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Performance of Islamic Mutual Funds

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1. INTRODUCTION

Islam is a religion that unites both spiritual and temporal aspects of life. It regulates not only an individual's relationship with God, but also human relationships in social and financial settings. Thus, the Sharia, or the Islamic Law, is part of every Muslim's cultural, social and behavioral identity.

The application of Sharia to investment choices and management is not a new phenomenon. Earlier Muslims were able to establish an interest-free financial system for mobilizing resources to finance productive activities and consumer needs, which had worked effectively for centuries. As Muslim societies became more sophisticated, and their financing needs more complex coupled with stagnating Islamic thought evolution, the Islamic-based financial system was gradually replaced by the interest-based system in recent times. The contemporary increasing desire of Muslims to bring their modern economic and financial activity to conform again with their cherished religious values and beliefs, has led to a growing interest in Islamic-approved Investment vehicles.

The wider acceptance of equity investments by Sharia scholars in the early 1990s paved the way to launch mutual funds that operates in compliance to the ethical guidelines of the Islamic Law (hereafter in this paper will be called Islamic mutual funds). According to the London-based Institute of Islamic Banking and Insurance, there are over 250 Islamic institutions in some 75 countries that are managing funds worth over USD $200 billion. In the early 1990s, many *Sharia*-compliant mutual funds started to appear. There are now about 126 funds with approximately USD $4 billion in assets under management. Other than being a *halal* (Approved in Islamic Sharia) investment alternative available for Muslim investors, the funds also respond to the specific need for more liquid investment tools.

Further, the establishment of credible equity benchmarks by Dow Jones Islamic Market Index (DJMI) and FTSE Global Islamic Index Series, followed by the Malaysian Kuala Lumpur Syariah Index, has been a turning point for the industry, giving both Islamic and conventional investors something to compare to.

Despite the increasing attention of practitioners on Islamic mutual funds, there has not yet been, to the authors' knowledge, any research concerning the performance of these funds and how they fare in comparison with conventional funds. This study aims at assessing the performance of the Islamic mutual funds, examining whether there exists any significant reward or penalty for investing in them.

2. A PRIMER ON ISLAMIC MUTUAL FUNDS

The Islamic mutual funds market is one of the fastest growing sectors within the Islamic financial system. Yet, when compared to the mutual fund industry at large, Islamic mutual funds are still in their infancy stage of growth and development, most being around for less than a decade. Islamic funds are pretty diverse for a young industry. While the majority of the funds are equity funds (84 percent of the total 126 funds), balanced (*or secured funds*) (14 percent) as well as Islamic bond *(Suku*k) funds (2 percent) are recently launched. Moreover, among the equity funds, several sectors and geographical investment areas are featured. Out of the total 126 available Islamic funds, 35 are Global equity funds (28 percent), 10 are American equity funds (8 percent), 5 are European equity funds (4 percent), 5 are Asian equity funds (4 percent), 29 are Malaysian equity funds (23 percent), 13 are country funds – mostly Saudi Arabian, Egyptian and South African (10 percent), and 8 are Technology and small cap equity funds (6 percent).

Islamic equity funds have experienced excellent growth during the late 1990s as they benefited from the technology boom, most of them demonstrating high positive returns, even higher than their benchmarks. Their number increased from 8 funds prior to 1992, to 95 funds with about USD $5 billion in assets in 2000, then dropped to about USD $4 billion by the end of 2001. Nevertheless, more funds were launched since 2002, with brighter market expectations and more lessons being learned.

The drop in the industry's total assets that occurred in 2000-2001 can be attributed to the decline of world equity markets and investors' flight to safety. Islamic-based equity fund managers reacted accordingly by rebalancing their portfolios, with overweight in technology being shifted to the healthcare and energy sectors. In addition, the new funds coming to market tended to be more capital-protected or balanced funds. Of the 23 funds launched in 2000, nine were global equity funds and five were capital protected or balanced funds; whereas, of the 20 funds launched in 2001, five were capital protected or balanced and only three were global equity funds, which other funds were closed or liquidated in the same year.

3. THE FUNDAMENTALS OF ISLAMIC INVESTING

An Islamic mutual fund is similar to a "conventional" mutual fund in many ways; however, unlike its "conventional" counterpart, an Islamic mutual fund must conform to the *Sharia* (Islamic law) investment precepts. The Sharia encourages the use of profit sharing and partnership schemes, and forbids riba (interest), maysir (gambling and pure games of chance), and gharar (selling something that is not owned or that cannot be described in accurate detail; i.e., in terms of type, size, and amount) (El-Gamal 2000).

The *Sharia* guidelines and principles govern several aspects of an Islamic mutual fund, including its asset allocation (portfolio screening), investment and trading practices, and income distribution (purification).

When selecting investments for their portfolio (asset allocation), conventional mutual funds can freely choose between debt-bearing investments and profit-bearing investments, and invest across the spectrum of all available industries. An Islamic mutual fund, however, must set up screens in order to select those companies that meet its qualitative and quantitative criteria set by *Shania* guidelines. Qualitative screens are used to filter out companies based on the nature of their business (e.g., firms producing or selling alcohol, and biotechnology firms using aborted embryos and human cloning), or securities that contain one of the Sharia prohibited elements (e.g., involving riba, maysir or gharar) as explained earlier, or companies that conduct unethical business practices as per Sharia such as companies that are engaged in biotechnology using aborted embryos and human cloning. Thus, excluded from Islamic-approved securities are fixed income instruments such as corporate bonds, treasury bonds and bills, certificates of deposit (CDs), preferred stocks, warrants, and some derivatives (e.g., options), etc. More, Islamic mutual funds cannot trade on margin; in other words, they cannot use interest-paying debt to finance their investments. It is also not permissible to engage in sale and repurchase agreements (i.e., repos or buy-backs). These transactions are considered akin to indirect interest charges.

The basis upon which an Islamic mutual fund operates must also be *Shania* compliant - i.e., its invested funds must be free of interest-based debt or speculation. Islamic mutual funds cannot trade on margin; in other words, they cannot use interest-paying debt to finance investments. Conventional funds such as hedge funds, arbitrage funds, and leveraged buy-out (LBO) funds all borrow heavily in order to finance their investment practices, and they are prohibited for Muslim investors. It is also not permissible to engage in sale and repurchase agreements (also called repos or buy-backs). These transactions are considered akin to charging interest.

Unlike conventional mutual fund managers, Islamic fund managers are not allowed to speculate. An Islamic economic unit is expected to assume risk after making a proper assessment of risk with the help of information. Only in the absence of information or under conditions of uncertainty is speculation akin to a game of chance and is reprehensible.

On another front, some scholars allow partially "contaminated" earning income to be cleansed or purified. For instance, contemporary scholars allow investment in stocks of companies with tolerable (i.e., kept at a minimum proportion) amount of interest income or with tolerable revenues from unacceptable business activities if all "impure" earnings is "cleansed" by giving it away to charity. If, for example, the company has 8 percent interest-related income, then 8 percent of every dividend payment must be given away to "purify" the fund earnings. Cleansing capital gains, however, remains debatable as some scholars argue this is not necessary since the change in the stock price does not really reflect interest, while others suggest that it is safer and more equitable to purify earnings made from selling shares as well (Usmani, 2002). This purification process is done either by the fund manager before any distribution of income, or by reporting the necessary financial ratios for investors to purify their earnings on their own.

Another form of purification is Zakah. Zakah is a form of charity paid on personal wealth (exceeding a minimum amount called *nisa*b) held idle for one lunar year. The rate of *zakah* differs with the type of the asset, 2.5 percent being the rate on most forms of monetary wealth and earned income (Al-Qaradawi, 1999). Zakah calculation on investment profits, however, is still controversial (DeLorenzo, 2002).

4. THE GOVERNANCE AND CONTROL OF ISLAMIC MUTUAL FUNDS

The Sharia also provides guidance regarding governance and management structure of Islamic mutual funds. The Sharia Supervisory Board represents the salient features that distinguish Islamic mutual funds from their conventional counterparts. The Board assumes the responsibility for auditing the *Shania* compliance of a fund, including its components and management. It functions as a customer advocate representing the religious interest of the investor (DeLorenzo, 2000 OR 2002??). The Board is typically made up of a team of prominent Islamic legal scholars, well disciplined in *Shania*, particularly in areas of transactions and business dealings. It should be independent and should act in an advisory and supervisory role with the fund's management. In general, the Board is responsible for:

- setting the fund's investment guidelines in compliance with *Shania* principles, (mainly the *Shania* stock screens used in portfolio selection),
- monitoring the fund's activities to ensure adherence to the above guidelines,
- overseeing the fund's portfolio purification and advising or selecting the appropriate charities,
- assisting the fund management with issues of concern to the Muslim community through shareholder resolutions and other tools of corporate governance, and
- advising on *zaka*h (charity).

5. AN ASSESSMENT OF ISLAMIC MUTUAL FUNDS

5.1 Performance Measures of Mutual Funds: Theory

Earlier mutual fund performance literature did not tackle the performance of the Islamic mutual funds' industry. One exception is Hajara Atta's (2000) study, in which he suggests that the Islamic index outperforms a sample of unscreened ethical benchmark using Sharpe, Treynor and the unconditional Jensen measure.

The closest alternative to evaluating Islamic funds in the literature is to study the performance of Ethical funds. Luther, Matatko and Corner (1992) provide weak evidence that the UK ethical funds outperform two market indexes. Since the ethical funds tend to invest a larger part of the funds in smaller companies with lower dividend yields, Luther and Matatko (1994) deem appropriate to introduce a small company index as the market proxy. Their reported findings demonstrate that ethical funds perform much better when evaluated against a small company benchmark, than when only the Financial Times All Share index (FTSA) is used. Kreander *et al.* (2000) extend this analysis to consider European funds from a small number of countries. They find that European ethical funds perform at least as well the Morgan Stanley Capital International (MSCI) World Index. When Swedish ethical funds are evaluated against a Swedish benchmark, their performance is outstanding, while it is much more modest when compared to a global index.

The study of Mallin, Saadouni and Briston (1995) overcome the benchmark problem of the early studies by using a matched-pair analysis. They study the returns earned by 29 UK ethical funds and 29 UK non-ethical funds, matched on the basis of age and size, between 1986-1993 using the Jensen, Sharpe and Treynor performance measures. A small majority of funds from both groups under-perform the market as measured by the FTSA index. In addition, ethical funds tend to outperform relative to their matched non-ethical pairs although this effect is weak.

A more recent study of UK ethical fund performance by Gregory, Matatko and Luther (1997) adopts a matched-pair approach, and employs a size-adjusted measure of performance. Their study concludes that there is no significant difference between the returns earned by the ethical and non-ethical funds, and that both groups under-perform the FTSA benchmark index. Yet, the age of a fund appears to be an important factor influencing each fund's alpha measure, whereas the size of a fund and its ethical status are found insignificant.

The UK results mirror the findings of studies that analyze the performance of US ethical funds. For example, using monthly data from 1994 to 1997, M'Zali and Turcotte (1998) compare the performance of 18 American and Canadian ethical funds with 10 non-ethical funds, where both groups are managed by the same investment groups. They employ the Sharpe and Treynor measures to assess fund performance they find that four of the ethical funds outperform the market index. However, the majority of funds under-perform the Standard & Poor's S&P 500 Index and the Toronto Stock Exchange TSE 300 Index.

Hamilton, Jo and Statman (1993) compare the performance of a sample of 32 American ethical funds to that of 170 ordinary funds over a ten-year period (1981-1990). The average return for the ethical funds is found to be higher than the average returns for the "ordinary," suggesting that investors do not lose by investing in similar ethical funds. The same finding is later confirmed by Reyes and Grieb (1998).

In summary, while the results of testing ethical funds are inconclusive, it appears that there is no significant penalty for investing in ethical funds compared to conventional funds.

5.2 Data and Methodology

5.2.1 Data Sources

Sources of data about Islamic mutual funds are still very limited compared to their ethical or conventional counterparts. Failaka International Inc. (www.failaka.com), established in Chicago in 1996, is the first specialized organization to monitor and publish performance data on Islamic equity funds. In addition to customized research and consulting services offered by Failaka, the company publishes on its website periodic lists of all known Islamic mutual funds, yearly performance reports on nearly half of the existing funds, periodic analysis of the industry, and information about each fund and performance graphs showing percentage change of the fund's monthly NAVs and its relative market proxy over a given year. Failaka, however, has no historical data or rating on these funds.

Failaka's list of August 2002 includes the names of 106 Islamic mutual funds. Those funds are directly contacted for historical NAVs or returns since their fund's inception date, of which 37 responded. On a parallel track, Standard and Poor's (www.sp-funds.com) provided historical data on 48 Islamic mutual funds, ten of which are also available through Failaka; thus 75 is the total number of funds for which monthly data are available. Next, one filter is used in funds selection is the availability of the fund's monthly returns over a period of no less than two years, resulting in a final sample of 46 Islamic mutual funds. The median age of the whole sample is only 2.5 years for the 75 gathered funds and 3.25 years.

Using a sample of 46 Islamic mutual funds classified into eight sector-based categories, the performance of each fund and fund category is measured and compared to the performance of two market benchmarks, an Islamic index and a conventional one.

Funds are then classified into eight categories according to their regional or sector investment exposure; these are: Global equity funds, American equity funds, European equity funds, Asian equity funds, Malaysian equity funds, Emerging markets equity funds, Emerging markets-South Africa and Small Cap/Technology funds. This classification gives further insight about sector performance. Two other categories, the Balanced (or Secured funds) and the Islamic bond funds, are not represented in the study due to the fact that they were launched after 2000 when the equity market started its decline.

The period covered in the study starts on January 1, 1997, and ends on August 31, 2002. The January 1, 1997, is chosen since a relatively good number of funds became available in the market around that time. One feature of this period is that it covers a booming phase extending from 1997 till early 2000, and a recessionary phase starting year 2000. Hence, the total 68-month sampling period is further divided into two equal sub-periods, the first 34 months ending on October 31, 1999, and the remaining 34 months to reflect the booming-slowing sub-periods.

Two stock market indices are used as benchmarks in the study to evaluate the performance of the Islamic funds and the funds' categories: an Islamic market index (representing region or sector specific index), and a conventional broad market index. With regard to the general market index, the Standard & Poor's S&P 500 Composite Price Index is used as acceptable proxy. The monthly NAVs for the S&P 500 are gathered for the entire study period from January 1, 1997 till August 31, 2002. The three-month U.S. treasury bills are used in the study as the risk-free asset. Their relative monthly annualized yields are gathered from the U.S. Federal Reserve website (www.federalreserve.org) over the entire study period.

With regard to Islamic-based indices, we have considered the FTSE Islamic Index Series and the Dow Jones Islamic market index. Both FTSE and Dow Jones screen out stocks whose core activities are not permitted by Sharia. The FTSE has five indices, the global Islamic index and four regional (the Americas, Europe, the Pacific Basin and South Africa) with data available starting 1994. The Dow Jones has regional Islamic market indices covering the United States, Europe, Asia/Pacific, Canada, and the United Kingdom. In addition to its geographical indices the Dow Jones has Islamic indices for technology stocks and extra liquid securities. The FTSE series does not have any sector index.

It is arguably appropriate to use the FTSE and Dow Jones indices to compare the performance of dollar-denominated Islamic global equity funds, but they may not be as relevant when evaluating the performance of equity markets in Muslim countries, where country specific indices can be more relevant, if available. Yet, not all Muslim countries provide such indices. Thus, we use a list of the Islamic indices that correspond to each fund category as closely as possible. For instance, we use five FTSE indices (Global, America, Europe, Pacific Basin, and South Africa) as benchmarks to match their corresponding regional categories in our sample of Islamic mutual funds categories (Global, America, Europe, Asian, and Emerging markets-South

Africa, respectively). The Dow Jones technology index is used as the benchmark for our sample of small cap fund. The Kuala Lumpur Stock Exchange Syariah Index from April 1999, and the FTSE Pacific Basin Islamic Index are used for the period before that as the benchmark for the Malaysian funds. Finally, since the Emerging markets have no specific country Islamic index, the FTSE Global Islamic Index is used as the benchmark for funds in this category.

5.2.2 Methodology

The total monthly (NAV-based) returns for each single fund and fund category are calculated, as well as the returns of the S&P 500 Index (as proxy for conventional funds) and the five FTSE Islamic Indices (Global, Americas, Europe, Pacific Basin, and South Africa) and the Dow Jones Islamic Technology Index (as proxy for Islamic funds benchmark). In addition, mean portfolio returns, standard deviations and betas for each portfolio are also calculated.[1]

Sharpe (1966) measure, Treynor (1965) measure, Jensen (1968) measure, Fama (1972) measures (covering return on overall performance, return premium when fully diversified, reward for the lack of diversification, and return on net selectivity), and the Transformed Sharpe Measure introduced by Jobson and Korkie (1981) are used to measure the performance of each portfolio and compare it to its benchmark. A One-way ANOVA Test is also used to test the hypothesis of means equality and another test for identifying the strength and direction of the difference in means, if any, are conducted.

The Sharpe ratio represents the portfolio excess return per unit of total risk, and the higher this ratio above the benchmark, the better is. Sharpe ratio is calculated as follows:

$$\text{Sharpe} = (R_p - R_F) / \sigma \quad (1)$$

[1] When estimating beta, the normality of the data is an essential assumption for the ordinary least, and is therefore tested for.

The Treynor ratio is equal to the portfolio excess return per unit of systematic risk (beta), and the higher this ratio above the benchmark, the better is. Treynor ratio is calculated as follows:

$$\text{Treynor} = (R_p - R_F) / ß \quad (2)$$

Jensen's alpha measures excess returns, if any, above (or below) the fund risk-adjusted return as expected in a CAPM world. A positive (negative) alpha implies that the portfolio is outperforming (under-performing) its market premium benchmark, while a (statistically) zero alpha means that the portfolio performance is normal as expected in a CAPM setting. Jensen's alpha is estimated using the following regression model:

$$(R_p - R_F) = \alpha + ß (R_M - R_F) \quad (3)$$

Fama (1972) integrates the work of Sharpe, Treynor and Jensen. Fama argues that it is difficult to achieve perfect diversification. Therefore, investors should be rewarded for the lack of diversification. Also, additional net selectivity should be compensated for. Hence, in a world of imperfect diversification, Fama measure is superior over Sharpe, Treynor and Jensen measures. Additional risk and net selectivity should be compensated for. Using the security market line (SML) model, Fama measure divides the overall portfolio return into three components: return premium when fully diversified, reward for the lack of diversification, and return on net selectivity. Portfolio returns $\bar{R}_p$ is equal to:

$$\bar{R}_p = R_F + [E(R_p) - RF] + [E(R_p^*) - E(R_p)] + [\bar{R}_p - E(R_p^*)] \quad (4)$$

where, $\bar{R}_p$ is the actual return from portfolio P (measured ex-post), $E(R_p)$ is the expected return from portfolio P in a CAPM world, and $E(R_p^*)$ is the CAPM expected rate of return for a targeted beta (i.e., $E(R_p^*) = R_F + ß_T (R_M - R_F)$). In this context, $[E(R_p) - RF]$ is the premium earned on a portfolio that is fully diversified, $[E(R_p^*) - E(R_p)]$ is the reward for lack of diversification, and $[\bar{R}_p - E(R_p^*)]$ is the return on net selectivity (i.e., the ability to select assets so that beta of the portfolio is the one that is theoretically implied for it).

The Jobson and Korkie (1981) transformed Sharpe performance measure emphasizes the statistical significance of performance differences using Sharpe ratio. The transformed difference for the Sharpe performance measure is:

$$SH_{ik,Q} = \sigma_{k,Q}\ \bar{\mu}_{i,Q} - \sigma_{i,Q}\ \bar{\mu}_{k,Q} \tag{5}$$

where $SH_{ik,Q}$ = Transformed Sharpe performance measure difference between portfolios i and k for overall period Q.

$\bar{\mu}_{k,Q}$ = Portfolio i or k average means return premiums for overall period Q.

$\sigma_{i,Q}$ = Standard deviation of portfolio i return premiums for overall period Q.

$\sigma_{k,Q}$ = Standard deviations of portfolio k return premiums for overall period Q.

The asymptotic distribution for the transformed Sharpe measure is normal with mean $SH_{ik,Q}$ and variance described by:

$$\gamma_Q = \frac{1}{N_Q}\Big[2\sigma_{i,Q}^2\sigma_{k,Q}^2 - 2\sigma_{i,Q}\sigma_{k,Q}\sigma_{ik,Q} + 1/2\ \mu_{i,Q}^2\bar{\sigma}_{k,Q}^2 + 1/2\ \mu_{k,Q}^2\sigma_{i,Q}^2 - \frac{\bar{\mu}_{i,Q}\,\bar{\mu}_{k,Q}}{2\sigma_{i,Q}\sigma_{k,Q}}\left(\sigma_{ik,Q}^2 + \sigma_{i,Q}^2\sigma_{k,Q}^2\right)\Big] \tag{6}$$

where

N_Q = sample size for overall period Q.

$\sigma_{ik,Q}$ = Covariance between mean return premiums of portfolios i and k overall period Q.

For any pair of portfolios, the appropriate test is to determine whether the difference in the transformed Sharpe measures, $SH_{ik,Q}$, is statistically equal to zero. The above relations lead to the following Transformed Sharpe test statistics.

$$Z_{\sigma_{im,Q}} = \frac{SH_{im,Q}}{\sqrt{\gamma_Q}}$$

In this study, the transformed Sharpe measure is dedicated for comparisons between fund categories and benchmarks, not between individual funds.

5.3 Empirical Results: Comparison of Islamic Versus Conventional Funds

The Sharpe measure is computed for each fund (or fund category) using the mean return and the standard deviation of the fund (or fund category), and the mean return of the risk-free asset that corresponds to the same time period. For each fund and fund category, one Sharpe ratio is calculated for the relevant Islamic Index and another for the S&P 500, using the mean return and standard deviation of the index and the mean return of the risk-free asset that correspond to the same time period.

Table 1 lists the results of the fund categories' Sharpe ratios. The Sharpe ratio represents the portfolio excess return per unit of total risk. The higher this ratio, the better is the fund's performance. The Sharpe ratio of the Emerging markets funds is the highest, followed by the Emerging markets-South Africa funds, and the American funds, all of which have positive ratios. Then come respectively the European, the Technology, the Malaysian, the Global and the Asian fund categories, all having negative Sharpe ratios. When comparing each fund category's Sharpe ratio to its relevant Islamic indices, four of the eight categories perform better than the market; these are respectively from the best performing, the Emerging markets, European, American, and the Malaysian fund categories. Compared to the S&P 500, also four categories are performing better than the index, but they are respectively from the best performing, the Emerging markets, Technology, Emerging markets – South Africa, and the American fund categories. Overall, these results are mixed; yet, the Emerging markets category is the best performer compared to its two benchmarks, and the Asian fund category is consistently the

[Insert Table 1 about here]

worst performer. For the overall sample, the calculated Sharpe ratio is lower than that of both market benchmarks.

Table 1 also provides the number (No.) and the percentage (percent) of funds within each category and across categories, which have a greater (or lower) Sharpe ratio than their relative Islamic benchmarks. Over the same period, 29 funds (63 percent) of the total 46 studied funds outperform their relevant Islamic index. Of the 12 funds (26 percent) outperforming the S&P 500, eleven funds beat simultaneously the two indices. The highest percentage of funds performing better than their relevant Islamic index is for the Emerging markets category with 100 percent, and the lowest is for the Asian category with 25 percent. When compared to the S&P 500, all the funds in the Emerging markets and the Technology categories perform better than the index, while all of the funds in the Asian category are poor performer.

Table 2 lists the results of the Treynor ratios per fund category. The Treynor ratio represents the portfolio excess return per unit of systematic risk (beta), and the higher it is the better is the performance. Based on both the relevant Islamic Index and the S&P 500 Index , the Treynor ratio of the Emerging markets-South Africa funds is the highest, followed by the Emerging markets funds and the American funds, all three having positive ratios. When comparing each fund category's Treynor ratio to that of the fund category's relevant Islamic indices, four of the eight categories are performing better than the market. These are -from the best performing- the Emerging markets, American, European, and Emerging - South Africa fund categories. Compared to the Treynor ratios of the S&P 500, also four categories are performing better than the index, the Emerging markets, Emerging markets – South Africa, Technology, and the American fund categories. Overall, the Emerging markets category is the best performer compared to its two benchmarks, and the Asian and Malaysian categories are the worst

[Insert Table 2 about here]

performer. Finally, looking at the overall sample, the calculated Treynor ratio is lower than that of both market benchmarks.

Table 2 also shows that over the same period, 13 funds (28 percent) of the overall studied 46 funds outperform their relevant Islamic index, while only 11 funds (24 percent) outperform the S&P 500, nine of which are common between the two groups. The highest percentage of funds performing better than the Islamic index is for the Emerging markets category with 100 percent and the lowest is for the Asian and Technology categories with none of their funds performing better than the index. When compared to the S&P 500, all the funds in the Emerging markets and the Technology categories perform better than the index, while all of the funds in the Asian and European categories are under-performing. Overall, Treynor measures results show weaker Islamic Funds performance compared to Sharpe measures results.

Jensen alphas are calculated and analyzed, and their relative significances are checked. Table 3 lists the results of the fund categories' Jensen measures. Although about 50 percent of the Jensen alphas are positive, none is statistically significant, regardless of whether the specific Islamic benchmark or the conventional S&P benchmark is used. Overall, the Emerging markets category is the best performing compared to its two benchmarks, and the Asian category is the worst performing. Looking at the overall sample, the calculated Jensen alphas are negative based on both of the two market benchmarks, though statistically insignificant.

Table 3 also reports the following results. Thirteen funds (28 percent) of the overall studied 46 funds have positive, but insignificant, alphas. Of the remaining 33 funds (72 percent) that have negative alphas, only one fund (3 percent) has a significant alpha at the 5 percent level. When using the S&P 500, 11 funds (24 percent) of the overall studied 46 funds have positive alphas, one of which being significant at the 5 percent level. Of the remaining 35 funds (76%)

[Insert Table 3 about here]

that have negative alphas, only two funds (6 percent) have significant alpha at the 5 percent level. When using the S&P 500, all the funds in the Emerging markets and the technology categories have positive alphas, while all of the funds in the Asian and European categories had negative alphas.

Next, two sets of Fama measure are calculated based on each of the relevant Islamic index and the S&P 500. Table 4 lists the results of the Fama measures per fund category. The overall return is the mean of monthly average returns of individual funds within a fund category. Obviously, whatever is the benchmark used, the overall return does not change for the same group. The results show that the Emerging markets-South Africa category is the best performer given its highest return on overall performance, followed by the Emerging markets fund and the American fund.

Ranked according to net selectivity measure only, and using the relevant Islamic Index as the benchmark, Table 4 shows that the Emerging markets category comes first, followed by the European, the American and the Malaysian funds, all four with positive returns on net selectivity, implying that they perform above the market line. Based on the S&P 500, first comes the Technology category, followed by the Emerging markets, Emerging markets-South Africa, and the American categories, all four with positive returns on net selectivity.

When testing the return on the fund's risk, which is the return premium when the fund is fully diversified, against the relevant Islamic Index, the Emerging markets-South Africa category has the only positive value, implying that it earns the highest reward for bearing risk. When compared to the S&P 500 Index, the American funds category scores the highest risk-adjusted return, followed by the Global, Asian, European, Emerging markets-South Africa and the Malaysian categories, all having positive return on the fund's risk.

[Insert Table 4 about here]

Concerning the required return on a portfolio for not being totally diversified, the Emerging markets-South Africa category has the strongest performance followed by the American funds category, when compared to the relevant Islamic Index, suggesting that these two categories are the least diversified. When the S&P 500 is used, the Malaysian category becomes the least diversified, followed by the Emerging markets-South Africa, Asian, European, Global, and the American categories, all having positive award for their lack of diversification.

Table 5 is similar to Table 4; however it reports the results of the relative percentages out of the overall performance returns, related to all the funds in each fund category. In other words, the return premium on full diversification (or return on lack of diversification, or return on net selectivity) is calculated by averaging the return premiums on full diversification (or return on lack of diversification, or return on net selectivity) of all the funds in each of the eight fund categories and the overall sample. Here, the overall return is the mean of individual mean returns of funds in a fund category. It can be noted that for the overall sample, and based on the relevant Islamic index, that the return on net selectivity, although positive, is not enough to offset returns from full diversification and lack of diversification. Based on the S&P 500, all the returns of the overall sample are negative. When using the S&P 500 Index, the negative overall performance is mainly pertained to the return on full diversification (56 percent), while the remaining (44 percent) are driven equally by the return for lack of diversification (22 percent) and the return on net selectivity (22 percent).

The Transformed Sharpe measure uses the mean and standard deviation of monthly return premiums for each fund category and the two market benchmarks, the relevant Islamic indices and the S&P 500 Index, and the covariance between the fund category's monthly return premiums and those of each benchmark in the computation. This measure is used to test the

[Insert Table 5 about here]

significance of the difference in performance between a fund category and its market benchmark.

Based on the whole study period which extends from January 1, 1997 till August 31, 2002, Table 6 – Panel A presents the results of the Transformed Sharpe measure. When compared to the relevant Islamic index, four out of the eight categories outperform their benchmark with positive Transformed Sharpe difference that is significant at the 5 percent level. These are: the Emerging markets category, followed by the European, American, European and Malaysian fund categories. Of the remaining four categories, only the result of the Asian category is statistically insignificant. When compared to the S&P 500, also four (the Emerging markets category, followed by the Technology category, Emerging markets-South Africa and American categories) out of the eight categories outperform their benchmark with positive Transformed Sharpe difference at the 5 percent significance level. The other four categories all have negative Transformed Sharpe differences. The overall sample, however, shows a negative significant performance vis-à-vis the two benchmarks.

Next, the results of each sub-period are presented separately. Table 6, Panel B lists the results of the first half of the overall study period, i.e. from January 1, 1997 till October 31, 1999. It can be noted that compared to their relevant Islamic index, only one (the Emerging markets-South Africa category) out of the eight categories outperform the benchmark with positive and statistically significant Transformed Sharpe difference. The remaining seven categories have negative Transformed Sharpe difference, all of which are statistically significant except the Asian and Emerging markets categories. When compared to the S&P 500, the Technology fund category is the only one out of the eight categories that outperforms the benchmark and the difference is significant. As for the overall sample, our results show a

[Insert Table 6 about here]

negative insignificant performance vis-à-vis the two benchmarks. Obviously the results of the first sub-period differ from those of the entire sampling period presented in Panel A of the same table.

Table 6 – Panel C lists the results of the Transformed Sharpe measures for the second half of the overall study period, i.e. from November 1, 1999 till August 31, 2002. Within this period, it can be noted that compared to their relevant Islamic index, 6 out of the 8 categories outperform their benchmark with positive Transformed Sharpe difference that is significant at the 5 percent level, except for the Emerging markets whose results are not significant. When compared to the S&P 500, 7 out of the 8 categories outperform their benchmark with positive Transformed Sharpe difference, all statistically significant except for the Emerging markets whose results are not significant. The best performer is the Emerging markets category, followed by the Emerging markets-South Africa, Technology, Malaysian, European, American, and the Global categories. The Asian category is the only one with significantly negative Transformed Sharpe differences. As for the overall sample, it displays a positive significant performance vis-à-vis the two benchmarks. Hence, in general, it appears that Islamic mutual funds have showed strong performance during the recessionary sub-period.

Finally, for each fund and fund category, a One-way ANOVA test of means is conducted using the monthly returns of the fund or fund category, and the monthly returns of the relevant Islamic Index and those of the S&P 500 measured during the overall study period from January 1, 1997 till August 31, 2002. The one-way ANOVA test of means reveals also that there is not any statistically significant difference among the performance of any of the eight Islamic fund categories versus all six Islamic indices as well as the S&P 500 Index, at both the 5 percent and 10 percent levels of significance.

Our findings suggest that the behavior of Islamic mutual funds does not differ from that of other conventional funds, with some *Sharia*-compliant mutual funds over-performing their benchmarks and others under-performing them. Another major observation is the strong performance of Islamic mutual funds compared to both used benchmarks during the recession period. One possible explanation of this pattern is that these funds performance is improving with time, as fund managers are gaining more experience and better sense of the market.

6. MARKETING AND DISTRIBUTION OF ISLAMIC MUTUAL FUNDS

Islamic-based mutual funds offer Muslim investors the twin benefits of mutual fund's investment and compliance with Islamic guidelines. The acceptability of common stock screening guidelines by the vast majority of Sharia scholars has not translated into a rush for Islamic funds. Yet, one reason is that Islamic funds have not fared well in marketing and differentiating themselves from their conventional counterparts. More, some Muslim investors fear that there remain some haram (forbidden by Sharia) elements in them. They prefer to place their money in Islamic banks and institutions that 'truly' invest in acceptable products offered by Islamic companies in Muslim countries. Such products include Ijarah (Leasing), Istina'a (Working Capital Financing, Construction, etc), Murabaha (Trade Finance), and Mudaraba (Equities, Real Estate, Commodities).

According to an analysis made by Failaka Inc. (2002), the 15 most successful funds were those that have solid retail distribution channels, such as National Commercial Bank and Al-Rajhi Bank in Saudi Arabia and Permal Asset Management based in New York. Further analysis of successful funds shows that they charge low or no up-front sales charge (load), their annual management fees are around the industry average, and their minimum investment thresholds are low enough to attract the retail investor. The average fund size of this group is USD $108.2

million (median =USD $53.4 million), with the largest fund being Al-Ahli Global Trading of NCB (USD $503 M). On the other hand, of the bottom 15 funds in terms of assets, three have minimum investment thresholds over USD $25,000. Nine charge an up-front load, six of which are 5 percent or more. Six of these funds have annual management fees of 2 percent or more. The average funds size of this group is USD $4.4 million (median = USD $5.0 million).

Another possible implication is that Islamic mutual funds might be a good equity hedging investment during market downturns.

7. SUMMARY AND CONCLUSIONS

This study examines the performance of Islamic mutual funds in order to verify whether the application of the Islamic investment guidelines in asset allocation and portfolio selection has had downside effect on investors' wealth in terms of risk-adjusted returns relative to the market benchmark. The results are somewhat consistent across the different used measures and benchmarks. Over the whole study period, the Emerging markets fund category shows the best performance among all sampled eight Islamic mutual funds categories, and the Asian fund category being the worst performer. Within the top-performing categories, the American and the Emerging markets-South Africa fund categories follow respectively the Emerging markets category; all three outperforming simultaneously their relevant Islamic index and the S&P 500. In the middle, the European category outperform its relevant Islamic index (not the S&P 500), while the Technology category outperforms the S&P 500 (not its relevant Islamic index). At the bottom, the Global fund category ranked in general better than the Malaysian category.

With regard to the overall sample of 46 Islamic mutual funds, the total number of over-performing funds ranges between 29 funds (63 percent of the sample) and 11 funds (24 percent), depending on the used performance measure and market benchmark. In terms of fund category, four of the eight fund categories outperform their benchmarks regardless of what performance measure was used. Moreover, our ANOVA statistical test shows that no statistically significant difference exists in the performance of the funds compared to all used indices. Therefore, the main conclusion of this study is that the behavior of Islamic mutual funds does not differ from that of other conventional funds, with some *Sharia* compliant mutual funds over-performing their benchmarks and others under-performing them.

Another interesting finding is observed when studying the performance of the funds over two successive periods within the overall study period. The first witnessed a booming equity market, while the second was a declining market. The results of the Transformed Sharpe measure showed that the performance of the Islamic mutual funds compared to both used benchmarks during the second period dominated by recession is better than during the first booming sub-period. This implies that the performance of these funds is improving with time, as fund managers are gaining more experience and sense of the market. Another implication from this result is that Islamic mutual funds might be a good hedging investment for any equity investor, if used to hedge against market downturns and recessions.

In general, the results suggest that there is not any statistically significant risk-adjusted abnormal reward or penalty associated with investing in *Sharia* compliant mutual funds, and thus with following one's belief in financial investment. Therefore, conventional investors can consider Islamic mutual funds in their portfolio collection, especially during slow market periods. Yet, the onus remains on the investor to always screen out various candidate mutual fund according to its performance regardless of whether the fund is a conventional one, or Islamic, or ethical, etc.

Several limitations are encountered during this study given the age of the funds studied. The small size sample of 46 funds was unavoidable due to limited data availability and the two-years of data inclusion constraint. Also, the 68 months sampling period used in this study is the most appropriate as it allowed us to observe returns over two distinctive market cycles. However, longer historical performance data in the future may lead to more robust and conclusive results. Another limitation is that due to the young age of Islamic funds, the newly added categories, namely the balanced or secured funds and the Islamic bonds funds, are not represented in the study as none had more than two-years of data. Adding these funds in future studies will certainly draw a different picture of the industry especially due to their relatively less risky nature compared to funds in the other sampled categories.

The above limitations could be avoided in the future when more historical performance data is available on the Islamic mutual funds. A matched-pair analysis of performance could be carried out between Islamic mutual funds and conventional ones (ethical and non-ethical). The matching may be done on the basis of size, age, country, and universe of investment, among others.

Therefore, the major conclusion of this paper is that conventional investors can consider Islamic mutual funds in their portfolio collection, especially during slow market periods; yet, the onus remains on the investor to screen out various candidate mutual funds according to their performance regardless of whether the fund is a conventional one, or Islamic, or ethical, etc.

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Table 1. Results of the Sharpe Ratios (by Fund Category) Measures Comparison

Fund Category	No. of Funds	Sharpe Ratio (Fund Category)	Sharpe Ratio (Relevant Islamic Index)	Sharpe Ratio (S&P 500)	Funds vs. Relevant Islamic Index				Funds vs. S&P500			
					$S_{fund} > S_{index}$		$S_{fund} < S_{index}$		$S_{fund} > S_{index}$		$S_{fund} < S_{index}$	
					No.	%	No.	%	No.	%	No.	%
Global	11	-0.1130	-0.0402	0.0156	6	54.55	5	45.45	1	9.09	10	90.91
American	7	0.0214	-0.0014	0.0156	4	57.14	3	42.86	2	28.57	5	71.43
European	4	-0.0278	-0.0585	0.0156	3	75.00	1	25.00	1	25.00	3	75.00
Asian	4	-0.2506	-0.0932	0.0156	1	25.00	3	75.00	0	0.00	4	100.00
Malaysian	14	-0.0860	-0.0932	0.0156	11	78.57	3	21.43	3	21.43	11	78.57
Emerging	2	0.0323	-0.0906	-0.0642	2	100.00	0	0.00	2	100.00	0	0.00
Emerging – South Africa	2	0.0322	0.0395	0.0156	1	50.00	1	50.00	1	50.00	1	50.00
Technology	2	-0.0510	-0.0183	-0.1134	1	50.00	1	50.00	2	100.00	0	0.00
Overall	46	-0.1346	-0.0402	0.0156	29	63.04	17	36.96	12	26.09	34	73.91
Category	8				4	50.00	4	50.00	4	50.00	4	50.00

The Sharpe measure (RVAR) measures the risk premium return earned per unit of total risk of a portfolio. This table lists the names of the 8 fund categories in which the 46 studied Islamic mutual funds are classified, the corresponding number of funds in each category, the Sharpe ratio calculated for each fund category, the Sharpe ratio of each fund category's relevant Islamic index, and the Sharpe ratio of the S&P 500 over the same time period, the number (No.) and the percentage (percent) of funds in each category whose Sharpe ratio is either higher or lower than that of the fund's relevant Islamic index, and also the same but using the S&P 500 as market benchmark. The time period may vary depending on the data availability for each fund category, all time periods being within the general study period that extends form January 1, 1997 till August 31, 2002. The same is also calculated for the overall sample, viewed as a portfolio that includes all the 46 studied Islamic mutual funds.

Table 2. Results of the Treynor Ratios & Measures Comparison (by Fund Category)

Fund Category	No. of Funds	Based on the Relevant Islamic Index			Based on the S&P 500			Funds vs Relevant Islamic Index				Funds vs S&P500			
		Beta (fund)	Treynor Ratio (fund)	Treynor Ratio (index)	Beta (fund)	Treynor Ratio (fund)	Treynor Ratio (index)	$T_{fund} > T_{index}$		$T_{fund} > T_{index}$		$T_{fund} < T_{index}$		$T_{fund} < T_{index}$	
								No.	%	No.	%	No.	%	No.	%
Global	11	0.8352	-0.0067	-0.0021	0.8010	-0.0070	0.0008	1	9.09	10	90.91	1	9.09	10	90.91
American	7	0.7528	0.0014	-0.0001	0.8997	0.0012	0.0008	4	57.14	3	42.86	2	28.57	5	71.43
European	4	0.8285	-0.0014	-0.0028	0.6140	-0.0020	0.0008	2	50.00	2	50.00	0	0.00	4	100.00
Asian	4	0.8638	-0.0206	-0.0058	0.7518	-0.0237	0.0008	0	0.00	4	100.00	0	0.00	4	100.00
Malaysian	14	0.3803	-0.0234	-0.0058	0.4027	-0.0221	0.0008	3	21.43	11	78.57	3	21.43	11	78.57
Emerging	2	0.6267	0.0031	-0.0051	0.6841	0.0028	-0.0034	2	100.00	0	0.00	2	100.00	0	0.00
Emerging – South Africa	2	0.4485	0.0050	0.0040	0.4294	0.0053	0.0008	1	50.00	1	50.00	1	50.00	1	50.00
Technology	2	0.6215	-0.0087	-0.0025	1.3594	-0.0040	-0.0061	0	0.00	2	100.00	2	100.00	0	0.00
Overall	46	0.7160	-0.0115	-0.0021	0.6547	-0.0125	0.0008	13	28.26	33	71.74	11	23.91	35	76.09
By Category	8							4	50.00	4	50.00	4	50.00	4	50.00

The Treynor measure (RVOI) measures the risk premium return earned per unit of systematic (or non-diversifiable) risk of a portfolio. The table lists the names of the 8 fund categories in which the 46 studied Islamic mutual funds are classified, the corresponding number of funds in each category, the Beta coefficient of each fund category and its Treynor ratio based on the fund category's relevant Islamic Index, the Treynor ratio of the fund category's relevant Islamic Index over the same time period, the number (No.) and the percentage (percent) of funds in each category whose Treynor ratio is either higher or lower than that of the fund's relevant Islamic index, and also the same but using the S&P 500 as market benchmark. The same is also listed but based on the S&P 500. The time period may vary depending on the data availability for each fund category, all time periods lying within the general study period that extends form January 1, 1997 till August 31, 2002. The same is also calculated for the overall sample, viewed as a portfolio that includes all the 46 studied Islamic mutual funds.

Table 3 – Results of the Jensen Measures

Fund Category	No. of Funds	Based on the Relevant Islamic Index		Based on the S&P 500			Based on Relevant Islamic Index				Based on S&P500			
							Alpha > 0		Alpha < 0		Alpha > 0		Alpha < 0	
		Jensen Alpha (fund)	P-Value	Jensen Alpha (fund)	P-Value		Total	Sig.	Total	Sig.	Total	Sig.	Total	Sig.
						No.	1	0	10	1	1	0	10	1
Global	11	-0.0039	0.1633	-0.0065**	0.0640	%	9.09	0.00	90.91	10.00	9.09	0.00	90.91	10.00
						No.	4	0	3	0	2	0	5	0
American	7	0.0013	0.5859	0.0003	0.8995	%	57.14	0.00	42.86	0.00	28.57	0.00	71.43	0.00
						No.	2	0	2	0	0	0	4	0
European	4	0.0011	0.5864	-0.0018	0.6157	%	50.00	0.00	50.00	0.00	0.00	0.00	100.00	0.00
						No.	0	0	4	0	0	0	4	0
Asian	4	-0.0139*	0.0256	-0.0202*	0.0091	%	0.00	0.00	100.00	0.00	0.00	0.00	100.00	0.00
						No.	3	0	11	1	3	0	11	1
Malaysian	14	-0.0113	0.3709	-0.0141	0.2653	%	21.43	0.00	78.57	9.09	21.43	0.00	78.57	9.09
						No.	2	0	0	0	2	0	0	0
Emerging	2	0.0042	0.5579	0.0033	0.6391	%	100.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Emerging –						No.	1	0	1	0	1	1	1	0
South Africa	2	0.0005	0.9150	0.0000	0.9990	%	50.00	0.00	50.00	0.00	50.00	100.00	50.00	0.00
						No.	0	0	2	0	2	0	0	0
Technology	2	-0.0040	0.6803	-0.0007	0.9485	%	0.00	0.00	100.00	0.00	100.00	0.00	0.00	0.00
						No.	13	0	33	2	11	1	35	2
Overall	46	-0.0075	0.2037	-0.0098	0.1235	%	28.26	0.00	71.74	6.06	23.91	9.09	76.09	5.71
By Category	8					No.	4	0	4	1	2	0	6	1
						%	50.00	0.00	50.00	25.00	25.00	0.00	75.00	16.67

* Significant alpha value at a 5 percent level of significance, and ** Significant alpha value at a 10 percent level of significance

The Jensen alpha measures how much the realized return on a portfolio differs from its required return, based on the systematic (or non-diversifiable) risk of the portfolio. In addition, the significance of the alpha value is assessed by comparing its regression p-value to an adopted level of significance. The table lists the names of the 8 fund categories in which the 46 studied Islamic mutual funds are classified, the corresponding number of funds in each category, the Jensen alpha calculated for each fund category based on the fund category's relevant Islamic Index, the p-value corresponding to the measured alpha, , the (Total) number (No.) and the percentage (percent) of funds in each category whose alpha is either positive or negative, and within these funds the number (No.) and the percentage (percent) of funds that are significant (Sig.) at 5 percent level.. The same is also calculated based on the S&P 500 over the same time period. The time period may vary depending on the data availability for each fund category, all time periods being within the general study period that extends form January 1, 1997 till August 31, 2002. The same is also calculated for the overall sample, viewed as a portfolio that includes all the 46 studied Islamic mutual funds. The p-values are compared to a 5 percent level of significance.

Table 4
Results of the Fama Measures (by Fund Category)

Fund Category	No. of Funds	Mean of Fund Returns	Mean of Risk-Free Returns	Overall Returns	Based on the Relevant Islamic Index			Based on the S&P 500		
					Return Premium when Fully Diversified	Reward for Lack of Diversification	Return on Net Selectivity	Return Premium when Fully Diversified	Reward for Lack of Diversification	Return on Net Selectivity
Global	11	-0.0020	0.0036	-0.0056	-0.0018	-0.0002	-0.0036	0.0006	0.0001	-0.0064
American	7	0.0047	0.0036	0.0011	-0.0001	0.0000	0.0011	0.0007	0.0001	0.0003
European	4	0.0025	0.0036	-0.0012	-0.0023	-0.0002	0.0013	0.0005	0.0002	-0.0019
Asian	4	-0.0142	0.0036	-0.0178	-0.0050	-0.0016	-0.0112	0.0006	0.0005	-0.0189
Malaysian	14	-0.0052	0.0036	-0.0089	-0.0022	-0.0074	0.0007	0.0003	0.0013	-0.0105
Emerging	2	0.0055	0.0035	0.0019	-0.0032	-0.0023	0.0074	-0.0023	-0.0016	0.0058
Emerging – South Africa	2	0.0059	0.0036	0.0023	0.0018	0.0010	-0.0005	0.0003	0.0007	0.0012
Technology	2	-0.0020	0.0034	-0.0054	-0.0015	-0.0004	-0.0035	-0.0083	-0.0038	0.0066
Overall	46	-0.0046	0.0036	-0.0082	-0.0015	-0.0009	-0.0058	0.0005	0.0004	-0.0092

The Fama measure provides a breakdown of the overall performance of a portfolio into three sources: compensation for full diversification, reward for lack of diversification, and return on net selectivity. The table lists the names of the 8 fund categories in which the 46 studied Islamic mutual funds are classified, the corresponding number of funds in each category, and for each category, the mean of the average monthly returns of the funds in the corresponding category, the overall returns, the return on full diversification, the return on lack of diversification, and the return on net selectivity. The overall return is the mean of average monthly returns of individual funds in each category. All measures are calculated first using the relevant Islamic indices as benchmark, and then using the S&P 500, over the same time period. The time period may vary depending on the data availability for each fund, and the overall sampling period extends form January 1, 1997 till August 31, 2002.

Table 5
Results of the Fama Returns' Percentages out of the Fama Overall Performance Return

Fund Category	No. of Funds	Overall Returns	Based on Relevant Islamic Index			Based on S&P 500		
			Return Premium Fully Diversified	Reward for Lack of Diversification	Return on Net Selectivity	Return Premium Fully Diversified	Reward for Lack of Diversification	Return on Net Selectivity
Global	11	-0.0141	-0.0115	-0.0018	-0.0007	-0.0078	-0.0015	-0.0048
		100.00 %	81.93 %	12.95 %	5.12 %	55.25 %	10.82 %	33.94 %
American	7	-0.0050	-0.0057	-0.0006	0.0013	-0.0051	-0.0005	0.0006
		100.00 %	114.33 %	12.36 %	-26.68 %	101.77 %	9.70 %	-11.48 %
European	4	-0.0062	-0.0063	-0.0027	0.0027	-0.0036	-0.0012	-0.0014
		100.00 %	101.43 %	43.14 %	-44.57 %	58.50 %	19.29 %	22.21 %
Asian	4	-0.0172	-0.0099	-0.0032	-0.0041	-0.0053	-0.0041	-0.0078
		100.00 %	57.53 %	18.76 %	23.72 %	30.59 %	23.89 %	45.53 %
Malaysian	14	-0.0053	-0.0018	-0.0070	0.0035	-0.0002	-0.0007	-0.0045
		100.00 %	34.31 %	132.18 %	-66.49 %	2.90 %	12.31 %	84.79 %
Emerging	2	0.0040	-0.0033	-0.0034	0.0107	-0.0024	-0.0027	0.0091
		100.00 %	-82.89 %	-84.56 %	267.46 %	-59.62 %	-66.47 %	226.09 %
Emerging-South Africa	2	0.0061	0.0049	0.0012	0.0000	-0.0011	-0.0014	0.0085
		100.00 %	80.23 %	20.00 %	-0.23 %	-18.52 %	-22.28 %	140.80 %
Technology	2	-0.0080	-0.0069	-0.0023	0.0012	-0.0166	-0.0091	0.0176
		100.00 %	86.05 %	28.79 %	-14.84 %	206.45 %	112.58 %	-219.03 %
Overall	46	-0.0077	-0.0058	-0.0034	0.0015	-0.0043	-0.0017	-0.0017
		100.00 %	75.72 %	43.90 %	-19.62 %	56.29 %	21.66 %	22.05 %

The Fama measure provides a breakdown of the overall performance of a portfolio into three sources: compensation for full diversification, reward for lack of diversification, and return on net selectivity. The table lists the names of the 8 fund categories in which the 46 studied Islamic mutual funds are classified, the corresponding number of funds in each category, and for each category, the overall returns (which is the mean of individual fund mean returns within the category), the return on full diversification, the return on lack of diversification, and the return on net selectivity. Here, the overall return is the mean of individual mean returns of all the funds in a category and for the overall sample. The table also reports the relative percentage of each return out of the overall performance. All measures are calculated first using the relevant Islamic indices as benchmark, and then using the S&P 500, over the same time period. The time period may vary depending on the data availability for each fund, and the overall sampling period extends form January 1, 1997 till August 31, 2002.

Table 6

Panel A: Results of the Transformed Sharpe Measures (Over the Whole Study Period)

Fund Category	No of Funds	Based on Relevant Islamic Index			Based on S&P 500		
		$SH_{ik,q}$	Z-score	Test Result	$SH_{ik,q}$	Z-score	Test Result
Global	11	-0.0002	-1.1939	Reject Ho	-0.0003	-1.7169	Accept Ho
American	7	0.0001	0.4324	Reject Ho	0.0000	0.1147	Reject Ho
European	4	0.0001	0.5737	Reject Ho	-0.0001	-0.4732	Reject Ho
Asian	4	-0.0007	-1.7256	Accept Ho	-0.0010	-2.2503	Accept Ho
Malaysian	14	0.0000	0.0482	Reject Ho	-0.0005	-0.6670	Reject Ho
Emerging	2	0.0004	0.9585	Reject Ho	0.0003	0.7659	Reject Ho
Emerging – South Africa	2	-0.0001	-0.1055	Reject Ho	0.0001	0.1155	Reject Ho
Technology	2	-0.0005	-0.3224	Reject Ho	0.0004	0.5303	Reject Ho
Overall	46	-0.0003	-0.8815	Reject Ho	-0.0005	-1.2871	Reject Ho

Panel B Results of the Transformed Sharpe Measures (Over the First Half of the Study Period)

Fund Category	No of Funds	Based on Relevant Islamic Index			Based on S&P 500		
		$SH_{ik,q}$	Z-score	Test Result	$SH_{ik,q}$	Z-score	Test Result
Global	11	-0.0002	-1.0004	Reject Ho	-0.0004	-1.5253	Reject Ho
American	7	0.0000	-0.0232	Reject Ho	0.0000	-0.0746	Reject Ho
European	4	0.0000	-0.1859	Reject Ho	-0.0002	-0.8901	Reject Ho
Asian	4	-0.0014	-1.8241	Accept Ho	-0.0021	-2.8693	Accept Ho
Malaysian	14	-0.0017	-0.9201	Reject Ho	-0.0030	-2.0814	Accept Ho
Emerging	2	-0.0017	-2.1819	Accept Ho	-0.0017	-2.3714	Accept Ho
Emerging – South Africa	2	0.0001	0.0621	Reject Ho	-0.0012	-1.5213	Reject Ho
Technology	2	-0.0004	-0.3969	Reject Ho	0.0004	0.6601	Reject Ho
Overall	46	-0.0013	-2.1722	Accept Ho	-0.0016	-2.3841	Accept Ho

Panel C: Results of the Transformed Sharpe Measures (Over the Second Half of the Study Period)

Fund Category	No of Funds	Based on Relevant Islamic Index			Based on S&P 500		
		$SH_{ik,q}$	Z-score	Test Result	$SH_{ik,q}$	Z-score	Test Result
Global	11	0.0001	0.2825	Reject Ho	0.0000	0.1129	Reject Ho
American	7	0.0002	1.1404	Reject Ho	0.0002	0.7771	Reject Ho
European	4	0.0003	1.4078	Reject Ho	0.0002	0.6955	Reject Ho
Asian	4	-0.0002	-0.7097	Reject Ho	-0.0002	-0.3799	Reject Ho
Malaysian	14	0.0009	1.2717	Reject Ho	0.0008	1.3513	Reject Ho
Emerging	2	0.0015	3.4772	Accept Ho	0.0013	3.1444	Accept Ho
Emerging – South Africa	2	-0.0001	-0.2454	Reject Ho	0.0010	1.5395	Reject Ho
Technology	2	0.0001	0.0397	Reject Ho	0.0009	1.0601	Reject Ho
Overall	46	0.0004	1.4953	Reject Ho	0.0003	0.9146	Reject Ho