial derivatives such as stock options, forwards and future contracts to hedge their positions (Strachman, 2005). Short selling is widely used as a strategy that typical mutual fund are not permitted to undertake. Generally, hedge funds aim to outperform traditional mutual funds by using the mentioned trading strategies (FSA, 2007).

Hedge funds may require a lock-up period during which an investor is not allowed to cash out shares or liquidate their investments. Also, some hedge funds offer carried liquidity with redemption varying from monthly to annually depending on the hedge fund policy. Therefore, mutual funds are typically more liquid compared to hedge funds since they offer daily or weekly redemption. Overall, mutual funds and hedge funds may be compared and contrasted but the main difference is that mutual funds allow small investors to trade a stake in a well developed portfolio whereby hedge funds typically deal with large clients and engage in more sophisticated investment approaches-especially short selling (Black, 2004).

2.6.7 Bond Funds

Bond funds as the name suggests, typically invest in the fixed income sectors. There are a range of specialised bond funds that invest in corporate bonds, Treasury bonds, mortgage-backed securities, or municipal bonds. The credit risk or ratings on bonds are different ranging from very safe to high yield junk bonds. For example, a bond fund that invests in high-yield (or junk) bonds is exposed to greater risk but would expect greater returns. Furthermore, the term structure on bonds are dissimilar since some are short-term and others are long-term with up to 30 year maturity (Bodie, Kane, and Marcus 2005, p. 113).

2.6.8 Real Estate Investment Trust Funds

Real Estate Investment Trust funds, known as REITs, similar to closed-ended with two principal types. Equity REITs invest directly in real estate benefiting from appreciation in real estate price and for income purposes. Equity REITs invest in commercial and residential businesses such as apartment buildings, shopping centres, office buildings, hotels, and warehouses (Hardy, 1995). Alternatively, mortgage REITs invest in mortgages and money lending. REITs are usually established by banks, insurance companies, or mortgage companies serving as investment managers to earn management fees (Kuhn, 1996). A REITs fund typically has a high dividend payout ratio due to special fiscal tax treatment (Reilly and Brown 2003, p. 88).

The following section will discuss features of Islamic finance with a focus on Islamic mutual funds which are the central topic of this dissertation. Islamic mutual funds are similar to conventional mutual funds but are closely governed by Islamic (Shariah) laws.

2.7 Islamic Finance

Islamic finance has emerged rapidly over the last thirty years by providing new approval to the praising financial system. The creation of modern Islamic financial institutions began with the establishment of Islamic banks as illustrated in Table 2.2. The rapid growth in Islamic finance was aided by the rise in oil prices which required an Islamic financial system to accommodate accumulated oil sales (International Organisation of Securities Commissions 2004, p. 14). Islamic finance has three main branches, Islamic banking, Islamic insurance, and Islamic mutual funds. In general, Islamic finance has to adhere to Islamic Shariah laws and the Shariah laws govern the rules and principles for Islamic finance (Gait and Worthington, 2007).

Table 2.2: Islamic Finance Time Trend

	1970's	1980's	1990's	2000's
Islamic Financial Services Activities	Commercial Islamic Banks	1) Commercial Islamic Banks 2) Takaful Insurance 3) Islamic Mutual Funds	1) Commercial Islamic Banks 2) Takaful Insurance 3) Islamic Mutual Funds 4) Asset Management Companies 5) Brokers and Dealers	1) Commercial Islamic Banks 2) Takaful Insurance 3) Islamic Mutual Funds 4) Asset Management Companies 5) Brokers and Dealers 6) Islamic Investment Banks 7) E-Commerce
Region	Gulf and Middle East	Gulf, Middle East, Asian Pacific, and Americas	Gulf, Middle East, and Asian Pacific	Gulf, Middle East, Asian Pacific, Europe and Americas

Source: International Organisation of Securities Commissions (2004), p.16

Table 2.2 outlines the growth and time trend in Islamic financial service; as can be seen that the 1980's experienced the largest change with Islamic finance spreading from the Middle East and the Gulf region to Malaysia and the Americans, as well as the introduction of Islamic insurance and mutual funds activity.

2.7.1 Islamic Finance Rules and Principles

The rules of Islamic finance are determined by Islamic Shariah law derived from the Quran and prophet Mohamed's sayings. The three main practices clearly prohibited are, *Riba* (interest), *Gharar* (Uncertainty, trade in risk), and *Maysir* (Gambling). The nature of Islamic trading must be free from these three practises.

First, *Riba* (usury) or interest is prohibited in Shariah laws as stated in the Quran. *Riba* is the excess on a loan-large or small, fixed or variable. According to Siddiqi (2002), *Riba* is unfair if borrowers suffer huge losses, while the lender enjoys excess profits from interest. He also adds that it creates an overall inefficient economy because lenders generate continuous profit and borrowers may default even when the general economic environment deteriorate. There are many forms of interest but the main type occurs when there is an unfair exchange between two parties. Therefore, *Riba* is prohibited since it is unjust and unfair to one party (Dar and Presley, 2000).

Second, *Gharar* is "trading in risk". *Gharar* occurs when the purchaser does not know what has been bought and the seller does not know what has been sold[8]. In other words, trading should be clear by stating in a contract the existing actual object(s) to be sold, with a price and time to eliminate confusion and uncertainty between the buyer and seller (Warde, 2001).

Third, *Maysir* is speculation, betting, gambling or taking heavy chances (Zaman, 1986). *Maysir* involves an agreement between two or more each of whom undertake the risk of loss where a loss for one means a gain for the other. According to the literature on Islamic finance, these are the three non-permissible practices in the nature of Islamic finance trading.

[8] El-Gamal (2001)

In addition, there are also various activities that Islamic law prohibits. Investment in activities such as alcohol, arms and defence, gambling, pork or pork products, pornography, or tobacco is unacceptable. These activities are objectionable under Shariah law (Hayat, 2006). Also, one could suggest that there are similar characteristics between Islamic and ethical or socially responsible investing where some ethical funds are prohibited from certain investment activities.

2.7.2 Islamic Banking

Conventional banks are known as financial mediators between depositors and borrowers. The money deposited by clients is lent out to borrowers. The bank revenue is the difference between interest paid to depositors and interest paid by borrowers. So, bank profit is traditionally derived from (after expenses are deducted) interest revenues (Boos, 2007).

An Islamic banking system is similar to a conventional banking system although interest is prohibited. Islamic banking is based on profit and loss sharing (PLS) between the borrower and the bank (Khan and Mirakhor, 1987) and (Hassan and Zaher, 2001). The Islamic banks maintain profit by mixing investment and commercial banking operations, to engage in acceptable rate of return for depositors. In addition, the main difference between Islamic and conventional banks is the use of money. In conventional banks money is used as a commodity that is bought and sold through the use of interest. However, Islamic banks use money to ease transactions and for trading purposes. Overall, the Islamic banking industry has been in existence for around thirty years; also,

there are more than 300 Islamic banks with assets totalling more than $300 billion[9] (Iqbal and Molyneux 2005, p.158).

Table 2.3 shows some established Islamic banks. The first column gives the name of the bank, the second the country of establishment, and the final column the year of establishment.

Table 2.3: Sample of Established Islamic Banks

Name	Country	Date of Establishment
Nasser Social Bank	Egypt	1971
Islamic Development Bank	Saudi Arabia	1975
Dubai Islamic Bank	United Arab Emirates	1975
Faisal Islamic Bank of Egypt	Egypt	1977
Faisal Islamic Bank of Sudan	Sudan	1977
Kuwait Finance House	Kuwait	1977
Islamic Banking System International Holdings	Luxembourg	1978
Jordan Islamic Bank	Jordan	1978
Bahrain Islamic Bank	Bahrain	1978
Dar Al-Mal Al-Islami	Switzerland	1981
Bank Islam Malaysia Bhd	Malaysia	1983

Source: International Organisation of Securities Commissions (2004), p.19

[9] According to McKinsey (2005), there is a growth rate of 10-20% annually in Islamic banks.

2.7.3 Islamic Insurance

Islamic insurance operate like a fund known as (*Takaful*). The *Takaful*[10] is similar to a conventional insurance company but there are three differences between conventional and the Islamic *Takaful*. First, conventional insurance operates on the basis of business owned by shareholders to generate profit. But, Islamic insurance (*Takaful*) operates on the basis of collective shared risk owned by the policyholder. Second, conventional insurance has two sources of income from underwriting surplus and from investment income whereas the *Takaful* operates on a non-profit basis to assist the policyholder at an occurrence of an event. Third, the excess or reserve on the insurance policy belongs to the insurance company (shareholders) in a conventional insurance, but in a *Takaful* the excess belongs to the policyholder (Obaidullah 2005, p.124)..

The first established *Takaful* operator is Syarikat Takaful Malaysia Berhad in Malaysia in 1984 and the global size of the *Takaful* insurance industry is estimated at around $2 billion with 58 operators (International Organisation of Securities Commissions Report 2004, p. 24). However, the aim of this thesis is to discuss Islamic mutual funds. Therefore, the next section will present in detail Islamic mutual funds.

[10] The Arabic term *Takaful* means shared responsibility or shared guarantee.

2.8 Islamic Mutual Funds

As can be seen from above, the Islamic finance business has developed substantially over recent years. The importance and growth in Islamic banking and Islamic insurance has also been matched by the development of the mutual fund industry. This section outlines the filtering process of Islamic mutual funds and then briefly highlights the history and current trends in the Islamic mutual fund industry.

2.8.1 Islamic Mutual Fund Fundamentals and Screening Process

The characteristics of an Islamic mutual fund are similar to a conventional fund in terms of pooling of investment funds. There are many types of Islamic mutual funds but equity is the main focus of this thesis. As one would expect Islamic mutual funds need to adhere to Shariah principles. Shariah screening involves satisfying trading laws discussed earlier such as being free from interest, uncertainty, and heavy speculation; also, not investing in activities such as alcohol, arms and defence, gambling, pork or pork products, pornography, or tobacco is also of major importance in investment decisions. Moreover, an Islamic mutual fund has an independent Shariah committee that evaluates the operation of the fund in terms of satisfying the aforementioned Shariah principles. Such committees typically consist of at least three scholars that filter non-permissible operations (Iqbal and Molyneux 2005, p.158).

In particular, Islamic *equity* mutual funds are examined closely by Shariah committees since they invest in stock markets. The screening process in an Islamic equity mutual fund examines the stock company's source of income and any proportion of inadmissible activity greater than 10% then the company's stock is eliminated (Shata, 2003). For example, a hotel group that earns more than 10% of its revenue from alcohol sales would not be permitted in an Islamic funds whereas if alcohol sales were 9% of

total revenue that would be allowable. Besides, the Shariah committee will also considers the debt to equity ratio for companies. Typically a ratio greater than 33% indicates that significant interest payments are being made and so the company's stock would not be permissible in an Islamic mutual funds. This is known as negative screening using financial statements (Iqbal and Molyneux 2005, p.158).

Islamic mutual funds cannot trade on margin by using debt to finance investments similar to hedge funds (Elfakhani and Hassan, 2005). In addition, Islamic mutual funds are encouraged to pay out charitable contributions known as *zakah* at approximately 2.5 percent of profits (Al-Qaradawi, 1999).

2.8.2 History and Current Trend of Islamic Mutual Funds

The Islamic mutual fund industry is recent and has been around for three decades. The first Islamic mutual fund was found in the US in June 1986 known as, The Amana Income fund. By 1996 there were 29 Islamic mutual funds globally (Failaka, 2007).

During the late 1990s developed markets experienced a bull phase and various Islamic funds were launched to take advantage of profitable investments states (Elfakhani and Hassan, 2005). Opened-ended equity (medium to long-term growth) funds tend to be the most common type of Islamic funds. Moreover, various Islamic benchmarks were launched namely the Dow Jones Islamic Market Index (DJIM) and the FTSE Global Islamic Index. The Dow Jones index consists of 2000 Shariah compliant equity listed companies included in the broader Dow Jones World index. The FTSE global Islamic index consists of 1000 Shariah compliant equity companies included in the FTSE All World Index. All indices are diversified in terms of region and sector of investment but the Dow Jones index are more exposed to US markets compared to the FTSE Global

Islamic Index (Hayat, 2006). Figure 2.4 and Figure 2.5 gives a brief illustration of the performance of DOW Jones Islamic Market Index and FTSE Global Islamic Index compared with the S&P 500 conventional index from 2000 till 2007, and illustrates they are highly correlated.

Figure 2.4: DOW Jones Islamic Index Trend Compared with S&P 500

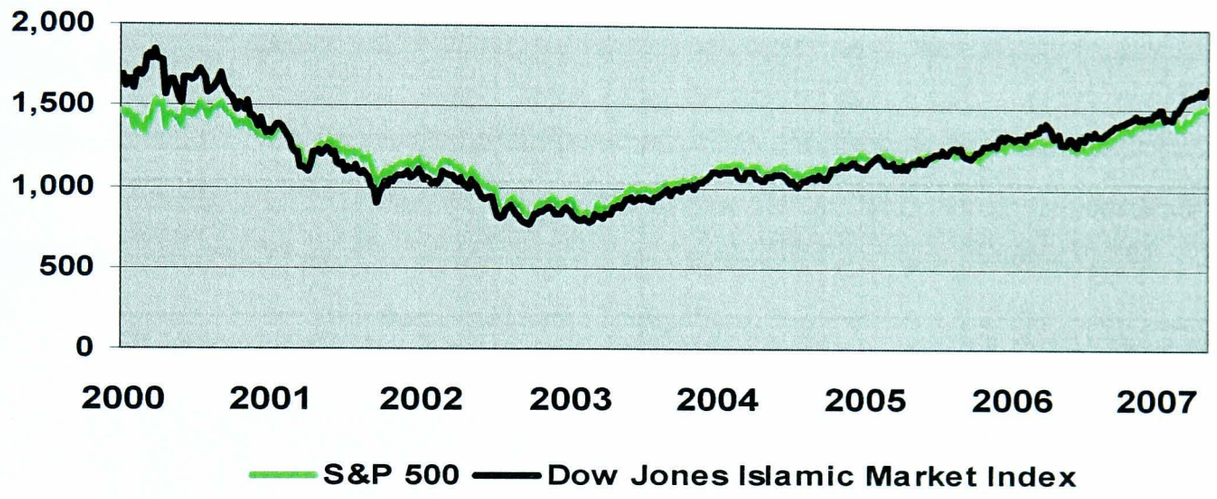
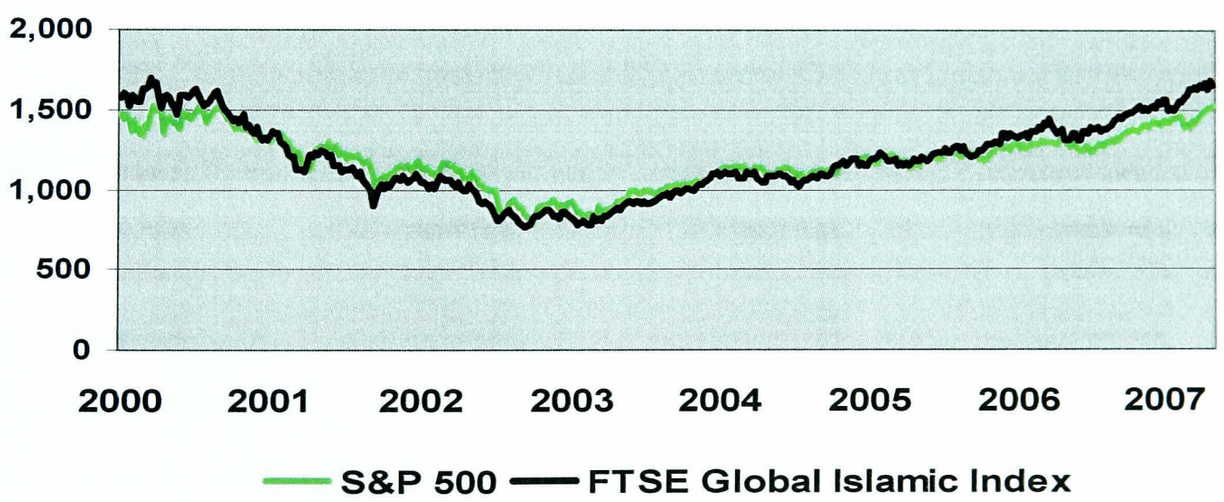


Figure 2.5: FTSE Global Islamic Index Trend Compared with S&P 500



Source: Bloomberg (2007)

The recent trends in the Islamic mutual fund industry are illustrated in Figures 2.6 and 2.7. Figure 2.6 shows the growth in number of Islamic mutual funds from 1996 until 2006. The number of Islamic funds increased from 29 in 1996 to 129 by 2006 with a substantial growth in the late 1990s. Figure 2.7 illustrate the total assets size of the global Islamic mutual fund industry between 1996 and 2006. There was a large increase in asset size with a 50% between 2004 and 2005. The industry climbed to $16.8 billion by 2005, although there was a fall in 2006. Generally, the growth in Islamic mutual fund industry from the mid-2000's onwards reflected the boom in energy prices in the Gulf states.

Figure 2.6: Number of Outstanding Islamic Mutual Funds (1996-2006)

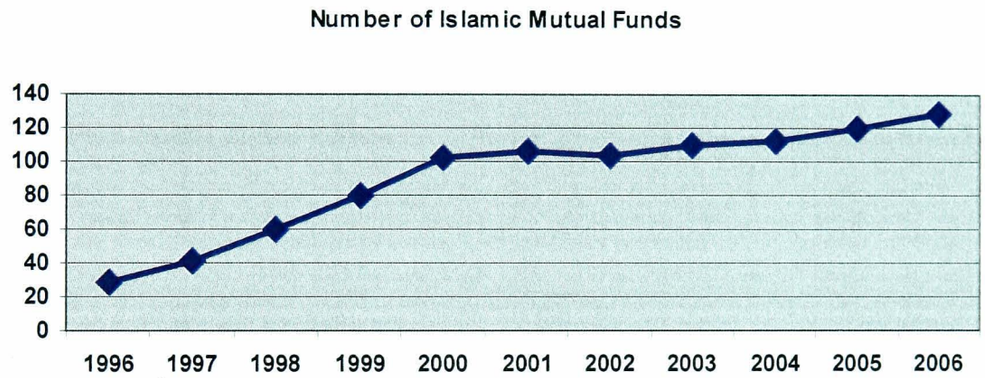
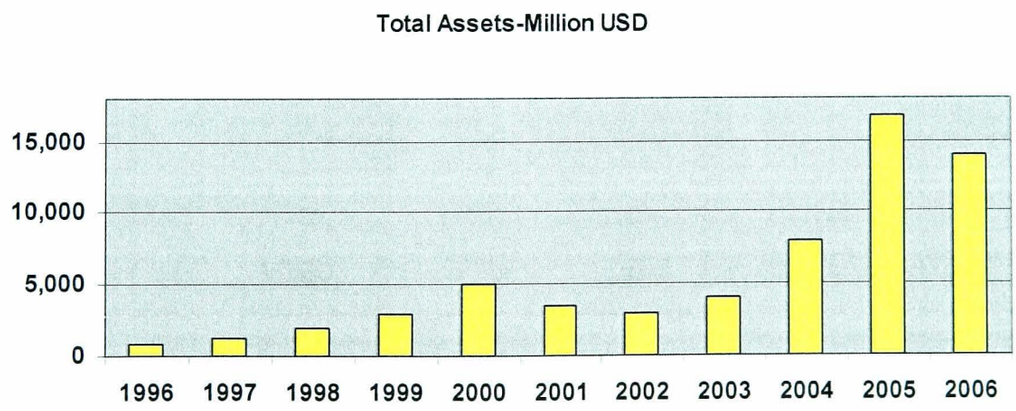


Figure 2.7: Size of Islamic Mutual Fund Industry (1996-2006)



Source: Failaka Advisors (2007)

2.9 Conclusion

This chapter has reviewed the key features of the mutual fund industry and outlined their role as an investment vehicle in the financial system. The mutual fund industry has grown substantially since they were first established in the UK and the US. Besides, governing bodies assure that the mutual fund environmental and operational activities are smooth and that regulations are not violated.

There are many benefits to mutual funds such as wealth appreciation for different purposes through the various diversification benefits. Also, there are a broad range of mutual funds including equity, bond, money market and other types of funds. Each type of fund has its own risk and return characteristics although the largest population as noted in this chapter are equity funds.

We have also discussed the Islamic mutual fund industry and seen how it has grown since it was founded in the 1980's. The Islamic mutual fund industry as of 2006 has an asset value of more than $14 billion. This has been linked to the growth in the Islamic finance industry in general; specifically, Islamic banking and insurance. That been said, the following chapters focus on the features of the Islamic mutual fund industry and next we present a literature review on the studies that examine the performance of mutual funds.

Chapter 3 - Literature Review

3.1 Introduction

Academic literature on the performance of mutual funds date back to the early 1960's. Since then the issue of whether a mutual fund could outperform various indexing benchmarks has been a key research issue (Treynor, 1966, Jensen, 1968, and Shukla. and Singh, 1997). Meanwhile, the mutual fund industry has become an important financial sector accounting for investment assets over $10 trillion in the US and more than €7 trillion in Europe (ICI and EFAMA respectively, 2007). The main focus of empirical research concerning mutual funds tends to focus on performance features and the aim of this chapter is to provide a detailed review of this literature.

The chapter is structured as follows. Section 3.2 discusses early literature on measuring mutual fund performance from a stock-selection and market-timing perspective. Section 3.3 presents the literature on fund characteristics and how they influence fund performance. Section 3.4 outlines the literature on the issue of performance persistence and section 3.5 reviews empirical work on the performance of a subset of funds that have an asset selection process similar to Islamic funds, namely ethical funds. Section 3.6 goes on to outline the features of Islamic mutual fund performance. Section 3.7 will discuss studies that use market-timing approaches to analyse fund performance as this is the approach that is adopted later in this thesis to examine a sample of Islamic mutual funds performance. Finally, section 3.8 highlight selected empirical topics on fund performance.

3.2 Early Literature on Mutual Fund Performance

Early research on the analysis of mutual fund performance has focused on two dimensions; risk and return. The development of the Capital Asset Pricing Model (CAPM) from Modern Portfolio Theory (MPT)[11] helped rational investors choose the appropriate level of risk based on provided market information. Lintner (1965) examined the asset pricing model and focused on the mean-variance CAPM model. Lintner discussed how risk-averse investors can choose an optimal portfolio on the efficient frontier even under short selling conditions. This suggests that return and risk must be included in any performance assessment. Therefore, this section will present selected key studies from the 1960's up until 1990's that contribute to measuring mutual fund performance. Research on the performance of mutual funds is extensive but in our case only early relevant literature that has been elaborated in multiple recent studies will be reviewed. According to the literature, there are two main approaches used when assessing fund performance; stock selection models and market timing models. Both take into account risk and return features of the funds. First, the stock-selection models identifying the ability to predict returns of individual stocks that outperform the market. Second, market-timing models identifying the ability to predict relative returns of broad asset classes using appropriate timing forecasting techniques.

[11] Markowitz (1952)

3.2.1 Stock Selection Models

The stock selection models measure the ability of a fund to pick stocks that outperform the market and allow higher returns with lower risk. Sharpe (1964), Treynor (1965), and Jensen (1968), propose models that focus on fund managers that obtain superior returns through accurate stock picking and efficient diversification. The Sharpe ratio, as in equation 1, is estimated by dividing excess returns of a fund minus the risk free rate by the standard deviation of returns. A higher Sharpe ratio indicates better performing funds and a lower Sharpe ratio indicates an underperforming fund in relation to risk (the standard deviation of returns). Hence, the Sharpe ratio in terms of fund performance are ranked from best (the highest risk adjusted returns) to the worst (the lowest risk adjusted returns):

$$Sharpe\ Ratio = \frac{R_p - R_f}{\sigma_p} \qquad (1)$$

The Sharpe model was initially tested using a sample of 34 open-ended US mutual funds between 1954 and 1963 (Sharpe, 1966). The results provide an indication that there is considerable variability in the performance of the sample of mutual funds examined where some funds "underperform" with low Sharpe ratios and other funds "overperform" by obtaining high Sharpe ratios. Treynor (1965) developed a similar model but divided excess returns by beta (systematic risk) so as to take into consideration the market index. The beta factor is calculated by taking the covariance between the relevant benchmark and the fund return divided by the variance of fund returns. The Treynor ratio is defined as follows:

$$Treynor = \frac{R_p - R_f}{\beta_p} \qquad (2)$$

Treynor argues that the fund performance should be compared with a relevant benchmark. For instance, if a fund is invested in the NYSE then the S&P 500 index or the Dow Jones index should be used to estimate the performance of a fund. The Sharpe ratio as indicated only compares fund historical returns and ignores respective benchmarks. On the other hand, a high Treynor ratio indicates a better performing fund relative to the benchmark.

Jensen (1968) developed Sharpe's and Treynor's risk-adjusted models; Jensen claims that such models rank funds in a relative manner. In other words, if there are two funds A and B, such models will rank the performance of these two funds relative to each other even if they are both poorly performing. However, Jensen's model uses a standard absolute measure of performance. Jensen is based on the CAPM model but uses actual realised returns instead of expected returns in the CAPM. Jensen's model (3) identifies underperforming and overperforming funds by the α alpha term, known as Jensen's alpha, if this is positive and significant then the fund is doing better than the benchmark.

$$Jensen = R_p - R_f = \alpha_p + \beta(R_m - R_f) + \varepsilon \qquad (3)$$

where R_p is the return on the fund; R_m is the return on the relative market benchmark; and R_f is the risk-free rate of return. β measures the sensitivity between the excess return of the market benchmark with the fund, a higher and positive (significant) beta indicates that there is a positive relation between the fund's returns and the market's returns. Moreover, Jensen argues that there is a problem to Sharpe and Treynor models since there is variability in the definition of risk where Sharpe uses standard deviation and Treynor uses beta. Jensen (1968) examined a sample of 115 open-ended mutual funds in the US obtained from Wiesenberger Investment Companies for the period 1955-1964. He

found a mean alpha of -0.01 which was not statistically significant. This indicates that funds on average were not successful in outperforming the S&P 500 index used in the study.

Sharpe (1964), Treynor (1965), and Jensen (1968) estimate the performance of mutual funds considering risk and return. In addition, Fama and MacBeth (1973) studied the risk and return characteristic of common stock portfolios listed on the NYSE and their findings suggested that there is a linear relationship between risk and return. But risk has multiple forms; there are systematic risk and unsystematic risk. Systematic risk is generated from the overall macroeconomic activity associated with all assets which is unavoided (un-diversifiable) whereas the unsystematic risk is specific to a particular asset that can be eliminated. Furthermore, there are other factors that mutual funds investors should take into consideration besides risk such as the size of the stocks included in the mutual fund and the book-to-market ratio.

Later studies extended the Jensen model by using additional independent variables that are believed to explain returns: such as size of stock, earnings-to-price ratio, leverage, and book-to-market ratio[12]. Size is estimated by multiplying stock price by the number of shares outstanding; earnings-to-price ratio is simply the earnings divided by stock price; also leverage is measured by the use of cash resources available to fund; and the book-to-market ratio is simply the book divided by market value of the stock. These factors, as suggested by the following researchers, help better explain investment returns. For instance, Banz (1981) documents that size adds explanatory power to returns but it has a negative relationship with return indicating that small-capitalisation stocks generate higher returns. Ball (1978) states that the earnings-to-price

[12] Fama and French (1992, 1998)

ratio is likely to be higher for stocks with higher risk and expected returns and Basu (1983) indicates that earning-to-price ratios weakly explain returns. Bhandari (1988) documented a positive relation between return and leverage. Stattman (1980) and Rosenberg, Reid, and Lanstein (1985) found that average returns are positively related to the ratio of the book-to-market ratio and strongly explain returns. The aforementioned literature suggests that generally, size, the earning-to-price ratio, leverage, and book-to-market ratios explain returns but in different ways, as noted in Fama and French (1993).

Fama and French (1993) developed a model relevant to measuring mutual fund performance. They used stock holdings size and book-to-market values as factors that they believed important to explaining returns. Fama and French consider these factors as risk factor that influence returns. The size factor which they denoted SMB (Small Minus Big-market capitalisation of stocks); they estimate the SMB factor by ranking listed stocks on the New York Stock Exchange (NYSE) according to the company market capitalisation. The median company's market capitalisation is then used to classify stocks into two groups, small and big. On the other hand, the book-to-market ratio factor denoted HML (High Minus Low-book value divided by market value of stocks). The HML factor in Fama and French (1993) was estimated using three breakpoints classifying book-to-market into three groups 30% low book-to-market, 40% medium, and 30% high book-to-market ratio for listed NYSE stocks. These factors produce an intercept that measures stock selection ability. The model is defined in (4):

$$FF = (R_p - R_f) = \alpha_p + \beta_1(R_m - R_f) + \beta_2(SMB) + \beta_3(HML) + \varepsilon \qquad (4)$$

α_p = *measures fund under or over performance (stock-selection)*

$(R_p - R_f)$ = *Excess return of fund*

$(R_m - R_f)$ = *Excess return on the market (CAPM)*

SMB = *The difference in return between a small cap portfolio and a large- cap portfolio at time t*

HML = *The difference in return between a portfolio of high-book-to-market stock and a low-book-to market stock at time t*

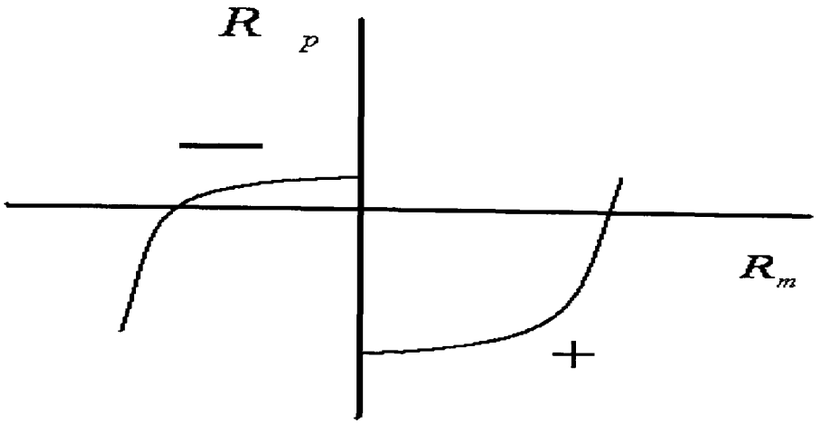
The market coefficient β_1 measures the exposure to the market and the SMB and HML β_2 and β_3 respectively measure the sensitivity to fund returns. A positive coefficient β_2 indicates that fund exposure is to small-cap stocks and a negative β_2 indicates exposure to large-cap stocks. Conversely, a positive coefficient for β_3 indicates a net exposure to growth stocks (high book-to-market) and a negative β_3 indicates a net exposure to value stocks (low book-to-market). Fama and French (1993) studied 25 stock portfolios between 1963-1991 and found that the 3-factor model that includes size and book-to-market value adds explanatory power to portfolio returns. The aforementioned subsection reviews stock selection models that are also known as risk adjusted performance measures. The following outlines the main alternative approach to analysing fund performance by using market timing models that identify funds that assure choice of stocks at appropriate timing periods.

3.2.2 Market Timing Models

Market timing models identify the performance of successful fund managers that are able to time the market and shift between asset classes using forecasting techniques (The traditional models for estimating market timing will be presented in this subsection and in section 3.7 studies that empirically investigate market timing will be covered).

Treynor and Mazuy (1966) referred to as TM added a quadratic term to the CAPM model to identify market-timing ability. The two-parameter model defines the quadratic nonlinear relation between the fund return and the market return. The curvature captures market timing ability. Figure 3.1 below defines the relationship between the fund return on the y axis and market return on the x axis. The negative curve illustrates a fund that captures the downturn in market return where the fund did not forecast the future market movement which caused a negative market timing associated with the relevant index. But the positive curve shows a positive turn in the market where the fund may have forecasted this movement and correctly timed the market to take advantage of positive returns. Treynor and Mazuy (1966) suggest that if the investment manager can forecast market returns, they will hold a greater proportion of the market portfolio when the market return is high and a smaller proportion when market return is low.

Figure 3.1: Market Timing



Source: Authors own

Treynor and Mazuy's (1966) model is illustrated as in equation (5):

$$TM = r_{p,t} = \alpha_p + \beta_p r_{m,t} + \gamma_p r_{m,t}^2 + \varepsilon_{p,t} \quad (5)$$

where $r_{p,t}$, $r_{m,t}$ and $r_{m,t}^2$ are the return on the fund, return on the market, and the square of the return on the market, respectively. Market-timing is measured by the γ_p (gamma-term), if positive and significant then the fund manager is a successful market timer.

Henriksson and Merton (1981) referred to HM adopt a similar approach to Treynor and Mazuy (1966) to focus on market timing ability. HM attribute a problem to the TM model since the second-parameter takes the square of positive and negative market returns. However, HM believe that positive and negative market returns should be segregated by using a dummy variable. HM mention that the equilibrium theory for market timing is derived from the case where there are two predictions, either stocks are predicted to outperform bonds or bonds are predicted to outperform stocks, so managers should allocate investments in either markets. Also, HM presume that there are two types

of market forecasting-micro and macro. First, microforecasting relates to stock-selection by estimating price movements of individual stocks relative to the stock market. In other words, selecting stocks that lie above or below the security market line. Second, macroforecasting relates to market-timing by estimating general price movements of financial markets (also known as security analysis). The model developed by HM identifies macroforecasters or market timers and is given in equation (6):

$$HM \quad = r_{p,t} = \alpha_p + \beta_p r_{m,t} + \gamma_p I_t r_{m,t} + \varepsilon_{p,t} \qquad (6)$$

where $r_{p,t}$, $r_{m,t}$ and I_t are returns on the fund, returns on the market, and I_t is a dummy variable that is equal to 1 if the market return is positive and zero otherwise. The γ_p term identifies market timing, if positive and significant then the fund manager is regarded as a successful macroforecaster according to HM. More recent empirical studies on market timing will be discussed in section 3.7 of this chapter.

This section so far has discussed only the early studies that examine the issue of stock selection and market timing highlighted in seminal empirical studies. In addition to these seminal studies, a growing literature has emerged using a variant of fund characteristics to explain fund performance. We have already noted that Fama and French (1993) use stock market capitalisation and book-to-market ratio to proxy for risk in helping to explain fund performance. The following section discusses the literature that examine other fund characteristics to explain mutual fund performance.

3.3 Mutual Fund Evaluation Based on Fund Characteristics

A substantial literature has emerged to explain the performance of mutual funds based on specific fund characteristics such as fund expenses, fund age, and fund size. The characteristic of fund size is different from stock size where stock size is the component of a fund and discussed in the previous section. The fund size is estimated by multiplying the number of units outstanding by unit price whereas stock size relates to the market capitalisation of a firm. In this section we will discuss the fund size characteristics to examine whether fund total assets matter in generating superior fund performance. It is widely recognised that fund characteristics can influence returns differently and some features have a larger impact on returns compared with others. Fund characteristics therefore can indicate the potential source of strengths or weaknesses in performance.

3.3.1 Expense Ratios

Mutual fund expense ratios are costs incurred by investors for fund managers running their mutual funds. They include costs for marketing, advisory, and various transaction costs. Put simply, this is the cost to the investors for having their funds managed, making the expense ratio an important attribute to fund returns; expenses are considered the input variable for the output return. In fact, some fund managers charge higher expenses depending on their knowledge and experience. Furthermore, fund expenses and fees can impact fund performance in different ways. For instance, Sharpe (1966) studied a sample of US funds and found that those funds that charged lower expenses obtained higher returns and had better performance. Hooks (1996) examined a sample of 1,012 equity funds obtained from MorningStar between 1978 and 1993 and concluded that low expense funds outperformed high expense funds. Golec (1996) analysed a sample of 530 mutual funds over 1988 and 1990 and found that negative

returns are usually associated with funds that charged higher fees. Dellva and Olson (1998) studied the relationship between mutual fund fees and expenses and their influence on mutual fund performance and indicated that funds with front-end load fees earned lower risk-adjusted returns. Conversely, other researchers have found that expense ratios have no relationship with performance. Ippolito (1989), for example, indicated that there is no significant relationship between performance and investment fees in a sample of funds investigated over a 20-year period between 1965 and 1984.

Prather, Bertin and Henker (2004) examined 5,000 equity funds operating in the US between 1996 and 2000 using a multifactor model that regressed returns against fund expense along with other fund characteristics. They found that fund expenses negatively impacted performance. Liljeblom and Loflund (2000) also examined the expense ratio in relation to fund performance for a sample of Finland funds. They also found significant evidence that expense ratios negatively impacts fund performance. In addition, Otten and Bams (2002) studied the performance of a large group of European funds and found that the expense ratio had a negative relationship with returns. Also, they found that management fees affect the alpha indicator that measures performance. On the other hand, Chen et al. (1992), Droms and Walker (1996), and Shukla (2004) have found a significant positive relationships between fund expenses and performance. This could be a reflection of the fact that fund managers with a stronger performance history require higher expenses. As a consequence, funds with superior returns can charge higher expenses that add value. As can be seen from above, while the bulk of the literature finds that there is a negative relationship between expenses and fund returns (an intuitive finding) there are some that find the opposite.

3.3.2 Fund Age

Fund age is considered by some a performance characteristic and is measured by the number of years the fund has been in operation and serving shareholders. It is hypothesised that older funds deliver higher returns since older funds enjoy a number of years experience and growth. It is important to examine fund age and its relationship with returns because older funds may be more profitable. Only a handful of studies have examined how fund age influence mutual fund performance. Malhotra and McLeod (1997) have found that age has a negative relationship with performance indicating that younger funds perform better. Besides, Otten and Bams (2002) suggested that fund age has a negative effect on European funds performance signifying that newly introduced funds have superior returns. They attribute the negative relation between age and return to new fund managers that strive for high returns when they are young but once they obtain their goals their performance is downgraded. Heaney (2007) also found a negative relation between fund age and performance for Australian equity mutual funds. On the other hand, Carhart (1997) and Annaert, Broeck, and Vennet (2003) found no relation between fund age and performance.

3.3.3 Mutual Fund Size

Mutual fund size is a key characteristic according to the literature and has a crucial impact on fund performance. Mutual fund size is determined by total assets; a fund that has a value greater than $1 billion is considered a large sized fund whereas small funds have total assets around $50 million (MorningStar, 2007). Some researchers point to the fact that large mutual funds have more resources to be dedicated towards research whereas small funds might use expenses to sustain growth opportunities.

Therefore, it is important to examine whether there is the potential for economies of scale and examine fund size and return relationships (Chen, Hong, Huang, and kubik, 2002).

The fund size characteristic and its influence on performance has been investigated by Liljeblom and Loflund (2000), Otten and Bams (2002), and Annaert, Broeck, and Vennet (2003)[13] suggesting that fund size has a positive relationship with performance. On the other hand, Chen, Hong, Huang, and Kubik (2002) examined 634 equity funds in the US between 1962 and 1999. Their findings indicate that there is an inverse relationship between fund size and net return and funds in the smallest fund size quintile outperformed funds in the largest fund size quintile. However, Droms and Walker (1994), who studied international mutual funds, found no relation between fund size and performance. This was similar to Carhart (1997)[14] who studied a sample of US mutual funds and found no size/performance relationship.

Prather, Bertin and Henker (2004) found that "popular" funds that have large asset values have better performance presenting similar evidence to Ciccotello and Grant (1996) who stated that "historical returns of large funds are found to be superior to their smaller peers". In addition, Pollet and Wilson (2007) examined equity funds and found that there is a positive relationship between diversification and growth in fund size indicating that the number of stocks in the portfolio increase in response to an increase in flow.

---

[13] All these studies examined mutual fund characteristics and its impact on the performance of European mutual funds using similar methods and similar data periods.

[14] This will be discussed in detail in section 3.4 on Performance Persistence in mutual funds

3.3.4 Other Fund Characteristics

In addition to expenses, age, and fund size, there are other mutual fund characteristics that are believed to be linked to performance. For instance, management concentration, defined as fund manager's attention to funds under management. Some mutual fund managers have several funds under their management leading to decreased fund manager concentration which will have a negative affect on returns. Prather, Bertin and Henker (2004) examined fund manager concentration and indicate that management concentration has a positive impact on performance suggesting that managers with less funds under management will yield higher returns. Management concentration maybe an important factor in fund performance, since a number of fund managers may attempt to serve a large number of customers by offering more mutual funds in order to attract extra leverage.

Another mutual fund characteristic that has been analysed in the literature relates to active and passive management. Active fund management as been explained in the previous chapter refers to the relative frequency of buy and sell transactions rebalancing fund allocations on a regular basis. In contrast, passive fund management is commonly known as a "buy and hold" strategy. Malkiel (2003) examined passive investment strategies and arrived at strong evidence supporting passive investment in stocks and bonds in local and international markets. Results also support the extent of using index funds as a style of passive investment. Malkiel (2003) argues that after costs, passive managers outperform most active managers in the long-term. Chang (2004) compared active management with passive management in relation to fund performance for a sample of US funds. Chang (2004) concludes that active management has a negative impact on mutual fund performance compared to passive management. In fact, fund

managers who exercise a "buy and hold" strategy outperform managers that rebalance funds at least for the sample period examined between 1992-1996. This is attributed possibly to the higher trading costs that actively managed funds pay since they rebalance portfolios on a regular basis.

On the other hand, Gruber (1996) claims that active fund management is more common than passive fund management and conclude that it is "rational" to invest in actively managed funds. However, Gruber examined funds between 1985 and 1994 and trading costs have increased since then enlarging actively managed mutual funds fees. Moreover, Ekholm and Peel (2007) examined the characteristics of 175 Finnish mutual funds for the year 2005. They compared the performance of index funds with active funds and found results that suggest index funds under-perform actively managed funds. However, this indicates that passive management in Finnish mutual funds for 2005 is illogical. Generally, this part reviewed the issue of passive and active fund management where the literature favour different investment styles according to the time period examined.

Another fund characteristic which involves the relationship between the gender of the manager and the fund performance is reviewed in the literature by Bliss and Potter (2001). Their results indicate that female fund managers outperformed their male counterparts consistent with Veleva (2005) and Azmi (2008). They also suggested that female fund managers take less risk by being less overconfident leading to better performance. The following section provides an overview of the literature that examines the issue of performance persistence. As in the case of explaining mutual fund risk-adjusted returns, performance persistence can also be explained by the characteristics of

funds under study. An analysis of performance persistence seeks to examine where say, high (low) performing funds are consistently high (low) performing or if there is reversion to mean performance.

3.4 Literature on Mutual Fund Performance Persistence

Measuring the performance persistence of mutual funds has been the goal of many studies. Examining persistence is important as it seeks to explain consistency in fund returns from one time period to another. If this is found to be the case it supports the argument that future returns rely on past returns. Subsequently, if this is indeed the case then mutual funds invested in stocks that outperform will continue with their positive performance. However, the efficient market hypothesis implies that past performance is no guide to future performance. There are several studies that investigate the issue of mutual fund performance persistence. Hendricks, Patel, and Zeckhauser (1993) were first to tackle the issue of performance persistence in the mutual fund industry. They examine short-term persistence using quarterly returns of 165 equity mutual funds between 1974 and 1988. They found significant presence of positive short-term persistence and a reversal thereafter. Hendricks et al (1993) attributed the behaviour of short-term performance persistence to two important factors. First, after immediate positive returns more funding flows to successful performing funds; second, fund managers are concerned with short-term market conditions and performance. Brown and Goetzmann (1995) also examined mutual fund performance persistence between 1976 and 1988 using 5,144 equity funds based in the US. They examine the disappearance (non-survivor) of mutual funds and indicate that this occurs as a result of funds being terminated due to consistent underperformance or as a result of mergers with other funds. For instance, the

mutual fund characteristics of age and size have been examined where they indicate that younger funds and small sized funds have a higher probability of disappearing. Brown and Goetzmann (1995) also indicate that funds with positive persistence are likely to be maintained but negative performance which lead to disappearance is dependent upon the time period of the study. Malkiel (1995) also investigated persistence of mutual fund returns between 1971 and 1991 and found similar results to Brown and Goetzmann (1995) which indicates that persistence is dependent on the time period under study. Malkiel (1995) examined a sample of 239 mutual funds using the Wilshire 5000 index as a benchmark and found that there is persistence during earlier decade of the sample period during the 1970's; however, persistence did not hold during the 1980's. The overall alpha performance indicator was negative for the sample funds which points out that there is relative underperformance.

Other studies that have detected fund performance persistence include those of Elton, Gruber, and Blake (1996) who studied 188 funds between 1977 and 1993. They suggested that funds that did well in the past tend to do well in the future especially over the short-term. Carhart (1997) studied mutual fund performance persistence amongst a sample of US funds free of survivorship bias[15]. The sample included 1,892 equity funds operating between 1962 and 1993. The study was carried out by dividing funds into ten deciles based on relative return; decile one contained funds that had the highest returns and decile ten the lowest returns. The funds maintained their positions in each decile over the short-term period in a one year horizon. However, when examining a longer period, the top decile funds had only a 17% probability of remaining in the top decile and those

[15] Survivorship bias is the tendency for a failed fund not to be included in a sample of performance study since the fund no longer exists. Survivorship bias creates results that may be unreliable Elton, Gruber, and Black (1996).

in the lowest decile had a 46% probability of remaining in the bottom group. Carhart (1997) used the 4-factor model extending the Fama and French stock selection model defined as:

$$Carhart = R_p = \alpha_p + \beta_1(R_m - R_f) + \beta_2(SMB) + \beta_3(HML) + \beta_4(Mom) + \varepsilon \quad (7)$$

The variables included in equation (7) are the same as in the Fama and French 3-factor model previously explained in (4), apart from the fourth factor Mom. This is calculated by subtracting the top 30% decile returns from the bottom 30% decile returns for a 12-month period to identify the momentum of returns in the sample funds. Carhart's (1997) overall results suggested that funds with persistent underperformance will continue to underperform. In other words, funds that are not able to obtain positive returns will continue with negative returns and should be avoided from an investment perspective. In addition, Carhart (1997) also detected strong short-term persistence where he found that funds with high returns from the previous year have higher expected returns in the following year but not thereafter. Finally, the study also found that investment costs (expenses), transaction costs, and load fees all had a negative impact on performance.

Detzel and Weigand (1998) also examined mutual fund performance persistence but employed a methodology that directly related fund's returns to their characteristics using a panel regression approach. They use various fund characteristics to explain return persistence at certain points in time. Amongst the characteristics were size of the stocks included in the fund and other financial features of the funds such as the book-to-market, earnings yield, and cash-flow yield ratios. The results indicate that fund size and the aforementioned financial ratios all explain persistence in mutual fund returns over 1976 to 1995. They also recommend investors not to purchase mutual funds based on prior

returns but to focus on certain characteristics such as size and style of fund factors that dominate return performance overall. In addition, various persistence studies have been undertaken on international equity mutual funds. Droms and Walker (2001) analyse such funds between 1977 and 1996 and find that there is strong short-term persistence over a one year period but this disappears over longer periods. Also, Otten and Bams (2002) studied the performance persistence for a sample of European mutual funds between 1991 and 1998 and found evidence of performance persistence in UK funds.

Kazemi, Schneeweis, and Pancholi (2003) extended the examination of performance persistence on a sample of mutual funds from the US between 1997 and 2002. Results indicate that there is existence of persistence but to a very low extent amongst top decile funds but almost negligible in bottom decile funds. Besides, Busse and Tong (2007) examined mutual fund sector selection and persistence for 3,959 funds between 1980 and 2006. They examined sector selection funds that choose top-performing stocks in a specific sector versus stock selection funds that choose the overall top-performing market stocks. The overall results indicate that there is evidence of persistence especially for funds in the top decile for sector funds and stock funds which is consistent with Kazemi, Schneeweis, and Pancholi (2003). Kuo and Mateus (2006) examined the persistence of 20 Exchange Traded Funds (ETF's) between 2001 and 2006. Results from their study present evidence of persistence for ETF's.

Gaspar, Massa, and Matos (2006) tested for favouritism amongst mutual fund families, whether fund managers transfer performance across family funds. This subject is relevant to mutual fund performance persistence whether fund families enhance the performance of funds that generate fee income or new investor inflows at the expense of

under-performing funds. Gaspar, Massa, and Matos (2006) examined the top 50 equity family funds in the US between 1991 and 2001 with emphasis on family characteristics; family size, number of funds in a family, family age, and homogeneity of funds in a fund complex. The results suggest that fund families pursue a direct strategy of enhancing the performance of over-performing funds by the under-performing funds. Moreover, there is a positive relation between favouritism and preferential treatment in the allocation across funds that support the convex theory relationship between inflow and past performance. In general, Gaspar, Massa, and Matos (2006) found evidence of cross fund subsidization amongst US equity mutual fund families.

From the above, except for Gaspar, Massa, and Matos' (2006) study, it can be seen that the majority of the literature on performance persistence finds evidence of short-term persistence in mutual fund performance. This indicates that consistent returns in mutual funds are earned for a short time period typically over a year. On the other hand, before we discuss the modest literature on the performance of Islamic mutual funds, it is of interest to briefly discuss the studies that have been undertaken on speciality funds such as ethical funds. This is because these funds have similar selection features to Islamic funds namely certain investment classes are non-admissible in portfolio selection.

3.5 Literature on Ethical Mutual Fund Performance

Recently there has been growing interest in the area of ethical investment. Ethical investment strategies favour corporate practices that are consistent with socio-political beliefs. In fact, ethical funds, also known as socially responsible funds, are motivated to invest for example in companies that favour equal employment opportunities and avoid investing in companies that cause harm to the environment such as nuclear energy or arms (Forte and Miglietta, 2007). In many respects the investment principles are similar to Islamic funds as certain classes of investment are inadmissible. Before we go on to discuss Islamic fund performance; therefore, we will present some evidence on the literature that has examined ethical mutual fund performance. First, we will present studies undertaken to evaluate UK ethical funds then European and US studies will be outlined.

3.5.1 UK Ethical Funds

Luther, Matatko and Corner (1992) studied UK ethical mutual funds performance in comparison to various market benchmarks. The market benchmarks used were the FTSE All Share Price Index and the Small Company index. They found weak evidence that ethical funds outperformed both indices. However, in a later study Luther and Matatko (1994) found that ethical funds performed better when compared to the Small Company benchmark. Mallin, Saadouni, and Briston (1995) also examined UK ethical mutual funds and compared 29 ethical mutual funds with 29 conventional funds between 1986 and 1993. They used the Sharpe, Treynor, and Jensen measures to identify performance. The FTSE All Share Price index was used as a benchmark and the findings suggested that a small majority of funds, ethical and conventional, underperformed the market. These findings were consistent with Luther, Matatko and Corner (1992).

Furthermore, Gregory, Matatko, and Luther (1997) examined UK ethical mutual funds between 1986-1994 using a matched pair analysis comparing 18 ethical funds with 18 conventional funds. Results suggested that both types of funds had negative Jensen alphas, which suggested that ethical funds significantly underperformed the FTSE All Share benchmark at the 5% level. Moreover, they provide evidence that there are no significant empirical difference in performance between ethical and conventional funds as found in Mallin, Saadouni, and Briston (1995). Finally, Gregory and Whittaker (2007) examined performance and performance persistence for UK ethical funds using 32 ethical funds compared with 5 non-ethical funds between 1989 and 2002. They found that performance appears to be time variant even when using static or time varying models. Also, there is evidence that supports performance persistence particularly when examining longer time horizons.

3.5.2 Global Ethical Funds

Geczy, Stambaugh, and Levin (2003) examined 34 ethical funds from the US including 894 conventional funds between 1963 and 2001. They focus on ethical fund expenses and argue that the managerial costs imposed on ethical funds are high causing ethical funds to underperform benchmarks compared to conventional funds. Moreover, Bauer, Koedijk, and Otten (2005) analysed German, UK, and US ethical fund performance using the Carhart multi-factor model. Data for Bauer, Koedijk, and Otten (2005) covered monthly prices for 103 ethical and 4,384 conventional funds[16] between 1990 and 2001. Bauer, Koedijk, and Otten (2005) suggest that there is no significant difference in risk-adjusted returns between ethical and conventional funds. Also, German

[16] The studied sample funds were restricted to domestic equity funds.

and UK ethical funds are more invested in small-cap stocks compared to US ethical funds that are relatively dominated by large-cap stocks. Additionally, the results suggest that ethical funds are more growth oriented. Overall, Bauer, Koedijk, and Otten (2005) suggest that ethical funds are still at an evolving stage and require accumulated historical returns to conduct a robust comparison with conventional funds.

Kreander, Gray, Power, and Sinclair (2005) also evaluated the performance of ethical and non-ethical funds using a matched pair analysis. There data sample included 60 European funds namely, 30 ethical and 30 non-ethical equity funds between 1995 and 2001. The methodology adopted was the stock selection modelling approach of Sharpe, Treynor, and Jensen. The results suggest that funds overall underperformed benchmarks as suggested by the Jensen measure. Meanwhile, the final conclusion from the study indicated that there is no difference in performance between ethical and non-ethical funds with the performance measures used. In summary, the majority of the studies that compare the performance of ethical with conventional funds in this section found no significant difference in performance amongst the two types of mutual funds; although perhaps there is some evidence that as the investment decision process may be more costly there may be a great possibility that they may underperform conventional funds. Similarly Islamic mutual funds maybe costly to manage, as they have to adhere to Islamic principles, so it is interesting to analyse studies of their performance. The following section presents a review of the albeit limited empirical literature in this area.

3.6 Analysing the Performance of Islamic Mutual Funds

Islamic mutual funds are similar to ethical funds in many ways. Investors in both types of funds share certain values such as beliefs, perception, expectations, and attitude. Fund managers also strive to allocate assets according to shareholders expectations instead of wealth maximisation in conventional funds. However, Forte and Miglietta (2007) determined whether Islamic mutual funds can be included in the category of socially responsible mutual funds by comparing ideas and investment style. They arrived at the conclusion that both types of funds have different characteristics in terms of asset allocation although broad principles are similar; a set of investment opportunities have to be excluded due to underlying social/religious beliefs. As far as we can ascertain, the existent literature on the performance of Islamic mutual funds is rather limited. Hakim and Rashidian (2004) examine the risk and return feature of Islamic stock market indices. They point out that indices provide investors a relevant benchmark to judge how their investments are performing. They compare the Dow Jones Islamic Market Index with the Wilshire 5000 US-based index between 1999 and 2002. The Wilshire 5000 index includes only 75% of the Dow Jones Islamic Market due to the exclusion of companies that fail to fulfil Shariah standards. Hakim and Rashidian (2004) findings reveal that the Wilshire 5000 index is considerably more diversified than the Dow Jones Islamic Market index and there appears to be weak correlation between the two indices.

Hassan, Antoniou, and Paudyal (2005) studied the impact of Shariah screening on investment performance benchmarks. They examined and compared the performance of an Islamic benchmark with a conventional benchmark. The Dow Jones Islamic Market Index (DJIM) and Dow Jones Index-Americas were used as market proxies. The Sharpe, Treynor, and Jensen measures were used to test for benchmark performance. The DJIM consists of one thousand stocks, excluding companies that are not consistent with Shariah principles. On the other hand, the Dow Jones Index-Americas covers all stocks in the United States (nearly 90% of the market capitalisation in the AMEX, NYSE, and NASDAQ). The data used monthly total returns between January 1996 and December 2003. The DJIM benchmark experienced higher mean returns and lower standard deviation when compared to the Dow Jones Index-Americas. Hassan, Antoniou, and Paudyal (2005) results for Jensen's alpha was positive and significant at the 5% significance level for the DJIM but negative and insignificant for the Dow Jones Index-America. The market beta for Dow Jones Index-America was higher at 0.91 compared to the DJIM at 0.42. Overall, Hassan et al (2005) suggest that Shariah screening on Islamic indices does not add any adverse impact on investment performance and that there is no difference between Islamic and conventional benchmark performance.

Girard and Hassan (2005) also analyse the performance of Islamic and conventional benchmarks. They use seven Islamic benchmarks and compare these with seven corresponding conventional benchmarks. The Islamic benchmarks used were the (Dow Islamic Canada, Dow Islamic United Kingdom, Dow Islamic United States, Dow Islamic Asia Pacific Developed, Dow Islamic Europe Developed, Dow Islamic Emerging Markets, and Dow Islamic World developed markets)[17] The conventional benchmarks used were the (MSCI Canada, MSCI United Kingdom, MSCI United States, MSCI Asia, MSCI Europe Developed, MSCI Emerging Markets, and MSCI AC World index)[18]. The sample period was between 1996 and 2005 broken-down into two periods, 1996 and 2000 and 2001 and 2005. Girard and Hassan (2005) estimated Sharpe and Treynor ratios, Jensen's alpha, and the Fama and French model to compare returns. The results suggested that the Dow Jones Islamic indices outperformed during the first period 1996 and 2000 based on the Sharpe and Treynor ratios, and Jensen's alpha. However, the MSCI conventional benchmark outperformed during the second period 2001 and 2005. Also, the results indicate from the Fama and French model that Islamic indices were exposed more to small-cap and growth stocks compared to conventional benchmarks, which tended to be dominated by large-cap and value stocks. Overall, Girard and Hassan (2005) conclude that there are no differences in the performance between Islamic and conventional benchmarks and they have similar reward to risk and diversification benefits.

[17] Family of the Dow Jones Indices.
[18] Family of the Morgan Stanley Composite Indices.

Elfakhani and Hassan (2005) examine the performance of 46 Islamic mutual funds between January 1997 and August 2002 obtained from Failaka International Inc[19]. The 46 Islamic mutual funds were classified into eight regional categories including; Global equity, American equity, European equity, Asian equity, Malaysian equity, Emerging-Markets, Emerging-Market South Africa, and Small Cap-Technology funds. The authors divided the time period into two phases, a growth phase 1997 to 2000, and a recessionary phase 2000 to 2002. Besides, two indices were used as benchmarks, the S&P 500 as a conventional benchmark and the DJIM as an Islamic benchmark. Elfakhani and Hassan (2005) measure mutual fund performance using the Sharpe, Treynor, and Jensen models. Elfakhani and Hassan's results from the Sharpe ratio suggest that the Islamic emerging market funds category had the highest Sharpe ratio whereas the Asian funds category was the poorest performer. Evidence from the Treynor ratio was that the emerging markets funds category again was the best performer; the Asian and Malaysian Islamic funds categories having the lowest Treynor ratio's respectively. Results from the Jensen alpha, which indicates manager's performance relative to the benchmark, suggested that emerging market funds had positive insignificant alphas with both indices and the Asian fund's category had negative significant alphas with the S&P 500 and the DJIM. Elfakhani and Hassan (2005) conclude that the emerging Islamic market fund category performed best using all performance measures. They attribute the overperformance of the Islamic emerging market funds to a lack of market diversification. Overall, Elfakhani and Hassan (2005) indicated that the overall performance of Islamic mutual funds was no different to conventional funds.

[19] Data on Islamic mutual funds are scarce and were difficult to obtain but monthly returns were used.

So far we have discussed studies that empirically examine global Islamic benchmarks and global Islamic mutual funds, the following section present studies that focus on Malaysian Islamic mutual funds.

3.6.1 Malaysian Islamic Mutual Funds Performance

A small number of studies focus on the performance of Islamic mutual funds in Malaysia. Annuar, Shamsher, and Ngu (1997) studied the performance of Malaysian equity mutual funds between 1990 and 1995. There were 31 Islamic mutual funds included in the sample and the study uses a stock selection modelling approach. They found evidence of positive selection abilities. However, this was prior to the currency crisis that the Malaysian market experienced during 1997 and 1998. In contrast, Shamsher, Annuar, and Taufeeq (2000) examined 41 Malaysian funds between 1995 and 1999 using Sharpe, Treynor, and Jensen models and found that they underperformed their market index. Moreover, they compared the performance of actively managed funds with passively managed funds and found no significant difference between the two trading strategies.

A recent study by Abdullah, Hassan and Mohammad (2007) examines the difference in performance between Islamic mutual funds and conventional mutual funds in Malaysia. They studied 14 Islamic mutual funds compared to 51 conventional funds between 1992 and 2001. The time period was divided into three periods, 1992-1996 pre-financial crisis, 1997-1998 during the market crisis, and 1999-2001 post-crisis. The Sharpe and Jensen models were used to identify performance. Jensen's alpha suggested that both types of funds underperformed the Kuala Lumpur Composite Index (KLCI). Moreover, conventional funds performed better during the bullish market conditions

between 1992 and 1996 but Islamic mutual funds performed better during bearish economic conditions between 1997 and 2001.

One can see that there is a limited literature on the performance of Islamic mutual funds. In addition, the majority of studies indicate no major difference in performance between Islamic and conventional mutual funds. Typically, the literature uses stock-selection performance models such as the ones suggested by Sharpe, Treynor, and Jensen as the main methodological approach. As far as we are aware market timing ability in the context of Islamic mutual funds has not been examined in the literature. As such, the following section discusses the literature that uses market timing models to examine fund performance. we will use this methodology as well as stock selection approaches later in this thesis to examine the performance of Islamic mutual funds.

3.7 Market Timing Studies

This section will present empirical evidence on studies that examine market timing ability for conventional mutual funds. As noted earlier in section 3.2.2 of this chapter, market timing models measures the ability of a fund manager to hold a longer position of high return and higher risk assets during an appreciation phase in the market and shorter position during a depreciation phase in the market. Therefore, it is important for a fund manager to time the market and know when to enter or exit in terms of investment strategy. Several studies examine the issue of market timing and find insignificant evidence of negative market timing capability such as Treynor and Mazuy-TM (1966), Kon (1983), Chang and Lewellen (1984), Henriksson (1984), Cumby and Glen (1990), Ferson and Schadt (1996), Kryzanowski et al. (1996), Becker, Ferson, Myers, and Schill (1999), Jiang (2003), and Glassman and Riddick (2006). They all used either or both models of (Treynor and Mazuy, 1966) and (Henriksson and Merton-HM, 1982) which estimate market timing ability. Henriksson (1984), one of the first to empirically examine market timing using the model outlined in Henriksson and Merton (1982), examined a sample of 116 open-ended mutual funds between 1968 and 1980 where the benchmark used was the NYSE index. Results do not support the hypothesis that fund managers are able to time the market.

Various studies have examined market timing for UK funds. Black, Fraser, and Power (1992) for instance, studied market timing and found that 21 of the 30 UK funds examined between 1980 and 1989 had positive market timing ability. Fletcher (1995) evaluated market timing for UK funds using a sample that consisted of 101 funds between 1980 and 1989. He found no market timing ability and funds on average reduced their market exposure when market return is high and increased market exposure when

market returns are low. Leger (1997) also studied market timing in the UK mutual fund sector between 1974 and 1993 and they found negative significant timing abilities using the TM model.

Kao, Cheng, and Chan (1998) examined market timing of US-based international funds. Kao, Cheng, and Chan examine 97 funds between 1989 and 1993 obtained from the MorningStar OnDisc data base. Their results suggested that funds had "poor" market timing abilities for the period examined. Further, they found a negative correlation between stock selection ability and market timing ability which indicates that fund manager could either be successful stock pickers or successful market timers. Chance and Hemler (2001) examined market timing using 30 professional market timer funds between 1986 and 1994 using monthly and daily returns. According to Chance and Hemler, professional market timer funds are funds that invest in only equity and money markets and shift allocations between these two markets depending on market conditions. The data was obtained from MoniResearch Corporation which publishes newsletters tracking market timer funds in the US. Their results suggested that when monthly returns are used there is no significant evidence of market timing but when daily data is used market timing ability is conspicuous.

Bollen and Busse (2001) study market timing using a sample of 230 US based mutual funds obtained from Wiesenberger and the National Association of Security Dealers. The models used to identify market timing are the TM and HM models[20]. They found significant evidence of superior market timing abilities when daily returns are used compared to monthly returns. They suggested using daily returns when identifying fund

[20] Treynor and Mazuy (1966) and Henriksson and Merton (1982) market timing models were explained earlier in section 3.2.2 of this chapter.

manager market timing ability consistent with Chance and Hemler's (2001) results. Bollen and Busse (2004), study mutual fund short-term performance persistence using stock selection and market timing models. Quarterly and daily returns were used for 230 mutual funds between 1985 and 1995. They used the same data sample as in Bollen and Busse (2001). Their results suggested that superior performance of stock selection and market timing is short-lived when funds are evaluated on a short-term period (such as daily). However, when looking at longer periods there is no evidence of superior performance. Therefore, Bollen and Busse emphasise that data frequency when examining funds performance is essential since shorter periods give indications of performance. On the other hand, Kreander, Gray, Power, and Sinclair (2005)[21] studied European ethical funds and conventional funds market timing ability. They used the HM model to estimate market-timing. They found significant evidence that both funds were unsuccessful market timers. Romacho and Cortez (2006) studied stock selectivity and market timing for a sample of Portuguese mutual funds using a sample of 21 open-ended mutual funds between January 1996 and December 2001. Their empirical results suggest that Portuguese mutual fund managers are not successful market timers. Also, there is a strong negative correlation between market timing and stock selection consistent with the Kao, Cheng, and Chan's (1998) findings.

Prather and Middleton (2002, 2006) also tested for stock selectivity and market timing but for individually managed and team managed funds in the US. A team managed fund is controlled by two individuals or more and an individual managed fund is controlled by a single person. They note that the "classical decision making theory" hypothesis suggests that decisions made by individual or team managed funds should

[21] Discussed earlier under ethical funds section of this chapter.

have the same performance. Whereas, "behavioural decision making hypothesis" states that team managed funds are better at stock selection and market timing. In the early study Prather and Middleton (2002) examine whether superior management of a fund explain the differential performance between team and individual management to test for stock selection and competitive advantage. They examine 330 funds (227 individually managed versus 103 team managed) between 1981 and 1994 using monthly returns. They adapted the methodology of Sharpe, Treynor, and Jensen to test for stock selection. Results support the classical decision making theory where there is no difference in performance between outcomes attained between team and individual management. In the later study Prather and Middleton (2006) examine market timing between January 1992 and December 2001 using monthly returns. They studied 43 team managed funds with 140 individually managed funds obtained from Wiesenberger InvestmentView and MorningStar. In their methodology they use traditional market timing models adopted from TM and HM which they refer to as unconditional market timing models. However, they also use conditional models to preserve the market timing estimator γ_p gamma since they point out that the risk premium is variant with time. The conditional models they use includes additional lagged variables to control for the time variation in risk such as the lagged level of the treasury-bill rate, lagged S&P 500 index dividend yield, lagged term structure yield on the 10-year and 1-year treasury bond. [Prather and Middleton indicate that by doing the aforementioned, the market timing coefficient γ_p will provide a more robust specification]. Overall, they find that their results for market timing, when switching between conditional and unconditional models, were similar but generally insignificant. Findings also suggest that individually managed funds and team managed

funds have identical negative performance in terms of stock selection and market timing supporting the classical theory of decision making. Similarly, Cuthbertson, Nitzsche, and O'Sullivan (2006) used unconditional and conditional market timing models to estimate market timing ability for a sample of UK equity mutual funds. They examine 842 funds using monthly returns between January 1988 and December 2002. Results from both models indicate there are a small number of funds demonstrating positive market timing ability while other funds have negative market timing or preserve timing ability.

Jiang, Yao, and Yu (2007) studied market timing using a different approach by estimating mutual fund holdings. They argue that previous studies that examine market timing ability in the mutual fund industry typically use fund returns and find negative or insignificant results. They suggest that by using new measures of market timing based on fund holdings since they do not suffer from "artificial timing ability". Holding based measures are estimated using fund beta as the dependent variable instead of fund returns. US funds including 2,294 funds are studied between 1980 and 2002 obtained from Centre for Research in Security Prices and Thomson Financial databases. They indicate that mutual funds in the US are required by the SEC to disclose holdings quarterly. The models used to determine market timing are illustrated in equations (8) and (9):

$$\beta_t = \alpha + \gamma_p r_{m,t+1} + \eta_{t+1} \qquad (8)$$

$$\beta_t = \alpha + \gamma_p I\, r_{m,t+1>0} + \eta_{t+1} \qquad (9)$$

where; β_t is fund beta estimated by taking the weighted average of the stock betas held by the fund defined in (10) whereby each stock beta b_{it} is multiplied by its weight ω_{it} in

the fund; r_m is the market return, I dummy, γ_p coefficient that measures market timing, and η_{t+1} is the error term.

$$\beta_t = \sum_{i=1}^{N} \omega_{it} b_{it} \qquad (10)$$

Jiang, Yao, and Yu (2007) results suggest that there are positive and significant market timing abilities for the sample of funds examined. They attribute market timing to funds that use non-public information, have higher sector concentration, large size funds, funds that are invested in small-capitalisation stocks, or are active in sector rotation.

Rodriguez (2007) evaluates the market timing ability of global funds using 27 funds from January 2001 to August 2005 using the TM model. He argues that the sample of global funds studied is partially invested in bond markets and the TM model ignores the timing ability of funds invested in stocks and bonds jointly. Therefore, a multifactor model for stock and bond indices was adopted based on Comer's (2006) methodology. Comer (2006) examined a sample of hybrid mutual funds[22] between 1981 and 2000. Results from Comer indicates that the inclusion of the stock and bond indices in a multi-factor TM model express timing ability and lead to better conclusions. So, Rodriguez (2007) followed the same approach on global funds and found poor timing ability for global funds. Rodriguez mentions that it is appropriate to use multi-factor models for funds invested in multiple assets although he notes that it is not essential.

Overall, from this review of the empirical evidence on market timing studies one can conclude that data frequency is important since it seems to indicate performance change more accurately (Bollen and Busse, 2001). Also, a majority of studies indicate

[22] A hybrid mutual fund is invested in a combination of stocks, bonds, and cash securities.

that fund managers are not able to time the market which provide an indication that the majority of fund managers do not know when to shift between assets or when to enter and exit markets.

3.8 Other Empirical Literature on Mutual Fund Performance

So far this chapter has focused on studies of mutual fund performance that primarily investigate stock selection and market timing issues. However, there is also a broad literature that examines various issues linked to the mutual fund industry. They are briefly reviewed bellow.

Syriopoulos (2002) adopted an approach to identify fund inflow and demand patterns among Greek investors. The Almost Ideal Demand System [23] (AIDS) methodology is used to test for investors asset allocation in core mutual fund classes. The data providers were the Federation Europeenne des Fonds et Societes d'Investment (FEFSI) for the period January 1990 to April 2001. The fund classes included 78 equity funds, 35 bond funds, 26 balanced funds[24], and 34 money market funds [all Greek]. Syriopoulos's results suggest that; firstly, increases in household spending has a positive impact on asset allocation to fund classes and a positive impact on fund inflow. However, variation in risk appetite affects the demand for mutual fund classes. Secondly, equity and money market funds has the largest shareholder profile. Third, equity funds and balanced funds are found to be economic substitutes depending on market conditions and hedging strategies.

[23] The AIDS model is adapted from Deaton and Muellbauer (1980a, 1980b) which explains the allocation of household's level of expenditure amongst different products and services.

[24] Invested in equity and fixed income (bonds) markets.

Kaminsky, Lyons and Schmukler (2004) examine the trading strategies of equity mutual fund managers in emerging markets. Two trading strategies are discussed-momentum trading and contagion trading. There are two types of momentum trading strategies, contemporaneous and lagged. Contemporaneous momentum trading refers to buying current "winner" stocks and selling current "loser" stocks, and lagged momentum trading refers to buying past "winner" stocks and selling past "loser" stocks. Contagion trading strategies involves both domestic and cross-border trading. The data was obtained from the Security Exchange Commission (SEC), Morningstar, and partially from Bloomberg for the period 1993 to 1999. The sample includes 13 Latin American equity funds. The authors point out that the sample period includes crisis periods including: Mexico (1994-1995), Brazil (1998-1999), Russia (1998), and Asia (1997-1998). The results suggest that there is evidence of lagged momentum trading strategies, where fund managers buy past winners and sell past losers. Moreover, contemporaneous momentum trading strategies are exercised by investors during crises, where they buy current winners and sell current losers. The findings also suggest that both individual investors and fund managers are engaged in contagion trading strategies, where they sell assets from one country when assets prices are falling in another.

Khorana, Servaes, and Tufano (2005) determine the size of a mutual fund industry by studying 56 mutual fund industries around the world. They combine regulatory forces and economic fundamentals to determine the factors that influence the size of the mutual fund industry. They use two data sources, Investment Company Institute (ICI) and Federation Europeenne des Fonds et Societes d'Investment (FEFSI). In their study they found that laws and regulations such as strong judicial systems positively impact mutual fund industry size. In other words, countries that have strong laws and regulations and protect shareholders interests have larger mutual fund industries. In addition, economic fundamentals including demand-side factors which identify countries that have higher GDP per capita and have more educated populations which allows larger mutual fund industries. Khorana, Servaes, and Tufano (2005) also indicate that the mutual fund industry tends to be smaller in countries where there are high barriers to entry including greater requirements of time and cost to establish a fund. Overall, they conclude that economic and regulatory factors combine to establish sizeable mutual fund industries.

James and Karceski (2006) examine the performance of retail and institutional funds and investigate the differences in institutional funds. According to MorningStar, retail funds are funds offered to the general public targeting individual investors. On the other hand, institutional funds target high net worth investors' where they charge lower fees and expense ratios. Also, institutional funds usually have minimum investment requirements of $100,000 or more. James and Karceski (2006) focus on three key points when studying institutional funds. First, minimum initial investment requirement. Second, whether they are affiliated with a bank. In other words, if an institutional fund is

offered at a bank branch. Third, whether the same institutional fund is offered to a retail customer. The data was obtained from the Center for Research in Security Prices (CRSP) database. The funds collected were open-ended equity mutual funds distinguishing between institutional and retail funds. In addition, the data period covered the years from 1995 to 2001. The results suggest that there are no difference in performance between institutional and retail funds. Furthermore, institutional investors do not follow past returns in the same way retail investors do. Moreover, there is no significant relationship between fund inflows and past performance for institutional funds.

Finally, Ferreira, Miguel, and Ramos (2007) examine the performance of 10,568 open-ended mutual funds from 19 countries between 1999 and 2005. They examine whether a variety of country characteristics including various economic and financial developments influence fund performance. Indicators of economic development comprise per capita GDP and education and skill levels within the country. In addition, various financial development indicators used including: liquidity and transaction costs, demand for financial products, market-capitalisation to GDP ratio, and shareholder turnover ratios. The results indicate that mutual funds operating in developed countries, with liquid stock markets and strong legal systems that protect shareholders interest, have better performing funds. Ferreira et al (2007) also point out that countries with less developed markets have higher trading costs.

3.9 Conclusion

This chapter reviewed the previous literature undertaken on the performance of mutual funds. It can be seen from the early literature that there are two important approaches used to measure mutual fund performance. First there is the stock selection approach as outlined in Sharpe (1964), Treynor (1965), Jensen (1968), and Fama and French (1993). Mainly stock selection identifies "over-performing" and "under-performing" mutual funds compared to a relative market index. Secondly there is the market timing approach as outlined in Treynor and Mazuy (1966) and Henriksson and Merton (1982). Market timing models recognize mutual funds that track profitable opportunities in the market and trace upward trends.

This chapter also elaborated the substantial literature that seeks to examine mutual fund performance by interpreting fund characteristics such as the expense ratio, fund age, and fund size. Otten and Bams (2002), Liljeblom and Loflund (2000) and Annaert, Broeck, and Vennet (2003) examined these mutual fund characteristics and show how they explain fund returns. However, there are other important fund characteristics that the literature also focuses on such as fund families and the characteristics of the fund manager; if male or female, or if the age and qualifications fund managers affect performance. It is important to examine such management characteristics to see if they influence performance and also because shareholders are liable to management fees and expenses to the fund managers. We also discuss the literature on mutual fund performance persistence essentially showing the presence of short-term persistence [Hendricks, Patel and Zeckhauser (1993), Elton, Gruber, and Blake (1996), Carhart (1997), Droms and Walker (2001), and Busse and Tong (2007)]. Carhart's (1997)

persistence study was one of the most comprehensive although it should be noted that to undertake such a study requires a large mutual fund sample.

The chapter also discusses the empirical work on ethical fund performance since ethical funds share similar characterises with Islamic mutual funds in terms of a broad asset selection procedure. The studies suggest no significant difference in performance between ethical and conventional funds [Mallin, Saadouni, and Briston (1995), Gregory, Matatko, and Luther (1997), Bauer, Koedijk, and Otten (2005), and Kreander, Gray, Power, and Sinclair (2005)]. We then move on to discuss the modest extant literature on the performance of Islamic benchmarks and Islamic mutual funds which found that conventional and Islamic mutual fund performance appears to be similar [Hassan, Antoniou, and Paudyal (2005), Girard and Hassan (2005), Elfakhani and Hassan (2005), and Hassan and Mohammad (2007)]. Overall, the bulk of the empirical literature on ethical and Islamic mutual funds conclude that there is no major difference in risk adjusted return compared with conventional mutual funds but some ethical and Islamic funds suffer from lack of experience compared with conventional funds. Moreover, there is a gap in the literature on Islamic mutual funds performance where market timing ability has (as far as we are aware) not been examined - this thesis aims to fill this gap.

The final section of this chapter reviewed the literature on mutual fund market timing. Overall, it appears that the bulk of the literature, Henriksson (1984), Kao, Cheng, and Chan (1998), Chance and Hemler (2001) Romacho and Cortez (2006), and Rodriguez (2007) find negative timing ability among fund managers. The majority of

these studies use monthly data which do not provide correct estimates of market timing according to Bollen and Busse (2001), so this was a major weakness in the literature reviewed. The remaining chapters will further focus on both stock selection and market timing approaches in the context of Islamic mutual funds. The following tables summarise the literature covered in this chapter.

Literature on Mutual Fund Performance
a. Stock Selection

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
Mutual Fund Performance Sharpe, W. F. (1966)	Used Sharpe ratio created in Sharpe (1964) to examine a sample of mutual funds	Arthur Weisenberger & Co. *Investment Companies* 1954-1963	$Sharpe = \frac{R_p - R_f}{\sigma}$ Sharpe ratio that ranks mutual fund excess return divided by the standard deviation of returns	After applying Sharpe ratio on a sample of 34 open-ended funds, there were variability in the Sharpe ratio amongst the sample of funds studied presenting underperforming and overperforming funds
How to Rate Management of Investment Funds Treynor, J. (1965)	Build on Sharpe (1965) ratio by using portfolio beta instead of standard deviation of returns since beta takes in to effect the market benchmark	not specified	$Treynor = \frac{R_p - R_f}{\beta}$	Empirical results were not clear from the literature
The Performance of Mutual Funds in the Period 1945-1964 Jensen, M (1968)	Jensen created Jensen's Alpha which measure fund performance based on the CAPM model and following Sharpe and Treynor ratios. However, he argues that they assumed that all investors are risk averse and their models ranks funds instead of taking an overall performance with a benchmark.	Wiesenberger Investment Companies 115 open-end mutual funds 1945-1964	$Jensen = R_p - R_f = \alpha + \beta(R_m - R_f) + \varepsilon$ Uses Sharpe, Treynor, and CAPM measures as a foundation to create the model. Alpha is the main indicator, if it is negative and significant then it means that the manager is not doing as well. A positive and significant alpha means that there is extra return on a portfolio due to managers ability in stock selection	The overall results for the 115 funds presented a negative Alpha at -0.11 meaning that they were not able to predict stock prices and rather fund mangers exercise a buy and hold strategy.
Common Risk Factors in the Returns on Stock and Bonds Fama, E. F. & French, K. R. (1993)	Fama and French built on Jensen by adding two factors to the CAPM factor. They add SMB the size of stocks the fund invests in and HML the book to market factor which measures whether invested in growth or value stocks	CRSP (Center for Research in Security Prices) July 1963 – December 1991 25 stock portfolios	*Dependent Variable:* fund return *Independent variable:* CAPM (market return), SMB (size, small-cap minus large-cap) HML (book-to-market, growth minus value stock) bond factors maturity & default risk but irrelevant	These factors explain average abnormal returns on stocks and bonds fund which made future researchers rely on such model setting to estimate the sensitivity of fund return to stock holdings.

b. Market Timing

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
Can Mutual Funds Outguess the Market? Treynor, J. and Mazuy, K. (1966)	Constructed a market timing model that measure a mutual timing ability in the market by using the CAPM model as a foundation.	57 open-ended mutual funds	The dependent variable is fund return and the independent variables are market return and the squared of market return respectively.	They found evidence that supports the hypothesis of market timing ability
On Market Timing and Investment Performance. II. Statistical Procedures for Evaluating Forecasting Skills Henriksson, R. and Merton, R. (1981)	Theoretical study by HM who examined mutual fund managers ability to time the market. In other word, using forecasting skill to predict the future of the market and know when to enter or exit the market.	January 1927 – December 1978	2-factor model, the first factor is the actual market return and the second factor includes a dummy variable that will be one if market return is positive and zero if market return is negative	HM model proved to be an effective and useful model to measure managers ability in market timing. It is also widely used nowadays by researcher in the field of measuring mutual funds market timing ability.
Market Timing and Mutual Fund Performance: An Empirical Investigation Henriksson, R. (1984)	Tested empirically the market timing on a sample of mutual funds	116 open-ended US mutual funds using monthly returns between 1968 and 1980 The index used were the NYSE index	Market timing model Henriksson and Merton (1981)	Results do not support the hypothesis that fund managers included in the sample have market timing abilities.
International Mutual Fund Selectivity and Market Timing during Up and Down Market Conditions Kao, G. W., Cheng, L. T. W., & Chan, K. C. (1998)	They examined security selection and market timing in US-based international funds. They indicate that market timing is important to shift allocation amongst risky and riskier assets in bull and bear markets.	MorningStar on Disc data base Examining 97 international funds between 1989 and 1993 Including four main fund categories; Europe, Pacific, Foreign and World	Henriksson and Merton (1981) model of market timing	Overall results suggested that the sample of international funds were successful stock selectors but lacked market timing abilities. Also, there is a negative significant correlation between stock selection and market timing during the period examined

b. Market Timing Studies

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
Short-Term Persistence in Mutual Fund Performance Bollen, N. & Busse, J. (2004)	Bollen & Busse study mutual fund performance persistence. They indicate that fund excess returns are experienced when evaluating a short-term period; however, excess returns fade when looking at longer periods.	Data was collected for 230 mutual funds operating between 1985 and 1995 besides some data obtained from Busse (1999). Daily are quarterly prices were used.	Two key methodologies used to classify managers ability in: 1. Stock selection Fama French (1993) Carhart (1997) 2. Market Timing TM (1966) & HM (1982)	Overall, results found no superior performance for mutual funds examined. However, authors identified funds as stock selectors or market timers or both.
Timing and Selectivity in Portuguese Mutual Fund Performance Romacho and Cortez (2006)	Studied stock selection and market timing for a sample of Portuguese mutual funds	A sample of 21 Portuguese open-ended mutual funds January 1996 – December 2001	Stock Selection and market timing models	Results suggest that Portuguese mutual funds are not successful market timers. Also, there is a negative correlation between market timing and stock selection
Timing and Selectivity of Mutual Fund Managers: An Empirical Test of the Behavioral Decision-Making Theory Prather and Middleton (2006)	Individually managed and team managed funds timing ability have been tested using unconditional and conditional models.	Wiesenberger InvestmentView and MorningStar A sample of 43 Team managed funds compared with 140 individually managed funds January 1992 – December 2001	Traditional unconditional market timing models adopted by TM and HM including conditional market timing models that use lagged independent variables to explain for misspecification in market timing. The lagged variables include such of t-bill rates and S&P 500 dividend yield.	There is negative stock selection ability and negative market timing ability supporting the classical decision making theory. The classical decision making theory indicates when comparing individually managed funds with team managed fund, they will have similar performance.
The Market Timing Ability of UK Equity Mutual Funds Cuthbertson, Nitzsche, and O'Sullivan (2006)	Used a similar approach to Prather and Middleton (2006) by using unconditional and conditional market timing models to examine the performance of a sample of UK equity mutual funds.	842 equity UK funds January 1988 – December 2002	TM and HM market timing models. In addition, conditional market timing models.	Results suggest that there are a small number of funds demonstrating positive market timing ability but majority have negative market timing ability.

b. Market Timing Studies

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
Do Mutual Funds Time the Market? Evidence from Portfolio Holdings Jiang, Yao, and Yu (2007)	Tested market timing using fund holdings to avoid arriving to negative market timing results.	Centre for Research in Security Prices and Thomson Financial databases 2,294 US funds 1980-2002	Used weighted fund beta as the dependent variable and market return as the independent variable	They found positive and significant market timing ability attributed to funds that use non-public information, large sized funds, and funds invested in small capitalisation stocks
Market Timing: A Global Endeavor Rodriguez (2007)	Examined market timing ability of global mutual funds	27 global mutual funds January 2001 to August 2005	Treynor and Mazuy (1966) market timing model plus a multi-factor model that includes stock and bond indices for a fund invested in multi-asset	Results suggested poor timing ability for the sample of global mutual funds

c. Fund Characteristics Studies

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
Evaluating Mutual Funds on a Small Market: is Benchmark Selection Crucial? Liljeblom, E. Loflund, A. (2000)	Examine the performance of mutual funds using traditional mutual funds performance measures such as Sharpe, Treynor, & Jensen. The paper also looks at the performance in accordance to benchmark sensitivity with Finland indices FOX & HEX. Finally, mutual fund characteristics, such as expense ratio and fund size are used, to measure the impact of fund characteristics on mutual funds performance	Helsingin Sanomat Newspaper & Finnish Options Market Study all Finland funds (stock & Bond funds) 11 funds 1991-1995 14 funds 1992-1995 37 funds 1994-1995 The data may be subject to survivorship bias since some small funds de-listed	1. Traditional mutual fund performance measures Sharpe, Treynor, and Jensen 2. market timing models, such as Treynor & Mazuy (1966) 3. Regression; fund return with fund characteristics (expense ratio & Fund Size independent variables)	1. The fund performance ratios tend to drop when there is shorter periods closer to 1995. However, when taking the 1991-1995 period, the performance ratios are higher and stronger. 2. Results suggest that fund managers beat benchmarks but lack market timing and stock selectivity 3. There are evidence that expense ratios negatively impacts fund performance but fund size support performance
European Mutual Fund Performance Otten, R. & Bams, D. (2002)	Otten & Bams (2002) studied European mutual funds performance and suggested that small-cap funds perform best. Further, they indicate that management fees impact performance of mutual funds in European funds. Finally, they indicated that there is strong persistence in funds from UK	DataStream and Standard and Poor's Micro-pal January 1991 till December 1998 506 mutual funds from the EU and covering 85% of the EU mutual funds industry size	Carhart (1997) 4-factor asset pricing model	Besides the results indicated earlier. Fund characteristics were examined in relation to fund performance. The fund characteristics examined were fund age, and fund expense which expressed a negative relation with fund performance but fund size (total assets) showed a positive relation with performance.
Determinants of Mutual Fund Underperformance: A Bayesian Stochastic Frontier Approach Annaert, J. Broeck, J. & Vennet, R. V. (2003)	Study the performance of European equity funds. Analysis indicates that fund size and historical performance are related to fund efficiency.	Micropal Database Off-shore Territories Monthly NAV for 179 European Equity funds	Jensen (1968) that measures fund performance *Bayesian Stochastic Frontier* Model	Determinants of efficiency: 1. Size has a positive relation with fund efficiency 2. Performance Persistence has a positive relation with efficiency but for shorter periods only 3. Fund Age has no relation with efficiency

c. Fund Characteristics Studies

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
Mutual Fund Characteristics, Managerial Attributes, and Fund Performance Prather, L. Bertin, W. & Henker, T. (2004)	Examined mutual fund characteristics and its link to fund performance. The characteristics used are fund popularity, fund growth, fund cost and fees.	Morningstar Principia Pro (MS) 1996-2000 5000 equity mutual funds sample divided in to seven categories: Aggressive growth, growth, growth and Income, equity and Income, small company, foreign, and global	The model used a *Generalised Multifactor* model considering performance persistence Performance is the dependent variable and named fund characteristics are independent variables	1. Funds are popular when there is higher demand on Fund-of-Funds 2. Fund size (market-capitalisation) has a negative relation with performance 3. When funds undertake excess risk the fund performance will improve 4. Management effectiveness declines when there is more funds to manage
The Value of Active Portfolio Management Shukla, R. (2004)	Shukla (2004) compared the returns on actively managed mutual funds with the returns on fund portfolios. Across mutual funds, results suggest that managers who generate higher returns charge higher fees and expense ratios	Mutual Funds data, Morningstar Principia CD Security return data, Center for Research in Security Prices (CRSP) Compared 1,117 Portfolios snapshots with 458 mutual funds Aug 1995 – Nov 2002	Measure the excess return on portfolios due to portfolio revision. Shukla (2004) argues that previous literature on fund performance evaluate active management only whereas he looks at impact of revisions of mutual fund portfolio	1. Funds that generate higher returns have smaller and more concentrated portfolios 2. There is a positive relationship between excess return and expense ratio
Evaluating Mutual Fund Performance: an application of minimum convex input requirement set approach Chang, K. (2004)	Chang (2004) in his study of mutual fund performance adapted a nonparametric Minimum Convex Input Requirement Set (MCIRS) model. Surprisingly, his results showed that passive mutual fund management for instance index funds outperform active fund management.	CDA/Wiesenberger Mutual Fund Update Annual data for US mutual fund 1992 – 1996	MCIRS approach to evaluate the performance of mutual funds. The model is based on a decision-making-unit that estimates output levels in relation to input components using a non-parametric approach.	1. Maximum capital gain and growth funds have done worse than growth & income funds 2. Actively managed funds under perform passive investment strategies 3. Low risk funds and no-load funds out perform high risk funds and load funds respectively. 4. Funds with low betas and small asset sizes operate more efficiently

d. Mutual Fund Performance Persistence Studies

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
On Persistence in Mutual Fund Performance Carhart, M. (1997)	Using 4-factor model, the model measures the persistence in mutual fund performance. Carhart builds his research on Fama-French (1993) 3-factor model	1,892 diversified equity funds 16,109 fund years obtained from Micropal/Investment Company Data Inc. (ICDI) but non surviving funds data were obtained from, FundScope Magazine, United Babson Reports, Wiesenberger Investment Companies, and the Wall Street Journal Data period: Jan 1962 – Dec 1993	Independent variables: RMRF, excess return on market proxy SMB, small cap minus large cap HML, high book-to market (growth) minus low book-to market (value) stocks PR1YR, one year momentum, a factor that mimic persistence	1. Funds with high returns last year have higher returns next year but not afterwards 2. Funds that are winners are more likely to stay winners and loser funds are likely to be the same 3. Expense ratios, transaction cost, and load fees all have direct negative impact on fund performance
Explaining Persistence in Mutual Fund Performance Detzel, F. L. & Weigand, R. A. (1998)	This paper examines the persistence in mutual fund performance. The study is done by employing a model that directly relates mutual fund returns to the characteristics of the fund. Results suggest that certain characteristics of the stocks held by the mutual funds explain the persistence in fund returns more than others.	*Wiesenberger Investment Companies Service* Randomly selected 61 Open-end equity funds (six did not survive) 1976-1995 period where persistence were most prevalent	Three models used to test the persistence in mutual fund, *fund return* were the *dependent variables*: *Independent variables: fund beta, expense ratio, size of stocks held, Book-to-market ratio of stocks held, earnings yield of stocks held, and cash-flow of stocks held.*	Fund characteristics best explain persistence in mutual fund returns 1. Market risk and fund expense explain only a small amount of the momentum in mutual fund return. 2. Size of stocks held, book-to-market, earnings yield, and cash-flow all explain the persistence in mutual fund returns.
Performance Persistence of International Mutual Funds Droms, W. G. & Walker, D. A. (2001)	This study provides an analysis of persistence in equity mutual funds. A fund persists when there is above median return relative to comparable funds for a consecutive time period. Results suggest that fund performance do not persist over a long period but does persist between consecutive time periods.	Wiesenberger Investment Companies Service 529 International equity mutual funds 1977-1996 (20 Year-Period) 28 funds operated during the 20 year period while 490 funds were newly introduced Survivorship is minimal	Brown & Goetzmann (1995), Goetzmann & Ibbotson (1994), and Malkiel (1995) methodologies that detect persistence. It identifies winner stocks that repeat and loser stocks that repeat as well.	1. The overall study concluded that there is strong performance persistence for short term (1-year lag) but persistence fade after the first year (long-term). 2. Results are consistent with previous findings.

e. Ethical Funds Studies

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
International Evidence on Ethical Mutual Fund Performance and Investment Style Bauer, R. Koedijk, K. & Otten, R. (2005)	They studied ethical mutual funds in Germany, UK, and US from 1990-2001 using Carhart multi-factor model where they found no significant difference in returns between ethical and conventional funds when risk is adjusted.	103 pure domestic ethical equity funds and 4384 conventional funds obtained from Morningstar (US), EIRIS (UK), and Ecoreporter (Germany) Jan 1990 – March 2001 Dead funds during that period were added back to avoid survivorship bias	1. CAPM Model 2. Multi-factor models using Fama and French 3-factor model and Carhart 4-factor model	1. Germen and UK funds are heavily exposed to small cap stocks while US funds are invested in large cap stocks 2. Compared to Conventional funds ethical funds are more growth oriented and less value oriented 3. Overall, they found no major statistical difference in return between ethical and conventional funds
Evaluating the Performance of Ethical and Non-ethical Funds: A Matched Pair Analysis Kreander, N., Gray, R.H., Power, D.M., and Sinclair, C.D (2005)	Examined 60 funds from four European countries. 30 ethical funds and 30 non-ethical.	Studied 60 funds between January 1995 and December 2001 30 ethical and 30 conventional	Simple risk adjusted measures; Sharpe, Treynor Ratios, and Jensen Alpha Plus Market Timing models created by Henriksson & Merton (1982)	There are no major difference in performance between ethical and non-ethical funds when using simple measures. In addition, both type of funds were not successful market timers

f. Islamic Mutual Funds Studies

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
Impact of Ethical Screening on Investment Performance: The Case of the Dow Jones Islamic Index. Hassan, Antoniou, & Paudyal (2005)	Hassan, Antoniou, & Paudyal (2005) study the performance of Islamic benchmarks compared to conventional benchmarks. They studied the performance using CAPM and Jensen Alpha. Returns from the Dow Jones Islamic Market Index (DJIM) and the Dow Jones Index America were compared.	Dow Jones & Company and DataStream International Jan 1996 – Dec 2003	CAPM, Sharpe, Treynor, & Jensen used as performance measures Indices: Dow Jones Islamic Market Index (DJIM), Dow Jones Index-America.	1. DJIM Alpha was positive and significant at 5%; Dow Jones-Index America Alpha was negative but insignificant 2. Market beta (risk factor) was higher for Dow-Jones Index-America
Faith-Based Ethical Investing: The Case of Dow Jones Islamic Index Girard and Hassan (2005)	Analysed the performance of Islamic and conventional benchmarks using seven Dow Jones Indices compared to corresponding seven Morgan Stanley (conventional) Composite Indices	The Islamic indices used: (Dow Islamic Canada, Dow Islamic United Kingdom, Dow Islamic United States, Dow Islamic Asia Pacific Developed, Dow Islamic Europe Developed, Dow Islamic Emerging Markets, and Dow Islamic World developed markets) with (MSCI Canada, MSCI United Kingdom, MSCI United States, MSCI Asia, MSCI Europe Developed, MSCI Emerging Markets, and MSCI AC World index). 1996-2005	Sharpe and Treynor ratios Jensen's alpha and Fama and French model	1. Dow Indices outperformed during the 1996-2000 period 2. MSCI indices outperformed during 2000-2006 period 3. Dow Islamic indices exposed to small-cap and growth stocks, MSCI indices exposed to large-cap and value stocks. 4. overall results state no difference in performance between indices

f. Islamic Mutual Funds Studies

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
Performance of Islamic Mutual Funds Elfakhani, S. & Hassan, K. (2005)	This paper studies the performance of Islamic mutual funds between 1997 and 2002. The Islamic mutual fund industry was examined using fund performance measures. Results suggest there is no major difference between Islamic and conventional funds but there are some Islamic funds that overperform compared to index.	Failaka International and Standard & Poor's Jan 1997- Aug 2002 46 Islamic mutual funds classified in to eight categories; Global, American, European, Asian, Malaysian, Emerging Markets, Emerging Markets South Africa, and Technology.	Sharpe, Treynor Jensen stock selection models Eight fund categories are compared with relevant benchmarks the DJIM and the S&P 500 index	1. Overall, Emerging Markets funds category were amongst the best performers for lack of diversification and Asian fund category were amongst the worst performing consistently 2. Islamic funds performance is similar to Conventional funds performance
Investigation of Performance of Malaysian Islamic Unit Trust Funds Abdullah, F., Hassan, T., & Mohammad, S. (2007)	Abdullah, Hassan, & Mohammad (2007) compared Islamic and Conventional Malaysian Funds with the Kula Lumpur Composite Index (KLCI)	Compared 14 Islamic mutual funds with 51 Conventional funds between 1992 and 2001 The data period was divided in to three consecutive periods: 1992-1996 pre-currency crisis 1997-1998 during currency crisis 1999-2001 post-currency crisis	Sharpe (1964) ratio and Jensen (1968) alpha	1. Both type of funds Underperformed the KLCI 2. Conventional funds performed better from 1992-1996 3. Islamic funds performed better from 1999-2001

g. Selected Studies on the Performance of Mutual Funds

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
Investor Monitoring and differences in Mutual Fund Performance James, C. & Karceski, J. (2006)	Examine the performance of mutual funds based on retail customers and institutional customers also by examining the cross-sectional differences in institutional funds. Results suggest that there are no difference in performance between institutional funds and retail funds even when risk is adjusted.	Center for Research in Security Prices (CRSP) database Open-ended equity mutual funds Distinguish between institutional and retail funds by the initial minimal purchasing requirement at $100 k 1995-2001	5-factor model similar to Carhart (1997) with an additional international equity factor	1. There is no major difference in return between Institutional and retail mutual fund 2. Institutional investors do not chase past returns in the same way retail investors do 3. There is no relationship between fund inflow and past performance in institutional funds 4. Institutional funds tend to have lower expenses
Manager, Investors, and Crisis: Mutual Fund Strategies in Emerging Markets Kaminsky, G. Lyons, R. K. & Schmukler, S. L. (2004)	Examined trading strategies in emerging markets. The two trading strategies, momentum trading strategy and contagion trading strategy are used to test investors and fund managers trading behaviour	Security Exchange Commission (SEC), Morningstar, and Bloomberg 1993-1999 studied 13 Latin American equity funds	Momentum trading which is buying winner stocks and selling loser stock, Contagion trading is selling assets from ones country when another is falling	1. Contemporaneous momentum trading strategy is popular around crisis, where buying current winning stocks and selling current losing stocks, exercised by investors 2. Results also suggest that contagion trading strategies feed local markets returns

g. Selected Studies on the Performance of Mutual Funds

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
Explaining the Size of the Mutual Fund Industry around the World Khorana, A., Servaes, H., & Tufano, P. (2005)	Khorana, Servaes, & Tufano (2005) study the mutual fund industry size around the world. They found that Luxembourg and Ireland have the largest mutual fund industry relative to the size of the economy and compared to other countries. They indicate that legal and regulatory factors influence the mutual fund industry.	Investment Company Institute (ICI) & Federation Europeenne des Fonds et Societes d'Investment (FEFSI) 55,000 funds 56 Countries	*Multivariate regression analysis* Explanatory variables were mutual funds laws and regulations factors, Demand characteristics, and supply characteristics	1. Strong laws assists the mutual fund industry 2. Investor education and wealth positively influences the mutual fund industry size 3. Small mutual fund industries are associated in countries with higher cost and time for establishing funds. 4. Trading cost negatively influences mutual fund industry.
The Determinants of Mutual Fund Performance: A Cross-Country Study Ferreira, M. A., Miguel, A. F., and Ramos, S. B. (2007)	Examined country characteristics; economic development, financial development, investors protection and investors familiarity in relation to mutual fund performance	Examined 10,568 open-ended mutual funds from 19 countries Data period was between 1999-2005	They used Carhart 4-factor model. Also, they included other fund characteristics as explanatory variables such as fund age, size, fee, management structure, and tenure.	Results suggest: 1. fund expenses, size of fund and age has a positive significant relation with fund performance 2. Single managed funds perform better 3. funds operating in countries with liquid stock markets and strong legal systems have better performing funds 4. Investor's familiarity is important to have a developed mutual fund industry
Using Genetic Algorithm to Support Portfolio Optimization for Index Fund Management Oh, K. J., Kim, T. Y., & Min, S. (2005)	This paper examines index funds using a Genetic Algorithm (GA) approach. Oh, Kim, & Min (2005) presume that index funds performance could be improved greatly using this portfolio approach scheme. The index they examine is the Korea Stock Price Index (KOSPI) 200	Korean Stock Exchange Jan 1999 – Dec 2001 200 major companies listed on Korea Stock Price *Index* 200 (KOSPI) with 22 main industry sectors	Genetic Algorithm (GA) model: The GA model is a model adapted from Holland (1975) from the idea of tracing an artificial ecosystem in a population of chromosomes in biological research. GA is a stochastic optimisation technique tracking the stock weight in each index mutual fund portfolio	1. GA strongly suggest that it has stronger advantages over the conventional portfolio mechanisms 2. GA reports the performance of index funds and the properties of each index fund 3. The GA approach also reports the performance when the market is flat 4. The KOSPI market experienced a bull market in 1999, Bear market in 2000, and a flat market in 2001.

g. Selected Studies on the Performance of Mutual Funds

Title, Author, and Year	Summary	Data Source and Data Period	Methodology and Model	Conclusion and Results
Risk Aversion and Portfolio Allocation to Mutual Fund Classes Syriopoulos, T. (2002)	This paper identified fund inflow and fund demand amongst Greek investors. The Almost Ideal Demand System (AIDS) is adapted to test investors' asset allocation in core mutual fund classes. Results suggest that an increase in household expenditures increases demand on mutual funds. However, variation in risk appetite affects demand on mutual fund classes.	Federation Europeenne des Fonds et Societes d'Investment (FEFSI) Jan 1990 – April 2001 Greek Funds Asset Classes: 78 equity 35 bond 26 balanced 34 money market	Almost Ideal Demand System (AIDS) methodology adapted from Deaton and Muellbauer (1980a, 1980b) The AIDS model explains the allocation of household's level of expenditure amongst different financial assets	1. Increase in expenditures has a positive impact on asset allocation to fund classes and a positive impact on inflow 2. Equity and Money Market funds benefit mostly and attracts the largest budgets. 3. Equity funds and balanced funds are found to be economically substitutes. 4. Variation in investors risk appetite affects demand for fund classes.
Stock Selection based on Morningstar's Ten-Year, Five-Star General Equity Mutual Funds Loviscek, A. L. & Jordan, W. J. (2000)	The paper tests whether individual investors can generate abnormal returns from stocks selected from the top holdings of Morningstar's ten-year, five star equity funds. Results suggest that this approach outperforms the S&P 500 to some point but evidence is not strong to recommend this stock selection criteria.	Data Source: 1. Mutual Fund Sourcebook (Morningstar, 1989 -1994) 2. Ibbotson Associates' *Stock, Bonds, Bills, and Inflation* (2000) Data Period: 1989 - 1993 The number of top five stocks across the years is: 95 stocks (1989), 100 stocks (1990),143 stocks (1991), 109 stocks (1992), 84 stocks (1993)	Elton, Gruber, and Padberg (EGP) 1995 methodology basically determine the portfolio composition and identify the proportionate of the portfolio and suggest where each security should be invested.	The outcomes from the study suggest that there is some evidence that portfolio selection from top holdings outperform the S&P 500. However, there is weak indication that this strategy will always be applicable.

Chapter 4 – Methodology and Data

4.1 Introduction

The aim of this study is to provide an analysis of the performance for Islamic mutual funds. This chapter will explain the methodology followed to assess performance. In particular, we will use the stock selection and market timing approaches to assess the performance of funds. We adopt four stock selection models - Sharpe (1964), Treynor (1965), Jensen (1966), and Fama and French (1993). As noted earlier, stock selection models examine fund managers ability to choose the level of risk for a given return. In addition, we also examine market timing issues using three modelling approaches - the two traditional Treynor and Mazuy (1966) and Henriksson and Merton (1982) models along with the one conditional market timing model used in Prather and Middleton (2006) and Cuthbertson, Nitzsche, and O'Sullivan (2006). Market timing models examine fund managers timing techniques if they have tactical asset allocation in accordance to time and future prediction of market direction.

The rest of this chapter is organised as follows, section 4.2 will discuss the two major methodologies, stock selection and market timing and section 4.3 will review the data sample, while section 4.4 will present descriptive statistics on the data sample. Finally section 4.5 presents a correlation analysis between variables included in the performance study.

4.2 Methodology

This section provides the methodological approach used in our study of Islamic mutual fund performance, namely stock selection and market timing. Research on the performance of mutual funds is extensive but studies on Islamic mutual funds performance are rather limited. Therefore, this methodology aims to extend the extant literature that examine the performance of Islamic mutual funds stock selection and market timing ability.

Previous studies that examined stock selection of Islamic mutual funds include Elfakhani and Hassan (2005) who used the Sharpe, Treynor and Jensen models where they found that Islamic funds allocated in Emerging markets outperformed other fund categories in terms of stock selection. Besides, ethical fund performance have been examined in Kreander, Gray, Power, and Sinclair (2005) using a similar approach to Elfakhani and Hassan (2005) but using a sample of European funds- ethical and non-ethical. They found that both types of funds lack stock selection.

As far as we can ascertain, the market timing of Islamic mutual funds has not been examined in the literature. However, Bollen and Busse (2004), examined a sample of US conventional funds and tested for performance persistence in stock selection and market timing[25]. They found superior market timing ability which persist when looking at shorter time periods. Romacho and Cortez (2006) also tested for market timing[26] in Portuguese mutual funds and found that there is lack of market timing in the sample funds tested. Moreover, Prather and Middleton (2006) and Cuthbertson, Nitzsche, and O'Sullivan (2006) used conditional market timing models which they argue provide a

[25] Market timing models as suggested by Treynor and Mazuy (1966) and Henriksson and Merton (1982).
[26] Also used Henriksson and Merton (1982) model to estimate market timing ability.

better specification in terms of market timing ability. A conditional model uses a lagged independent variable which is supposed to give a better indication of timing ability. The conditional market timing model will be used in our analysis of Islamic mutual funds.

This thesis aims to examine the performance of Islamic mutual funds because data is available to test for stock selection and market timing features, the only inputs required relate to fund returns and a relevant market index. However, if we were to examine the performance of Islamic mutual funds using fund characteristics, this would be problematic as (as far as we can ascertain) consistent historical information on Islamic fund total assets, expense ratios and the like are not publicly available. Simply, there is a lack of reporting and consistency in Islamic funds characteristics data. As a consequence, we focus our attention on stock selectivity and market timing models for our sample of Islamic mutual funds.

The stock selection and market timing models usually require fund return as the dependent variable and market return as the independent variable to measure for mutual fund performance. Typically, Ordinary Least Squared regression approaches are used where usually alpha indicates the performance of a fund. The fund return is estimated as shown in equation (11) where P_t is the fund price at time t subtracted by P_{t-1} the price at the preceding period. The t time period denotes weekly prices and there are 52 weekly returns during the year for all funds included in the sample.

$$R_{p,t} = \frac{P_t - P_{t-1}}{P_{t-1}} \qquad (11)$$

Furthermore, our analysis choose two local and two global indices as the market indices to examine fund performance. The FTSE Global Islamic Index and FTSE All World Index as global indices and the FTSE Bursa Malaysia and the Kuala Lumpur Composite

Index (KLCI) as Malaysian indices. The following subsection will discuss in more detail the stock selection models used in our analysis.

4.2.1 Stock Selection Models

In chapter three we stated that stock selection models are one of the most widely applied models for measuring the performance of mutual funds. Stock selection models are also known as risk adjusted measures; the Sharpe ratio, Treynor ratio, Jensen alpha, and Fama and French models are all commonly used in recent empirical papers.

We will use four stock selectivity measures to examine the performance of Islamic mutual funds. Sharpe (1964) developed a ratio to rank mutual fund performance by subtracting the risk-free rate from fund return divided by the standard deviation of fund returns. Consequently, the lower the standard deviation the higher the ratio, and the higher the ratio the better performance and ranking of a fund. The Sharpe ratio is illustrated in (12)

$$Sharpe = \frac{R_{p,t} - R_f}{\sigma_{p,t}} \qquad (12)$$

where $R_{p,t}$ is the weekly return on the fund, Rf is the risk-free rate, and $\sigma_{p,t}$ is the standard deviation of fund returns. The standard deviation of fund returns is calculated in (13) where n is number of observations calculated over a sample period presenting one standard deviation number, $R_{p,t}$ is the return on fund and the $\overline{R}_p$ is the mean return of the fund. The Sharpe ratio is widely used as measure to rank mutual fund performance especially in recent mutual fund performance studies.

$$\sigma_{p,t} = \sqrt{\frac{n}{n-1}\sum_{t=1}^{n}\frac{(R_{p,t} - \overline{R}_p)^2}{n}} \qquad (13)$$

The Treynor ratio (1965) is similar to the Sharpe ratio in terms of the fund ranking approach. However, the Treynor ratio provides a ratio to systematic risk instead of standard deviation of returns. The Treynor ratio is calculated after subtracting the risk-free-rate from the fund return and dividing by the beta. The beta is considered the systematic risk between the fund and the market index. The Treynor model is defined as:

$$Treynor = \frac{R_{p,t} - R_f}{\beta_{p,t}} \qquad (14)$$

where $R_{p,t}$ is the weekly return on the fund, Rf is the risk-free rate, and the beta is calculated in (15). The higher the Treynor ratio the better the ranking and fund performance; it also may indicate that such a fund is well diversified.

$$Beta = \beta_{p,t} = \frac{Cov(R_p, R_m)}{Var(R_m)} \qquad (15)$$

Beta is a measure of sensitivity between the market and the fund. It is calculated by dividing the covariance between the fund and market return divided by the variance of the market return. A higher beta indicates that a fund is highly associated in the market and is playing a dominating role either with positive or negative returns.

The following model of Jensen (1966) is based on the CAPM but has a fundamental difference. The CAPM model uses expected returns while the Jensen model uses actual realised returns. We use Jensen's model defined in (16):

$$Jensen = R_{p,t} = \alpha_{p,t} + \beta_{p,t}(R_{m,t} - R_f) + \varepsilon_{p,t} \qquad (16)$$

where $R_{p,t}$ is the weekly return on the fund, $\alpha_{p,t}$ known as Jensen alpha which measures fund performance in relation to the market, $R_{m,t}$ is the relevant market benchmark return, and *Rf* is the risk-free rate. Furthermore, beta the sensitivity between the market and the fund. The Jensen alpha measures fund over or under performance; if positive and significant, then the fund is overperforming and it indicates that managers earned extra returns on the fund due to stock selection ability.

The final stock selection model that we will use in our analysis of Islamic mutual funds is the Fama and French (1993) approach, which takes into consideration multiple factors. The Fama and French model is built on the Jensen model plus two other parameters; the size and book-to-market of the mutual fund allocation. The Fama and French model is defined in (17):

$$Fama\ \&\ French = (R_{p,t} - R_f) = \alpha_{p,t} + \beta_1(R_{m,t} - R_f) + \beta_2 SMB + \beta_3 HML + \varepsilon \qquad (17)$$

The $R_{p,t}$ is the return on the fund, *Rf* is the risk-free-rate, and $R_{m,t}$ is the return on the market, *SMB* is the fund allocation size estimator, and *HML* is the fund allocation book-to-market estimator. β_1 measure the sensitivity between the market and the fund, if positive and significant then fund is highly associated with market movement. β_2 is a coefficient that measures the fund exposure, if positive and significant then the fund is

associated with small-capitalisation stocks. β_3 is a coefficient that measures fund exposure, if positive and significant then the fund is exposed to high-book-to-market stocks. The alpha $\alpha_{p,t}$ measures stock-selection ability, if positive and significant, then the fund has superior stock selection ability.

Overall these stock selection models will be used to examine the performance of a sample of Islamic mutual funds. The choice of models was based on their wide spread use in recent empirical papers that examine the question of mutual fund stock selection. The following subsection will outline the market timing models that we will use to investigate our sample of Islamic mutual funds.

4.2.2 Market Timing Models

We first test Islamic mutual fund performance for stock selection using Sharpe, Treynor, Jensen, and Fama and French models explained in the previous section. Then we test for market timing using the Treynor and Mazuy (1966) and Henriksson and Merton (1982) approaches. These traditional market timing models estimate for timing ability in addition, in order to test for the robustness of timing performance, a conditional market timing model will also be used. The conditional market timing model we use is adopted from Prather and Middleton (2006) and Cuthbertson, Nitzsche, and O'Sullivan (2006) and will be explained below.

Market timing models identify fund managers ability to develop timing strategies to shift capital between safe and risky securities based on whether the market is expected to do well or bad. Overall market conditions determine fund performance but overperforming funds forecast entry and exit strategies. Treynor and Mazuy (1966) constructed a model that identify successful market timing funds. The market timing is captured by the second order of market returns. The squared market return is a curvature that points out market timing funds which have positive gamma coefficients. The model is detailed in (18);

$$TM \quad = r_{p,t} = \alpha_{p,t} + \beta_p r_{m,t} + \gamma_p r_{m,t}^2 + \varepsilon_{p,t} \qquad (18)$$

$r_{p,t}$ is the return on fund, $\alpha_{p,t}$ identify stock selection ability, $r_{m,t}$ is the return on market benchmark, and $r_{m,t}^2$ is the squared market return. Market timing is estimated by the gamma term γ_p; if positive and significant then fund are successful and exposure to the market is increased when markets are doing well.

Henriksson and Merton (1982) hereafter developed a model similar to Treynor and Mazuy (1966) but included a dummy variable. Henriksson and Merton argue that the Treynor and Mazuy model takes into consideration positive and negative market returns. Therefore, they suggested adapting a model that contains a dummy variable that captures positive market returns and eliminates negative market returns. The model is illustrated in (19);

$$HM \; = r_{p,t} = \alpha_{p,t} + \beta_p r_{m,t} + \gamma_p I_t r_{m,t} + \varepsilon_{p,t} \quad (19)$$

where $r_{p,t}$ is the return on fund, $\alpha_{p,t}$ identify stock selection ability, $r_{m,t}$ is the return on market benchmark, and γ_p identify market timing, if positive and significant then fund managers are successful market timers and know when to enter and exit the market. The I_t is the dummy variable that is equal to 1 if market return is positive and 0 otherwise.

We will use the market timing models of Treynor and Mazuy (1966) and Henriksson and Merton (1982) to examine the performance of our sample of Islamic equity mutual funds. These market timing models are commonly used estimators for timing ability. The timing results between two models are usually consistent and present similar conclusions. However, we will use both models so as we arrive at consistent market timing indications. Furthermore, we will also use conditional market timing models to test for robustness.

Conditional market timing models were first implemented by Ferson and Schadt (1996). Prather and Middleton (2006) and Cuthbertson, Nitzsche, and O'Sullivan (2006) test for market timing and suggest using conditional market timing models since they capture timing ability using public information. Public information, as they state, could include lagged macroeconomic variables. The conditional model is defined in (20);

$$R_{p,t} = \alpha_p + \beta_p r_{m,t} + C_p Z_t r_{m,t} + \gamma_p r_{m,t}^2 + \varepsilon_{p,t} \qquad (20)$$

where $R_{p,t}$ is the return on fund, $\alpha_{p,t}$ identify stock selection ability, $r_{m,t}$ is the return on market benchmark, Z is the lagged macroeconomic variable multiplied by $r_{m,t}$. In our case, we are examining a sample of global and Malaysian Islamic mutual funds; therefore, we will use lagged global GDP growth and lagged local Malaysian GDP growth as macroeconomic variable. C_p the coefficient that captures the response to public information, and γ_p similarly identifies market timing ability for a fund if significant.

Other studies[27] use different local public information such as lagged 1 month t-bill rate, market dividend yield, or term spread on treasury bonds. However, they examine local funds such as the US or UK. In our case, global and Malaysian funds are examined which use different public information and access to such global information is unavailable. Therefore, we will use the overall lagged GDP growth as a public information. Also, it is expected that there is a positive correlation between the proxies used in previous literature (1 month t-bill rate and dividend yield) and the lagged GDP growth. Meanwhile, previous studies that use conditional models reported similar results from traditional and conditional market timing models. This implies that conditional models can be used to test for robustness in market timing.

[27] Prather and Middleton (2006) and Cuthbertson, Nitzsche, and O'Sullivan (2006).

4.2.3 Performance Persistence Models

Finally, we will test for performance persistence using a lagged independent variable in an OLS regression model. We follow the approach of Busse and Tong (2007) to test for persistence where they found evidence of performance persistence for a sample of US domestic mutual funds using a similar model. The persistence model is illustrated in (21):

$$\alpha_t = A + \beta\ \alpha_{t-1} + \varepsilon \qquad (21)$$

where α_t is Jensen's alpha in year t, α_{t-1} is Jensen alpha the previous year, and β indicates persistence if it is positive and significant. Moreover, we would like to test for persistence using a similar approach but using mutual fund prices instead of Jensen alpha to see if persistence results are similar. The persistence model (22) is similar to that previously used in (21) model:

$$P_t = \alpha_t + \beta\ P_{t-1} + \varepsilon \qquad (22)$$

where P_t is the mutual fund price at year t, P_{t-1} is mutual fund price at proceeding period, and again β identifies performance persistence. If positive and significant then there is evidence of persistence.

This section presents various models on how to assess the performance of mutual funds. Goetzmann, Ingersoll, Spiegel, and Welch (2007) criticize the performance measures discussed in this chapter. They claim that fund managers game the performance measures by manipulating performance indicators to illustrate to existing shareholders that they are over-performing. The strategies used to manipulate performance are also known as window dressing[28]. Nevertheless, not every performance measure is

[28] Window dressing is a strategy used by mutual fund managers near the year or quarter end to improve the appearance of the portfolio/fund performance before presenting it to clients or shareholders.

manipulated and the power of stock selection and market timing models are well established and used in the recent literature. The Jensen alpha for instance stands as a fundamental performance measure for mutual funds and frequently provides robust results for stock selection. On the other hand, hedge funds usually use these manipulation tactics since they are involved in derivatives trading and apply short selling positions which make it easier to manipulate performance. However, equity funds, which we intend to examine, are compared to a relative benchmark and performance is simply identified. Therefore, the models elaborated will be used and are expected to provide meaningful results.

4.3 Data

The data source used was Bloomberg™, a company that provides informational services on mutual funds besides other facilities such news and media. Bloomberg recently launched an Islamic window that provides data on a range of Islamic financial institutions. The sample collected are open-ended Islamic equity mutual funds that comply with Shariah principles[29]. The sample initially consisted of 75 Islamic equity mutual funds; however, various funds had missing prices and so were excluded reducing the sample to 28 funds which maintained consistent prices over time. The data period understudy is between January 2000 and September 2006 using weekly returns. Moreover, due to the fact that trading days are different the data frequency used are weekly prices. As a matter of fact, due to the limited number of Islamic mutual funds studied are a consequence to the fact that they do not report their prices regularly which forced the sample size and the sample period to be relatively limited.

After cleaning and deleting for missing values we arrived at a sample of 28 funds. These funds consist of 15 Malaysian funds invested in domestic equity markets and a remaining 13 global equity funds invested in global markets based in different regions. Table 4.1 gives detail of the names of the sampled funds included in the study with their respective region of basis. As a consequence, throughout the analysis we refer to two fund categories, global funds (invested in global markets) and Malaysian funds (invested in the local Malaysian equity market).

[29] discussed in chapter 2

Table 4.1: Description of Sample Islamic Funds

Fund Code	Fund Name	Bloomberg Ticker	Fund Base
	Global Islamic Funds		
1	Amana Income Fund	**AMANX**	United States
2	Amana Growth Fund	**AMAGX**	United States
3	Alahli Global Trading Equity	**ALGLBTE**	Saudi Arabia
4	Mendaki Global Fund	**DBSMEGI**	Singapore
5	NTUC Takaful	**NTUTAKA**	Singapore
6	HSBC Ins Takaful Global Fund	**KEPTAKA**	Singapore
7	Future growth Albaraka Equity-A	**FGPUREQ**	South Africa
8	Oasis Cresent Equity Fund	**OACREQU**	South Africa
9	Citi Islamic Port Global Equity A	**CITISPA**	Luxembourg
10	Citi Islamic Port Global Equity B	**CITISPB**	Luxembourg
11	Al Dar Islamic-World Equity	**ADIFWOE**	Luxembourg
12	Dynamic Sami Fund	**NAVSAMI**	Canada
13	The Hegira Global Equity Fund	**HEGIRAA**	Caymen Island
	Malaysian Islamic Funds		
14	Public Asia Ittikal Fund	**KLITTFI**	Malaysia
15	AmIttikal Fund	**ABMLTII**	Malaysia
16	Pacific Dana Aman Fund	**PACDNAI**	Malaysia
17	Commerce Trust LT Dana Mubarak	**BBMBDPI**	Malaysia
18	SBB Dana Al-Ihsan Fund	**BHLPDAI**	Malaysia
19	BIMB ASBI Almubin Fund	**BIMASBI**	Malaysia
20	ASM Dana Mutiara	**ASMFBPI**	Malaysia
21	ASM Dana Al Aiman	**ASMDAAI**	Malaysia
22	ASM Dana Bestari	**ASMEBPI**	Malaysia
23	AUTB Dana Bakti	**ASMTABI**	Malaysia
24	Amanah Saham Kedah fund	**AMASKDI**	Malaysia
25	Mayban Life Dana Ekuiti Prima	**MBLAZIM**	Malaysia
26	GE Dana Restu	**GEBRKAH**	Malaysia
27	Avenue Syariah EXTRA Fund	**AVESYEX**	Malaysia
28	Maa Dana Mas Maju	**MAAFAYD**	Malaysia

Source: Bloomberg™ -2007

Relevant benchmarks were also collected from Bloomberg to compare the performance of the funds understudy. The appropriate Islamic benchmark for global funds is the FTSE Global Islamic Index. In addition, conventional benchmarks were also used and the FTSE all World index was the most relevant for global funds since it covers the largest market capitalisation of global equity markets (Wilson, 2002). Alternatively, we posit that Malaysian funds have different benchmarks namely the KLCI as a conventional benchmark and the FTSE Bursa Malaysia as an Islamic benchmark. Furthermore, the risk-free-rate used is the 3-month t-bill rate similar to Elfakhani and Hassan (2005), who studied a sample of Islamic mutual funds, and used the same risk-free rate. The 3-month t-bill rate is used, as a risk free rate, in multiple studies that examine mutual funds performance which was obtained from the US Federal Reserve. The next section will provide descriptive statistics on the sample funds examined.

4.4 Descriptive Statistics

This section will present descriptive statistics of the 28 Islamic mutual funds under study. There are 13 global mutual funds and 15 Malaysian local funds. In addition, benchmarks included are the FTSE Global Islamic Index and FTSE All World Index. Besides these, local Malaysian indices are used including the FTSE Bursa Malaysia Index and the KLCI to compare with the Malaysian Islamic funds.

Table 4.2 illustrate the total assets of the sample mutual funds included in the study. Total assets are the most common size measure of the characteristic for mutual funds. The data are as of June 2007 and (unfortunately) historical total assets are not readily available. Table 4.2 presents total assets after converting every mutual fund market capitalisation into US dollars. Fund category (1-13) represent global funds and the average size of a global Islamic mutual funds included in the sample is $81.57 million. The average size of Malaysian funds (14-28) is $55.29 million. In fact, the average size of a conventional fund in the US is higher at approximately $800 million. Ethical funds which account for less than 10% of the mutual fund industry, have average fund asset sizes of $160 million according to Bauer et. al. (2005). This comparison perhaps suggests that there are opportunities for Islamic mutual fund growth in the future. Further, the largest fund in terms of size included in the sample is fund 14 from Malaysia consisting of $419 million in assets. The cumulative market capitalisation of the sample of 28 Islamic mutual funds is approximately $1.9 billion.

Table 4.2: Sample of Fund Total Assets 2007

Fund Code	Fund Size (Million USD)
Global Islamic Funds	
1	86.70
2	205.00
3	273.34
4	2.12
5	18.65
6	20.85
7	98.12
8	275.88
9	9.81
10	14.01
11	14.16
12	4.08
13	37.66
AVG	**81.57**
Cumulative	**1060.38**
Malaysian Islamic Funds	
14	419.16
15	79.80
16	56.92
17	10.71
18	109.22
19	22.75
20	3.11
21	28.24
22	9.74
23	14.34
24	17.04
25	3.89
26	37.98
27	6.70
28	9.83
AVG	**55.29**
Cumulative	**1,889.81**

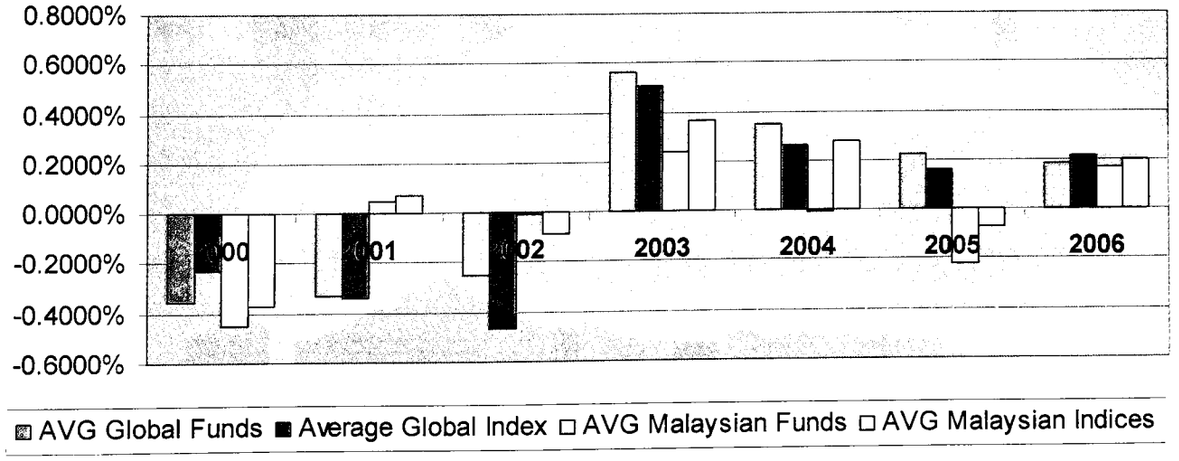
Source: Bloomberg™

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

In this section we will also present various descriptive statistics on underlying sample Islamic mutual funds featuring mean return, fund returns less market returns, fund return less risk free rate of return, maximum return, minimum return, range of returns, standard deviation of returns, and the beta for sample Islamic mutual funds with relative indices. For each featuring descriptive statistic we present a yearly table then we collaborate the entire sample period in another table to obtain a single figure.

Table 4.3 illustrate the yearly mean returns for the funds between 2000 and 2006 which gives a primary indication of the performance of the sample funds. The mean returns shows that the year 2003 saw superior returns compared with the relative sample period where the average mean return for Islamic funds was 0.4%. But, the year 2000 was the worst for sample Islamic funds between 2000 and 2006 at -0.4%. Figure 4.1 mimics Table 4.3 and also demonstrate the mean return for global funds, average global indices, Malaysian funds, and average Malaysian indices yearly between 2000 and 2006.

Figure 4.1: Sample Funds and Benchmarks Mean Returns (2000-2006)



Source: Constructed by author

Table 4.3: Mean Islamic Fund Returns Yearly from 2000 until 2006

Islamic Fund Code	2000	2001	2002	2003	2004	2005	20(
1	-0.0008	-0.0022	-0.0035	0.0047	0.0034	0.0020	0.0(
2	-0.0016	-0.0022	-0.0055	0.0056	0.0043	0.0037	0.0(
3	-0.0042	-0.0023	-0.0046	0.0040	0.0019	0.0019	0.0(
4	-0.0073	-0.0061	-0.0066	0.0077	0.0030	0.0025	0.0(
5	-0.0076	-0.0042	-0.0033	0.0054	0.0018	0.0019	0.0(
6	-0.0024	-0.0048	-0.0052	0.0047	0.0018	0.0015	0.0(
7	-0.0047	-0.0005	0.0099	0.0088	0.0080	0.0042	0.0(
8	-0.0018	-0.0010	0.0095	0.0081	0.0078	0.0036	0.0(
9	-0.0034	-0.0049	-0.0055	0.0034	0.0023	0.0010	0.0(
10	-0.0032	-0.0047	-0.0053	0.0036	0.0025	0.0011	0.0(
11	-0.0054	-0.0057	-0.0043	0.0043	0.0012	0.0010	0.0(
12	-0.0003	-0.0017	-0.0031	0.0086	0.0056	0.0027	0.0(
13	-0.0028	-0.0024	-0.0049	0.0043	0.0020	0.0018	0.0(
FTSE Global Islamic	-0.0029	-0.0036	-0.0049	0.0050	0.0024	0.0015	0.0(
FTSE All World	-0.0017	-0.0032	-0.0044	0.0052	0.0029	0.0017	0.0(
AVG Global Islamic Funds	**-0.0035**	**-0.0033**	**-0.0025**	**0.0056**	**0.0035**	**0.0022**	**0.0(**
Average Global Index	**-0.0023**	**-0.0034**	**-0.0046**	**0.0051**	**0.0026**	**0.0016**	**0.0(**
14	-0.0015	0.0004	-0.0006	0.0039	0.0016	0.0001	0.0(
15	-0.0037	-0.0020	-0.0041	0.0000	-0.0019	-0.0043	0.0(
16	-0.0039	-0.0010	-0.0010	0.0025	0.0004	-0.0040	-0.0(
17	-0.0070	0.0011	-0.0011	0.0027	0.0023	-0.0046	0.0(
18	-0.0031	0.0014	-0.0003	0.0025	-0.0003	-0.0014	0.0(
19	-0.0041	-0.0014	0.0008	0.0012	-0.0016	-0.0025	0.0(
20	-0.0054	0.0022	0.0020	0.0024	0.0002	-0.0018	0.0(
21	-0.0051	-0.0008	-0.0013	0.0014	-0.0003	-0.0024	-0.0(
22	-0.0070	0.0000	0.0008	0.0013	-0.0007	-0.0031	0.0(
23	-0.0023	0.0008	0.0004	0.0014	-0.0015	-0.0020	0.0(
24	-0.0058	0.0022	0.0009	0.0015	-0.0003	-0.0032	0.0(
25	-0.0063	0.0013	0.0008	0.0030	0.0008	-0.0011	0.0(
26	-0.0029	0.0013	0.0016	0.0059	0.0020	-0.0009	0.0(
27	-0.0067	0.0008	-0.0004	0.0027	-0.0022	0.0004	0.0(
28	-0.0023	0.0012	0.0007	0.0033	0.0000	-0.0022	0.0(
FTSE Bursa Malaysia	-0.0044	0.0007	-0.0007	0.0037	0.0026	-0.0012	0.0(
KLCI	-0.0030	0.0008	-0.0010	0.0037	0.0030	-0.0001	0.0(
AVG Malaysian Islamic Funds	**-0.0045**	**0.0005**	**-0.0001**	**0.0024**	**-0.0001**	**-0.0022**	**0.0(**
AVG Malaysian Indices	**-0.0037**	**0.0007**	**-0.0009**	**0.0037**	**0.0028**	**-0.0007**	**0.0(**
Total Fund AVG	***-0.0040***	***-0.0014***	***-0.0013***	***0.0040***	***0.0017***	***0.0000***	***0.0(***

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Table 4.4 presents average weekly returns for the whole period for each fund over the sample period. Looking at the general picture, majority Islamic funds obtain average negative returns for the sample period ignoring the fact that some years were positive.

However, the overall average return for the entire sample is positive at 0.003% where global funds obtained higher average positive mean returns compared to Malaysian funds.

Table 4.4: Mean Weekly Return Between 2000-2006

Fund Code	Fund Mean Return
Global Islamic Funds	
1	0.0839%
2	0.0903%
3	-0.0314%
4	-0.0809%
5	-0.0569%
6	-0.0470%
7	0.3897%
8	0.3994%
9	-0.0795%
10	-0.0659%
11	-0.0968%
12	0.1848%
13	-0.0077%
Malaysian Islamic Funds	
14	0.0794%
15	-0.2104%
16	-0.1044%
17	-0.0863%
18	-0.0041%
19	-0.1005%
20	0.0115%
21	-0.1336%
22	-0.1118%
23	-0.0288%
24	-0.0460%
25	0.0069%
26	0.1463%
27	-0.0635%
28	0.0493%
AVG	**0. 003%**

The following table presents fund return minus average market return, similar to Romacho and Cortez's (2006) descriptive statistics. Table 4.5 shows if fund develops excess return over the market benchmark between 2000 and 2006. The market index used for global funds 1-13 is the average of the FTSE Global Islamic Index and the FTSE All World Index. For Malaysian funds 14-28, the average of the FTSE Bursa Malaysia and the KLCI are used as market index. Typically, Malaysian Islamic funds underperformed their benchmarks, whereas for most years (apart from 2000 and 2006) global Islamic funds outperformed global indices.

Similarly Table 4.6 presents excess returns of the Islamic funds over the market index but for the entire sample period. Again, all Malaysian Islamic funds obtained negative returns over the market indicating that the average market benchmark performed better than these funds. The funds excess return over the market gives an indication of a funds ability to yield higher returns compared to a market benchmark. It is a relative measure so the figure can be negative but the fund may have generated positive returns.

Table 4.7 illustrates fund returns over the risk free rate of return, we use the US 3 month Federal Reserve treasury rate as a reference. The average yearly risk free rates are at the bottom of the table which was highest in 2000 at 6%. Moreover, not a single Islamic fund was able to generate returns higher than the risk free rate and all the funds had returns below 6%. This is an opening indication that there is relatively poor performance amongst the sample Islamic funds examined.

Table 4.5: Islamic Fund Excess Returns over Market Return (Yearly)

Rp-Rm

Fund Code	2000	2001	2002	2003	2004	2005	2006
1	0.1466%	0.1246%	0.0795%	-0.0128%	0.0796%	0.0361%	0.0554
2	0.0698%	0.1198%	-0.1155%	0.0893%	0.1638%	0.2054%	0.0092
3	-0.1904%	0.1049%	-0.0433%	-0.0671%	-0.0698%	0.0274%	-0.0626
4	-0.4959%	-0.2724%	-0.2349%	0.3076%	0.0378%	0.0907%	-0.0632
5	-0.5300%	-0.0767%	0.0525%	0.1180%	-0.0891%	0.0305%	0.0514
6	-0.0047%	-0.1423%	-0.0597%	-0.0436%	-0.0800%	-0.0076%	-0.0634
7	-0.2411%	0.2896%	1.4425%	0.3577%	0.5325%	0.2611%	-0.1847
8	0.0477%	0.2419%	1.3749%	0.3160%	0.5116%	0.1952%	-0.1475
9	-0.1059%	-0.1467%	-0.1575%	-0.0908%	-0.0334%	-0.0663%	-0.0032
10	-0.0931%	-0.1335%	-0.1441%	-0.0769%	-0.0192%	-0.0524%	0.0102
11	-0.3110%	-0.2335%	0.0275%	-0.0800%	-0.1422%	-0.0601%	0.1054
12	0.1975%	0.1693%	0.0911%	0.4159%	0.2934%	0.1120%	-0.1457
13	-0.0467%	0.0948%	-0.0328%	-0.0745%	-0.0657%	0.0190%	-0.0217
AVG Global	**-0.1198%**	**0.0108%**	**0.1754%**	**0.0891%**	**0.0861%**	**0.0608%**	**-0.0354**
14	0.2174%	-0.0283%	0.0538%	-0.0023%	-0.1146%	0.0730%	-0.0141
15	0.0018%	-0.2714%	-0.3000%	-0.3860%	-0.4710%	-0.3686%	0.0579
16	-0.0143%	-0.1753%	0.0367%	-0.1738%	-0.2361%	-0.3366%	-0.2114
17	-0.3311%	0.0340%	-0.0701%	-0.0493%	-0.0484%	-0.3903%	-0.1097
18	0.0639%	0.0653%	0.0677%	-0.1346%	-0.3110%	-0.0709%	-0.0758
19	-0.0380%	-0.2160%	0.1955%	-0.2881%	-0.4381%	-0.1874%	-0.0749
20	-0.1670%	0.1515%	0.2969%	-0.1483%	-0.2545%	-0.1146%	-0.0603
21	-0.1385%	-0.1550%	-0.0217%	-0.2480%	-0.3061%	-0.1775%	-0.2817
22	-0.3267%	-0.0682%	0.1997%	-0.2814%	-0.3511%	-0.2438%	-0.0519
23	0.1423%	0.0052%	0.1464%	-0.2575%	-0.4310%	-0.1300%	-0.0207
24	-0.2105%	0.1488%	0.2012%	-0.2515%	-0.3106%	-0.2560%	0.0192
25	-0.2608%	0.0541%	0.1930%	-0.0989%	-0.2032%	-0.0394%	0.0635
26	0.0851%	0.0580%	0.2753%	0.1940%	-0.0763%	-0.0218%	0.1680
27	-0.2973%	0.0062%	0.0478%	-0.1046%	-0.5032%	0.1029%	-0.0373
28	0.1439%	0.0473%	0.1716%	-0.0548%	-0.2833%	-0.1534%	0.1605
AVG Malaysian	**-0.0753%**	**-0.0229%**	**0.0996%**	**-0.1523%**	**-0.2892%**	**-0.1543%**	**-0.0313**
Total AVG	***-0.0976%***	***-0.0061%***	***0.1375%***	***-0.0316%***	***-0.1016%***	***-0.0467%***	***-0.0333***

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Table 4.6: Fund Excess Return on Market Return between 2000-2006

Fund Code	Rp-Rm
Global Islamic Funds	
1	0.0735%
2	0.0800%
3	-0.0417%
4	-0.0912%
5	-0.0672%
6	-0.0573%
7	0.3794%
8	0.3891%
9	-0.0898%
10	-0.0763%
11	-0.1071%
12	0.1745%
13	-0.0180%
Malaysian Islamic Funds	
14	0.0273%
15	-0.2624%
16	-0.1564%
17	-0.1383%
18	-0.0562%
19	-0.1525%
20	-0.0405%
21	-0.1857%
22	-0.1639%
23	-0.0809%
24	-0.0981%
25	-0.0452%
26	0.0942%
27	-0.1156%
28	-0.0028%
AVG	**-0.030%**

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Table 4.7: Excess Return of Islamic Funds with the Risk-Free-Rate

	Rp-Rf						
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
1	-0.06088	-0.03676	-0.01927	-0.00594	-0.01056	-0.03029	-0.04509
2	-0.06164	-0.03681	-0.02122	-0.00492	-0.00972	-0.02860	-0.04555
3	-0.06424	-0.03696	-0.02050	-0.00649	-0.01205	-0.03038	-0.04627
4	-0.06730	-0.04073	-0.02241	-0.00274	-0.01098	-0.02974	-0.04628
5	-0.06764	-0.03878	-0.01954	-0.00464	-0.01225	-0.03035	-0.04513
6	-0.06239	-0.03943	-0.02066	-0.00625	-0.01216	-0.03073	-0.04628
7	-0.06475	-0.03511	-0.00564	-0.00224	-0.00603	-0.02804	-0.04749
8	-0.06186	-0.03559	-0.00632	-0.00266	-0.00624	-0.02870	-0.04712
9	-0.06340	-0.03948	-0.02164	-0.00672	-0.01169	-0.03131	-0.04568
10	-0.06327	-0.03934	-0.02151	-0.00659	-0.01155	-0.03117	-0.04554
11	-0.06545	-0.04034	-0.01979	-0.00662	-0.01278	-0.03125	-0.04459
12	-0.06037	-0.03632	-0.01915	-0.00166	-0.00842	-0.02953	-0.04710
13	-0.06281	-0.03706	-0.02039	-0.00656	-0.01201	-0.03046	-0.04586
AVG Global	**-0.06354**	**-0.03790**	**-0.01831**	**-0.00492**	**-0.01049**	**-0.03004**	**-0.04600**
14	-0.06156	-0.03418	-0.01702	-0.00608	-0.01236	-0.03221	-0.04595
15	-0.06372	-0.03661	-0.02056	-0.00992	-0.01592	-0.03662	-0.04523
16	-0.06388	-0.03565	-0.01719	-0.00779	-0.01357	-0.03630	-0.04792
17	-0.06705	-0.03356	-0.01826	-0.00655	-0.01170	-0.03684	-0.04691
18	-0.06310	-0.03325	-0.01688	-0.00740	-0.01432	-0.03365	-0.04657
19	-0.06412	-0.03606	-0.01560	-0.00894	-0.01559	-0.03481	-0.04656
20	-0.06541	-0.03238	-0.01459	-0.00754	-0.01376	-0.03408	-0.04641
21	-0.06512	-0.03545	-0.01777	-0.00854	-0.01427	-0.03471	-0.04863
22	-0.06700	-0.03458	-0.01556	-0.00887	-0.01472	-0.03538	-0.04633
23	-0.06232	-0.03385	-0.01609	-0.00863	-0.01552	-0.03424	-0.04602
24	-0.06584	-0.03241	-0.01555	-0.00857	-0.01432	-0.03550	-0.04562
25	-0.06635	-0.03336	-0.01563	-0.00705	-0.01324	-0.03333	-0.04518
26	-0.06289	-0.03332	-0.01480	-0.00412	-0.01197	-0.03316	-0.04413
27	-0.06671	-0.03384	-0.01708	-0.00710	-0.01624	-0.03191	-0.04618
28	-0.06230	-0.03343	-0.01584	-0.00660	-0.01404	-0.03447	-0.04421
AVG Malaysian	**-0.06449**	**-0.03413**	**-0.01656**	**-0.00758**	**-0.01410**	**-0.03448**	**-0.04612**
Risk Free Rate	**0.06003**	**0.03461**	**0.01624**	**0.01028**	**0.01400**	**0.03228**	**0.04783**

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

The maximum return is the highest weekly return obtained by a fund during the sample period. Table 4.8 presents the maximum return from 2000 until 2006. The year 2000 contained the highest weekly maximum return for global and Malaysian funds at 7.41% and 8.75% respectively. This indicates that Islamic funds experienced high extreme returns at 8% compare with the relative sample period in 2000.

Table 4.8: Maximum Islamic Fund Returns Yearly from 2000 until 2006

Fund Code	2000	2001	2002	2003	2004	2005	20
1	0.0446	0.0515	0.0364	0.0530	0.0368	0.0345	0.0
2	0.1212	0.0625	0.0640	0.0485	0.0473	0.0402	0.0
3	0.0547	0.0533	0.0815	0.0580	0.0333	0.0294	0.0
4	0.0811	0.0508	0.0696	0.0658	0.0574	0.0375	0.0
5	0.0754	0.0456	0.0612	0.0408	0.0398	0.0206	0.0
6	0.0946	0.0553	0.0522	0.0588	0.0386	0.0262	0.0
7	0.0448	0.0359	0.0719	0.0603	0.0499	0.0628	0.0
8	0.0384	0.0346	0.0609	0.0423	0.0542	0.0618	0.0
9	0.0954	0.0662	0.0765	0.0618	0.0296	0.0251	0.0
10	0.0955	0.0664	0.0766	0.0620	0.0297	0.0252	0.0
11	0.0785	0.0819	0.0522	0.0575	0.0335	0.0227	0.0
12	0.0622	0.0436	0.0437	0.0726	0.0438	0.0351	0.0
13	0.0769	0.0814	0.0521	0.0651	0.0362	0.0274	0.0
FTSE Global Islamic	0.0794	0.0730	0.0497	0.0616	0.0353	0.0252	0.0
FTSE All World	0.0688	0.0807	0.0553	0.0602	0.0333	0.0226	0.0
AVG Global Islamic Funds	**0.0741**	**0.0561**	**0.0614**	**0.0574**	**0.0408**	**0.0345**	**0.0**
14	0.0556	0.0341	0.0221	0.0440	0.0341	0.0186	0.0
15	0.0877	0.0363	0.0372	0.0512	0.0355	0.0214	0.1
16	0.0898	0.0364	0.0207	0.0444	0.0395	0.0198	0.0
17	0.0845	0.0953	0.0391	0.0525	0.0592	0.0293	0.0
18	0.1888	0.0309	0.0279	0.0411	0.0368	0.0215	0.0
19	0.0908	0.0609	0.0381	0.0202	0.0236	0.0202	0.0
20	0.1375	0.0799	0.0626	0.0493	0.0672	0.0276	0.0
21	0.0690	0.0427	0.0264	0.0395	0.0447	0.0218	0.0
22	0.1056	0.0731	0.0399	0.0416	0.0428	0.0268	0.0
23	0.0836	0.0424	0.0383	0.0353	0.0389	0.0171	0.0
24	0.0698	0.0688	0.0498	0.0397	0.0333	0.0194	0.0
25	0.0435	0.0451	0.0369	0.0577	0.0401	0.0190	0.0
26	0.0398	0.0450	0.0342	0.0440	0.0372	0.0201	0.0
27	0.1110	0.1307	0.0550	0.0497	0.0270	0.0222	0.0
28	0.0552	0.0381	0.0369	0.0463	0.0195	0.0175	0.0
FTSE Bursa Malaysia	0.1289	0.0683	0.0464	0.0595	0.0541	0.0322	0.0
KLCI	0.1342	0.0598	0.0419	0.0682	0.0468	0.0279	0.0
AVG Malaysian Islamic Funds	**0.0875**	**0.0573**	**0.0377**	**0.0438**	**0.0386**	**0.0215**	**0.0**
Total AVG	***0.0808***	***0.0567***	***0.0496***	***0.0506***	***0.0397***	***0.0280***	***0.0***

Conversely, table 4.9 is similar presenting maximum returns but for the entire sample period. The average maximum weekly return obtained by global and Malaysian funds are 8.37% and 9.39% respectively but the overall average is 8.9% which indicates that there is considerable overperforming weeks amongst sample Islamic funds.

Table 4.9: Maximum Weekly Return Between 2000-2006

Fund Code	Fund Maximum Return
Global Islamic Funds	
1	5.2990%
2	12.1232%
3	8.1481%
4	8.1136%
5	7.5408%
6	9.4641%
7	8.8340%
8	6.5539%
9	9.5423%
10	9.5533%
11	8.1916%
12	7.2577%
13	8.1433%
Malaysian Islamic Funds	
14	5.5638%
15	13.3796%
16	8.9767%
17	9.5260%
18	18.8817%
19	9.0813%
20	13.7510%
21	6.8987%
22	10.5591%
23	8.3611%
24	6.9778%
25	5.7750%
26	4.5043%
27	13.0703%
28	5.5168%

Minimum return identifies the lowest weekly return achieved by a fund. Table 4.10 illustrate in detail from 2000 until 2006 the minimum return obtained. It is essential to examine maximum and minimum returns to identify the ceiling and floor rates that a fund offers. Also, it gives a general idea or a flavour of the performance of a mutual fund. The year 2000 had the highest minimum return which suggest that it was a volatile year.

Table 4.10: Minimum Islamic Fund Returns Yearly - 2000 until 2006

Fund Code	2000	2001	2002	2003	2004	2005	200
1	-0.0575	-0.0812	-0.0680	-0.0375	-0.0331	-0.0410	-0.04
2	-0.1787	-0.1228	-0.0604	-0.0475	-0.0440	-0.0466	-0.05
3	-0.0681	-0.0726	-0.0570	-0.0338	-0.0321	-0.0320	-0.05
4	-0.0878	-0.1058	-0.0653	-0.0377	-0.0469	-0.0535	-0.06
5	-0.0997	-0.0991	-0.0578	-0.0346	-0.0547	-0.0279	-0.05
6	-0.0821	-0.0915	-0.0743	-0.0355	-0.0329	-0.0340	-0.05
7	-0.0535	-0.0913	-0.0620	-0.0364	-0.0579	-0.0651	-0.09
8	-0.0412	-0.0716	-0.0600	-0.0535	-0.0606	-0.0590	-0.09
9	-0.0815	-0.0819	-0.0600	-0.0340	-0.0327	-0.0284	-0.03
10	-0.0814	-0.0816	-0.0599	-0.0340	-0.0326	-0.0282	-0.03
11	-0.0974	-0.1131	-0.0579	-0.0375	-0.0387	-0.0262	-0.04
12	-0.0480	-0.0686	-0.0450	-0.0208	-0.0383	-0.0527	-0.05
13	-0.1017	-0.1004	-0.0637	-0.0353	-0.0315	-0.0347	-0.05
FTSE Global Islamic	-0.0969	-0.0982	-0.0563	-0.0352	-0.0381	-0.0300	-0.04
FTSE All World	-0.0744	-0.0972	-0.0545	-0.0380	-0.0375	-0.0268	-0.04
AVG Global Islamic Funds	**-0.0830**	**-0.0909**	**-0.0609**	**-0.0368**	**-0.0412**	**-0.0407**	**-0.05**
14	-0.0403	-0.0424	-0.0755	-0.0168	-0.0811	-0.0500	-0.04
15	-0.1078	-0.0734	-0.1154	-0.1011	-0.0432	-0.0421	-0.10
16	-0.1221	-0.0893	-0.1092	-0.0907	-0.0985	-0.0960	-0.08
17	-0.0741	-0.0795	-0.0327	-0.0500	-0.0454	-0.0898	-0.05
18	-0.1240	-0.0364	-0.0316	-0.0233	-0.1195	-0.0224	-0.08
19	-0.0625	-0.0385	-0.0349	-0.0324	-0.0818	-0.0747	-0.03
20	-0.0912	-0.0764	-0.0327	-0.0399	-0.0614	-0.0383	-0.03
21	-0.0976	-0.1078	-0.0976	-0.0483	-0.1014	-0.0691	-0.09
22	-0.1006	-0.0723	-0.0559	-0.0728	-0.0926	-0.1036	-0.03
23	-0.0572	-0.0518	-0.0267	-0.0499	-0.0895	-0.0183	-0.04
24	-0.0732	-0.0692	-0.0325	-0.0899	-0.0453	-0.0704	-0.04
25	-0.0620	-0.0500	-0.0458	-0.0426	-0.0731	-0.0260	-0.02
26	-0.0424	-0.0486	-0.0227	-0.0231	-0.0405	-0.0132	-0.03
27	-0.1429	-0.1469	-0.0402	-0.0225	-0.1293	-0.0177	-0.02
28	-0.0492	-0.0560	-0.0308	-0.0261	-0.0444	-0.0338	-0.02
FTSE Bursa Malaysia KLCI	-0.0748	-0.1171	-0.0462	-0.0278	-0.0586	-0.0230	-0.03
	-0.0695	-0.1082	-0.0376	-0.0280	-0.0496	-0.0212	-0.02
AVG Malaysian Islamic Funds	**-0.0831**	**-0.0692**	**-0.0523**	**-0.0486**	**-0.0765**	**-0.0510**	**-0.05**
Total Funds AVG	***-0.0830***	***-0.0801***	***-0.0566***	***-0.0427***	***-0.0589***	***-0.0459***	***-0.05***

Table 4.11 is similar presenting an average figure for the entire sample period. The average minimum return for global and Malaysian funds are -9.71% and -8.24% respectively. But the average overall minimum return for the sample Islamic funds -8.9%. Compared to maximum returns, there is roughly a 20% range between -10% and 10%.

Table 4.11: Minimum Weekly Return Between 2000-2006

Fund Code	Fund Minimum Return
Global Islamic Funds	
1	-8.1239%
2	-17.8705%
3	-7.2626%
4	-10.5768%
5	-9.9670%
6	-9.1461%
7	-9.5055%
8	-9.1212%
9	-8.1946%
10	-8.1605%
11	-11.3121%
12	-6.8609%
13	-10.1672%
Malaysian Islamic Funds	
14	-8.1104%
15	-11.5413%
16	-12.2062%
17	9.5260%
18	-12.4007%
19	-8.1807%
20	-9.1245%
21	-10.7805%
22	-10.3610%
23	-8.9515%
24	-8.9933%
25	-7.3139%
26	-4.8554%
27	-14.6919%
28	-5.5964%

Range of returns is the maximum return subtracted minimum return presented in Table 4.12. The range of returns measures the volatility in fund performance and the higher the range the higher the volatility. For example, the year 2000 from Table 4.12 experienced the highest range of returns for global and Malaysian Islamic funds at 15.7% and 17.06% respectively.

Table 4.12: Range of Islamic Fund Returns Yearly (2000-2006)

Fund Code	2000	2001	2002	2003	2004	2005	20
1	0.1021	0.1328	0.1044	0.0905	0.0698	0.0755	0.0
2	0.2999	0.1853	0.1244	0.0960	0.0914	0.0869	0.1
3	0.1228	0.1259	0.1384	0.0918	0.0654	0.0614	0.0
4	0.1689	0.1566	0.1349	0.1035	0.1043	0.0909	0.1
5	0.1751	0.1447	0.1190	0.0755	0.0945	0.0485	0.0
6	0.1768	0.1468	0.1264	0.0943	0.0715	0.0601	0.1
7	0.0984	0.1272	0.1339	0.0967	0.1078	0.1279	0.1
8	0.0796	0.1062	0.1209	0.0958	0.1148	0.1208	0.1
9	0.1769	0.1481	0.1364	0.0958	0.0623	0.0534	0.0
10	0.1769	0.1480	0.1365	0.0960	0.0623	0.0534	0.0
11	0.1759	0.1950	0.1102	0.0950	0.0722	0.0489	0.0
12	0.1102	0.1122	0.0887	0.0934	0.0821	0.0878	0.0
13	0.1786	0.1818	0.1158	0.1005	0.0677	0.0622	0.0
FTSE Global Islamic	0.1763	0.1711	0.1060	0.0969	0.0734	0.0552	0.0
FTSE All World	0.1432	0.1779	0.1098	0.0982	0.0708	0.0493	0.0
AVG Global Islamic Funds	**0.1571**	**0.1470**	**0.1223**	**0.0942**	**0.0820**	**0.0752**	**0.1**
14	0.0960	0.0765	0.0977	0.0608	0.1152	0.0686	0.0
15	0.1954	0.1098	0.1527	0.1524	0.0787	0.0635	0.2
16	0.2118	0.1257	0.1299	0.1351	0.1380	0.1158	0.1
17	0.1586	0.1748	0.0718	0.1025	0.1046	0.1191	0.0
18	0.3128	0.0673	0.0595	0.0644	0.1563	0.0439	0.1
19	0.1533	0.0994	0.0731	0.0527	0.1054	0.0949	0.0
20	0.2288	0.1563	0.0954	0.0892	0.1286	0.0659	0.0
21	0.1666	0.1505	0.1240	0.0879	0.1461	0.0909	0.1
22	0.2062	0.1455	0.0958	0.1144	0.1354	0.1304	0.0
23	0.1408	0.0941	0.0650	0.0851	0.1284	0.0354	0.0
24	0.1430	0.1380	0.0823	0.1297	0.0786	0.0898	0.0
25	0.1055	0.0951	0.0827	0.1004	0.1132	0.0450	0.0
26	0.0822	0.0936	0.0569	0.0671	0.0778	0.0333	0.0
27	0.2539	0.2776	0.0952	0.0722	0.1563	0.0399	0.0
28	0.1044	0.0941	0.0677	0.0724	0.0639	0.0513	0.0
FTSE Bursa Malaysia	0.2037	0.1854	0.0926	0.0872	0.1127	0.0551	0.0
KLCI	0.2037	0.1680	0.0795	0.0962	0.0964	0.0490	0.0
AVG Malaysian Islamic Funds	**0.1706**	**0.1266**	**0.0900**	**0.0924**	**0.1151**	**0.0725**	**0.0**
Total AVG	**0.1638**	**0.1368**	**0.1061**	**0.0933**	**0.0986**	**0.0739**	**0.0**

Table 4.13 is similar but cover the entire sample period. The average range of returns for global Islamic funds is 18.08% and the average range of returns for Malaysian funds is 19.08% which indicates that Malaysian funds have more volatility characteristics compared with global funds. The average overall range of returns is 18.6%.

Table 4.13: Range of Weekly Return Between 2000-2006

Fund Code	Mutual Fund Range of Return
Global Islamic Funds	
1	13.4229%
2	29.9937%
3	15.4107%
4	18.6904%
5	17.5078%
6	18.6103%
7	18.3395%
8	15.6751%
9	17.7369%
10	17.7137%
11	19.5037%
12	14.1186%
13	18.3105%
Malaysian Islamic Funds	
14	13.6742%
15	24.9210%
16	21.1829%
17	21.8624%
18	31.2824%
19	17.2620%
20	22.8754%
21	17.6792%
22	20.9201%
23	17.3126%
24	15.9711%
25	13.0889%
26	9.3598%
27	27.7622%
28	11.1132%

The next descriptive statistic discussed is the standard deviation of fund returns which is a measure of dispersion in fund performance during a specified time interval. Table 4.14 presents the yearly standard deviation from 2000 until 2006. Also, Table 4.15 presents the standard deviation and variance but for the entire sample period. The standard deviation of returns can be seen and compared with the range of returns.

Table 4.14: Standard Deviation of Fund Returns Yearly (2000-2006)

Fund Code	2000	2001	2002	2003	2004	2005	2006
1	0.01895	0.02220	0.02043	0.01686	0.01513	0.01822	0.0185
2	0.04765	0.03545	0.02707	0.01963	0.01793	0.01651	0.0229
3	0.02488	0.02576	0.02640	0.01736	0.01275	0.01283	0.0166
4	0.03014	0.02682	0.02884	0.02747	0.02262	0.01687	0.0241
5	0.03698	0.02543	0.02315	0.01663	0.01998	0.01194	0.0212
6	0.04232	0.02796	0.02485	0.01860	0.01502	0.01464	0.0215
7	0.02743	0.02825	0.02748	0.02075	0.02561	0.02934	0.0341
8	0.01877	0.02301	0.02284	0.02014	0.02423	0.02625	0.0291
9	0.03842	0.03266	0.02598	0.01845	0.01258	0.01136	0.0159
10	0.03842	0.03247	0.02596	0.01848	0.01258	0.01134	0.0159
11	0.03919	0.03977	0.02588	0.02075	0.01457	0.01306	0.0213
12	0.01989	0.02098	0.01672	0.01796	0.01848	0.01946	0.0227
13	0.02967	0.02955	0.02461	0.01948	0.01394	0.01530	0.0217
AVG Global Islamic Funds	**0.03175**	**0.02849**	**0.02463**	**0.01943**	**0.01734**	**0.01670**	**0.0220**
FTSE Global Islamic Index	**0.02881**	**0.03064**	**0.02440**	**0.01960**	**0.01507**	**0.01405**	**0.0205**
FTSE All World Index	**0.02385**	**0.02856**	**0.02430**	**0.01933**	**0.01488**	**0.01300**	**0.0196**
14	0.02107	0.01426	0.01452	0.01262	0.01765	0.01054	0.0157
15	0.03800	0.02315	0.02309	0.02132	0.01468	0.01261	0.0303
16	0.03213	0.02135	0.01879	0.01868	0.01846	0.01566	0.0178
17	0.03688	0.02642	0.01610	0.01649	0.01679	0.01622	0.0162
18	0.04625	0.01295	0.01281	0.01384	0.02151	0.00938	0.0182
19	0.03734	0.02342	0.01329	0.01097	0.01466	0.01271	0.0138
20	0.04155	0.03090	0.01796	0.01836	0.01829	0.01194	0.0138
21	0.03665	0.02422	0.01745	0.01499	0.01886	0.01212	0.0174
22	0.03872	0.03109	0.01487	0.01594	0.01803	0.01665	0.0132
23	0.02663	0.01766	0.01339	0.01379	0.01906	0.00903	0.0153
24	0.03099	0.02482	0.01340	0.01803	0.01259	0.01243	0.0139
25	0.02002	0.01800	0.01744	0.01745	0.01993	0.00904	0.0125
26	0.02172	0.01760	0.01322	0.01416	0.01255	0.00817	0.0114
27	0.04205	0.04294	0.02003	0.01283	0.02228	0.00828	0.0105
28	0.02490	0.01793	0.01497	0.01474	0.01125	0.00940	0.0102
AVG Malaysian Islamic Funds	**0.03299**	**0.02311**	**0.01609**	**0.01561**	**0.01711**	**0.01161**	**0.0154**
FTSE Bursa Malaysia	**0.03676**	**0.03218**	**0.01951**	**0.01944**	**0.01883**	**0.01262**	**0.0117**
KLCI	**0.03597**	**0.02943**	**0.01755**	**0.01883**	**0.01761**	**0.01178**	**0.0105**

Table 4.15: Standard Deviation and Variance (2000-2006)

Fund Code	Standard Deviation	Variance
1	0.01880	0.00035
2	0.02884	0.00083
3	0.02049	0.00042
4	0.02603	0.00068
5	0.02359	0.00056
6	0.02527	0.00064
7	0.02776	0.00077
8	0.02366	0.00056
9	0.02446	0.00060
10	0.02442	0.00060
11	0.02707	0.00073
12	0.01962	0.00039
13	0.02282	0.00052
14	0.01546	0.00024
15	0.02421	0.00059
16	0.02104	0.00044
17	0.02226	0.00050
18	0.02244	0.00050
19	0.02009	0.00040
20	0.02413	0.00058
21	0.02160	0.00047
22	0.02328	0.00054
23	0.01717	0.00029
24	0.01941	0.00038
25	0.01704	0.00029
26	0.01491	0.00022
27	0.02667	0.00071
28	0.01575	0.00025
AVG	**0.02208**	**0.00050**

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Finally, an important descriptive statistic relating to fund performance is the fund beta. A fund beta measures the sensitivity between the fund and the market where a high beta indicates a strong relationship between the fund and the market index. Table 4.16 illustrate global and Malaysian Islamic fund beta's with Islamic benchmarks, the FTSE Global Islamic index and the FTSE Bursa Malaysia index. There are relatively high betas in the years 2005 and 2006 for both global and Malaysian funds. This possibly indicates that sample funds matched the movement of the market. In fact, for the fund sector overall, beta have generally increased from 2003 to 2006 suggesting closer sensitivity with the market in recent years.

Table 4.17 also report Islamic fund betas similar to those reported in Table 4.16 but this time uses conventional market benchmarks. The conventional benchmarks used are the FTSE All World Index and the KLCI. Again the years 2005 and 2006 experienced the highest fund betas for global and Malaysian Islamic funds compared to previous sample years again suggesting that such funds move more closely with the market.

Figure 4.2 illustrate the betas for global Islamic funds for the entire sample period from 2000 until 2006. The indices used are the FTSE Global Islamic index and FTSE All World Index. All the funds have betas below 1.0 except fund 2. Figure 4.3 shows the Malaysian Islamic fund betas from 2000 until 2006. The indices used to compute the beta were FTSE Bursa Malaysia and the KLCI. Malaysian funds overall have lower betas compared to global funds.

Table 4.16: Islamic Fund Beta with Islamic Benchmarks (Yearly)

Fund Code	2000	2001	2002	2003	2004	2005	2006
1	0.28078	0.63015	0.66746	0.76040	0.82547	1.19188	0.87652
2	1.40050	1.08031	1.04793	0.88330	1.01743	1.02729	1.05754
3	0.62092	0.72113	0.84528	0.71367	0.67616	0.76255	0.65970
4	0.81707	0.83553	1.06154	1.01890	1.29670	0.98252	1.09394
5	0.11920	0.72487	0.68742	0.54129	0.98580	0.79439	0.96644
6	1.06770	0.88511	0.86450	0.93882	0.98738	1.03289	1.02716
7	0.44750	0.44137	0.01600	0.18920	0.53280	1.39380	1.30130
8	0.26762	0.43631	0.03140	0.26150	0.51840	1.27220	1.09590
9	0.78190	0.80510	0.57690	0.60050	0.47346	0.47632	0.43360
10	0.78210	0.79969	0.57680	0.60090	0.47427	0.47528	0.43360
11	0.47920	1.21842	1.00148	1.01824	0.91256	0.88938	1.00656
12	0.49312	0.65382	0.51376	0.39840	0.80900	1.12270	0.89800
13	1.00306	0.95745	0.95565	0.97038	0.90632	1.07199	1.03715
AVG Global Islamic Funds	**0.65851**	**0.78379**	**0.68047**	**0.68427**	**0.80121**	**0.96101**	**0.91442**
14	0.53161	0.42888	0.39912	0.58247	0.72205	0.61956	1.04690
15	0.74700	0.60369	0.72280	0.78200	0.64700	0.81481	0.58250
16	0.53769	0.56184	0.44520	0.63740	0.61280	0.78480	0.85030
17	0.80086	0.64944	0.57434	0.74289	0.82584	0.61380	1.12240
18	0.62830	0.45780	0.57862	0.66483	0.74910	0.66485	1.18470
19	0.76712	0.44613	0.35313	0.28217	0.43971	0.69200	0.90090
20	0.79140	0.72997	0.72707	0.76942	0.78810	0.56220	1.00380
21	0.60980	0.57028	0.47540	0.59670	0.87231	0.69610	1.16870
22	0.62027	0.74539	0.40065	0.51582	0.70447	0.81160	0.98065
23	0.62027	0.55844	0.59495	0.50667	0.72028	0.69087	1.19741
24	0.48775	0.60008	0.42978	0.44100	0.39664	0.73221	0.65210
25	0.37080	0.49648	0.69738	0.76885	0.84897	0.50917	0.78810
26	0.51459	0.58257	0.62781	0.66077	0.64082	0.62464	0.84420
27	0.88930	0.67860	0.79437	0.56420	0.44840	0.58094	0.76098
28	0.60108	0.55889	0.65991	0.68524	0.43329	0.55340	0.71794
AVG Malaysian Islamic Funds	**0.63452**	**0.57790**	**0.56537**	**0.61336**	**0.65665**	**0.66340**	**0.92011**

**Fund beta from 1-13 are with FTSE Global Islamic Index and Fund beta from 14-28 are with the FTSE Bursa Malaysia Index*

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Table 4.17: Islamic Fund Beta with Conventional Benchmarks (Yearly)

Fund Code	2000	2001	2002	2003	2004	2005	2006
1	0.32160	0.70865	0.72663	0.78014	0.84740	1.28594	0.90844
2	1.56620	1.12984	1.05855	0.87227	1.01729	1.10935	1.10529
3	0.72270	0.75860	0.81820	0.73084	0.68726	0.83182	0.68423
4	0.93750	0.85575	1.07505	1.01310	1.30410	1.03780	1.14383
5	0.11790	0.77461	0.69083	0.54498	1.03920	0.86214	1.00619
6	1.11830	0.92786	0.84722	0.94022	0.98131	1.11674	1.06318
7	0.58470	0.49517	0.02600	0.21400	0.56890	1.50710	1.34930
8	0.36234	0.48156	0.07050	0.25330	0.57440	1.38840	1.16070
9	0.88190	0.83680	0.58060	0.60380	0.50241	0.53510	0.46240
10	0.88210	0.83180	0.58030	0.60410	0.50325	0.53390	0.46230
11	0.46280	1.24312	1.02320	1.02413	0.92358	0.96233	1.05478
12	0.60819	0.69086	0.52558	0.42540	0.83470	1.19870	0.90810
13	1.17100	1.01567	0.98035	0.96981	0.90278	1.14368	1.06500
AVG Global Islamic Funds	**0.74902**	**0.82695**	**0.69254**	**0.69047**	**0.82204**	**1.03946**	**0.95183**
14	0.51881	0.46007	0.42670	0.60793	0.73529	0.64750	1.10190
15	0.70780	0.65109	0.76550	0.75400	0.67064	0.86226	0.48430
16	0.48250	0.60395	0.51930	0.65840	0.63030	0.77270	0.92980
17	0.76981	0.69860	0.65396	0.77695	0.88057	0.68440	1.11620
18	0.61390	0.49436	0.63171	0.67289	0.78580	0.71179	1.40440
19	0.71390	0.48129	0.38286	0.26799	0.46176	0.71110	0.91590
20	0.77010	0.74550	0.74638	0.79995	0.81594	0.60760	1.08400
21	0.60930	0.60859	0.52690	0.61790	0.90536	0.69760	1.14580
22	0.74230	0.77036	0.40740	0.53258	0.72850	0.86590	1.06000
23	0.62304	0.60242	0.63836	0.55848	0.76450	0.73171	1.29040
24	0.50430	0.64155	0.47493	0.46430	0.42188	0.78343	0.64770
25	0.39215	0.52929	0.74395	0.78282	0.88446	0.53741	0.80440
26	0.49607	0.61831	0.66883	0.64540	0.67240	0.66370	0.88130
27	0.81200	0.68430	0.81530	0.56950	0.48950	0.62381	0.79570
28	0.57952	0.59226	0.67926	0.66185	0.44829	0.56943	0.76030
AVG Malaysian Islamic Funds	**0.62237**	**0.61213**	**0.60542**	**0.62473**	**0.68635**	**0.69802**	**0.96147**

**Fund beta from 1-13 are with FTSE All World Index and Fund beta from 14-28 are with the KLCI*

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Figure 4.2: Global Funds Beta with FTSE All World and FTSE Global Islamic

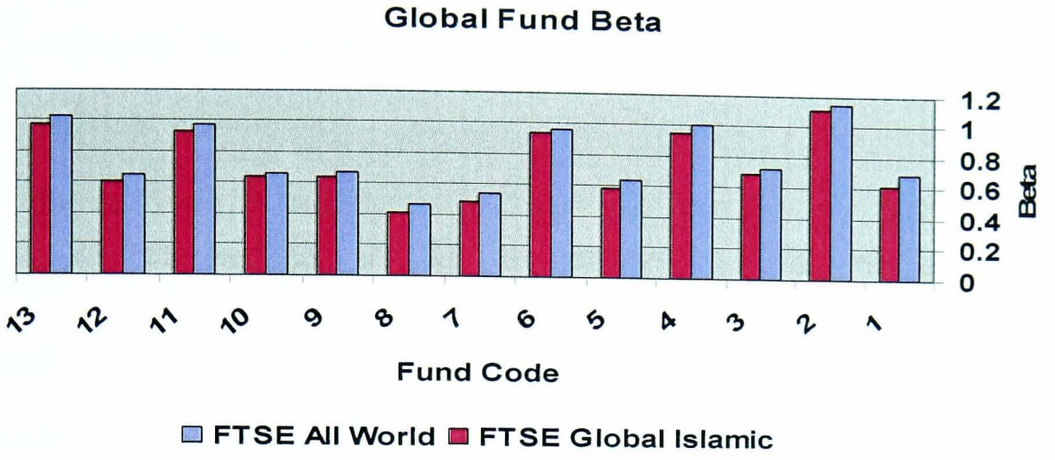
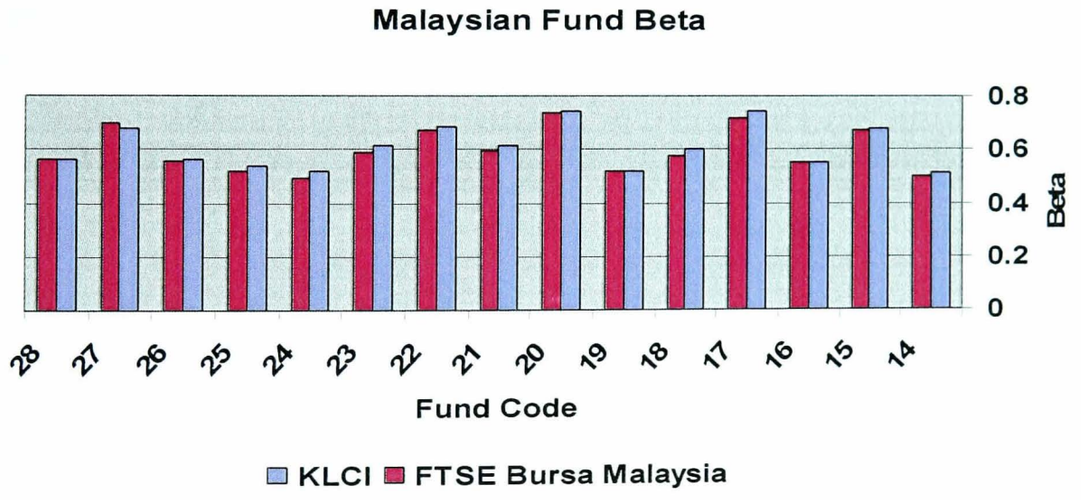


Figure 4.3:Malaysian Funds Beta with the KLCI and FTSE Bursa Malaysia



Source: constructed and calculated by author

4.5 Correlation Analysis

This section will present a correlation analysis between sample Islamic funds and market benchmarks. The correlation analysis is carried out to examine the relationship between variables selected to be included in the regression which include fund and market returns. First, a correlation analysis will be examined between market benchmarks. The correlation is carried out between market benchmarks to see the relationship between global indices and Malaysian indices. Table 4.18 bellow illustrate the correlation between the four indices used.

Table 4.18: Correlation between Market Indices

	FTSE Global Islamic	FTSE Bursa Malaysia	FTSE All World
FTSE Bursa Malaysia	0.233***		
FTSE All World	0.974***	0.242***	
KLCI	0.222***	0.978***	0.232***

**** Significant at 1%,** Significant at 5%, and * Significant at 10%*
Source: constructed by author

From table 4.18 above, it can be seen that all the figures are highly significant at the 1% level. Also, there is a strong positive correlation between FTSE Global Islamic index and FTSE All World conventional index at 0.974. However, there are also weak positive correlations between Malaysian indices and global indices, all under 0.25. Moreover, there is a strong positive correlation at 0.978 between the Malaysian indices, the FTSE Bursa Malaysia and the KLCI. The following table demonstrates the correlation between sample funds and market indices. Table 4.19 presents the relationship between each fund and each index. As to be expected global funds have strong positive correlation with global indices, the FTSE Global Islamic index and the FTSE All World Index but weak positive correlation with Malaysian indices. On the

other hand, Malaysian funds show a strong positive correlation with local indices the FTSE Bursa Malaysia index and the KLCI. This provides stronger evidence to use local Malaysian indices to examine the performance of Malaysian funds. Moreover, Lehmann and Modest (1987) stress the importance of choosing a relevant benchmark to assess the performance of a mutual fund. They indicate that a proper choice of an index will provide better estimation and results. So, from the correlation analysis of the benchmarks adopted, FTSE Global Islamic Index, FTSE All World Index, FTSE Bursa Malaysia, and KLCI appear the most appropriate for our study of Islamic mutual funds. This has been concluded from the results in Table 4.19 since the majority of correlation coefficients are greater than 0.5 between funds and the relevant market benchmarks.

able 4.19: Correlation Between Market Indices and Sample Funds

Fund Code lobal Islamic Funds	FTSE Global Islamic		FTSE Bursa Malaysia		FTSE All World		KLCI	
1	0.7510	***	0.1550	***	0.7860	***	0.1330	**
2	0.8860	***	0.2600	***	0.8490	***	0.2430	***
3	0.7720	***	0.2120	***	0.7580	***	0.1790	***
4	0.8380	***	0.3390	***	0.8200	***	0.3160	***
5	0.5640	***	0.3430	***	0.5740	***	0.2820	***
6	0.8540	***	0.3190	***	0.8090	***	0.2910	***
7	0.6010	***	0.1900	***	0.6130	***	0.1720	***
8	0.6010	***	0.2200	***	0.6220	***	0.2060	***
9	0.6000	***	0.3200	***	0.5790	***	0.2860	***
10	0.6000	***	0.3200	***	0.5780	***	0.2860	***
11	0.7870	***	0.1810	***	0.7650	***	0.1280	**
12	0.7080	***	0.2630	***	0.7100	***	0.2710	***
13	0.9710	***	0.2140	***	0.9550	***	0.2040	***
Malaysian slamic Funds								
14	0.2410	***	0.7630	***	0.2500	***	0.7380	***
15	0.2250	***	0.6570	***	0.2240	***	0.6230	***
16	0.0930	*	0.6150	***	0.1000	*	0.5810	***
17	0.2240	***	0.7620	***	0.2060	***	0.7420	***
18	0.1210	**	0.6090	***	0.1350	**	0.5950	***
19	0.1360	**	0.6120	***	0.1120	**	0.5740	***
20	0.1410	*	0.7210	***	0.1400	***	0.6850	***
21	0.1500	***	0.6540	***	0.1530	***	0.6350	***
22	0.1820	***	0.6810	***	0.1750	***	0.6520	***
23	0.1980	***	0.8090	***	0.2080	***	0.8000	***
24	0.1780	***	0.6000	***	0.1620	*	0.5940	***
25	0.1910	***	0.7170	***	0.2110	***	0.7030	***
26	0.2900	***	0.8820	***	0.2950	***	0.8400	***
27	0.1140	**	0.6190	***	0.1090	**	0.5690	***
28	0.2190	***	0.8410	***	0.2230	***	0.7960	***

*** Significant at 1%,** Significant at 5%, and * Significant at 10%*

ource: constructed by author

The fund is tagged with a code to unify and clarify presentation, a reference to fund name is

vailable on p.122

4.6 Conclusion

This chapter discussed the methodology and data intended to be used to examine the performance of a sample of Islamic mutual funds. As previously discussed, there are approaches to analyse the performance of mutual funds and these focus on stock selection and market timing. Stock selection models discussed include the Sharpe and Treynor ratios which determine the ranking of a fund relative to a fund sample. Furthermore, Jensen, and Fama and French determine stock selection by the positive and significant alpha term in their model of fund returns. On the other hand, market timing is identified by using Treynor and Mazuy's and Henriksson and Merton's methods; if the gamma term is positive and significant. Moreover, we also review the recent use of conditional market timing models that use lagged macroeconomic variables to explain fund timing. We will also test for performance persistence on a sample Islamic mutual funds in the following chapter. However, Goetzmann, Ingersoll, Spiegel, and Welch (2007) have issues against performance models since they claim that performance could be manipulated but we explain that the strength of stock selection and market timing models yields strong results and is justified by the extensive use of such approaches in extant empirical fund performance literature.

Our sample data includes 28 Islamic funds from January 2000 until September 2006 using weekly returns. It was a challenging stage collecting data on Islamic funds which consumed a major time period for this research project. The 28 Islamic funds consist of 13 global funds invested in global markets and registered in different geographical regions; also, there are 15 Malaysian funds invested in local Malaysian markets. Moreover, different local Malaysian and global market benchmarks will be used

to assess the relative performance of Islamic mutual funds (FTSE Bursa Malaysia, KLCI, FTSE Global Islamic Index, and FTSE All World Index).

Hence, this chapter has also presented descriptive statistics on sample funds along with a correlation matrix. The descriptive statistics give a flavour of the sample data and identify briefly how data relate with each other. For example, we have seen how the size of Islamic mutual funds relate to other type of funds where the average size of an Islamic fund is smaller compared to conventional and ethical funds. Moreover, descriptive statistics also indicated that the mean returns for Islamic funds during the sample period were small where majority Islamic funds were not able to sustain returns greater than the risk free rate of return, which is the United States federal reserve rate. Also, the range of returns that Islamic funds yield, which is the difference between the maximum and minimum return, was between -10% and no more than 10%. This does not indicate that there is no sensitivity between Islamic funds and the market; however, majority funds obtained positive betas indicating that there are association between the funds and the markets where funds are invested. Finally, we report a correlation analysis between the sample Islamic mutual funds examined with the relative benchmarks and express strong positive correlation indicating accurate approximation to measure the relative performance of Islamic mutual funds. On the other hand, the following chapter report the empirical results from the models discussed in this chapter.

Chapter 5 - Results

5.1 Introduction

This chapter will present results on the performance of Islamic mutual funds. Stock selection results from Sharpe and Treynor ratios besides Jensen and Fama and French alphas will show how sample Islamic funds over or under perform the relevant industry benchmark. In addition, market timing results are presented to express the timing ability of funds. Then a conditional market timing ability model will be used to test for robustness in market timing results. All these models were explained in the previous methodology chapter. Finally, we investigate performance persistence in the sample Islamic mutual funds to see if positive or negative performance is continuous from one period to another.

There are five sections to this chapter, section 5.2 will present the stock selection results and section 5.3 the market timing findings. Section 5.4 will present results on conditional market timing. Finally, section 5.5 will examine fund performance persistence.

5.2 Stock Selection Results

This section will present results from Sharpe and Treynor ratios, besides Jensen, and Fama and French alpha indicators. These measures estimate the performance of a mutual fund and indicate the stock selection ability; if the fund is able to pick stocks that lie above the security market line when risk and return are taken into consideration. First we report the yearly results then we report results over the whole period from 2000 until 2006.

As discussed previously, the Sharpe ratio ranks and compares fund performance in terms of standard deviation of return (risk-adjusted return) and better performing funds obtain higher ratios. Table 5.1 presents yearly Sharpe ratios and there are substantial negative Sharpe ratios especially in the years 2000, 2001, 2005, and 2006. All the average yearly (global and Malaysian Islamic funds) Sharpe ratios are less than -1.0. This shows that there is considerable underperformance along the yearly trend. On the other hand, Table 5.2 reports the respective Sharpe ratios for market indices. There are negative Sharpe ratios for presented indices but it appears that the years 2002, 2003, and 2004 were better performing compared to other years in the sample period. This means that the broad trend over time for mutual funds and market indices experienced low Sharpe ratios and poor performance. If the standard deviation were lower we would see higher Sharpe ratios. Figure 5.1 exemplifies the Sharpe ratio trend between 2000 and 2006 for global Islamic funds, Malaysian Islamic funds, Global indices, and Malaysian indices.

Table 5.1: Funds Sharpe Ratio Presented Yearly from 2000-2006

Fund Code	2000	2001	2002	2003	2004	2005	2006
1	-3.213	-1.656	-0.972	-0.333	-0.698	-1.662	-2.431
2	-1.294	-1.038	-0.805	-0.238	-0.542	-1.732	-1.987
3	-2.582	-1.435	-0.792	-0.365	-0.945	-2.367	-2.782
4	-2.233	-1.519	-0.796	-0.094	-0.485	-1.763	-1.920
5	-1.829	-1.525	-0.847	-0.293	-0.613	-2.542	-2.120
6	-1.474	-1.410	-0.867	-0.304	-0.809	-2.099	-2.152
7	-2.361	-1.243	-0.235	-0.072	-0.235	-0.956	-1.389
8	-3.295	-1.547	-0.301	-0.108	-0.258	-1.093	-1.616
9	-1.650	-1.208	-0.838	-0.372	-0.929	-2.756	-2.868
10	-1.647	-1.212	-0.834	-0.364	-0.918	-2.749	-2.859
11	-1.670	-1.015	-0.797	-0.290	-0.877	-2.394	-2.094
12	-3.035	-1.731	-1.162	-0.096	-0.456	-1.517	-2.071
13	-2.117	-1.254	-0.862	-0.308	-0.862	-1.991	-2.112
AVG Global Funds	**-2.185**	**-1.369**	**-0.778**	**-0.249**	**-0.664**	**-1.971**	**-2.185**
14	-2.922	-2.397	-1.165	-0.507	-0.700	-3.056	-2.927
15	-1.677	-1.582	-0.884	-0.482	-1.084	-2.905	-1.493
16	-1.988	-1.670	-0.921	-0.420	-0.735	-2.318	-2.679
17	-1.818	-1.270	-1.082	-0.462	-0.696	-2.272	-2.896
18	-1.364	-2.567	-1.298	-0.567	-0.666	-3.587	-2.549
19	-1.717	-1.540	-1.171	-0.830	-1.063	-2.738	-3.353
20	-1.574	-1.048	-0.800	-0.430	-0.752	-2.856	-3.354
21	-1.777	-1.463	-1.009	-0.593	-0.757	-2.863	-2.788
22	-1.730	-1.112	-1.046	-0.565	-0.817	-2.125	-3.487
23	-2.340	-1.917	-1.190	-0.648	-0.814	-3.792	-2.993
24	-2.125	-1.306	-1.150	-0.490	-1.137	-2.856	-3.281
25	-3.314	-1.853	-0.891	-0.418	-0.665	-3.688	-3.587
26	-2.896	-1.893	-1.113	-0.312	-0.954	-4.060	-3.844
27	-1.587	-0.788	-0.836	-0.595	-0.729	-3.856	-4.369
28	-2.502	-1.865	-1.042	-0.476	-1.248	-3.669	-4.302
AVG Malaysian Funds	**-2.089**	**-1.618**	**-1.040**	**-0.520**	**-0.855**	**-3.109**	**-3.193**
Total AVG	***-2.137***	***-1.493***	***-0.909***	***-0.384***	***-0.759***	***-2.540***	***-2.689***

Source: calculated and constructed by author

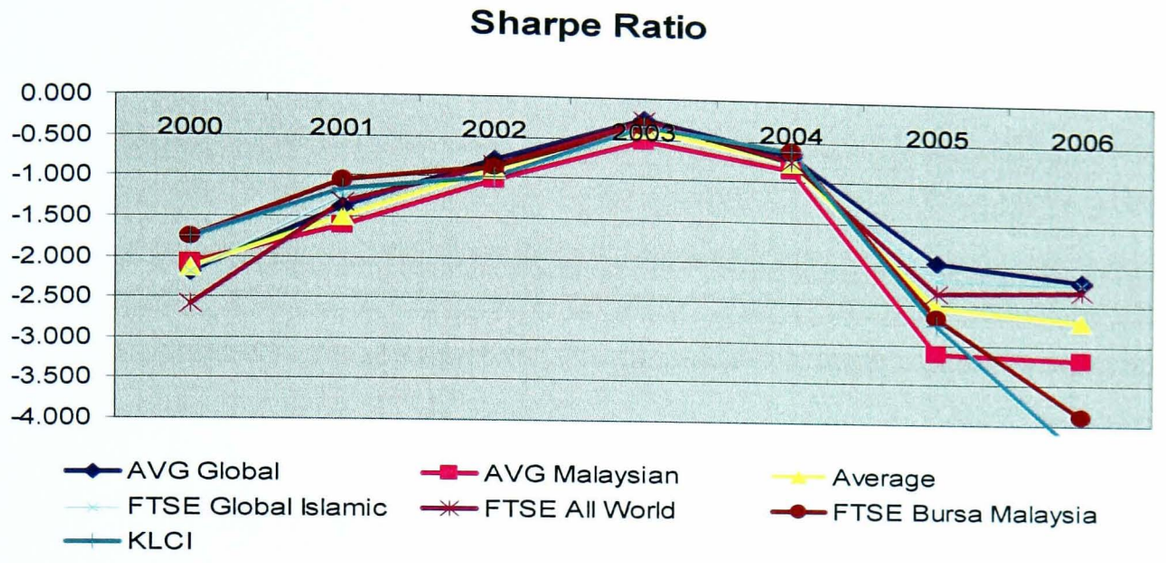
**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Table 5.2: Benchmark Sharpe Ratio Yearly from 2000-2006

	2000	2001	2002	2003	2004	2005	2006
FTSE Global Islamic	-2.186	-1.247	-0.868	-0.270	-0.770	-2.188	-2.223
FTSE All World	-2.588	-1.324	-0.853	-0.265	-0.747	-2.350	-2.317
FTSE Bursa Malaysia	-1.753	-1.055	-0.873	-0.341	-0.607	-2.655	-3.887
KLCI	-1.752	-1.150	-0.989	-0.353	-0.624	-2.747	-4.368

Source: calculated and constructed by author

Figure 5.1: Average Sharpe Ratio for Global and Malaysian Funds and Indices



Source: Authors Calculations

$$Sharpe = \frac{R_p - R_f}{\sigma_p}$$

The following Table 5.3 presents the Sharpe ratios for the overall sample period including global and Malaysian funds. All the Sharpe ratios are negative and between -0.9 and -1.9. The average Sharpe ratio for the funds included in the sample is -1.385. These findings are in line with Elfakhani and Hassan (2005) who studied a sample of Islamic mutual funds between 1997 and 2002. Also, from the previous chapter Islamic mutual funds earned returns lower than risk-free rate (3 month US Treasury bill) over the sample period and so suggests relatively poor performance. Hence, table 5.4 shows market returns less than the risk free rate over the study period generally suggesting poor performance.

Table 5.3: Sharpe Ratio from 2000-2006

Fund Code	Sharpe Ratio
1	-1.546
2	-1.006
3	-1.475
4	-1.180
5	-1.292
6	-1.202
7	-0.937
8	-1.095
9	-1.255
10	-1.251
11	-1.141
12	-1.430
13	-1.314
AVG Global Islamic Funds	**-1.240**
14	-1.883
15	-1.322
16	-1.471
17	-1.382
18	-1.334
19	-1.539
20	-1.234
21	-1.447
22	-1.332
23	-1.759
24	-1.565
25	-1.750
26	-1.908
27	-1.145
28	-1.867
AVG Malaysian Islamic Funds	**-1.529**
AVG Islamic Funds Sharpe	**-1.385**

Source: calculated and constructed by author

Table 5.4: Market Return less Risk Free Rate- $R_m - R_f$

	2000	2001	2002	2003	2004	2005	2006
Global Islamic	-0.063	-0.038	-0.021	-0.005	-0.012	-0.031	-0.046
SE All World	-0.062	-0.038	-0.021	-0.005	-0.011	-0.031	-0.046
Bursa Malaysia	-0.064	-0.034	-0.017	-0.007	-0.011	-0.034	-0.046
KLCI	-0.063	-0.034	-0.017	-0.007	-0.011	-0.032	-0.046

Source: calculated and constructed by author

The Treynor ratio ranks mutual fund performance in terms of beta, systematic risk, instead of standard deviation of returns as in the case of the Sharpe ratio. The beta, as before simply measures the sensitivity between the fund and the market index. Moreover, the Sharpe ratio is similar to the Treynor ratio since they both take in effect the risk-adjusted return but one uses pure risk (standard deviation) and other uses systematic risk (beta).

Treynor ratio results for the sample Islamic mutual funds are presented yearly where we look at the Treynor ratio for the sample mutual funds between 2000 and 2006. It is important to look at the yearly performance along the sample period since underperforming and overperforming mutual funds are identified. Table 5.5 and Table 5.6 present the Treynor ratio for the sample mutual funds with Islamic and conventional benchmarks respectively. In table 5.5 global Islamic funds uses the FTSE Global Islamic Index to arrive to the Treynor ratio and Malaysian Islamic funds uses the FTSE Bursa Malaysia to obtain the Treynor ratio. On the other hand, in Table 5.6 the FTSE All World Index and the KLCI index were used with global and Malaysian Islamic funds respectively. It is visible that the sample funds are underperforming again reflecting the inability of Islamic mutual funds to earn returns greater than the risk-free rate, and there is lack of stock selectivity during the sample period.

Table 5.5: Treynor Ratio Yearly with Islamic Indices

Fund Code	2000	2001	2002	2003	2004	2005	2006
1	-0.217	-0.058	-0.030	-0.007	-0.013	-0.025	-0.051
2	-0.044	-0.034	-0.021	-0.005	-0.010	-0.028	-0.043
3	-0.103	-0.051	-0.025	-0.009	-0.018	-0.040	-0.070
4	-0.082	-0.049	-0.022	-0.003	-0.008	-0.030	-0.042
5	-0.567	-0.053	-0.029	-0.009	-0.012	-0.038	-0.047
6	-0.058	-0.045	-0.025	-0.006	-0.012	-0.030	-0.045
7	-0.145	-0.080	-0.403	-0.008	-0.011	-0.020	-0.036
8	-0.231	-0.082	-0.219	-0.008	-0.012	-0.023	-0.043
9	-0.081	-0.049	-0.038	-0.011	-0.025	-0.066	-0.105
10	-0.081	-0.049	-0.038	-0.011	-0.024	-0.066	-0.105
11	-0.137	-0.033	-0.021	-0.006	-0.014	-0.035	-0.044
12	-0.122	-0.056	-0.038	-0.004	-0.010	-0.026	-0.052
13	-0.063	-0.039	-0.022	-0.006	-0.013	-0.028	-0.044
AVG Global Islamic Funds	**-0.149**	**-0.052**	**-0.071**	**-0.007**	**-0.014**	**-0.035**	**-0.056**
14	-0.116	-0.080	-0.042	-0.011	-0.017	-0.052	-0.044
15	-0.085	-0.061	-0.028	-0.013	-0.025	-0.045	-0.078
16	-0.119	-0.063	-0.039	-0.012	-0.022	-0.046	-0.056
17	-0.084	-0.052	-0.030	-0.010	-0.014	-0.060	-0.042
18	-0.100	-0.073	-0.029	-0.012	-0.019	-0.051	-0.039
19	-0.084	-0.081	-0.044	-0.032	-0.035	-0.050	-0.052
20	-0.083	-0.044	-0.020	-0.010	-0.017	-0.061	-0.046
21	-0.107	-0.062	-0.037	-0.015	-0.016	-0.050	-0.042
22	-0.108	-0.046	-0.039	-0.017	-0.021	-0.044	-0.047
23	-0.100	-0.061	-0.027	-0.018	-0.022	-0.050	-0.038
24	-0.135	-0.054	-0.036	-0.020	-0.036	-0.048	-0.070
25	-0.179	-0.067	-0.022	-0.009	-0.016	-0.065	-0.057
26	-0.122	-0.057	-0.023	-0.007	-0.019	-0.053	-0.052
27	-0.075	-0.050	-0.021	-0.014	-0.036	-0.055	-0.061
28	-0.104	-0.060	-0.024	-0.010	-0.032	-0.062	-0.062
AVG Malaysian Islamic Funds	**-0.107**	**-0.061**	**-0.031**	**-0.014**	**-0.023**	**-0.053**	**-0.052**
Total AVG	***-0.128***	***-0.056***	***-0.051***	***-0.011***	***-0.019***	***-0.044***	***-0.054***

Source: calculated and constructed by author

**Global Funds use the FTSE Global Islamic Index and Malaysian Funds use the FTSE Bursa Malaysia as the benchmark indices*

$$Treynor = \frac{R_p - R_f}{\beta_p}$$

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Table 5.6: Treynor Ratio Yearly with Conventional Indices

Fund Code	2000	2001	2002	2003	2004	2005	20
1	-0.189	-0.052	-0.027	-0.007	-0.012	-0.024	-0.
2	-0.039	-0.033	-0.021	-0.005	-0.010	-0.026	-0.
3	-0.089	-0.049	-0.026	-0.009	-0.018	-0.037	-0.
4	-0.072	-0.048	-0.021	-0.003	-0.008	-0.029	-0.
5	-0.574	-0.050	-0.028	-0.009	-0.012	-0.035	-0.
6	-0.056	-0.042	-0.025	-0.006	-0.012	-0.028	-0.
7	-0.111	-0.071	-0.248	-0.007	-0.011	-0.019	-0.
8	-0.171	-0.074	-0.097	-0.009	-0.011	-0.021	-0.
9	-0.072	-0.047	-0.038	-0.011	-0.023	-0.059	-0.
10	-0.072	-0.047	-0.037	-0.011	-0.023	-0.058	-0.
11	-0.141	-0.032	-0.020	-0.006	-0.014	-0.032	-0.
12	-0.099	-0.053	-0.037	-0.004	-0.010	-0.025	-0.
13	-0.054	-0.036	-0.022	-0.006	-0.013	-0.027	-0.
AVG Global Islamic Funds	**-0.134**	**-0.049**	**-0.050**	**-0.007**	**-0.014**	**-0.032**	**-0.**
14	-0.119	-0.074	-0.040	-0.011	-0.017	-0.050	-0.
15	-0.090	-0.056	-0.027	-0.014	-0.024	-0.042	-0.
16	-0.132	-0.059	-0.033	-0.012	-0.022	-0.047	-0.
17	-0.087	-0.048	-0.027	-0.010	-0.013	-0.054	-0.
18	-0.103	-0.067	-0.026	-0.012	-0.018	-0.047	-0.
19	-0.090	-0.075	-0.041	-0.034	-0.034	-0.049	-0.
20	-0.085	-0.043	-0.019	-0.010	-0.017	-0.056	-0.
21	-0.107	-0.058	-0.033	-0.014	-0.016	-0.050	-0.
22	-0.090	-0.045	-0.038	-0.017	-0.020	-0.041	-0.
23	-0.100	-0.056	-0.025	-0.016	-0.020	-0.047	-0.
24	-0.131	-0.051	-0.032	-0.019	-0.034	-0.045	-0.
25	-0.169	-0.063	-0.021	-0.009	-0.015	-0.062	-0.
26	-0.127	-0.054	-0.022	-0.007	-0.018	-0.050	-0.
27	-0.082	-0.049	-0.021	-0.013	-0.033	-0.051	-0.
28	-0.108	-0.056	-0.023	-0.011	-0.031	-0.061	-0.
AVG Malaysian Islamic Funds	**-0.108**	**-0.057**	**-0.029**	**-0.014**	**-0.022**	**-0.050**	**-0.**
Total AVG	***-0.121***	***-0.053***	***-0.039***	***-0.011***	***-0.018***	***-0.041***	***-0.***

Source: calculated and constructed by author

**Global Funds use the FTSE All World Index and Malaysian Funds use the KLCI as the benchmark indices*

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Furthermore, the yearly Treynor ratio performance is illustrated in Figures 5.2 and Figure 5.3 mimicking Tables 5.5 and Table 5.6 respectively. The figures present the Treynor ratio for the sample Islamic mutual funds with Islamic and conventional indices for the sample period 2000 until 2006. The two figure are very similar where the years 2000 and 2001 experienced substantial underperformance compared with sample period.

Figure 5.2: Treynor Ratio with Islamic Benchmarks

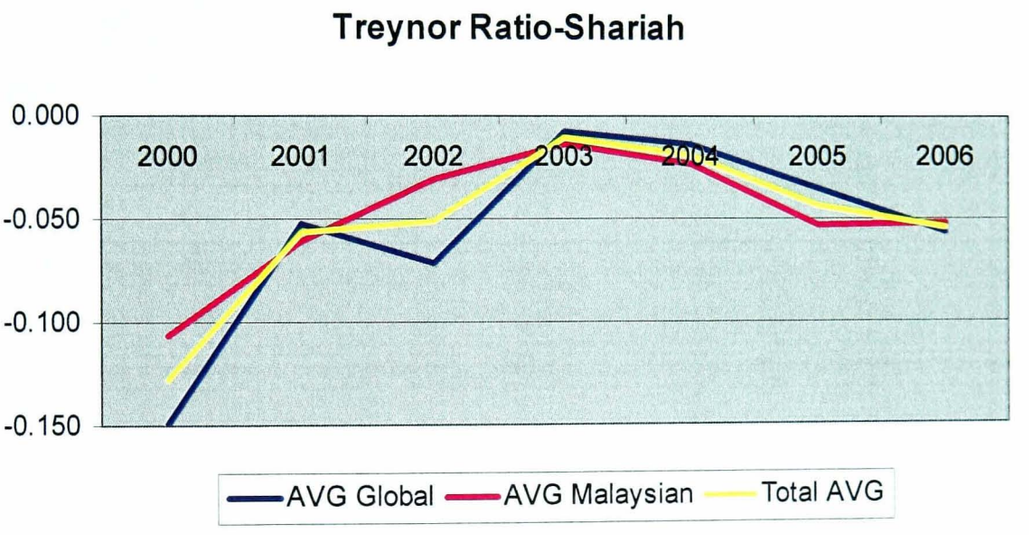
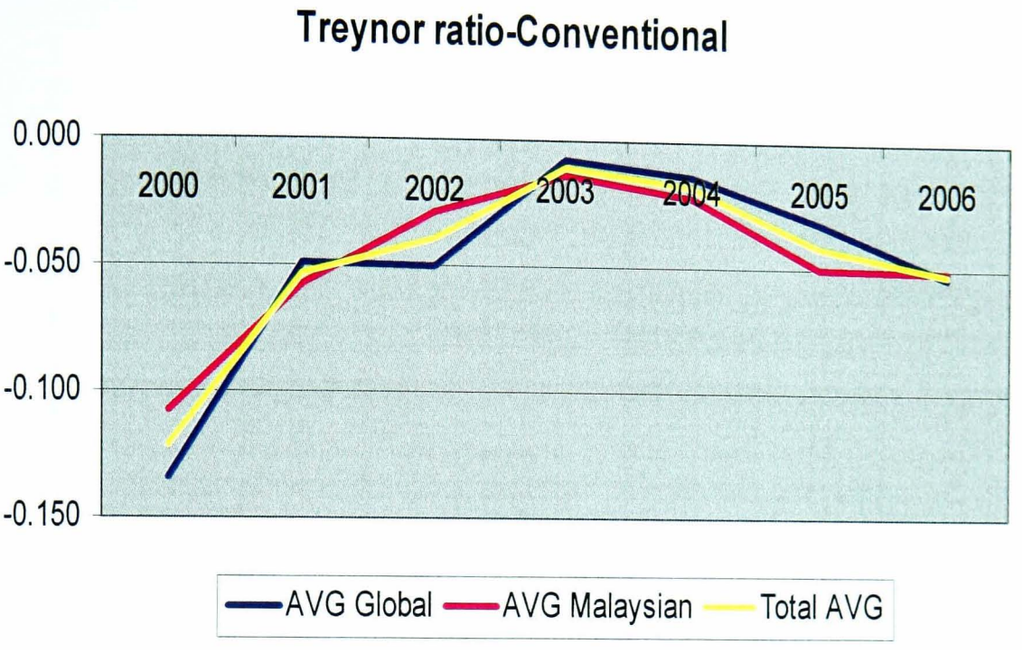


Figure 5.3: Treynor Ratio with Conventional Benchmarks



Source: Created by author

Table 5.7 presents the Treynor ratio for the entire period. It appears that all funds obtained negative Treynor ratios indicating low ranking and underperformance. Moreover, Malaysian Islamic funds underperformed and those findings are consistent with the results of Abdullah, Hassan, and Mohammad (2007) who also used the Treynor ratio to examine a sample of Islamic funds. The reported results from the Treynor ratio has a positive correlation with the reported results from the Sharpe ratio, for the sample Islamic mutual funds, at 0.542 and significant at 5%.

Table 5.7: Treynor Ratio 2000-2006

Fund Code	FTSE Global Islamic Index	FTSE All World Index
1	-0.047	-0.042
2	-0.026	-0.025
3	-0.044	-0.041
4	-0.032	-0.031
5	-0.052	-0.048
6	-0.032	-0.032
7	-0.053	-0.048
8	-0.062	-0.055
9	-0.048	-0.046
10	-0.048	-0.046
11	-0.033	-0.032
12	-0.046	-0.043
13	-0.031	-0.029
AVG Global	**-0.043**	**-0.040**
	FTSE Bursa Malaysia	**KLCI**
14	-0.058	-0.057
15	-0.048	-0.047
16	-0.056	-0.056
17	-0.043	-0.041
18	-0.052	-0.050
19	-0.059	-0.060
20	-0.040	-0.040
21	-0.052	-0.051
22	-0.046	-0.046
23	-0.051	-0.049
24	-0.062	-0.059
25	-0.058	-0.055
26	-0.051	-0.051
27	-0.044	-0.045
28	-0.052	-0.052
AVG Malaysian	**-0.052**	**-0.051**
AVG Treynor Ratio	***-0.047***	***-0.045***

Source: calculated and constructed by author

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Jensen's alpha illustrates fund managers ability in stock selection and market diversification. Jensen's measure is based on the CAPM model and measure mutual fund under or over performance based on the realised returns of a fund. A positive and significant alpha indicates an overperforming fund in relation to the market.

Jensen's alpha are reported per year for global and Malaysian Islamic mutual funds in Tables 5.8 and Table 5.9. The majority obtained negative alpha terms indicating underperformance compared to the FTSE Global Islamic Index and the FTSE Bursa Malaysia in Table 5.8. Also there is considerable underperformance in table 5.9 using the FTSE All World Index and the KLCI. Overall, global Islamic funds appear to be relatively better performing compared to the Malaysian Islamic funds possibly because they are better diversified. However, alphas still remain negative suggesting underperformance relative to the industry benchmark.

Furthermore, Figure 5.4 illustrates Jensen alpha from 2000 till 2006. Average global Islamic fund alphas and average Malaysian Islamic fund alphas are presented with Islamic and conventional benchmarks. From the figure it can be seen that there is predominant negativity suggesting underperformance especially in 2000.

Tables 5.8: Jensen Alpha with Islamic Benchmarks

Fund Code	2000		2001		2002		2003		2004		2005		2006	
1	-0.043193	***	-0.012688	***	-0.005724	**	-0.001584		-0.000983		0.006353	**	-0.004981	**
2	0.026552	**	0.004463		0.000415		-0.000001		0.002086		0.002987		0.002841	
3	-0.025141	***	-0.009409	**	-0.003014		-0.002559	*	-0.004210	***	-0.006933	***	-0.016084	***
4	-0.015843	**	-0.008812	***	-0.000459		0.002802		0.004065	**	0.000463		0.003781	
5	-0.060140	***	-0.011082	**	-0.005034		-0.002004		-0.000811		-0.005924	***	-0.000907	
6	0.004850		-0.005618	***	-0.003229		-0.000683	*	-0.000701		0.001028		0.000722	
7	-0.036573	***	-0.018250	***	-0.006116		-0.000490		0.000149		0.014811	**	0.012053	
8	-0.045010	***	-0.018921	***	-0.006199		-0.000794		-0.000225		0.010412	*	0.003025	
9	-0.014160		-0.008716	*	-0.009567	**	-0.003687	*	-0.006196	***	-0.016670	***	-0.025839	***
10	-0.014020		-0.008792	*	-0.009433	**	-0.003547	*	-0.006045	***	-0.016563	***	-0.025704	***
11	-0.035280	**	0.006206	***	0.000577		-0.000635		-0.002192	***	-0.003908	***	0.001468	
12	-0.029311	***	-0.011336	***	-0.008547	***	0.000391		0.000963		0.004985		-0.006012	
13	0.000361		-0.000482		-0.000971		-0.000871		-0.001498	***	0.002497	**	0.001597	
AVG Global	**-0.022070**		**-0.007957**		**-0.004408**		**-0.001051**		**-0.001200**		**-0.000497**		**-0.004157**	
14	-0.027309	***	-0.019619	***	-0.010113	***	-0.002531	***	-0.004101	**	-0.011450	***	0.001754	
15	-0.015585	**	-0.016113	***	-0.008092	**	-0.005084	**	-0.008523	***	-0.009323	***	-0.018690	
16	-0.029235	***	-0.016573	***	-0.009723	***	-0.003626	*	-0.006565	***	-0.010009	**	-0.009180	
17	-0.015446	**	-0.011506	***	-0.007634	***	-0.002685	**	-0.002253	**	-0.016274	***	0.004235	
18	-0.022620	*	-0.017701	***	-0.006760	***	-0.003437	***	-0.005757	**	-0.011371	***	0.007412	
19	-0.014689	**	-0.020910	***	-0.009542	***	-0.007237	***	-0.010564	***	-0.011625	***	-0.005511	
20	-0.014412	*	-0.007596	*	-0.001974		-0.002798	*	-0.004745	**	-0.015248	***	-0.000674	
21	-0.025831	**	-0.016084	***	-0.009506	***	-0.004924	***	-0.004298	***	-0.011390	***	0.004625	
22	-0.022348	***	-0.009270	**	-0.008722	***	-0.005589	***	-0.006666	***	-0.008184		-0.001646	
23	-0.022348	***	-0.014884	***	-0.005793	***	-0.005578	***	-0.007285	***	-0.011091	***	0.008545	**
24	-0.034414	***	-0.012033	***	-0.008087	***	-0.005916	**	-0.009782	***	-0.010964	***	-0.015906	**
25	-0.042454	***	-0.016499	***	-0.003662	*	-0.002192		-0.003536	*	-0.016272	***	-0.009265	
26	-0.029730	***	-0.013537	***	-0.004017	***	-0.000030		-0.004647	***	-0.012226	***	-0.005663	
27	-0.009412		-0.010792		-0.003211		-0.003884	***	-0.011116	***	-0.012443	***	-0.011509	**
28	-0.023569	***	-0.014448	***	-0.004364	***	-0.002469	**	-0.009090	***	-0.015931	***	-0.011491	**
AVG Malaysian	**-0.023293**		**-0.014504**		**-0.006747**		**-0.003865**		**-0.006595**		**-0.012253**		**-0.004198**	
Total AVG	***-0.022682***		***-0.011231***		***-0.005577***		***-0.002458***		***-0.003897***		***-0.006375***		***-0.004177***	

**** Significant at 1%,** Significant at 5%, and * Significant at 10%*

Source: constructed by author

$$Jensen = (R_p - R_f) = \alpha_p + \beta(R_m - R_f) + \varepsilon$$

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Tables 5.9: Jensen Alpha with Conventional Benchmarks

Fund Code	2000		2001		2002		2003		2004		2005		2006	
1	-0.041031	***	-0.009965	***	-0.004803	**	-0.001617		-0.001144		0.009006	***	-0.003729	
2	0.035000	**	0.005913	*	0.000156		-0.000213		0.001586		0.005303	*	0.004772	
3	-0.019651	**	-0.008274	**	-0.003963		-0.002597	*	-0.004418	***	-0.004958	*	-0.015119	***
4	-0.009448		-0.008374	***	-0.000665		0.002592		0.003513	*	0.001969		0.005802	
5	-0.060360	***	-0.009485	**	-0.005278	*	-0.002081		-0.000701		-0.004001	*	0.000681	
6	0.006620		-0.004347	**	-0.003983		-0.000842		-0.001252	*	0.003398	***	0.002127	
7	-0.028676	**	-0.016388	***	-0.005916		-0.000396		0.000289		0.018015	**	0.013941	
8	-0.039506	***	-0.017380	***	-0.005403		-0.000882		0.000143		0.013728	**	0.005726	
9	-0.008980		-0.007832		-0.009753	**	-0.003776	*	-0.006107	***	-0.014962	***	-0.024626	***
10	-0.008840		-0.007891		-0.009626	**	-0.003637	*	-0.005956	***	-0.014859	***	-0.024495	***
11	-0.036890	**	0.006664	*	0.000568		-0.000785		-0.002516	***	-0.001845		0.003433	
12	-0.022838	***	-0.010191	***	-0.008537	***	0.000459		0.000853		0.007100	*	-0.005756	
13	0.009449	**	0.001345		-0.000897		-0.001046		-0.001981	***	0.004488	**	0.002628	
AVG Global	**-0.017319**		**-0.006631**		**-0.004469**		**-0.001140**		**-0.001361**		**0.001722**		**-0.002663**	
14	-0.028857	***	-0.018613	***	-0.009508	***	-0.002357	***	-0.004278	**	-0.011248	***	0.004794	
15	-0.019102	**	-0.014579	***	-0.007121	*	-0.005263	**	-0.008553	***	-0.008712	***	-0.022930	
16	-0.033464	***	-0.015213	***	-0.008296	**	-0.003482		-0.006647	***	-0.011291	**	-0.005100	
17	-0.018520	**	-0.009918	**	-0.006070	***	-0.002453	**	-0.002021	*	-0.014686	***	0.004495	
18	-0.024400	**	-0.016516	***	-0.005655	***	-0.003378	***	-0.005689	**	-0.010606	***	0.018112	**
19	-0.019116	**	-0.019772	***	-0.008914	***	-0.007328	***	-0.010519	***	-0.011794	***	-0.004376	
20	-0.016858	*	-0.007156		-0.001408		-0.002589		-0.004792	**	-0.014416	***	0.003510	
21	-0.026711	***	-0.014853	***	-0.008460	***	-0.004779	***	-0.004325	**	-0.012130	***	0.004141	
22	-0.020212	**	-0.008511	*	-0.008476	***	-0.005474	***	-0.006717	***	-0.007346		0.002488	
23	-0.023038	***	-0.013460	***	-0.004851	***	-0.005230	***	-0.007121	***	-0.010552	***	0.013413	**
24	-0.034048	***	-0.010699	***	-0.007167	***	-0.005758	**	-0.009682	***	-0.010137	***	-0.015789	*
25	-0.041625	***	-0.015446	***	-0.002632		-0.002093		-0.003525	*	-0.015936	***	-0.008131	
26	-0.031615	***	-0.012394	***	-0.003106	***	-0.000126		-0.004587	***	-0.011671	***	-0.003545	
27	-0.015520	*	-0.010679		-0.002596		-0.003845	***	-0.010864	***	-0.011715	***	-0.009537	*
28	-0.025766	***	-0.013383	***	-0.003819	**	-0.002619	**	-0.009119	***	-0.016040	***	-0.009188	*
AVG Malaysian	**-0.025257**		**-0.013413**		**-0.005872**		**-0.003785**		**-0.006563**		**-0.011885**		**-0.001843**	
Total AVG	***-0.021288***		***-0.010022***		***-0.005171***		***-0.002463***		***-0.003962***		***-0.005082***		***-0.002253***	

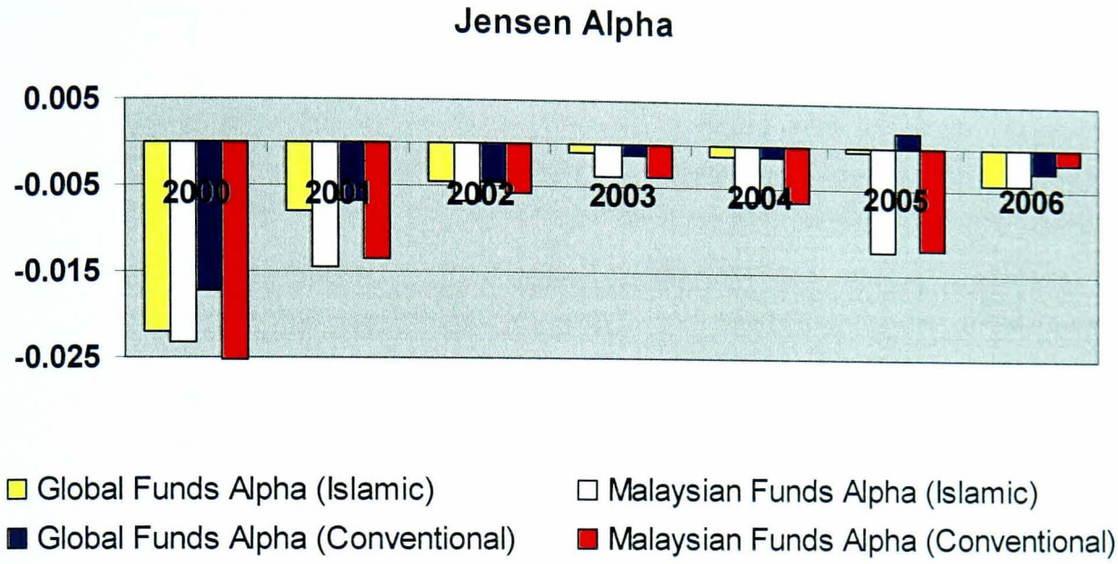
**** Significant at 1%, ** Significant at 5%, and * Significant at 10%*

Source: constructed by author

$$Jensen = (R_p - R_f) = \alpha_p + \beta(R_m - R_f) + \varepsilon$$

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Figure 5.4: Jensen Alpha Yearly between 2000 and 2006



Source: constructed by author

** Alpha with Islamic benchmarks either FTSE Global Islamic Index with global funds or FTSE Bursa Malaysia with Malaysian funds, conventional benchmarks either with FTSE All World index with global funds or KLCI with Malaysian funds.*

Table 5.10 presents Jensen alpha for global Islamic and Malaysian Islamic funds between 2000 and 2006. The average Jensen alphas for global and Malaysian funds with both types of indices are negative and significant at 1% indicating an overall underperformance in stock selection for the sample of Islamic mutual funds. Figure 5.5 and Figure 5.6 illustrate the Jensen alpha distribution for the funds included in the sample. It can be seen that majority obtained an alpha under -0.004.

Table 5.10: Jensen Alpha between 2000-2006

Fund Code	FTSE Global Islamic Index	FTSE All World
1	-0.0060 ***	-0.0047 ***
2	*0.0031* ***	*0.0033* ***
3	-0.0054 ***	-0.0047 ***
4	-0.0005	0.0001
5	-0.0069 ***	-0.0058 ***
6	-0.0013	-0.0012
7	-0.0036 *	-0.0024
8	-0.0052 ***	-0.0039 **
9	-0.0068 ***	-0.0063 ***
10	-0.0067 ***	-0.0062 ***
11	-0.0016	-0.0011
12	-0.0045 ***	-0.0036 ***
13	-0.0005	0.0001
AVG Global Islamic Funds	**-0.0035** ***	**-0.0028** ***
	FTSE Bursa Malaysia	**KLCI**
14	-0.0087 ***	-0.0083 ***
15	-0.0090 ***	-0.0089 ***
16	-0.0094 ***	-0.0092 ***
17	-0.0058 ***	-0.0053 ***
18	-0.0082 ***	-0.0077 ***
19	*-0.0100* ***	*-0.0098* ***
20	-0.0046 ***	-0.0045 ***
21	-0.0087 ***	-0.0083 ***
22	-0.0069 ***	-0.0066 ***
23	-0.0085 ***	-0.0079 ***
24	-0.0098 ***	-0.0091 ***
25	-0.0086 ***	-0.0080 ***
26	-0.0065 ***	-0.0062 ***
27	-0.0061 ***	-0.0064 ***
28	-0.0080 ***	-0.0078 ***
AVG Malaysian Islamic Funds	**-0.0079** ***	**-0.0076** ***
AVG Jensen Alpha	***-0.0040*** ***	***-0.0036*** ***

**** Significant at 1%,** Significant at 5%, and * Significant at 10%*

Source: constructed by author

$$Jensen = (R_p - R_f) = \alpha_p + \beta(R_m - R_f) + \varepsilon$$

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Figure 5.5: Jensen Alpha Distribution with Conventional Indices

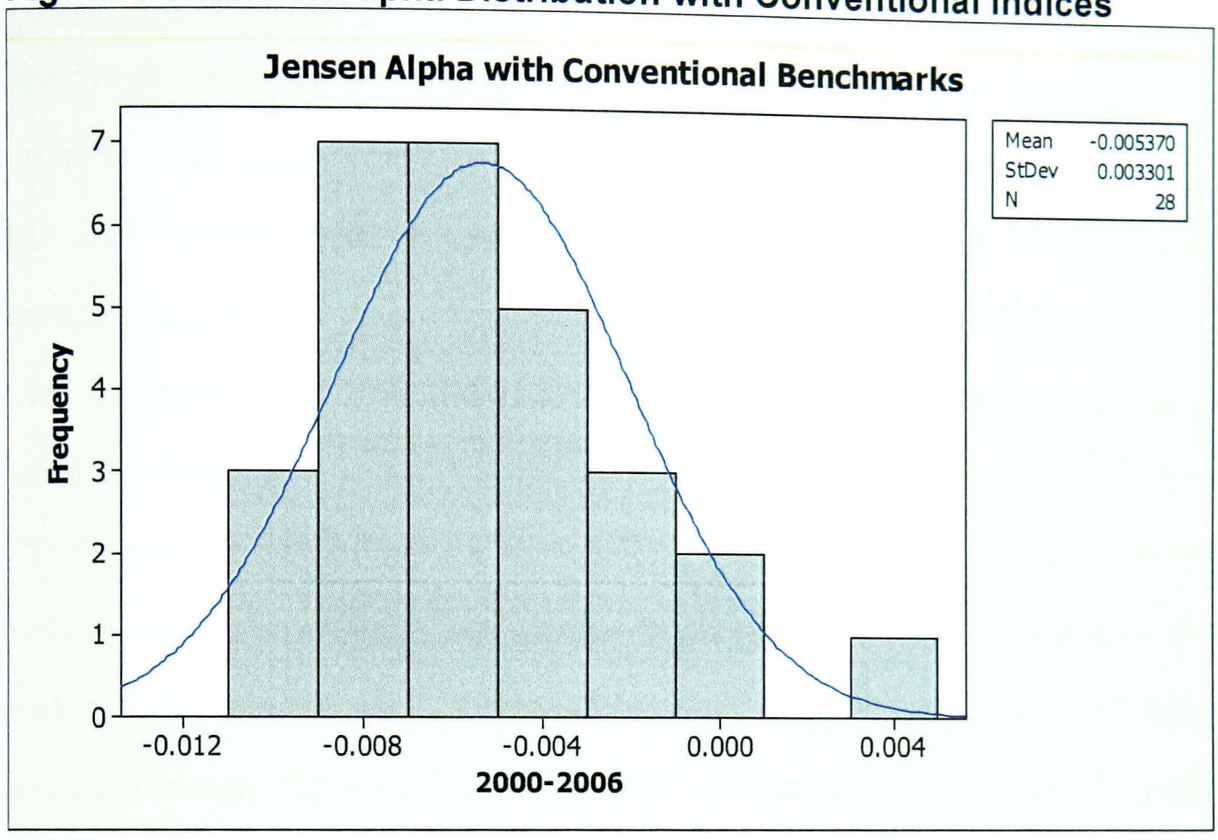
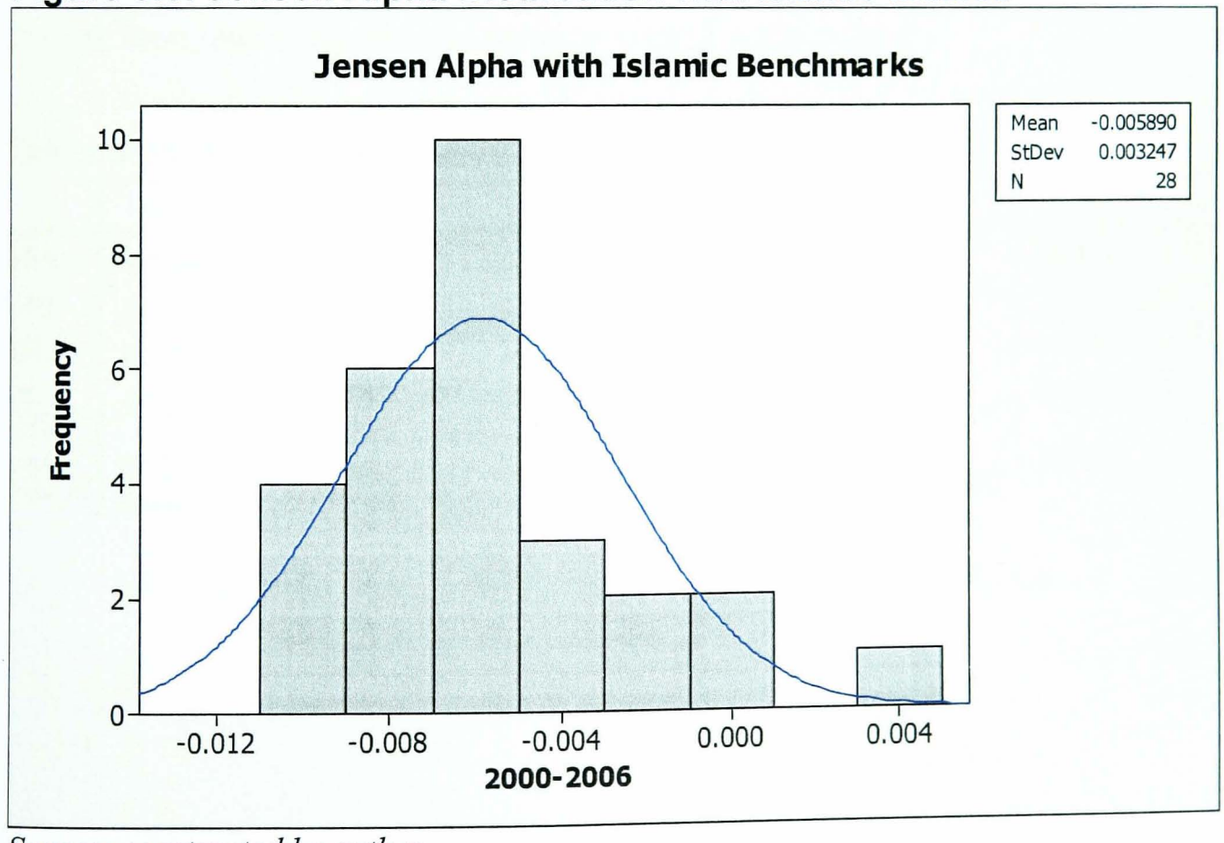


Figure 5.6: Jensen Alpha Distribution with Islamic Indices



Source: constructed by author

The final part of this section will present results on Fama and French's three factor stock selection ability model. We use OLS regression analysis to arrive at our results where the constant term (alpha) indicates the performance of mutual funds. Table 5.11 gives detailed results on global Islamic funds from 2000 until 2006. There is variation along the years but if we take the year 2003 for instance; the alpha is low at 0.163 and significant at 10%. The market beta is 0.086 and significant at 1% indicating that global funds are associated to market movement, SMB is 0.083 and significant at 5% which means that global funds are directed towards small-capitalisation stocks. HML is 0.164 and significant at 10% which suggests that Islamic funds allocate in high book-to-market stocks. Overall, the variables included in the 2003 regression are highly associated as suggested by the adjusted r-square which is at 84.90%. For all other years alpha is not statistically significant, preserving the stock selection ability indicator. Overall, these results suggest little evidence of stock selection ability.

Table 5.11: Fama and French Results for Global Funds (Yearly)

	2000	2001	2002	2003	2004	2005	2006
Alpha	**-0.3100**	**-0.1900**	**0.0060**	**0.1630** *	**0.1410**	**-0.0800**	**-0.1600**
Rm-Rf	0.1750 **	0.1570 ***	0.2320 ***	0.0860 ***	0.2250 ***	0.4770 ***	0.3240 **
SMB	0.0750	0.0510	0.0150	0.0830 **	-0.0200	-0.2500 ***	0.0450
HML	0.0520	-0.0100	0.1000 *	0.1640 ***	0.0150	0.1200 **	0.1730 *
Adjusted R-Squared	64.30%	75.30%	89.30%	84.90%	72.30%	92.40%	80.50%

**** Significance at 1%, ** Significance at 5%, and * Significance at 10%*

$$FF = (R_p - R_f) = \alpha_p + \beta_1(R_m - R_f) + \beta_2(SMB) + \beta_3(HML) + \varepsilon$$

Table 5.12 reports yearly results for Malaysian Islamic funds from the Fama and French model. There is no evidence of stock selection ability similar to the previous table which presented results on global Islamic mutual funds. Also, between the seven year period 2000 till 2006, there were four negative alphas with one at -0.290 in the year 2005 significant at 5%.

Table 5.12: Fama and French Results for Malaysian Funds (Yearly)

	2000	2001	2002	2003	2004	2005	2006
Alpha	**0.1800**	**-0.1400**	**0.0470**	**-0.2200**	**-0.2300**	**-0.2900 ****	**0.0140**
Rm-Rf	-0.1100	0.1070	0.0740	0.0060	0.0670	0.0490	0.2440
SMB	-0.0300	0.1130	0.0460	0.2070 **	0.1180	0.0440	-0.0700
HML	-0.2000	0.0930	0.0720	0.1860	0.1560	0.0580	0.0490
Adjusted R-Squared	29.30%	37.10%	27.10%	34.80%	37.10%	32.50%	43.10%

**** Significance at 1%, ** Significance at 5%, and * Significance at 10%*

$$FF = (R_p - R_f) = \alpha_p + \beta_1(R_m - R_f) + \beta_2(SMB) + \beta_3(HML) + \varepsilon$$

Table 5.13 reports results from the Fama and French model as well. There are two columns where the first column shows the results for global Islamic funds and the second column is for the Malaysian Islamic funds. Both stock selection indicators are negative and insignificant. The market coefficients for global and Malaysian funds are positive and the SMB coefficient is also positive and significant at 1%.

Table 5.13: Fama and French Results between 2000 and 2006

	Global Funds	Malaysian Funds
Alpha	**-0.0160**	**-0.0990**
Rm-Rf	0.1930 ***	0.0530 **
SMB	0.0500 ***	0.0920 ***
HML	0.0260	0.0230
Adjusted R-Square	77.70%	20.50%

**** Significance at 1%, ** Significance at 5%, and * Significance at 10%*

The negative alpha resulting from the Fama and French approach for the sample of Islamic mutual funds is in general agreement with the findings of Bauer, Koedijk, and Otten (2005) who study a sample of ethical funds between 1990 and 2001, and also found negative alphas. This indicates that there is relative underperformance. Also, Bauer et. al. (2005) found that ethical funds obtained positive SMB coefficients (investing in small-cap stocks) similar to our results. Thus, ethical funds obtained positive HML coefficients indicating investments in high book-to-market (growth oriented stocks) also in agreement with our findings for Islamic mutual funds. The results from the Fama and French model suggest that our sample of Islamic mutual fund achieved negative alphas and therefore lack of stock selection ability.

This section has presented an analysis of the performance of a sample of Islamic equity mutual funds using stock selection models, Sharpe and Treynor ratios as well as those proposed by Jensen and Fama and French. The results indicate that there is lack of stock selection ability. Moreover, there is agreement between the reported results, from Sharpe, Treynor, Jensen, and Fama and French, which indicates that findings are robust.

Islamic mutual funds underperformance in stock selection is attributed to various factors, one of which is the overall market underperformance, we have seen the yearly Sharpe ratio for the four indices[30] and all these ratios during the seven year period under study were negative indicating that market performance were lacking. Hence, the excess of market returns over the risk free rate were also negative indicating a negative market benchmark performance compared to risk free rate. Therefore, we expect the underlying mutual funds to obtain negative stock selection ability. The following section will present evidence on the market timing ability for the sample of Islamic funds.

[30] FTSE Global Islamic Index, FTSE All World Index, FTSE Bursa Malaysia, and KLCI

5.3 Market Timing Results

This section will present market timing results on the sample Islamic mutual funds. Market timing is estimated as previously discussed using the Treynor and Mazuy (TM), (1966) and Henriksson and Merton (HM), (1982) models. The gamma term in the model is used to estimate successful fund managers timing ability. If the gamma term is positive and significant then the fund is able to time the market and know when to enter and exit the market. Hence, the gamma term estimates the additional return derived from market timing and the greater the number the better the timing.

First we will report yearly market timing on TM from 2000 until 2006. We take together global and Malaysian Islamic funds rather than individually examining their timing. Table 5.14 reports yearly market timing for global and Malaysian funds with Islamic and conventional indices. The first row in Table 5.14 gives detail for global funds market timing with the FTSE Global Islamic Index. There is evidence of negative market timing ability during the years and this is also the case with the conventional FTSE All World Index shown in row two. Malaysian Islamic funds also report negative timing with the FTSE Bursa Malaysia and KLCI. But, some timing coefficients are insignificant.

Table 5.14: Treynor and Mazuy Market Timing Yearly

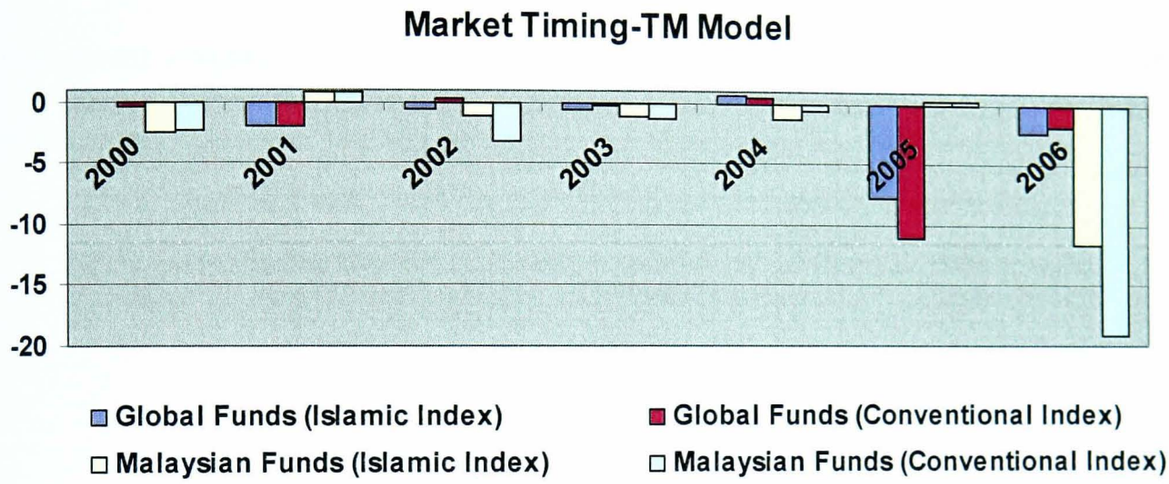
	2000	2001	2002	2003	2004	2005	2006
Global Funds (Islamic Index)	-0.061	-1.888 ***	-0.59	-0.49	0.704	-7.708 ***	-2.385
Global Funds (Conventional Index)	-0.449	-2.048 ***	0.327	-0.28	0.455	-11.03 ***	-1.866
Malaysian Funds (Islamic Index)	-2.432 ***	0.8864	-1.06	-1.08	-1.26	0.342	-11.68 **
Malaysian Funds (Conventional Index)	-2.262 **	0.8324	-3.19	-1.32	-0.612	0.259	-19.07 **

****, **, and * indicate significance levels at 1%, 5%, and 10% respectively*

$$TM = r_{p,t} = \alpha + \beta_p r_{m,t} + \gamma_p r_{m,t}^2 + \varepsilon_{p,t}$$

Figure 5.7 shows the yearly market timing from Treynor and Mazuy between 2000 and 2006. Market timing results vary but in the year 2005 there is substantial negativity in global funds and in the year 2006 Malaysian funds timing were also lacking.

Figure 5.7: Yearly Market Timing from Treynor and Mazuy Model



Now we present market timing over the whole period using the Treynor and Mazuy model. We use OLS regression and show the entire regression output. Table 5.15 present results from the TM model using the FTSE Global Islamic Index as the market index for global funds and the FTSE Bursa Malaysia for Malaysian funds. The first column shows the alpha term which also measures stock selectivity. The second column shows that the beta between the fund and the relevant benchmark which is usually positive. The third column presents gamma-market timing for our sample funds and the final column shows the R-squared that explanatory power of the model. Table 5.16 also presents TM results but with the FTSE All World Index for global funds and the KLCI for Malaysian funds. The average market timing is negative and significant from Tables 5.15 and Table 5.16; for global Islamic funds the timing coefficient is -1.117 using the

FTSE Global Islamic Index and -1.458 using the FTSE All World Index and there are both at the 5% significance level. Also, Malaysian Islamic funds average market timing is negative, -0.462 with the FTSE Bursa Malaysia and -0.906 with the KLCI. (both significant at 10% and 5% respectively). This indicates that there is lack of market timing ability for the sample of Islamic mutual funds suggested by the TM model. These results are consistent with Bollen and Busse's (2004) findings. They indicate that the majority of fund managers exercise a buy and hold strategy instead of rebalancing positions.

Table 5.15: TM with FTSE Global Islamic Index and FTSE Bursa Malaysia

Fund Code	α-Alpha		β-Beta		γ-Gamma		R-Squared
1	0.002	***	0.601	***	**-2.570**	***	58.3%
2	0.002	***	1.103	***	**-2.430**	***	79.2%
3	0.000		0.696	***	**0.242**		59.6%
4	0.000		0.951	***	**-0.813**		70.3%
5	0.001		0.569	***	**-2.042**	*	32.6%
6	0.000		0.948	***	**0.062**		73.0%
7	0.006	***	0.461	***	**-3.627**	***	17.8%
8	0.005	***	0.396	***	**-2.760**	**	17.4%
9	-0.001		0.646	***	**0.158**		36.0%
10	-0.001		0.644	***	**0.141**		36.0%
11	-0.001		0.933	***	**-0.266**		62.0%
12	0.002	**	0.606	***	**-0.552**		50.3%
13	0.000		0.972	***	**-0.065**		94.3%
AVG Global Islamic Funds	0.001	**	0.733	***	**-1.117**	**	81.8%
14	0.000		0.500	***	**0.361**		58.4%
15	-0.002	*	0.677	***	**-0.857**		43.4%
16	-0.001		0.552	***	**-0.938**		38.3%
17	-0.001		0.722	***	**-0.731**		58.3%
18	0.000		0.581	***	**-0.428**		37.1%
19	-0.002	*	0.521	***	**0.677**		37.7%
20	0.000		0.738	***	**0.162**		51.9%
21	-0.001		0.603	***	**-1.123**	*	43.3%
22	-0.001		0.674	***	**-0.251**		46.3%
23	0.000		0.590	***	**-0.096**		65.5%
24	0.000		0.496	***	**-0.772**		36.3%
25	0.001		0.522	***	**-1.146**	**	52.3%
26	0.002	***	0.560	***	**-0.646**	**	78.2%
27	0.000		0.704	***	**-0.758**		38.5%
28	0.001		0.564	***	**-0.384**		70.9%
AVG Malaysian Islamic Funds	0.000		0.600	***	**-0.462**	*	78.3%

****,**, and * indicate significance levels at 1%, 5%, and 10% respectively*

$$TM = r_{p,t} = \alpha + \beta_p r_{m,t} + \gamma_p r_{m,t}^2 + \varepsilon_{p,t}$$

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Table 5.16: TM with FTSE All world Index and KLCI

Fund Code	α-Alpha	β-Beta	γ-Gamma	R-Squared
1	0.002 ***	0.679 ***	-3.004 ***	63.7%
2	0.002 *	1.139 ***	-2.493 **	72.7%
3	-0.001	0.732 ***	0.179	57.5%
4	-0.001	0.998 ***	-1.192	67.5%
5	0.000	0.622 ***	-2.596 **	33.8%
6	-0.001	0.964 ***	0.338	65.5%
7	0.005 ***	0.518 ***	-3.894 **	18.6%
8	0.005 ***	0.451 ***	-3.469 **	19.5%
9	-0.001	0.664 ***	-0.418	33.5%
10	-0.001	0.662 ***	-0.430	33.5%
11	-0.001	0.972 ***	-0.426	58.6%
12	0.002 **	0.648 ***	-1.372	50.7%
13	0.000	1.025 ***	-0.178	91.3%
AVG Global Islamic Funds	0.001 *	0.775 ***	-1.458 **	79.5%
14	0.000	0.513 ***	0.168	54.5%
15	-0.002 *	0.686 ***	-1.247 *	39.3%
16	-0.001	0.559 ***	-1.383 **	34.6%
17	-0.001	0.751 ***	-1.255 **	55.6%
18	0.000	0.606 ***	-0.815	35.7%
19	-0.002	0.518 ***	0.355	33.0%
20	0.000	0.748 ***	-0.562	47.0%
21	-0.001	0.628 ***	-1.702 **	41.5%
22	-0.001	0.688 ***	-0.862	42.7%
23	0.000	0.622 ***	-0.514	64.2%
24	0.000	0.527 ***	-1.433 **	36.3%
25	0.001	0.550 ***	-1.855 ***	51.5%
26	0.002 ***	0.569 ***	-0.910 **	71.2%
27	-0.001	0.688 ***	-0.827	32.5%
28	0.000	0.569 ***	-0.745 *	63.7%
AVG Malaysian Islamic Funds	0.000	0.615 ***	-0.906 **	72.5%

****, **, and * indicate significance levels at 1%, 5%, and 10% respectively*

Source: constructed by author

$$TM = r_{p,t} = \alpha + \beta_p r_{m,t} + \gamma_p r_{m,t}^2 + \varepsilon_{p,t}$$

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Results from TM indicate negative market timing ability for average global Islamic and Malaysian Islamic funds. Figure 5.8 illustrates the distribution for market timing ability (gamma) with Islamic benchmarks the FTSE Global Islamic Index and the FTSE Bursa Malaysia. Figure 5.9 shows the distribution of market timing but with conventional indices the FTSE All World Index and the KLCI which is also negative. Now we will present the Henriksson and Merton market timing results.

Figure 5.8: Treynor and Mazuy Market Timing Distribution (Islamic Index)

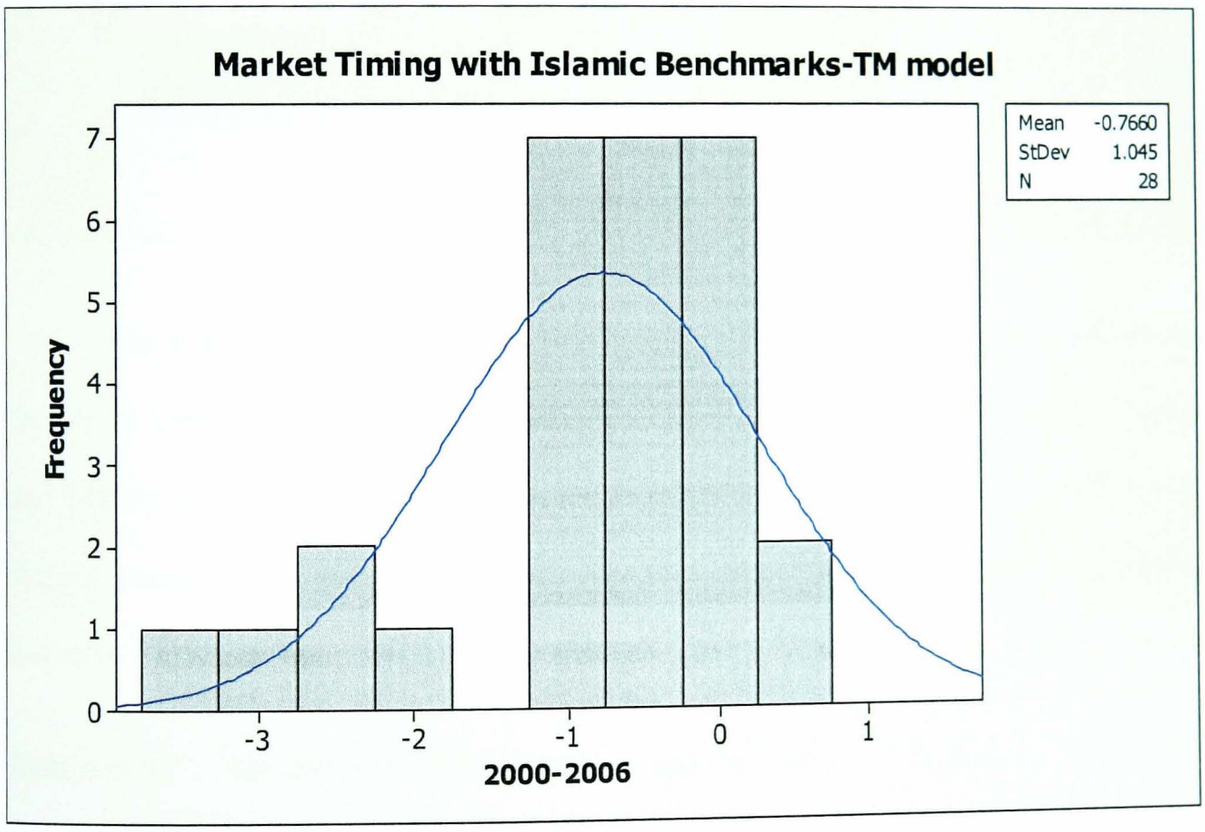
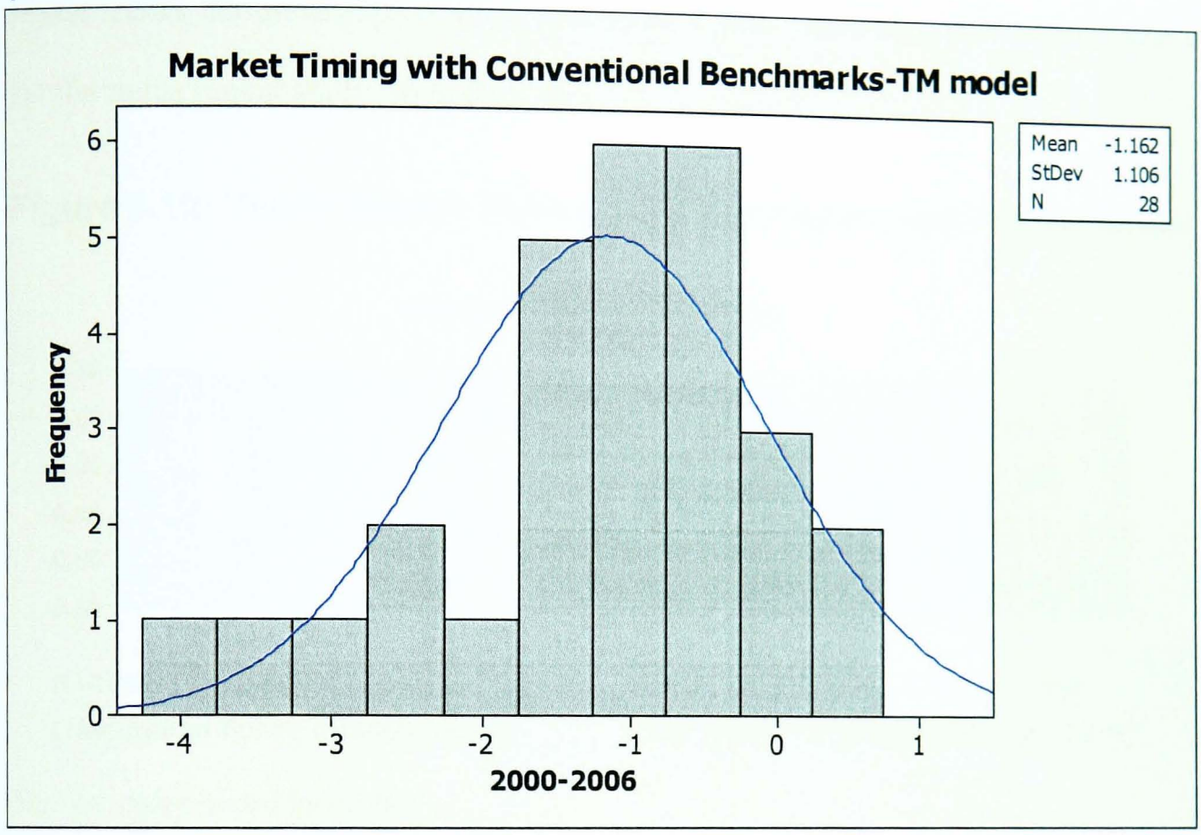


Figure 5.9: Treynor and Mazuy Market Timing Distribution (Conventional Index)



The following presents the Henriksson and Merton market timing results from our sample of Islamic mutual funds. We will see if there is similar indications to the Treynor and Mazuy model. Table 5.17 reports yearly market timing from 2000 till 2006 where there is similarity to TM timing results. There are many negative market timing figures indicating a lack of market timing.

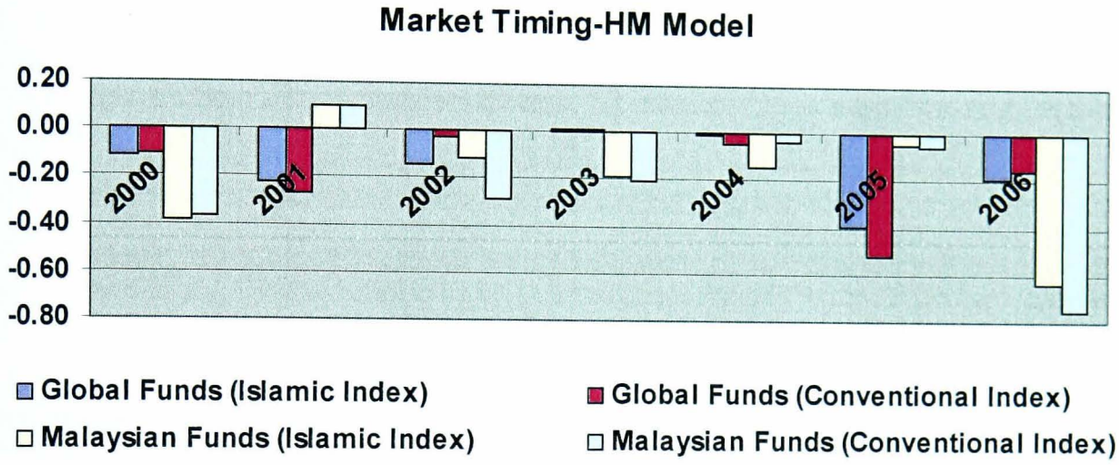
Table 5.17 : Henriksson and Merton Market Timing Yearly

	2000	2001	2002	2003	2004	2005	2006
Global Funds (Islamic Index)	-0.1137	-0.2249 **	-0.1430	0.0144	-0.0066	-0.3937 ***	-0.1870
Global Funds (Conventional Index)	-0.1034	-0.2694 **	-0.0214	0.0085	-0.0440	-0.5248 ***	-0.1549
Malaysian Funds (Islamic Index)	-0.3853 **	0.1002	-0.1121	-0.1907	-0.1396	-0.0425	-0.6377 **
Malaysian Funds (Conventional Index)	-0.3707 *	0.1002	-0.2820 *	-0.2025	-0.0319	-0.0556	-0.7591 **

****, **, and * indicate significance levels at 1%, 5%, and 10% respectively*

Figure 5.10 uses the data from Table 5.17 to generate a graphical exposition which shows the prevalence of negative timing ability. The timing ability from HM is similar to the timing ability from the TM.

Figure 5.10: Yearly Market Timing from Henriksson and Merton Model



Source: constructed by author

Now we report market timing for the entire period. Table 5.18 and Table 5.19 present results for the HM model. In table 5.18 the FTSE Global Islamic Index and the FTSE Bursa Malaysia are used as the benchmark indices for global and Malaysian funds respectively. Table 5.18 presents the results when we use the conventional benchmarks of the FTSE All World Index and the KLCI for the global and Malaysian funds respectively to estimate market timing. The results from HM are consistent with the TM results presenting negative market timing ability. Overall, our findings suggest that there is negative market timing ability for the sample mutual funds and fund managers are not able to outguess the market by developing market entry and exit strategies. In brief, global Islamic funds obtained negative gammas 81% of the time and Malaysian Islamic funds obtained negative gammas 85% of the time.

Table 5.18: HM with FTSE Global Islamic Index and FTSE Bursa Malaysia

Fund Code	α-Alpha		B-Beta		γ-Gamma		R-Squared
1	0.003	***	0.752	***	**-0.285**	***	57.7%
2	0.003	**	1.224	***	**-0.224**	**	78.8%
3	0.000		0.708	***	**-0.029**		59.6%
4	0.000		0.991	***	**-0.074**		70.3%
5	0.002		0.700	***	**-0.250**	*	32.4%
6	0.000		0.972	***	**-0.053**		73.0%
7	0.008	***	0.719	***	**-0.499**	**	17.8%
8	0.007	***	0.599	***	**-0.396**	**	17.6%
9	0.000		0.663	***	**-0.041**		36.0%
10	0.000		0.663	***	**-0.044**		36.0%
11	0.001		1.010	***	**-0.163**		62.2%
12	0.003	**	0.647	***	**-0.080**		50.3%
13	0.000		0.966	***	**0.014**		94.3%
AVG Global Islamic Funds	0.002	***	0.816	***	**-0.163**	**	81.8%
14	0.000		0.493	***	**0.015**		58.3%
15	-0.001		0.760	***	**-0.166**		43.4%
16	-0.001		0.585	***	**-0.068**		37.9%
17	0.000		0.808	***	**-0.170**	*	58.5%
18	0.001		0.642	***	**-0.119**		37.3%
19	-0.001		0.514	***	**0.017**		37.5%
20	0.000		0.732	***	**0.013**		51.9%
21	0.001		0.734	***	**-0.260**	**	43.8%
22	-0.001		0.706	***	**-0.064**		46.4%
23	0.000		0.594	***	**-0.008**		65.5%
24	0.000		0.541	***	**-0.092**		36.1%
25	0.001		0.603	***	**-0.163**	**	52.0%
26	0.002	***	0.621	***	**-0.122**	**	78.3%
27	0.001		0.791	***	**-0.174**		38.7%
28	0.001	*	0.609	***	**-0.090**		71.0%
AVG Malaysian Islamic Funds	0.000		0.649	***	**-0.097**	*	78.3%

****,**, and * indicate significance levels at 1%, 5%, and 10% respectively*

$$HM = r_{p,t} = \alpha_p + \beta_p r_{m,t} + \gamma_p I_t r_{m,t} + \varepsilon_{p,t}$$

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Table 5.19: HM with FTSE All world Index and KLCI

Fund Code	α-Alpha	β-Beta	γ-Gamma	R-Squared
1	0.003***	0.836***	**-0.300*** **	62.9%
2	0.002*	1.255***	**-0.220***	72.4%
3	-0.001	0.727***	**0.008**	57.5%
4	-0.001	1.039***	**-0.072**	67.3%
5	0.001	0.766***	**-0.275***	33.5%
6	-0.001	0.932***	**0.064**	65.5%
7	0.008***	0.791***	**-0.536****	18.8%
8	0.008***	0.691***	**-0.472****	19.7%
9	-0.001	0.680***	**-0.029**	33.5%
10	-0.001	0.679***	**-0.031**	33.5%
11	0.000	1.028***	**-0.113**	58.6%
12	0.003**	0.718***	**-0.133**	50.6%
13	0.000	1.026***	**0.001**	91.3%
AVG Global Islamic Funds	0.002**	0.859***	**-0.162****	79.4%
14	0.000	0.504***	**0.018**	54.4%
15	-0.001	0.778***	**-0.188**	39.2%
16	0.000	0.635***	**-0.160**	34.1%
17	0.000	0.856***	**-0.213****	55.6%
18	0.001	0.672***	**-0.133**	35.7%
19	-0.001	0.548***	**-0.053**	33.0%
20	0.000	0.759***	**-0.028**	46.9%
21	0.001	0.773***	**-0.294****	41.5%
22	-0.001	0.732***	**-0.092**	42.6%
23	-0.001	0.624***	**-0.010**	64.0%
24	0.001	0.615***	**-0.182***	35.8%
25	0.001	0.644***	**-0.199****	50.2%
26	0.002***	0.629***	**-0.125****	71.0%
27	0.000	0.771***	**-0.167**	32.6%
28	0.001	0.626***	**-0.118***	63.6%
AVG Malaysian Islamic Funds	0.000	0.678***	**-0.130****	72.3%

****, **, and * indicate significance levels at 1%, 5%, and 10% respectively*

$$HM = r_{p,t} = \alpha_p + \beta_p r_{m,t} + \gamma_p I_t r_{m,t} + \varepsilon_{p,t}$$

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Figure 5.11: Henriksson and Merton Market Timing Distribution (Islamic Index)

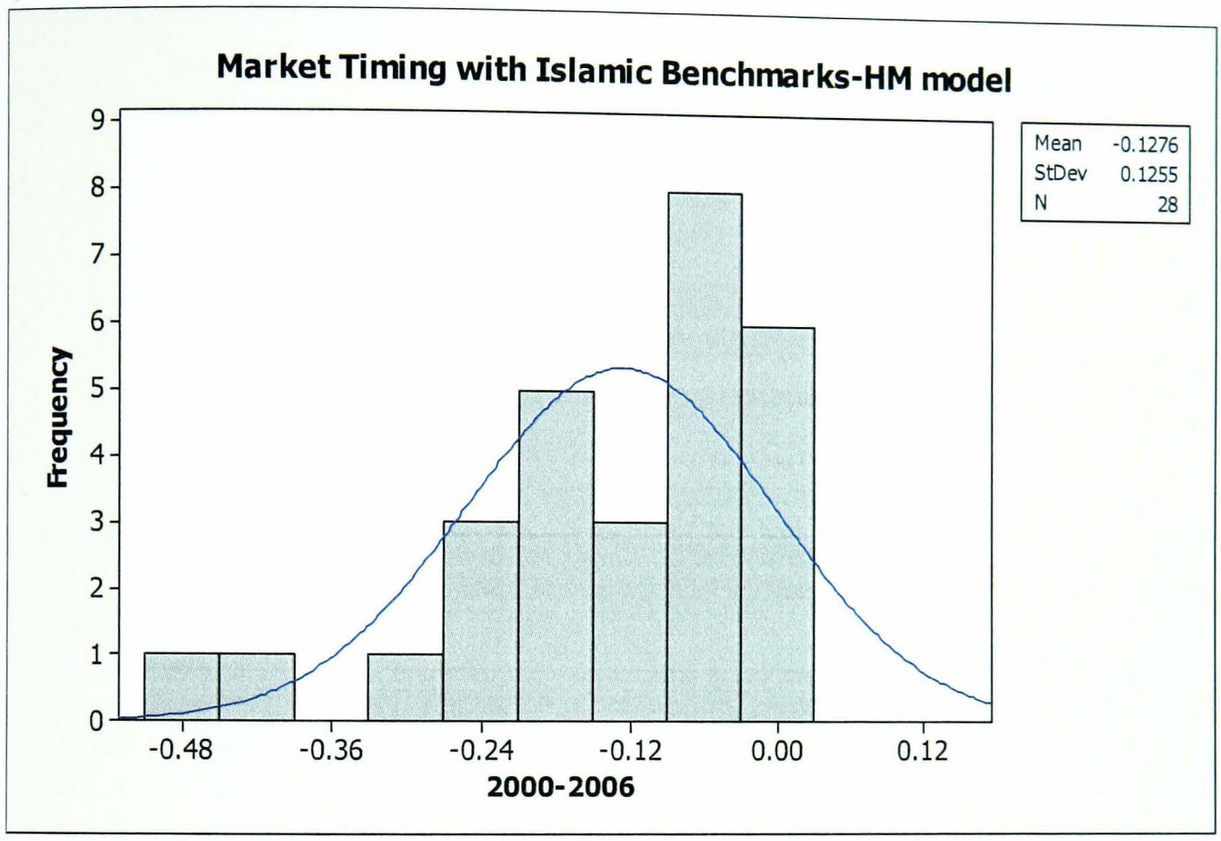
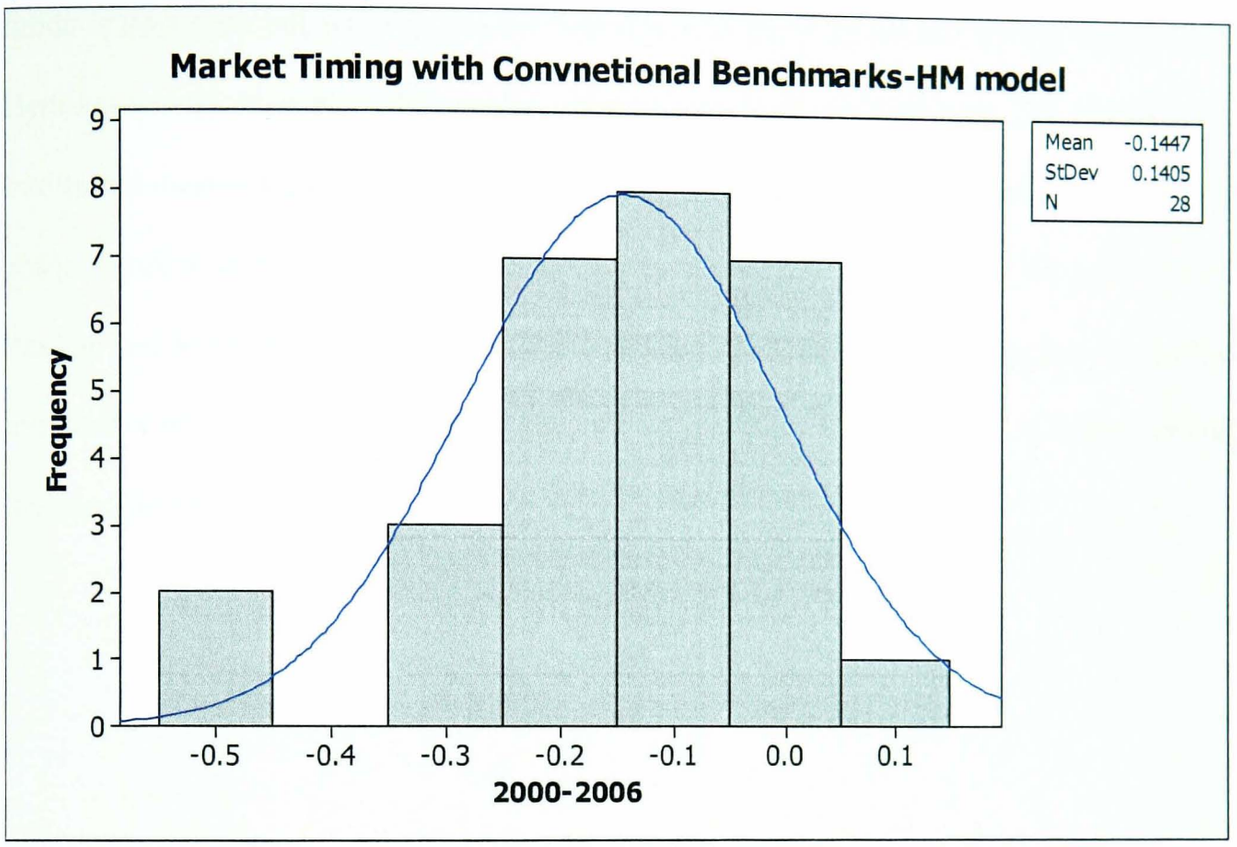


Figure 5.11 shows the market timing distribution for global and Malaysian Islamic funds collectively with Islamic benchmarks the FTSE Global Islamic Index and FTSE Bursa Malaysia. As it can be seen there is negative market timing ability with a mean of -0.1276. Figure 5.12 displays the market timing ability from Henriksson and Merton as well but with conventional indices, the FTSE All World Index and KLCI where the mean is lower at -0.1447.

Figure 5.12: Henriksson and Merton Market Timing Distribution (Conventional Index)



This section has presented market timing measurements for a sample of Islamic mutual funds yearly during 2000 until 2006 and over the whole sample period. The overall results suggest that there is evidence of a lack of market timing ability using the traditional market timing models. This is indeed consistent with previous findings such as Treynor and Mazuy (1966), Henriksson (1984), Cumby and Glen (1990), Ferson and Schadt (1996), Kryzanowski et al. (1996), Becker, Ferson, Myers, and Schill (1999) and Jiang (2003). Also, there is agreement between reported market timing results from TM and HM where there is a strong positive correlation at 0.9635 and there are significant at 1%. This signifies that the results from TM and HM have similar conclusion regards to the lack of market timing ability of Islamic mutual funds.

The reason behind negative market timing ability in the sample Islamic mutual funds is uncertain but we will test for robustness in the Treynor and Mazuy (1966) and Henriksson and Merton (1982) results. Recent empirical work refer to TM and HM as traditional market timing models. However, they suggest using conditional market timing ability models as explained in the methodology chapter. We will follow the approach of Prather and Middleton (2006) to test for conditional market timing ability and to test for robustness in reported results. Therefore, the next section will elaborate in further detail the conditional market timing results.

5.4 Conditional Market Timing Results

The previous section presented market timing results for a sample of Islamic equity mutual funds. For the majority of funds we obtain significant negative market timing gammas. However, recent empirical studies such as Prather and Middleton (2006) indicate that the traditional TM market timing model is misspecified. Therefore, they suggest adapting a conditional market timing model to explain for the misspecification and poor timing. The conditional model uses lagged public information as an independent variable in the regression to capture for timing ability. According to Prather and Middleton (2006) public information varies across studies but this can be captured by using a lagged macroeconomic variable from preceding time periods. As we discussed in the methodology, we are examining global and Malaysian funds and choose to use lagged global GDP growth and lagged Malaysian GDP growth as public information to capture public information concerning improvements in the macroeconomic environment. Prather and Middleton (2006) found that there was no difference between traditional (unconditional) and conditional market timing models results presenting similar negative market timing abilities. (We presume that results from previous section suggesting negative market timing ability will hold). The conditional market timing model (23):

$$R_{p,t} = \alpha_p + \beta_p r_{m,t} + C_p Z_t r_{m,t} + \gamma_p r_{m,t}^2 + \varepsilon_{p,t} \qquad (23)$$

where $R_{p,t}$ return on fund at time t using weekly returns, Rm_t return on market benchmark at time t using weekly returns, C_p captures the response to public information which is market return multiplied by Z lagged GDP growth, and γ_p similarly identifies the market timing ability for a fund.

The yearly conditional market timing results are presented in Table 5.20 and Table 5.21. First we present market timing results for global Islamic funds in Table 5.20 between 2000 and 2006. The first two columns shows market timing ability with the FTSE Global Islamic Index where there is negative timing throughout the whole period except for 2004 which is insignificant. The following two columns present timing for global Islamic funds using the FTSE All World Index as the market benchmark. Table 5.21 reports market timing for Malaysian Islamic funds with the FTSE Bursa Malaysia and KLCI respectively. There is high negative timing ability in 2006 (significant at 5%). The overall yearly market timing results for global and Malaysian funds again suggest negative timing ability with both Islamic and conventional market indices.

Table 5.20: Yearly Conditional Market Timing for Global Islamic Funds

Global Funds (Islamic Index)			Global Funds (Conventional Index)		
2000	-0.061		**2000**	-0.449	
2001	-1.9097	***	**2001**	-2.018	***
2002	-0.573		**2002**	0.462	
2003	-0.674		**2003**	-0.284	
2004	0.745		**2004**	0.065	
2005	-7.694	***	**2005**	-11.026	***
2006	-2.389		**2006**	-1.943	

****, **, and * indicate significance levels at 1%, 5%, and 10% respectively*

Table 5.21: Yearly Conditional Market timing for Malaysian Islamic Funds

Malaysian Funds (Islamic Index)			Malaysian Funds (Conventional Index)		
2000	-2.4319	***	**2000**	-2.2622	**
2001	0.8864		**2001**	0.8324	
2002	-1.16		**2002**	-3.374	
2003	-1.084		**2003**	-1.464	
2004	-1.1889		**2004**	-0.575	
2005	0.3		**2005**	0.257	
2006	-12.428	**	**2006**	-19.063	**

****, **, and * indicate significance levels at 1%, 5%, and 10% respectively*

The results from the conditional market timing model are presented in Table 5.22 for the entire period taken together[31]. Global and Malaysian Islamic funds have been taken together. Similar to previous models, global funds have been benchmarked against the FTSE Global Islamic Index and the FTSE All World Index. Malaysian funds have been benchmarked against the FTSE Bursa Malaysia and the KLCI. In Table 5.22 the first column indicates stock selectivity which was positive for global funds and negative for Malaysian funds. The fund beta is positive for global and Malaysian funds indicating a positive relationship between the market and the funds performance. The third column shows the coefficient that captures public information, which in our case is lagged GDP growth. Global funds present strong positive coefficients significant at the 1% level indicating that GDP growth is related to the performance of mutual funds. Malaysian funds obtained positive coefficients as well for the public information (local lagged GDP growth) however the coefficients are statistically insignificant. Meanwhile, the market timing measure, gamma, is negative for both global and Malaysian funds. The R-squared for the tests is above 70% indicating a relatively strong relationship between dependent and explanatory variables. The negative market timing results are in agreement with the traditional models results reported in the previous section. Also, the results from the conditional model are in line with Prather and Middleton's (2006) findings.

Table 5.22: Conditional Market timing 2000-2006

	Constant		Rm		C Z Rm		Gamma		R-Squared
Global Funds (Islamic Index)	0.001	**	0.63967	***	2.0946	***	**-1.129**	***	**82.50%**
Global Funds (Conventional Index)	0.00071		0.67716	***	2.1933	***	**-1.459**	***	**80.20%**
Malaysian Funds (Islamic Index)	-0.0004		0.60445	***	0.00044		**-0.462**		**78.10%**
Malaysian Funds (Conventional Index)	-0.0004		0.61657	***	0.00016		**-0.898**	***	**72.20%**

****, **, and * indicate significance levels at 1%, 5%, and 10% respectively*

[31] OLS Regression Analysis is used to obtain estimated results.

Overall the results from both the traditional and conditional market timing models are similar and present evidence of negative market timing ability. The findings from this section on conditional market timing ability and those from Prather and Middleton (2006) and Cuthbertson, Nitzsche, and O'Sullivan (2006) suggest that unconditional and conditional market timing models present similar results. The following section will examine and report results on performance persistence for our sample of Islamic mutual funds.

5.5 Performance Persistence

This section presents evidence of performance persistence on the sample of Islamic mutual funds examined in this thesis. So far we have arrived at negative performance results from stock selection and market timing models. Therefore, it is interesting to see if negative performance persists from one period to another. Performance persistence is tested using a lagged independent variable as previously discussed in the methodology where the beta term measures for persistence if positive and significant. We first use the Jensen's alpha to test for performance persistence. We follow the approach of Busse and Tong (2007) to test for persistence and present results in Table 5.23 for the average global and Malaysian funds. We first examine persistence for each individual fund using Jensen's Alpha and then we use lagged fund price and present persistence results individually in Table 5.24[32].

Table 5.23: Performance Persistence Using Jensen Alpha

Islamic Funds	2001	2002	2003	2004	2005	2006
Global Funds	0.19286 **	0.3203 **	0.2674 **	1.6075 ***	2.5101 ***	1.0447 **
Malaysian Funds	0.1489	0.3773 **	0.3801 **	0.9096 **	-0.3233	-0.1949

****,**, and * indicate significance levels at 1%, 5%, and 10% respectively*

$$\alpha_t = A + \beta\ \alpha_{t-1} + \varepsilon \qquad (24)$$

Results from Table 5.23 indicate that there is significant positive persistence for global Islamic funds and there is stronger evidence of persistence in 2004, 2005, and 2006 given the higher coefficients. Malaysian Islamic funds also exhibit positive performance persistence apart from in 2005 and 2006. This suggests that poor performance in Islamic funds tend to persist. Now we turn to examine persistence but using mutual fund prices instead of alpha.

[32] Page 189

We test for persistence using the same approach but using mutual fund prices instead of Jensen alpha to see if persistence results are similar. Table 5.24 show the results on performance persistence from mutual fund prices individually and again there is significant evidence of performance persistence. Persistence is identified using the beta factor - if positive and significant there is evidence of positive performance persistence.

Results from table 5.24 indicate that 2003 saw mainly negative beta for global and Malaysian funds indicating that there was negative performance persistence in this particular year – funds that performed well in the previous year performed poorly in the following year and vice versa. However, there was stronger indication of positive persistence for global funds in the years 2002 and 2005 since there are higher positive betas compared with other sample years. On the other hand, for Malaysian funds negative performance persistence appears to prevail.

Table 5.24: Individual Mutual Fund Persistence Using Fund Price

	2001		2002		2003		2004		2005		2006	
1	0.7921	***	1.3147	***	-0.6455	***	0.7449	***	0.5971	***	0.2190	***
2	0.1365		0.9814	***	-0.6766	***	0.4681	***	1.0708	***	0.0646	
3	0.3400	***	0.9477	***	-0.5410	***	0.1935	***	0.6109	**	0.0006	
4	0.4270	***	0.7958	***	-0.9516	***	0.1265	**	0.3142	*	-0.2207	***
5	0.3640	***	0.5814	***	-1.0138	***	0.0488		-0.0562		0.1713	
6	0.2368	***	0.7440	***	-0.6084	***	0.0653		0.2351		-0.1054	
7	-0.1797	*	-0.0431		1.4939	***	1.1196	***	0.8060	***	-0.5450	***
8	-0.0425		-0.9708	**	1.4845	***	1.0536	***	0.7784	***	-0.3097	***
9	0.2772	***	0.7089	***	-0.4792	***	0.2310	***	0.1806		0.5064	***
10	0.2661	***	0.7102	***	-0.5048	***	0.2591	***	0.2551	**	0.5716	***
11	0.2761	***	0.4583	***	-0.6977	***	-0.0570		0.2008		0.4828	***
12	0.5949	***	1.0659	***	-2.0438	***	0.5102	***	0.6789	***	-0.2168	***
13	0.2785	**	0.9636	***	-0.5557	***	0.2014	***	0.5575	**	0.0169	
G Global	**0.2898**		**0.6352**		**-0.4415**		**0.3819**		**0.4792**		**0.0489**	
14	0.0495		0.0564		-1.3553	***	-0.3407	***	0.0413		0.4478	*
15	0.1978	***	0.7352	***	-0.2017	***	-0.2189		0.7964	***	-0.1548	***
16	0.1057	***	0.2139		-1.1979	***	-0.1509		0.7320	***	0.2284	***
17	-0.0627	**	-0.9418	***	-1.0053	***	-0.2132	***	-0.0497		-0.1847	*
18	-0.0463	*	-0.7982	***	-1.0952	***	-0.6900	***	0.1696	***	-0.3279	*
19	0.0438		-0.1706	**	-0.6432	***	-1.3530	***	0.4678	***	0.1954	*
20	-0.1373	***	-0.6644	***	-0.4502	***	-0.7957	***	0.2988	***	0.0137	
21	0.1497	***	0.4596	***	-0.4631	***	-0.5710	**	0.4272	***	0.6066	***
22	0.0404		-0.3915	***	-0.0776		-0.8727	***	0.7050	***	-0.0403	
23	-0.0009		-0.7338	***	-0.5520	***	-1.4792	***	0.1651	***	-0.4165	***
24	-0.0798	**	-0.3418	***	-0.9282	***	0.0637		0.8327	***	-0.3081	***
25	-0.1525	***	-0.8873	***	-0.8725	***	-0.3907	***	0.1666	***	-0.6673	***
26	-0.2414	***	-0.6636	***	-0.8237		-0.0682		-0.0853		-1.4695	***
27	-0.0788	**	-0.4668	***	-0.6260	***	-0.2486	***	-0.3925	***	-0.0437	
28	-0.1064	**	-0.9464	***	-0.8297	***	-0.4078	***	0.4425	***	-0.9287	***
Malaysian	**-0.0213**		**-0.3694**		**-0.7414**		**-0.5158**		**0.3145**		**-0.2033**	

$$P_t = \alpha_t + \beta\ P_{t-1} + \varepsilon \qquad (22)$$

****, **, and * indicate significance levels at 1%, 5%, and 10% respectively*

**The fund is tagged with a code to unify and clarify presentation, a reference to fund name is available on p.122*

Now we turn to examine the average persistence for the mutual funds taken together and using mutual fund prices. Table 5.25 takes global funds and Malaysian fund together to look at persistence where there is evidence of positive persistence in global funds between 2001 and 2006 (apart from in 2003) but there is evidence of mainly negative persistence for the Malaysian funds. This latter finding suggests that negative performance in Malaysian Islamic mutual funds continues from one time period to another.

Table 5.25: Performance Persistence Using Fund Prices

Islamic Funds	2001	2002	2003	2004	2005	2006
Global Funds	0.3274 ***	0.5628 ***	-0.9135 ***	0.5263 ***	0.7587 ***	0.0447 *
Malaysian Funds	0.0104	-0.4783 ***	-1.1094 ***	-0.5011 ***	0.3192 ***	-0.1949

****, **, and * indicate significance levels at 1%, 5%, and 10% respectively*

$$P_t = \alpha_t + \beta\ P_{t-1} + \varepsilon \qquad (22)$$

5.6 Conclusion

This chapter has outlined the performance of a sample of 28 Islamic mutual funds between January 2000 and September 2006. We followed two major approaches to estimate fund performance focusing on stock selection and market timing models. Overall, the results on the sample of Islamic mutual funds suggest negative stock selection and market timing ability indicating that there was substantial underperformance amongst Islamic mutual funds over the period under study. Overall, comparing the two fund categories, global Islamic funds tend to perform better than Malaysian Islamic fund in terms of stock selection.

Using traditional market timing models, there was strong evidence of negative market timing ability for both global and Malaysian Islamic funds using both Islamic and conventional market indices. Due to limitations associated with traditional approaches we also used the conditional market timing models as suggested by Prather and Middleton (2006) and Cuthbertson, Nitzsche, and O'Sullivan (2006). After using conditional models to control for market timing misspecification, our results were similar again suggesting a negative market timing ability. The conditional models provide some evidence that GDP growth is positively related to mutual fund performance. Moreover, there is positive relation between reported negative performance from stock selection and market timing.

Finally, performance persistence was examined using both the Jensen's alpha and mutual fund prices. The reported results suggest that there is evidence of positive persistence for our sample of Islamic mutual funds using Jensen's alpha measure and in terms of mutual fund price where there was stronger evidence from global funds. This means that the negative performance for the sample Islamic mutual funds examined, leak the negative performance between the sample period examined.

Chapter 6 - Conclusion

6.1 Conclusion

This thesis presents a performance evaluation for a sample of managed Islamic mutual funds by employing stock selection and market timing models. The results from the stock selection models indicate an overall underperformance for the sample period examined. Evidence of underperformance is suggested by Sharpe and Treynor ratios as well as estimates of Jensen and Fama and French alphas. However, of the two fund groups studied: Malaysian and global Islamic funds; the latter obtain higher rankings compared to their Malaysian Islamic fund counterparts. This is probably because global Islamic funds are better diversified than Malaysian funds. Furthermore, results from the market timing models suggest that the majority obtained significant negative market timing ability. A possible explanation of poor market timing may lie in mutual fund cash flows management, whereby investors increase the cash flow in the market during a period when market return are relatively high and redeem after a fall in the market.

Moreover, the performance evaluation examined the time period between 2000 and 2006. Yearly stock selection results indicate that the year 2003 obtained the highest ranking compared with other years. Also, there was severe underperformance in the years 2000 and 2001. In addition, the yearly results from market timing indicate that the years 2005 and 2006 experienced greater negative timing ability compared to the previous period for Malaysian funds. The reason for negative timing in Malaysian Islamic funds is possibly attributed to the increase in popularity of Malaysian debt market which shifted capital from equity markets starting year 2004 (Malaysian Market Overview, 2007).

In addition, conditional market timing models were used to test for robustness in market timing and account for the impact of public information on fund returns. Public information was used to control for the influence of the time varying beta and to control for other misspecification as suggested in Ferson and Schadt (1996), Prather and Middleton (2006) and Cuthbertson, Nitzsche, and O'Sullivan (2006). Our results from the conditional model also find evidence of negative market timing ability similar to the unconditional models.

The general results are in line with the findings of Elfakhani and Hassan (2005) and Abdullah, Hassan and Mohammad (2007) who studied stock selection on a sample of Islamic funds and found evidence of underperformance. Moreover, Rodriguez (2007) examined the market timing ability of global funds and also found negative market timing results. Our results are in agreement with Prather and Middleton (2006) who examined the market timing ability of US funds using a conditional market timing model and found results indicating negative market timing ability with traditional and conditional market timing models.

6.2 Limitations

This study on Islamic mutual funds provides indicative but not conclusive results, although various limitations need to be highlighted. First, data on Islamic mutual funds are limited and access to data prior to 2000 is virtually non-existent. In this thesis data was collected for 75 funds but the lack of consistency and disclosure of many of these funds meant that the sample collapsed and only around a third could be used in our empirical analysis. Similarly, other studies that examine Islamic mutual funds, such as Elfakhani and Hassan (2005) use smaller samples as the one adopted in this thesis.

Another limitation relates to time period examined which includes market shocks such as the New York 11th of September, 2001 and the London 7th July, 2005 terrorist attacks. The sample period, 2000 till 2006, also indicates that there is substantial underperformance in asset allocation of the selected Islamic equity mutual funds. The poor returns indicate that the future prospects for investors in Islamic mutual funds may be either very positive or alternatively non-existent, the prospects we suggest will strongly depending on mutual fund managers improving their stock selection and market timing.

The relative performance of a mutual fund critically relates to the choice of market benchmark. Islamic indices are limited in terms of their construction and constituents, and there are only a few equity indices part of the FTSE and Dow Jones family. Islamic indices should have ratings such as the Standard and Poor's group of equity and bond indices that are frequently rated to identify their reliability. Therefore, we suggest Islamic indices should be rated to avoid misspecification in performance

studies. The choice of Islamic indices used in our analysis is a limitation since the characteristics and ratings of there are unidentified.

The future outlook for Islamic equity mutual funds given the thesis findings indicate that there is a strong potential for improved performance if more appropriate fund management approaches are applied. It is surprising that given the identified poor performance that these funds appear to continue – if they were conventional it is likely that we would expect either investors to withdraw investments or for these to be merged into higher performing funds. Presumably the motives for investing in Islamic mutual funds may not relate solely to performance and there may be cultural, religious and other reasons why investors chose to hold their funds in such poor performing vehicles. Given the scope of this thesis we were not able to analyse such issues. However, if certain Islamic mutual fund manager's characteristics are improved, such as stock selection and market timing ability, we suggest that the gap in performance will be closed and this could ultimately provide more liquidity to the Islamic fund industry.

6.3 Suggestions for Further Research

Further research should seek to asses the performance of Islamic mutual funds by studying over a larger time period and larger fund sample. Moreover, it may be worth comparing the performance of Islamic mutual funds with traditional mutual funds using a matched paired analysis. However, such a study could be challenging since the two type of funds should match in terms of return objectives and market allocation; for instance, they need to be invested in similar markets. Also, the inception date needs to be similar since the majority of traditional funds have been established for a longer period and enjoy some experience. Given data availability this may be challenging.

Overall, despite our reservations regarding the poor performance of Islamic funds we argue that they should not be viewed simply as a religious movement. These investment vehicles can be viewed as an additional channel for liquidity in financial markets. Also, Islamic mutual funds increase the product range offered and conventional investors can use Islamic mutual funds as a potential way for diversification. However, as we have seen from the empirical work in this thesis, the returns from global and Malaysian Islamic mutual funds (between 2000 and 2006) substantially under-performed industry benchmarks and rarely attained annual returns greater than the risk-free rate. This brings in the question, perhaps the efficacy of investing in Islamic mutual funds compared to say passive Islamic index trackers or exchange traded funds ETF's.

Another important scope for further research is the issue of window dressing and disclosure of Islamic mutual fund information – which is spares at best. Further work needs to be undertaken to identify the holdings and allocation of such funds to see if there is appropriate asset distribution in profitable stock market opportunities. Also, regulators

should require Islamic mutual fund managers to disclose their holdings on a quarterly basis (as in the US) so that analysts, shareholders and researchers can more accurately gauge the performance of such funds.

References

Abdullah, F., Hassan, T., and Mohamed S., (2007). Investigation of the Performance of Malaysian Islamic Unit Trust Funds: Comparison with Conventional Unit Trust Funds. *Managerial Finance*, Vol. 33, pp. 142-153.

Al-Qaradawi, Y. (1999). Fiqh az-zakah: A Comparative Study. *London: Dar al-Taqwa Ltd.*

Anderson, S. C. and Ahmed, P., (2005). Mutual funds: Fifty Years of Research Findings. *Springer Publishers, New York.*

Annaert, J. Broeck, J. and Vennet, R. V., (2003). Determinants of Mutual Fund Underperformance: A Bayesian Stochastic Frontier Approach, *European Journal of Operational Research*, Vol. 151, pp. 617-632.

Annuar, M.N., Mohamed, S. and Ngu, M.H., (1997). Selectivity and Timing: Evidence from the Performance of Malaysian Unit Trusts. *Pertanika, Vol.* 5, pp 45-57.

Anson, M., (2005). Handbook of Alternative Assets, *John Wiley and Sons, United States.*

Azmi, R. A., (2008). Mutual Funds Performance: Does Gender Matter in an Emerging Market, *University of Portsmouth.*

Ball, R., (1978). Anomalies in Relationships between securities yields and yield-surrogates, *Journal of Financial Economics,* Vol. 6, pp. 103-126.

Banz, R. W., (1981). The Relationship Between Return and Market Value of Common Stocks, *Journal of Financial Economics,* Vol. 9, pp. 3-18.

Basu, S., (1983). The Relationship between Earnings Yield, Market Value, and Return for NYSE Common Stocks: Further Evidence, *Journal of Financial Economics*, Vol. 12, 129-156.

Bauer, R., Koedijk, K., and Otten, R., (2005). International Evidence on Ethical Mutual Fund Performance and Investment Style. *Journal of Banking & Finance*, Vol. 29, pp. 1751-1767.

Baumol, W. J. et al, (1990). The Economics of Mutual Fund Markets: Competition Versus Regulation,: *Kluwer Academic Publishers. Boston, United States.*

Becker, C., Ferson, W., Myers, D.H., and Schill, M.J., (1999). Conditional Market Timing with Benchmark Investors. *Journal of Financial Economics,* Vol. 52, pp. 119–148.

Berent, T. S., (1995). The Evaluation of UK Unit Trust Performance Using the Positive Period Weighting Measures, (Unpublished PhD Thesis*), University of Wales Bangor. Bangor, United Kingdom.*

Bergstresser, D., Chalmers, J. M. R. and Tufano, P., (2006). Assessing the Costs and Benefits of Brokers in the Mutual Fund Industry, *AFA 2006 Boston Meetings HBS Finance Working Paper No. 616981.*

Bhandari, L. C., (1988). Debt/Equity ratio and expected common stock returns: Empirical evidence, *Journal of Finance,* Vol. 43, pp.507-528.

Bhargava, R., Gallo, J.G., Swanson, P.E., (2001). The Performance, Asset Allocation, and Investment Style of International Equity Managers. *Review of Quantitative Finance and Accounting,* Vol. 17, pp. 377-395.

Black, K., (2004). Managing a Hedge Fund: A Complete Guide to Trading, Business Strategies, Risk Management and Regulations, *McGraw-Hill.* New York. United States.

Black, A., Fraser, P., and Power, D., (1992). UK Unit Trust Performance 1980-1989: A Passive Time-Varying Approach. *Journal of Banking and Finance*, Vol. 16, pp. 1015-1033.

Bliss, R., and Potter, M., (2002). Mutual Fund Managers: Does Gender Matter?, *Journal of Business and Economic Studies*, Vol. *8, pp. 1-17. .*

Bodie, Z., Kane, A., Marcus, A. J., (2005). Investments, *Sixth edition, McGraw Hill, New York, United States.*

Bollen, N. P. and Busse, J. A., (2001). On the Timing Ability of Mutual Fund Managers, *Journal of Finance,* Vol. 56, pp. 1075–1094.

Bollen, N., and Busse, J., (2005). Short-Term Persistence in Mutual Fund Performance, *The Review of Financial Studies,* Vol. 18, pp. 569-59.

Boos, D., (2007). Islamic Banking: The Cultural and Demographic Aspects of the Islamic Financial System and the Potential for Islamic Financial Products in the Swiss Market, *Unpublished MBA thesis. The University of Manchester, Manchester Business School.*

Brown, S. and Goetzmann, W., (1995). Performance Persistence, *The Journal of Finance*, Vol. 50, pp. 679-698.

Bullock, H., (1959). The Story of Investment Companies, *Columbia University Press, New York, United States.*

Busse, J., (1999). Volatility Timing in Mutual Funds: Evidence from Daily Returns, *Review of Financial Studies*, Vol. 12, pp. 1009-1041.

Busse, J. and Tong, Q., (2007). Mutual Fund Industry Selection and Persistence, *Unpublished working paper, Goizueta Business School, Emory University.*

Campbell, W., (1994). The Investment Act of 1940: Reasonable and Intelligent, *Friends of Financial History. New York, United States.*

Carhart, M., (1997). On Persistence in Mutual Fund Performance. *The Journal of Finance*, Vol. 52, pp. 57-82.

Chang, K., (2004). Evaluating Mutual Fund Performance: an application of minimum convex input requirement set approach. *Computers & Operations Research*, Vol. 31, pp. 929-940.

Chang, E.C., Lewellen, W.G., (1984). Market Timing and Mutual Fund Investment Performance. *Journal of Business* Vol. 57, pp. 57–72.

Chen, J., Hong, H., Huang, M. and kubik, J. (2002). Does Fund Size Erode Performance? Liquidity, Organizational Diseconomies and Active Money Management, Available at SSRN: http://ssrn.com/abstract=327960 or DOI: 10.2139/ssrn.327960

Christoffersen, S., Evans, R. and Musto, D., (2006). The Economics of Mutual-Fund Brokerage: Evidence from the Cross Section of Investment Channels, *AFA 2006 Boston Meetings Paper.*

Ciccotello, C. S. and Grant, C.T., (1996). Equity Fund Size and Growth: Implications for Performance and Selection, *Financial Services Review,* Vol. 5, pp.1-12.

Comer, G., (2006). Hybrid Mutual Funds and Market Timing Performance, *Journal of Business* Vol. 79, pp. 771-797.

Cumby, R., Glen, J., (1990). Evaluating the performance of international mutual funds. *Journal of Finance,* Vol. 45, pp. 497–521.

Cuthbertson, K. Nitzsche, D. and O'Sullivan, N., (2006). The Market Timing Ability of UK Equity Mutual Funds, Available at SSRN: http://ssrn.com/abstract=955812.

Dar, H.A., and Presley, J.R., (2000), Islamic Finance: a Western Perspective, *International Journal of Islamic Financial Service,* Vol. 1, pp.1.

Deaton, A. S., and Muellbauer, J., (1980a). An Almost Ideal Demand System. *American Economic Review*, Vol.70, pp.312–326.

Deaton, A. S., and Muellbauer, J., (1980b). Economics and consumer behavior. Cambridge University Press, *Cambridge*, United Kingdom.

Dellva, W. L., and Olson, G. T., (1998). The relationship between mutual fund fees and expenses and their effect on performance. *Financial Review*, Vol. 33, pp. 85–104.

Detzel, F. L. and Weigand, R. A., (1998). Explaining Persistence in Mutual Fund Performance. *Financial Services Review,* Vol. 7, pp. 45-55.

Ding, B. and Wermers, R., (2005). Mutual Fund Performance and Governance Structure: The Role of Portfolio Managers and Boards of Directors. *Unpublished Article.*

Droms, W. G. and Walker, D. A., (2001). Performance Persistence of International Mutual Funds, *Global Finance Journal,* Vol. 12, pp. 237-248.

Droms, W. G., and Walker, D. A., (1996). Mutual Fund Investment Performance, *Quarterly Review of Economics and Finance*, Vol.36, pp. 347–363.

Droms, W.G. and Walker, D.A., (1994). Investment Performance of International Mutual Funds, *Journal of Financial Research,* Vol. *42,* pp. *1-14.*

Ekholm, A. and Peel, M., (2007). What Drives Mutual Fund Performance? A Look into the Characteristics of Finnish Mutual Funds. *20th Australasian Finance and Banking Conference 2007 Paper.*

Elfakhani, S., and Hassan, K., (2005). Performance of Islamic Mutual Funds. *12th Economic Research Forum conference paper.*

El-Gamal, M., (2001). An Economic Explication of the Prohibition of Gharar in Classical Islamic Jurisprudence, *4th International Conference on Islamic Economics.*

Elton, E. J., Gruber, M. J., and Blake, C. R., (1996). The Persistence of Risk-Adjusted Mutual Fund Performance, *The Journal of Business*, Vol. 69, pp. 133-157.

European Fund and Asset Management Association (2007). Available at http://www.efama.org/.

Failaka Int., (2007). The Current State of Islamic Equity Funds, Insight and Perspective. *PowerPoint presentation to Annual Islamic Wealth Management Event, April 2007.*

Fama, E. F. and MacBeth, J. D., (1973). Risk, Return, and Equilibrium: Empirical Tests. *The Journal of Political Economy*, Vol. 81, pp. 607-636.

Fama, E and French, K., (1992). The Cross-Sectional of Expected Stock Returns. *Journal of Finance*, Vol. 47, pp. 427-465.

Fama, E. F. and French, K. R., (1993). Common Risk Factors in the Returns on Stock and Bonds. *Journal of Financial Economics*, Vol. 33, pp. 3-56.

Fama, E and French, K., (1998).Value versus Growth: The International Evidence. *The Journal of Finance*, Vol. 53, pp. 6.

Ferreira, M. A., Miguel, A. F., and Ramos, S. B., (2007). The Determinants of Mutual Fund Performance: A Cross-Country Study. *Swiss Finance Institute Research Paper Vol. No. 31. pp.*

Ferson, W.E., Schadt, R., (1996). Measuring fund strategy and performance in changing economic conditions. *Journal of Finance* Vol. 51, pp. 425–462.

Fink, M. (1996). Mutual Fund Regulation: Forging a New Federal and State Partnership, *Investment Company Institute,* Vol. 2, Number 1

Fink, M. P. (1995). Testimony Before the Telecommunications and Finance Subcommittee, US House of Representatives on the "Capital Markets Deregulation and Liberalisation Act of 1995, *Investment Company Institute,* Vol. Unknown.

Fletcher, J. (1995). An Examination of the Selectivity and Market Timing Performance of UK Unit Trusts, *Journal of Business Finance and Accounting* Vol. 22, pp. 143-156.

Forte, G., and Miglietta, F., (2007). Islamic Mutual Funds as Faith-Based Funds in a Socially Responsible Context, *Department of Finance*, Luigi Bocconi University, Italy. Available on SSRN.

Fortune, P., (1997). Mutual Funds, Part I: Reshaping the American Financial System. *Federal Reserve Bank of Boston Research.*

Fortune, P. (1998). Mutual Funds, Part II: Fund Flows and Security Returns. *Federal Reserve Bank of Boston Research.*

Gaspar, J. M., Massa, M., and Matos, P. (2006). Favoritism in Mutual Fund Families? Evidence on Strategic Cross-Fund Subsidization, *Journal of Finance,* Vol. 61, pp. 73-104.

Gait, A. and Worthington, A. C., (2007). A Primer on Islamic Finance: Definitions, Sources, Principles, and Methods. *School of Accounting and Finance*, University of Wollongong, Australia.

Geczy, C. C., Stambaugh, R. F. and Levin, D., (2003). Investing in Socially Responsible Mutual Funds. University of *Philadelphia working Paper.*

Girard, E. and Hassan, K., (2005). Faith-Based Ethical Investing: The Case of Dow Jones Islamic Indexes. Financial Management Association *Paper.*

Golec, J. H., (1996). The effects of mutual fund managers characteristics on their portfolio performance, risk, and fees. *Financial Services Review*, Vol. 5, pp. 133–148.

Goetzmann, W., Massa, M. and Rouwenhorst, K., (2004). Behavioral Factors in Mutual Fund Flows, *Yale School of Management Working Papers,* Vol. 8.

Glassman, D. and Riddick, L., (2006). Market Timing by Global Fund Managers, *Journal of International Money and Finance,* Vol. 25, pp. 1029-1050.

Gregory, A., Matatko, J., and Luther R., (1997). Ethical Unit Trust Financial Performance: Small Company Effects and Fund Size effects. *Journal of Business Finance and Accounting*, Vol. 24, pp. 705-725.

Gregory, A. and Whittaker, J., (2007). Performance and Performance Persistence of Ethical Unit Trusts in the UK, *Journal of Business Finance and Accounting,* Vol. 34, pp.1327-1344.

Gremillion, L. (2005). Mutual Fund Industry Handbook; A comprehensive guide for investment professionals. *Boston Institute of Financial Series.* Boston, United States..

Gruber, M.J., (1996). Another Puzzle: The Growth in Actively Managed Mutual Funds, *The Journal of Finance*, Vol. 51, pp. 785-810.

Hakim, S. and Rashidian, M., (2004). Risk and Return of Islamic Stock Market Indexes, *(Paper Presented at the International Seminar of Non-bank Financial Institutions: Islamic Alternatives in Kuala Lumpur, Malaysia).*

Hardy, E. S., (1995). The Ground Floor, Forbes, *185.*

Hassan, M. and Zaher, T., (2001). A Comparative Literature Survey of Islamic Finance and Banking, *Financial Markets, Institutions and Instruments*, Vol. 10.4, pp. 155-199.

Hassan, A. Antoniou, A. and Paudyal, K., (2005). Impact of Ethical Screening on Investment Performance: The Case of the Dow Jones Islamic Index. *Islamic Economics Studies*, Vol. 12, pp. 1.

Hayat, R., (2006). An Empirical Assessment of Islamic Equity Fund Returns, Unpublished Master's Thesis, *Free University,* Amsterdam, Holland.

Heaney, R., (2007). Australian Equity Mutual Fund Size Effects. Available at SSRN: http://ssrn.com/abstract=1009761

Hendricks, D., Patel, J. and Zeckhauser, R., (1993). Hot Hands in Mutual Funds: Short-run Persistence of Relative Performance, 1974-1988. *The Journal of Finance,* Vol. 43, pp. 93-130.

Henriksson, R., (1984). Market Timing and Mutual Fund Performance: An Empirical Investigation, *The Journal of Business*, Vol. 57, pp. 73-96.

Henriksson, R. and Merton, R., (1981). On Market Timing and Investment Performance. II. Statistical Procedures for Evaluating Forecasting Skills, *The Journal of Business, Vol. 54, pp. 513-553.*

Holland, J. H., (1975). Adaptation in Natural and Artificial Systems: An Introductory Analysis with Applications to Biology, Control and Artificial Intelligence. *University of Michigan Press.* Michigan, United States.

Hooks, J. A. (1996). The effects of loads and expenses on open end mutual fund returns. *Journal of Business Research*, Vol. 36, pp. 199–202.

Investment Company Institute, (2007). Mutual Fund Fact Book, *44th Edition,* Washington, DC, United States.

International Organisation of Securities Commissions Report, (2004). Islamic Capital Market Task Force: *Fact Finding Report.*

Ippolito, R. A. (1989). Efficiency With Costly Information: A Study of Mutual Fund Performance, 1965-1984. *The Quarterly Journal of Economics*, Vol. 104, pp. 1-23.

Iqbal, M. and P. Molyneux (2005). Banking and Financial Systems in the Arab World, *Palgrave Macmillan, Basingstoke, United kingdom.*

Iqbal, M. and P. Molyneux (2005). Thirty Years of Islamic Banking: History, Performance and Prospects. *Palgrave Macmillan, Basingstoke.*

James, C. & Karceski, J., (2006). Investor Monitoring and differences in Mutual Fund Performance. *Journal of Banking and Finance,* Vol. 30, pp. 2787-2808.

Jensen, M., (1968). The Performance of Mutual Funds in the Period 1945-1964. *The Journal of Finance*, Vol. 23, pp. 389-416.

Jiang, W., (2003). A nonparametric test of market timing. *Journal of Empirical Finance,* Vol. 10, pp. 399–425.

Jiang, G. J., Yao, T., and Yu, T., (2007). Do Mutual Funds Time the Market? Evidence from Portfolio Holdings, *Journal of Financial Economics*, Vol. 86, pp. 724-758.

Kaminsky, G. Lyons, R. K. and Schmukler, S. L., (2004). Manager, Investors, and Crisis: Mutual Fund Strategies in Emerging Markets. *Journal of International Economics*, Vol. 64, pp. 113-134.

Kao, G. W., Cheng, L. T., and Chan, K. C. (1998). International Mutual Fund Selectivity and Market Timing during Up and Down Market Conditions, *The Financial Review*, Vol. 33, pp. 127-144.

Karceski, J., Livingston, M., and O'Neal, E. S. (2004). Mutual Fund Brokerage Commissions, *Unpublished working paper, University of Florida and Wake Forest University, United States.*

Kazemi, H. Schneeweis, T. and Pancholi, D., (2003). Performance Persistence for Mutual Funds: Academic Evidence. *Centre for International Securities and Derivatives Markets.*

Khan, and Mirakhor, A., (1987). Theoretical Studies in Islamic Banking and Finance. *IRIS Books, Houston, United States.*

Khorana, A., Servaes, H., and Tufano, P., (2005). Explaining the Size of the Mutual Fund Industry around the World, *Journal of Financial Economics*, Vol. 78, pp. 145-185.

Kreander, N., Gray, R.H., Power, D.M., and Sinclair, C.D., (2005). Evaluating the Performance of Ethical and Non-ethical Funds: A Matched Pair Analysis, *Journal of Business Finance and Accounting*, Vol. 32, pp. 7-8.

Kryzanowski, L., Lalancette, S., To, M., (1996). Performance attribution using an APT with prespecified factors, *Unpublished working paper. Concordia University and University of British Columbia. Canada.*

Kon, S.J., 1983. The market timing performance of mutual fund managers. *Journal of Business* Vol. 56, pp. 323–347.

Kong, S. and Tang, D. (2006). Mutual Fund Governance: What Works and What Doesn't?. Available at SSRN: http://ssrn.com/abstract=687253.

Kuhn, S. E., (1996). Real Estate: A Smart Alternative to Stocks, Fortune Magazine, Issue *186.*

Kuo, T. and Mateus, C., (2006). The Performance and Persistence of Exchange-Traded Funds: Evidence for iShares MSCI country-specific ETFs.

Lehmann, B., and Modest, D., (1987). Mutual Fund Performance Evaluation: A Comparison of Benchmarks and Benchmark Comparisons, *The Journal of Finance, Vol.* 42, pp. 233-265.

Leger, L., (1997). UK Investment Trusts: Performance, Timing and Selectivity. *Applied Economics Letters,* Vol. 4, pp 207-210.

Levy, H. and Post, T. (2005). Investment, *Prentice Hall Publisher, New Jersey, United States.*

Liljeblom, E. and Loflund, A., (2000). Evaluating Mutual Funds on a Small Market: is Benchmark Selection Crucial? *Scandinavian Journal of Management*, Vol. 16, pp. 67-84.

Lintner, J., (1965). The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets, *Review of Economics and Statistics,* Vol. 47, pp. 13-37.

Luther, R. G., Matatko, J., and Corner, D. C., (1992). The Investment Performance of UK Ethical Unit Trusts, *Accounting Auditing and Accountability Journal*, Vol. 5, pp. 57-70.

Luther, R.G. and Matatko, J., (1994). The Performance of Ethical Unit Trusts: Choosing An Appropriate Benchmark, *British Accounting Review*, Vol. 26, pp. 66-89.

Malhotra, D. K., and McLeod, R. W., (1997). An Empirical Analysis of Mutual Fund Expenses, *Journal of Financial Research*, Vol. 20, pp. 175–190.

Malkiel, B., (1995). Returns from Investing in Equity Mutual Funds: 1971-1991, *The Journal of Finance,* Vol. 50, pp. 549-572.

Malkiel, B.G., (1996). A Random Walk Down Wall Street, *W. W. Norton and Company Publisher, New York, United States.*

Mallin, C.A., Saadouni, B. and Briston, R.J., (1995). The Financial Performance of Ethical Investment Funds. *Journal of Business Finance and Accounting*, Vol. 22, pp. 306-686.

Markowitz, H., (1952). Portfolio Selection. *The Journal of Finance*, Vol. 7, pp. 77-91.

Meier, I., and Schaumburg, E., (2004). Do Funds Window Dress? Evidence for U.S. Domestic Equity Mutual Funds, *Unpublished working paper, Kellogg School of Management*, Northwestern University.

Merton, R. C., (1981). On Market Timing and Investment Performance I: An Equilibrium Theory of Value for Market Forecasts. *Journal of Business*, Vol. 54. pp. 513-533.

Mohoney, P. G., (2004). Manager-Investor Conflicts in Mutual Funds, *The Journal of Economic Perspectives,* Vol. 18, pp. 161-182.

Obaidullah, M., (2005). Islamic Financial Services, *Islamic Economics Research Center, Monograph, Jeddah, Saudi Arabia.*

Otten, R., and Bams, D., (2002). European Mutual Fund Performance, *European Financial Management, Vol. 8, pp. 75-101.*

Pichhadze, A., (1995). Mutual Fund Governance Reforms: A Commentary, *Unpublished paper presented at the Queen's Annual Business Law Symposium,* Kingston, Ontario, Canada.

Pollet, J. M., and Wilson, M., (2007). How Does Size Affect Mutual Fund Behavior?, *HKUST Business School, Research Paper Vol. unknown, pp. 7-6.*

Pozen, R. C., (2002). The Mutual Fund Business, *2nd Edition, Houghton Mifflin Company. Boston, United States.*

Prather, L., Bertin, W., and Henker, T., (2004). Mutual Fund Characteristics, Managerial Attributes, and Fund Performance, *Review of Financial Economics*, Vol. 13, pp. 305-326.

Prather, L. J., and Middleton, K. L., (2002). Are N+1 Heads Better than One? The Case of Mutual Fund Managers, *Journal of Economic Behaviour and Organization*, Vol. 47, pp. 103-120.

Prather, L. J., and Middleton, K. L., (2006). Timing and Selectivity of Mutual Fund Managers: An Empirical Test of the Behavioral Decision-Making Theory. *Journal of Empirical Finance,* Vol. 13, pp. 249-273.

Radin, R. F., and Stevenson, W. B., (2006). Comparing Mutual Fund Governance and Corporate Governance. *Corporate Governance: An International Review, Vol. 14, pp. 367-376.*

Reilly, F. K., and Brown, K. C., (2003). Investment Analysis and Portfolio Management, *7th Edition, Thomson- South Western,* Mason, United States.

Rodriguez, J., (2007). Market Timing: A Global Endeavor, *Journal of International Financial Markets, Institutions and Money. Available online at www.sciencedirect.com*

Romacho, J. C., and Cortez, M. C., (2006), Timing and Selectivity in Portuguese Mutual Fund Performance. *Research in International Business and Finance,* Vol. 20, pp. 348-368.

Rosenberg, B., Reid, K., and Lanstein, R., (1985). Persuasive Evidence of Market Inefficiency, *Journal of Portfolio Management* Vol. 11, pp. 9-17.

Russell, R., (2007). An Introduction to Mutual Funds Worldwide, *Wiley Publishers, New Jersey, United States.*

Sharpe, W. F., (1966). Mutual Fund Performance, *The Journal of Business*, Vol. 39, pp. Unknown.

Sharpe, W. F., (1964). Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk, *Journal of Finance,* Vol. 19, pp. 425-442.

Shata, O., (2003). A Simple Model for Measuring the Performance of Islamic Mutual Funds with a comparative study, (Unpublished *Arabic PhD dissertation) University of Azhar, Egypt.*

Shukla, R., and Singh, S., (1997). A Performance Evaluation of Global Equity Mutual Funds: Evidence from 1988-1995, *Global Finance Journal,* Vol. 8, pp. 279-293.

Shukla, R., (2004). The Value of Active Portfolio Management, *Journal of Economics and Business*, Vol. 56, pp. 331-346.

Siddiqi, M., (2002). The Wisdom of Prohibition of Interest, *Unpublished paper at La Riba meeting, Los Angeles, USA.*

Stattman, D., (1980). Book Values and Stock Returns, *The Chicago MBA: A Journal of Selected Papers,* Vol. 4, pp. 25-45.

Strachman, D., (2007). The Fundamentals of Hedge Fund Management: How to Successfully Launch and Operate a Hedge Fund, *Wiley Publishers, New Jersey, United States.*

Strachman, D., (2005). Getting Started in Hedge Funds, *2nd Edition, Wiley Publishers, New Jersey, United States.*

Syriopoulos, T., (2002). Risk Aversion and Portfolio Allocation to Mutual Fund Classes. *International Review of Economics and Finance*, Vol. 11, pp. 427-447.

Treynor, J. L., (1965). How to Rate Management of Investment Funds, *Harvard Business Review, Vol.* 43, pp. 63-75.

Treynor, J., and Mazuy, K., (1966). Can Mutual Funds Outguess the Market? *Harvard Business Review*, Vol. 44, pp. 131-136.

Veleva, V., (2005). Gender Diversity and Financial Performance, *Citizens Advisers Inc.,* Vol. unknown, pp. 1-4.

Warde, I., (2001). Islamic Finance in the Global Economy.: *Edinburgh University Press. Edinburgh, United Kingdom.*

Walsh, L., and Security Exchange Commission, (2004). The Costs and Benefits to Fund Shareholders of 12b-1 Plans: An Examination of Fund Flows, Expenses and Returns. *Available at SSRN.*

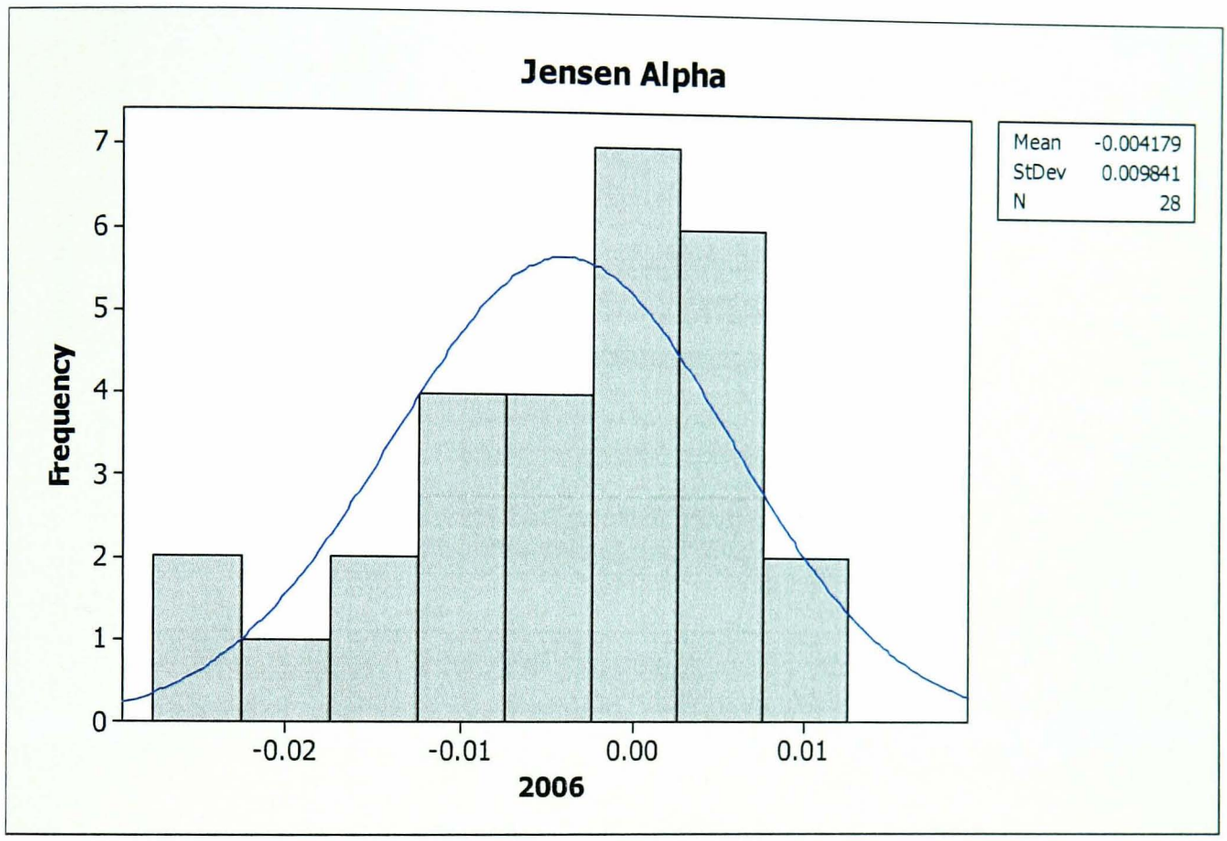
Wilson, H. (2002). Benchmark Index Comparisons, *Index Equity Research, State Street Global Advisors.* Boston, United States.

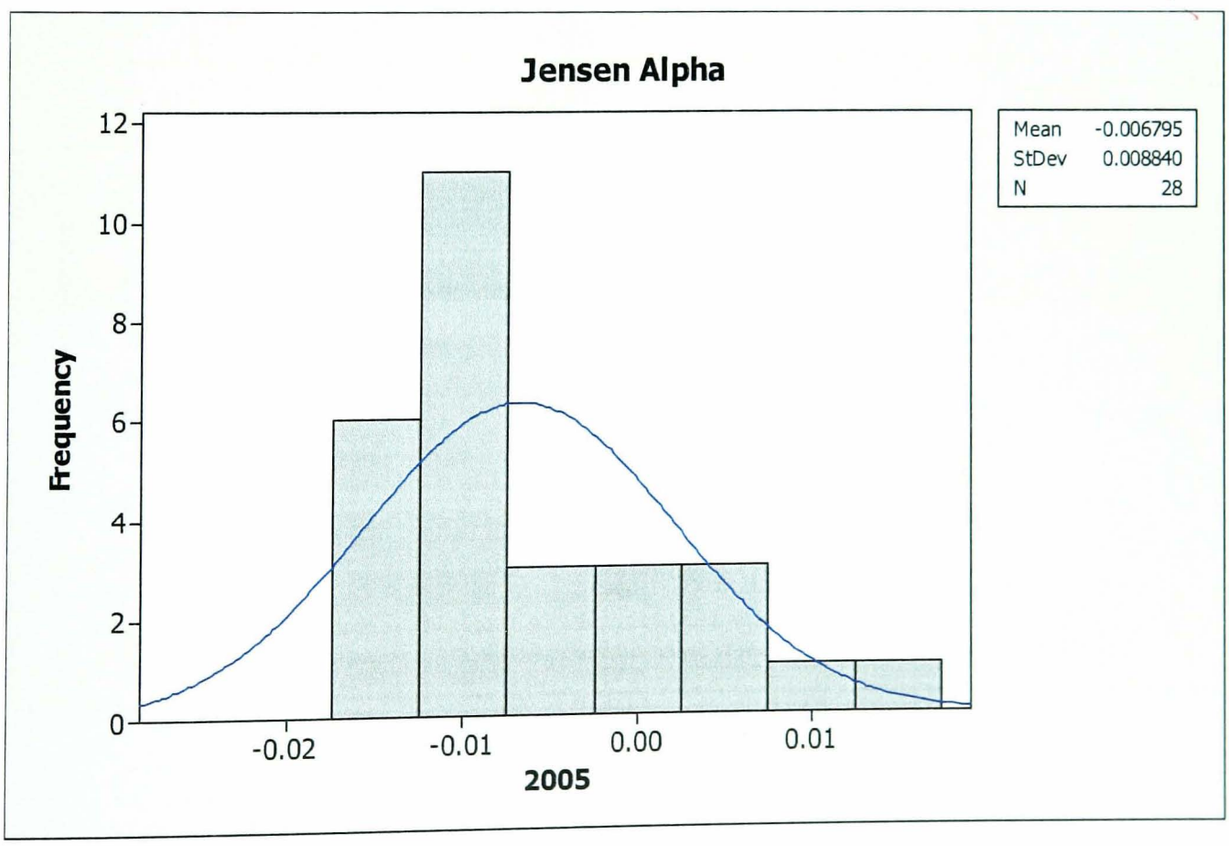
Woodard, D., (2006). Mutual Funds Blog online article: available at http://mutualfunds.about.com/b/a/2006_02_02.htm.

Appendix

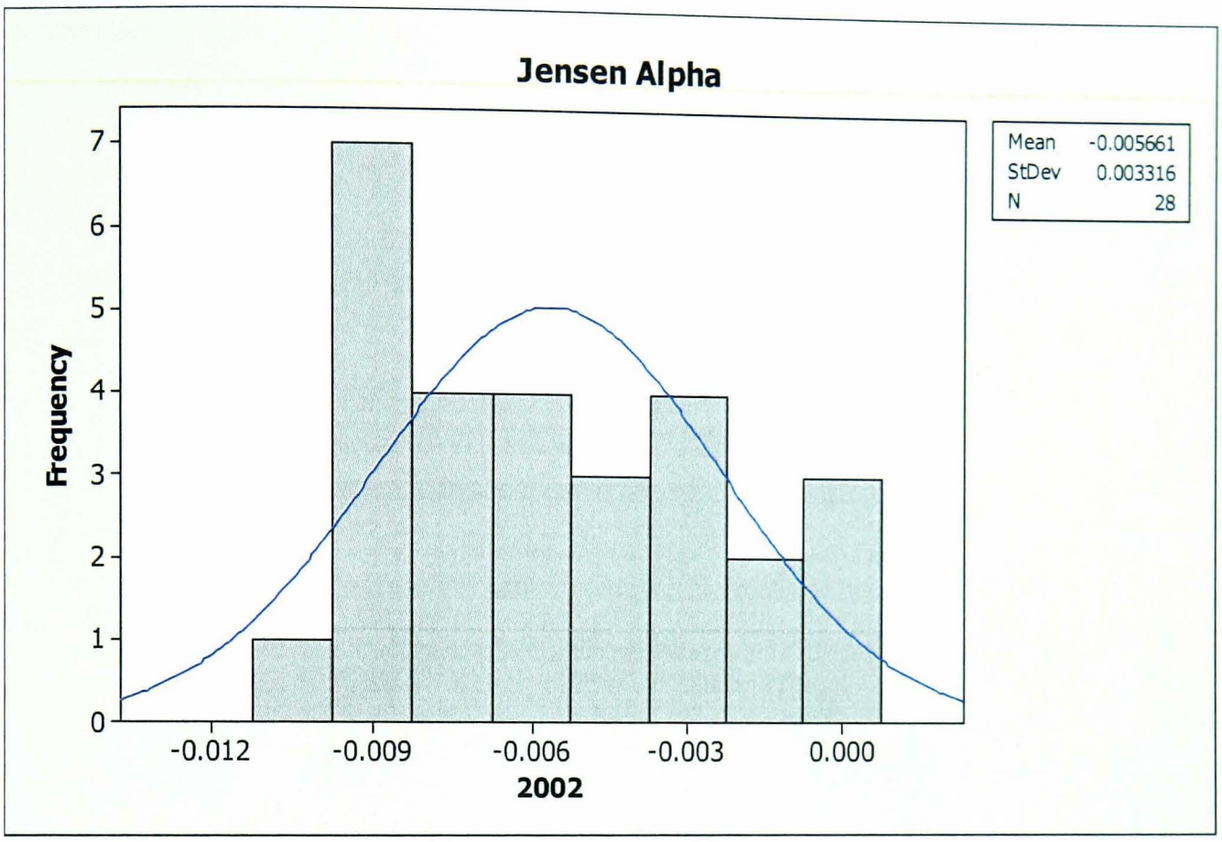
Distribution for Stock Selection

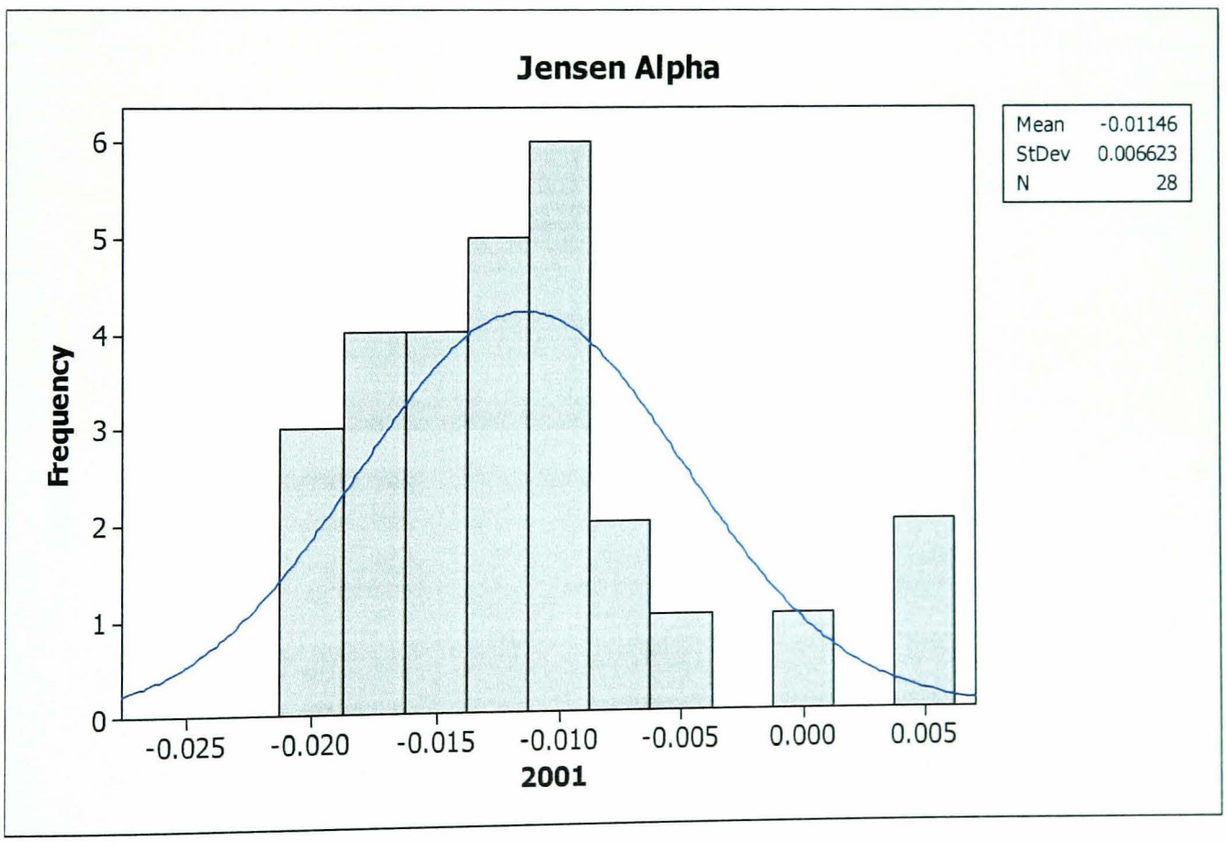
Jensen Alpha with FTSE Global Islamic Index and FTSE Bursa Malaysia



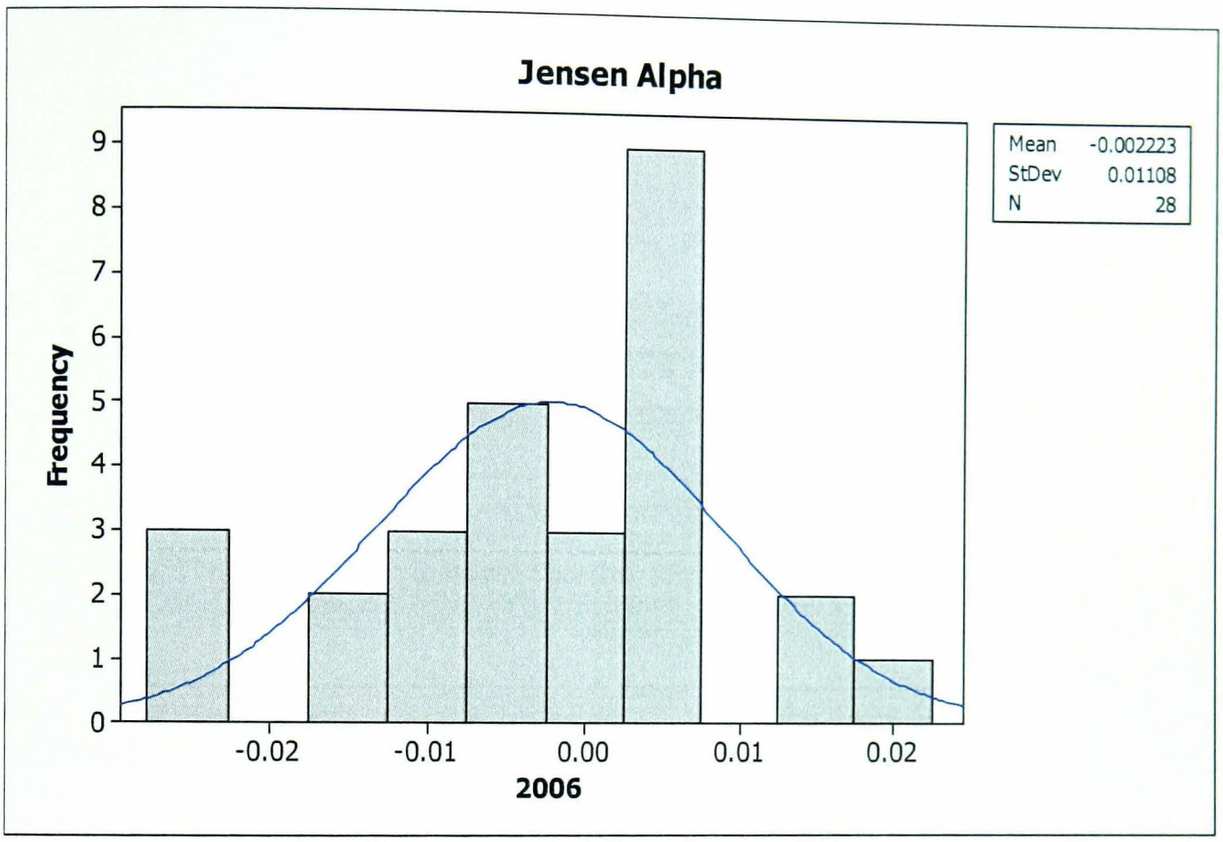


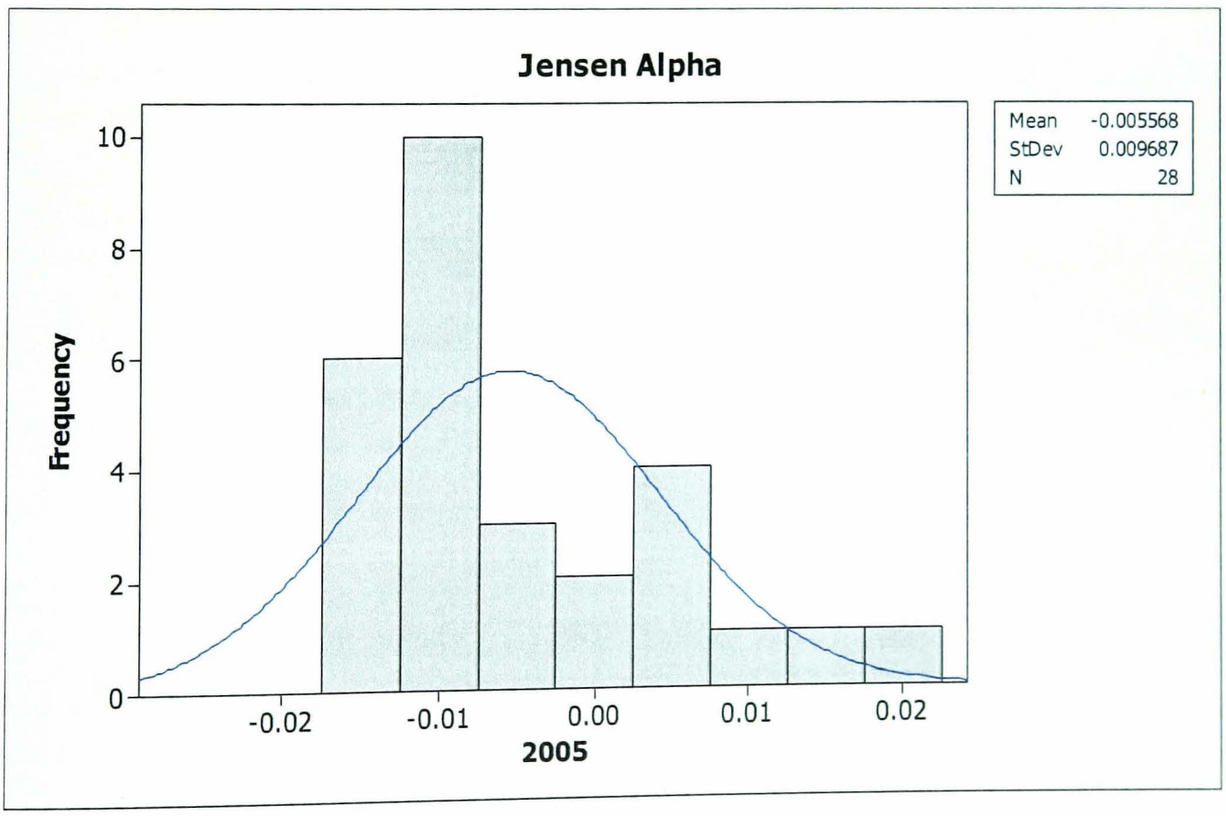
PAGE
MISSING
IN
ORIGINAL

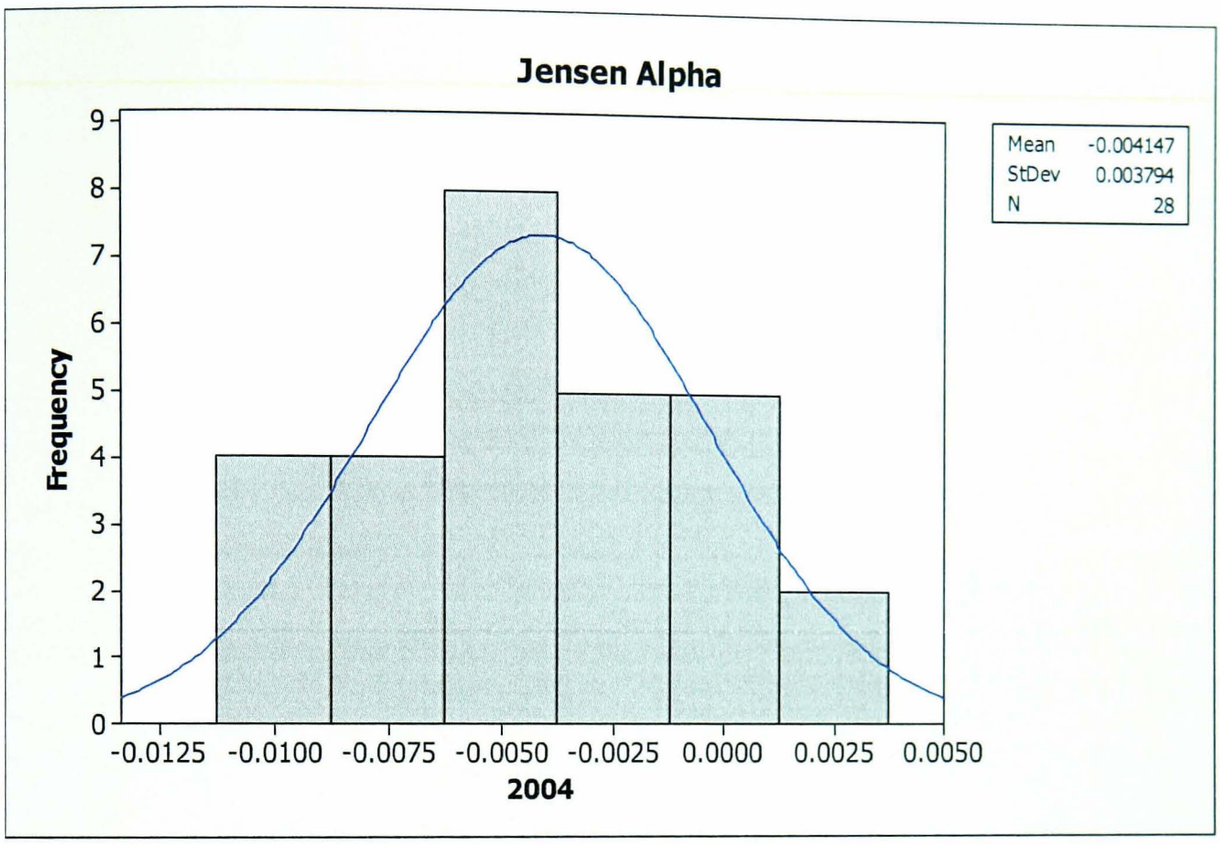

Jensen Alpha
Mean -0.005661
StDev 0.003316
N 28
Frequency
0
1
2
3
4
5
6
7
-0.012
-0.009
-0.006
-0.003
0.000
2002

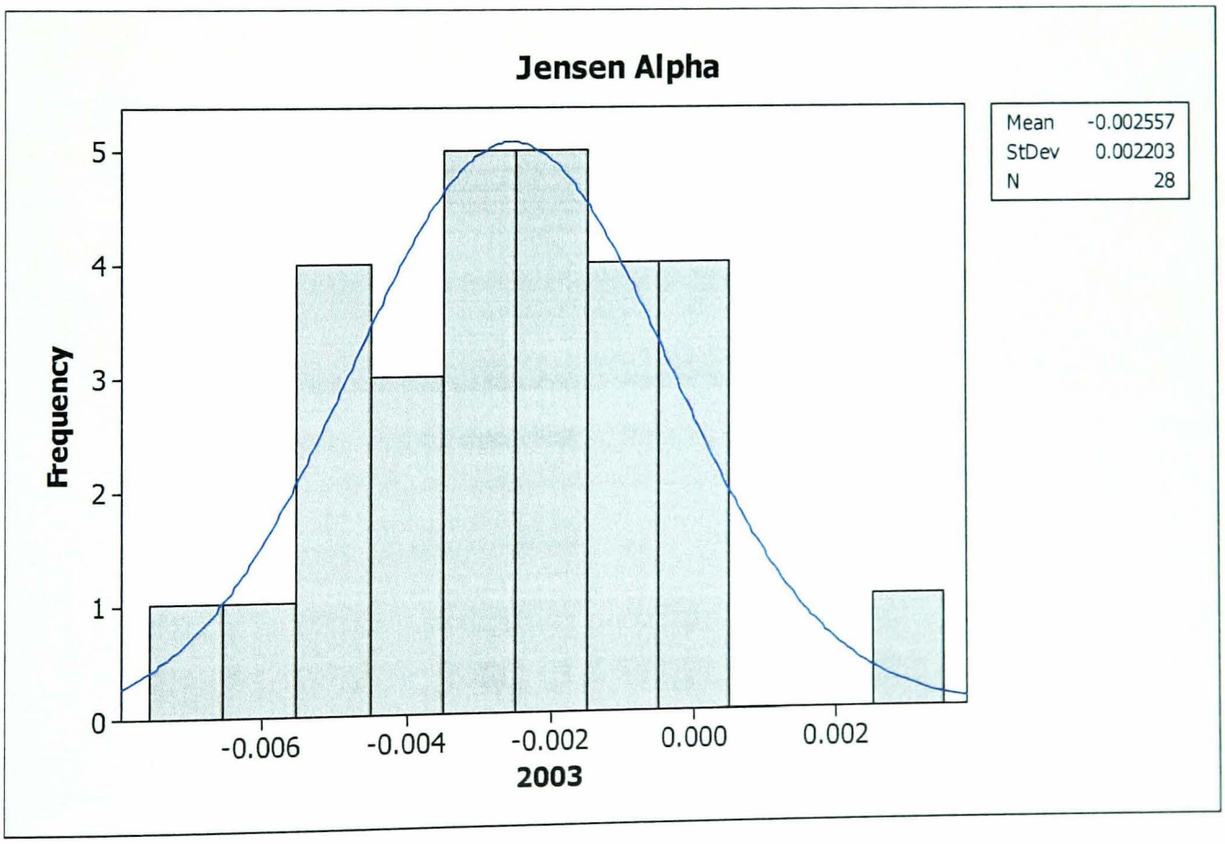

Jensen Alpha
Mean -0.01146
StDev 0.006623
N 28
Frequency
0
1
2
3
4
5
6
-0.025
-0.020
-0.015
-0.010
-0.005
0.000
0.005
2001

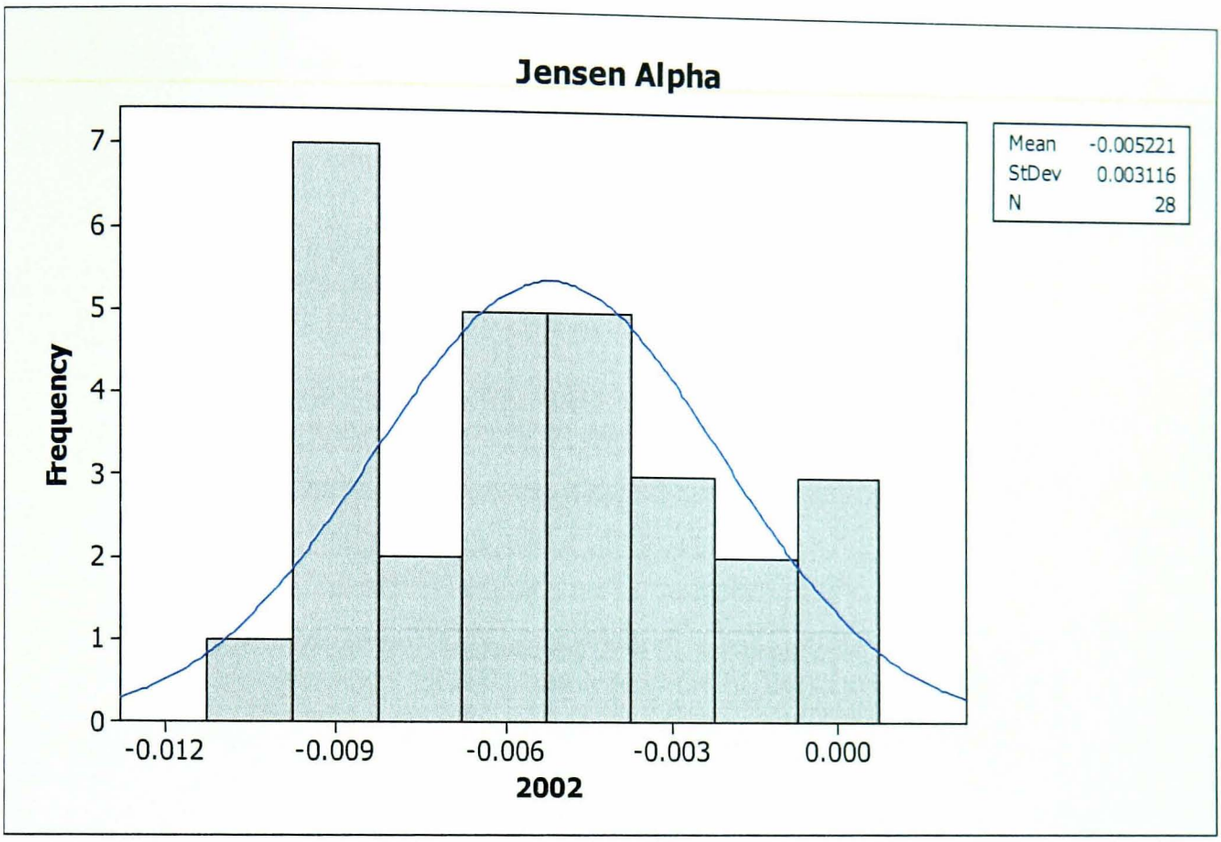
Jensen Alpha with FTSE All World and KLCI

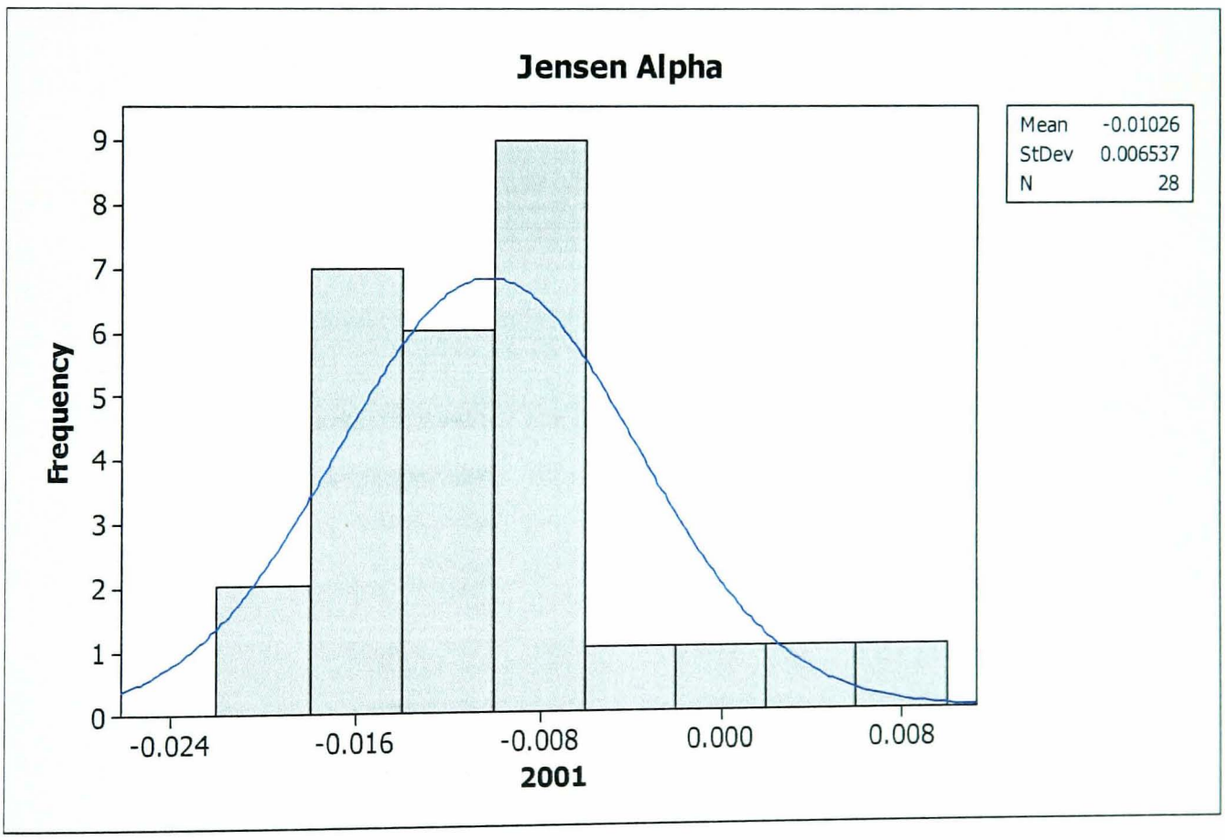


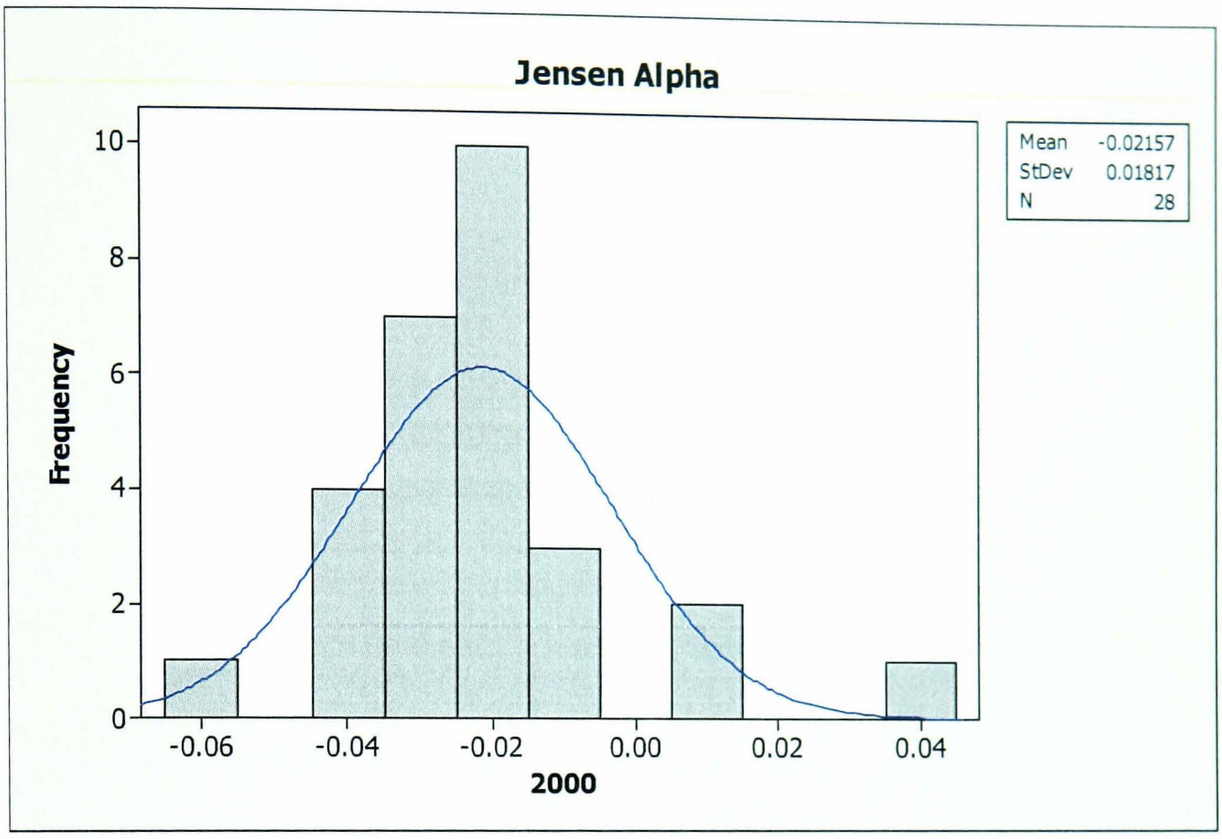



Jensen Alpha
Mean -0.004147
StDev 0.003794
N 28
Frequency
0
1
2
3
4
5
6
7
8
9
-0.0125
-0.0100
-0.0075
-0.0050
-0.0025
0.0000
0.0025
0.0050
2004


Jensen Alpha
Mean -0.002557
StDev 0.002203
N 28
Frequency
0
1
2
3
4
5
-0.006
-0.004
-0.002
0.000
0.002
2003


Jensen Alpha
Mean -0.005221
StDev 0.003116
N 28
Frequency
0
1
2
3
4
5
6
7
-0.012
-0.009
-0.006
-0.003
0.000
2002


Jensen Alpha
Mean -0.01026
StDev 0.006537
N 28
Frequency
0
1
2
3
4
5
6
7
8
9
-0.024
-0.016
-0.008
0.000
0.008
2001


Jensen Alpha
Mean -0.02157
StDev 0.01817
N 28
Frequency
10
8
6
4
2
0
-0.06
-0.04
-0.02
0.00
0.02
0.04
2000