RETURN AND RISK BASED PERFORMANCE OF CONVENTIONAL AND ISLAMIC EQUITY FUNDS: A COMPARATIVE STUDY FROM PAKISTAN

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Abstract

This research aims to examine the risk and return based performance of conventional and Islamic equity funds in Pakistan. The data of Islamic and conventional equity funds were analyzed for the period 2008 to 2014. Both risk adjusted and non-risk adjusted measurement techniques were applied. Beta and standard deviations are used for the measurement of risk. The findings of this research reveal that Islamic equity funds outperform their conventional counterparts. Overall Islamic funds are earning higher return than conventional funds whereas they have less risk than conventional funds and the KSE 100 Index. Both funds were found to have the same level of diversification. This study recommends that Islamic equity funds may be used for the purpose of hedging the risk under adverse economic situations.

Keywords: Islamic Funds, Conventional Funds, Islamic Finance, Risk and Return, Performance Measurement.

JEL Classification: G200

Introduction

Islamic investment is different from conventional investment as receiving and paying of interest is prohibited in the former. A Muslim may invest in the stocks which are included in Islamic mutual fund. These funds are like the conventional mutual funds which allow investors, who have shortage of information, expertise or time to administer their assets to flourish from the return of global equity market. Islamic equity funds were not very popular in 1990s till they were approved by Shari'ah scholars as Islamic investment instruments. There is substantial interest amid Muslim investors

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in the Middle East. In spite of its attractiveness investigation on the "risk and return" characteristics of Islamic equity fund is very limited.

The current study focuses on Islamic equity funds and conventional equity funds. Islamic investment is the investment which is permissible according to the Islamic Sharia Board, i.e. which is close to the "Quran" and "Sunnah" (Zaheer & Hasan, 2001). Shanmugam and Zahari (2009) concluded that Islamic investment should fulfill the five main principles (i) prohibition of interest (ii) it should not be excessively uncertain (iii) it should not be speculative (iv) there should be risk and return sharing and (v) investment should not be in unethical industries, i.e. gambling, alcohol, etc. They exhort the Muslim investors not to make investment in futures, options, derivatives and speculative business. Muslims should follow the main five principles of Islamic finance.
For the Islamic equity fund's investment the criteria[4] are set by the "Dow Jones ShariahSupervisory Board". The following are the criteria for investment in any company that has:

- (Total debt/Twelve months' average market capitalization) <33%
- (Interest bearing securities plus Cash/Twelve months' average market capitalization)<33%
- (Accounts Receivable/Twelve month's average market capitalization)<33%

The rule of 33% seems to be arbitrary because Derig and Marzbans (2008) argued that the rule of 33% is based on the Hadith of Prophet Muhammad (PBUH) that, "any one of you should not donate more than 1/3rd from his wealth as a charity". But the authors do not create any link between the rule and existing Islamic investment selection criteria. He argued that the authors take the Hadith out of context.

The sections of this paper are as follows: (i)the next section will focus on the previous studies (ii)after literature review we will discuss the sample and methodology (iii)then results will be discussed and at the end (iv)we will report our conclusions.

Review of Previous Studies

Abdullah et al. (2007) studied during the period 1992 to 2001 the performance evaluation of Malaysian Islamic mutual trust funds. He compared the Islamic funds with their counterpart conventional funds by taking the sample of 65 equity type of mutual funds and also made a comparison of government and non-government mutual funds. His results show that during the period of financial crisis of 1997 to 1998 Islamic funds are performing better than their counterpart conventional funds and govt. funds are performing better than non-govt. funds. Islamic equity funds are considered less risky as compared to their conventional counterparts and government funds are considered less risky than non-government funds. He stated that government funds have large opport-

[4] Different screening criteria used by the different Islamic index providers, like Dow jones, Standard and Poor's, FTSE, KSE KMI, and MSCI etc. Ashraf (2013) investigated that this different screening criteria has no effect on the performance of Islamic stocks.

unity for diversificationin government issued securities. Islamic funds are less risky during the period of financial crisis and they are performing better. He reported that overall the market is outperforming both Islamic and conventional funds.

Anwar et al. (1997) during the period of 1992 to 1995 analyzed the mutual funds' performance of Malaysia and reported that the performance of Islamic funds is better than the market of Malaysia. He also reported that managers of mutual funds are not updated about the timing of the market. He used the Mazuy and Treynor given model for the purpose of investigation of market timing ability of mutual fund managers.

Shamsher et al. (2000) investigated the performance of 41 mutual funds in Malaysia for the period 1995-99. He studied the performance of passive funds management vs. active fund's portfolio performance management. He reported that the performance of both types of funds is below the market. He also reported that the performances of both passive and active funds are not significantly different. The active funds are not performing better than the passive funds. He reported that active fund managers do not time the market.

Hayat and Kraeussl (2010) make analysis on 145 Islamic equity type mutual funds for the period 2000 to 2009. They took sample from Malaysia, Asia Pacific, Indonesia, America, and Middle East. They used risk- adjusted performance measures for Islamic equity funds; their period also covers the financial crisis of 2008-09. They reported that during the period of financial crisis Islamic fund's performance is better than that of conventional benchmark and Islamic benchmark. Before the crisis the performance of Islamic funds is lower than the conventional benchmark and Islamic benchmark. They also found the risk of Islamic funds less risky than that of the conventional and Islamic benchmarks. But the fund managers are not actively involved in timing the market. Mutual funds are not diversified.Rao et al. (2015) by using risk-adjusted performance measurement technique analyzed that Pakistani mutual funds under performing from it benchmark like all over the world. Gohar et al. (2011) measured the performance of Pakistani mutual funds by dividing the period with 2008 crisis and analyzed that both Islamic and conventional mutual funds are not beating the benchmark. Islamic funds are less risky.

For the measurement of return and risk in this paper we use the technique of risk adjusted performance measures. Jensen[5] (1968) gave a model of CAPM for the measurement of riskadjusted return. Similarly Treynor[6], M2[7], and Information ratios[8] are used for the measurement of performance.

[5] Jensen (1968) proposed his model for the measurement of excess return from risk free return of the portfolio in proportion to the excess return earn by the market.
[6] Sharpe (1966) gave his model for the performance measurement of the portfolio.
[7] Franco Modigliani and Leah Modigliani (1997) proposed their model which shows the performance in percentage form.
[8] Information Ratio showed that are the fund managers having updated market information or not?

Next pattern of this paper is as follow: (i) in the next section we will give the sample and methodology detail. (ii) After methodology section we discuss the results. (iii) Then we will present the conclusion of this paper (iv) limitation and references in the last.

Research Methodology

This research attempts to examine the equity type of mutual funds. We took all the prices data of mutual funds from the website of Mutual Funds Association of Pakistan. There are a total of 178 open- ended mutual funds available on the Mutual Funds Association of Pakistan website of which 36 funds are of equity type. We took16 equity funds as sample whose date of inception falls before or on January 01, 2008. We divided our study into three time periods (i) 2008 to 2009 crisis period and (ii) 2010 to 2014 post- crisis period and (iii) 2008 to 2014 over all period. Rao et al. (2015) and Gohar et al. (2011) measured the performance of Pakistani mutual funds by dividing the period with 2008 crisis. We categorize our sample into two groups (i) Islamic Equity Funds (ii) Conventional Equity Funds. We took the month end prices data of Islamic Equity Funds and conventional equity funds. We adjusted our data for dividends. For risk free rate of return we took annualized data of 3-months Treasury bill then made in monthly basis from the State Bank of Pakistan sources.

The equity and conventional funds' performance is evaluated against the KSE 100 Index Benchmark. We are unable to use the KMI 30 Index[9] as a Benchmark because it started in November 2008 but our study starts from January 01, 2008. The Detail of Benchmarks and the year of inception are given in the table 1 and 2 respectively.

Table 1
Categories of Funds & Benchmarks

Funds	# of Funds	Benchmark
Islamic	7	KSE 100
Conventional	9	KSE 100
Total	**16**	

[9] KMI 30 Index is started by KSE in November 2009.

Table 2
Inception Time Distribution

Year of Inception	Number of Funds
1990-1994	1
1995-1999	2
2000-2004	5
2005-2008	8
Total	**16**

Measurement of performance

- Return Calculation

$$Rp = \frac{NAV_t - NAV_{t-1} + D_t}{NAV_{t-1}}$$

Where:
R_p = Monthly returns of a Portfolio.
NAV_t = Net Asset Value at the end of the month.
$NAV\_(t_1)$ = Net Asset Value at the start of the month.
Dt= Dividend during the month

• Without risk adjusted performance measures

First we compare the performance of mutual funds without risk adjusted measurements. Here we compare the return of Islamic equity funds with the conventional funds and their respective benchmarks.

• Risk Adjusted Measures of Performance

(i) Rewards-to-Variability Ratio (RVAR) or Sharpe Ratio

Sharpe ratio measures relate return to the total risk[10] . It is used in fact with a portfolio in which unsystematic risk has been diversified away.

If R-VAR-P > R-VAR-M this means your portfolio beat the market
If R-VAR-P < R-VAR-M this mean your portfolio underperformed the market

[10] Sharpe considered that the total risk and it used standard deviation as the devisor of the formula.

$$\text{Sharpe measure} = \frac{\overline{R}_i - R_f}{SD_i}$$

Where:
R_p bar = Average return of the portfolio over the period of measurement.
R_f = Risk Free Rate of Return on the Govt. treasury bills.
SD_p = Standard Deviation of the portfolio returns during the period of measurement.

• Rewards-to-Volatility Ratio (RVOL) or Treynor Ratio

This Treynor measure relates returns to systematic risk as calculated by the security beta[11] . It is an appropriative measure for single security as well as for portfolio.

$$\text{Treynor measure} = \frac{\overline{R}_i - R_f}{\beta_i}$$

Where:
β_p = beta of the portfolio during measurement period
If R-VOL-P>R-VOL-M this mean our portfolio beat the market
If R-VOL-P<R-VOL-M this mean our portfolio underperformed the market

• M2 (M2 (Modigliani and Modigliani)
$M2 = R_f + \sigma_m/\sigma_p + (R_p - R_f)$

A newer measure of risk adjusted performance is called M2[12] , named after its developers, Franco Modigliani and Leah Modigliani.

It is return adjusted for volatility that allows returns between portfolios to be compared.

Since it is measured in percentage terms, it is easier to understand than Sharpe measure, which is not intuitive.

M2 equates the volatility of the portfolio whose performance is being measured with the market.

• Jensen's Alpha Return Measure

Michal Jensen (1968) develops this ratio for the measurement of excess return of a fund from it benchmark.
$\alpha_p = [R_p - R_f] - \beta_p[R_m - R_f] + \varepsilon_p$
Where:
$[R_p - R_f]$= Excessive returns from fund "p" at time "t" in Pakistan during measurement period
$[R_m - R_f]$ = Excessive returns from market "m" at time "t"

[11] Treynor used beta for risk proxy the systematic risk only he assumed that all the portfolios are well diversified.
[12] Measures the performance in percentage

• Information Ratio

It is also termed as an "Appraisal Ratio". It is a risk adjusted measure of performance based on the risk and return. It measures the active return that has been earned by a portfolio manager relative to risk. It is measured by;
Information Ratio = ((Portfolio Return-Benchmark return))/(Stdev(Portfolio Return-Benchmark return))

Results and Discussion

Results will be presented based on two different measures of risk. Without risk adjusted monthly return's performance measures.

Table 3
Non-risk adjusted performance measurement Monthly returns and risk

Period	Funds	r_i	σ_i	β_i	r_f
2008-2009	**Islamic**	(0.002589)	0.089081	0.759041	0.015852
	Conventional	(0.009019)	0.096366	0.806030	
	T-Statistic	0.240017	-	(1.754164)*	
	P-Value	0.811397	-	**0.086091**	
	KSE 100 Index	(0.008717)	0.112476	1.000000	
2010-2014	**Islamic**	0.004992	0.052830	0.679947	0.009255
	Conventional	0.006228	0.056265	0.714091	
	T-Statistic	(0.124052)	-	(3.426827)**	
	P-Value	0.901526	-	**0.000844**	
	KSE 100 Index	0.021839	0.047784	1.000000	
2008-2014	**Islamic**	0.002826	0.064767	0.716401	0.011140
	Conventional	0.001872	0.069797	0.766861	
	T-Statistic	0.091837	-	(4.857008)**	
	P-Value	0.926968	-	**0.000010**	
	KSE 100 Index	0.013109	0.072949	1.000000	

R_i shows monthly return on funds. σ_i represents standard deviation of monthly return. β_i showing the beta of the mutual funds. $R_f$is showing the monthly risk free rate of return. T-Statistics the test for the comparison is Islamic and Conventional portfolios. ** mean significance at 5% * mean significance at 10% level of significance. There is no difference between the return of both funds but conventional portfolios are more risky than Islamic portfolios during crisis, after crisis and overall period.

Table 3 presents the performance of mutual fund. During the period (2008 to 2009) the financial crisis Islamic equity funds are performing better than the conventional equity funds and better than market also. Risk in Islamic equity funds is also lower that is p-value is significant at 10%. This mean even in the period of financial crisis risk in Islamic equity markets is lower as compared to the conventional equity markets. Both funds and market are performing under the risk free rate of return due to financial crisis.

In the period (2009 to 2014) of post crisis the performance of Islamic equity markets is slightly lower but insignificant if we measure at 5% level of confidence interval than the conventional counterpart and it is also lower than the market return and both Islamic and conventional are performing below the market. But on the other side if we see the betas during the period after the crisis the beta of Islamic fund is lower than its counterpart the conventional fund and market which is significantly low. This means that after financial crisis the risk in Islamic funds is low. The possible reason for this is that Islamic funds are limited[13] for investing in the risky companies like the companies having more debt are not included in the Islamic equity fund. Market is performing better than the risk free rate. Both Islamic and conventional are under the performance of risk free rate. If we see overall performance of Islamic and conventional funds during the period 2008 to 2014, it can be inferred that both funds are performing below market. If we the beta which is less than one of both funds but the beta of Islamic equity fund is less than that of conventional counterpart this means that overall risk in Islamic funds are less than the conventional funds and market. Market is performing better than the than the risk free rate but both Islamic and conventional are under performing the risk free rate of return.

Table 4
Risk Adjusted Performance Measurement

Period	Funds	Sharpe	Treynor	Jensen's Alfa	M2	Information Ratio
2008-2009	**Islamic**	(0.207013)	(0.024295)	0.000208	0.010037	0.164887
	Conventional	(0.258083)	(0.030855)	(0.005067)	0.002653	(0.007670)
	T-Statistic	1.906506*	0.244904	0.196919	0.275648	15.63169**
	P-Value	**0.062800**	0.808804	0.845713	0.785427	**0.00001**
	KSE 100 Index	(0.218439)	(0.024569)	-	0.001283	-
2010-2014	**Islamic**	(0.080684)	(0.006269)	(0.012819)	0.014037	(0.379647)
	Conventional	(0.053790)	(0.004238)	(0.012013)	0.014721	(0.333742)
	T-Statistic	(2.69914)**	(0.203804)	(0.080927)	(0.068635)	(5.51492)**
	P-Value	**0.009096**	0.839846	0.936513	0.945901	**0.00001**
	KSE 100 Index	0.263366	0.012585	-	0.031839	-
2008-2014	**Islamic**	(0.128359)	(0.011604)	(0.009724)	0.014089	(0.236427)
	Conventional	(0.132779)	(0.012085)	(0.010778)	0.012324	(0.249315)
	T-Statistic	0.425386	0.046259	0.101402	0.169967	1.88590*
	P-Value	0.671169	0.963206	0.919355	0.865296	**0.061055**
	KSE 100 Index	0.026997	0.001969	-	0.023109	-

** indicates significance at 5% and * indicates significance at 10%. During crisis and after crisis Islamic funds are performing better than conventional funds on basis of sharpe measures. During the period of crisis Islamic funds are earning more active return as shown by information ratio. After crisis period conventional funds are earning more active return. Overall at 10% level of significance Islamic funds are earning more active return than conventional funds. But on the basis of Treynor, Jensen's Alfa and M2 there is no significance difference between the performance of Islamic and Convention portfolios.

[13] The diversification of Islamic portfolios is limited because fund managers can select only those stock which fulfill the criteria of Islamic sharia standard board.

Table 4 reported the results of risk adjusted ratios for both Islamic and conventional stocks. During the period of financial crisis (2008 and 2009) if we see the Sharpe ratio all the funds Islamic, conventional and market is going to be negative but Islamic funds are better than the conventional funds significantly at 10% confidence interval. Islamic equity fund are performing better than its counterpart the conventional and market during the period of crisis in the measurement of Treynor, Jensen's Alfa, M2 and Information Ratio. On the basis of information ratio in which we compared the Islamic with conventional funds we that they are outperforming the market. On the basis of Jensen's Alfa the results of Islamic funds are positive and the results of conventional funds and market is going to be the negative.

During the period of post crisis 2010 to 2014, market is outperforming the both Islamic and conventional stocks. Conventional stocks are performing slightly better than the Islamic stocks but insignificantly on the basis of Sharpe, Treynor, Jensen's Alfa, M2 and Information Ratio. This mean after the crisis, investment managers were not able to assess the future market behavior. For the overall period from 2008 to 2014 market is outperforming the both Islamic and conventional stock which are showing negative value during overall period on the basis of Sharpe, Treynor, Jensen's Alfa and Information Ratio. So here if we see the overall period the Islamic stocks are performing better than the conventional stocks slightly but insignificantly if we compare the performance at 5% level of significance.

Table 5
Level of Diversification of Funds

Period	Funds	r	r^2
2008-2009	Islamic	0.958382	0.918495
	Conventional	0.940779	0.885065
	T-Statistic	0.657134	1.248002
	P-Value	0.514391	0.218347
	KSE 100 Index	1.000000	1.000000
2010-2014	Islamic	0.615007	0.378233
	Conventional	0.606460	0.367794
	T-Statistic	0.639832	1.047715
	P-Value	0.523543	0.296918
	KSE 100 Index	1.000000	1.000000
2008-2014	Islamic	0.806902	0.651090
	Conventional	0.801490	0.642387
	T-Statistic	0.520875	0.837771
	P-Value	0.603200	0.403404
	KSE 100 Index	1.000000	1.000000

r means correlation between the return of funds and market. r^2 means co-efficient of determination which is showing the level of diversification. During crisis both funds has high level of diversification and after crisis both funds representing very low level of diversification.

Table 5 shows the results of level of diversification. For the measurement of level of diversification of funds we use the R2. During the period of financial crisis level of diversification of

both Islamic and conventional stocks is better about 0.918 and 0.885 respectively which shows that funds are well diversified during the period of crisis and about 90% representing the market. That's why in without risk adjusted measures market is performing same as the conventional funds but due to less risk involved in Islamic funds these are better performing than the market and conventional funds. So during the period of crisis the Islamic funds and conventional funds are well diversified. During the period 2010 to 2014 level of diversification decreased dramatically for Islamic and conventional funds i.e. r-square .37 and .36 respectively. The reason is that during crisis performance of Islamic funds, conventional funds and market is decreasing that's why the r-square is greater during crisis period. This means that the Islamic and conventional funds are not well diversified these are not representing the market. About 37% change in market is representing the Islamic funds and about 36% change in the market is representing the conventional funds.

However the overall period from 2008 to 2014 shows the value of r-square for Islamic and conventional funds at 0.65 and 0.64 respectively. It means that Islamic funds are representing about 65% of the market and conventional funds are representing 64% of the market. So, the Islamic and conventional funds are about to have same diversification level. Because of overall less level of diversification Islamic funds and conventional funds are not performing same as market. So, the fund managers should diversify their funds better as possible that represent the market about too properly. More the diversification level funds will has more its results will close to the market.

Conclusion

The aim of this study is to examine the performance in term of risk and return of Islamic and conventional equity type funds and compare their results with each other and the market. The study is further divided into the period of crisis , after crisis and overall period. Results show that during the crisis period, Islamic equity funds outperform their conventional counterparts and this result is consistent with the results of Abdullah et al. (2007). During the post crisis period, Islamic funds are outperforming their conventional counterparts on the basis of risk adjusted measures. If we see the risk (beta) during the crisis, Islamic equity funds are seemed to be less risky as compared to conventional equity during period of crisis, post crisis and for the overall period. The diversification level of both Islamic and conventional stocks is the same which is overall about 65%.

This study recommends that Islamic equity funds can be used for the purpose of hedging the risk during the recession periods. This study has important implications for Islamic investment managers and policy makers to promote Islamic equity investments in Pakistan.

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